



AGENDA
CITY OF ORMOND BEACH, FLORIDA
CITY COMMISSION MEETING
February 21, 2023
7:00 PM

Mayor Bill Partington

Zone 1 - Commissioner Lori Tolland

Zone 3 - Commissioner Susan Persis

Zone 2 - Commissioner Travis Sargent

Zone 4 - Commissioner Harold Briley

COMMISSION CHAMBERS
22 South Beach Street, Ormond Beach, FL 32174
Phone: 386-677-0311 Web: www.ormondbeach.org

1. CALL TO ORDER

2. INVOCATION

3. PLEDGE OF ALLEGIANCE

4. PRESENTATIONS AND PROCLAMATIONS

A. Annual Comprehensive Financial Report Presentation Fiscal Year 2021-2022

Staff Contact: *Kelly McGuire, Finance Director, (386) 676-3226*

5. AUDIENCE REMARKS - REGARDING ITEMS NOT ON THE AGENDA

6. APPROVAL OF MINUTES

A. Minutes from City Commission meeting - February 7, 2023

7. CONSENT AGENDA

The action proposed is stated for each item on the Consent Agenda. Unless a City Commissioner removes an item from the Consent Agenda, no discussion on individual items will occur and a single motion will approve all items.

A. **RESOLUTION NO. 2023-48:** A RESOLUTION ACCEPTING PROPOSALS AND AUTHORIZING THE EXECUTION OF MISCELLANEOUS CRAFTS & TRADES CONTRACTS WITH ELEVEN (11) FIRMS FOR FOURTEEN (14) CATEGORIES: CARPENTRY; FIRE ALARM MONITORING; FIRE

SUPPRESSION; HVAC; ROOFING; PAINTING; FENCING; DOCKS/DECKING; ELECTRICAL; OVERHEAD DOORS; ELECTRIC GATES; POOL/SPLASH PAD; EVENT SERVICES; AND AUDIO/VISUAL EQUIPMENT ON AN AS-NEEDED BASIS, UNDER RFP 2022-27; REJECTING ALL OTHER PROPOSALS; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Robert Carolin, Leisure Services Director, (386) 676-3279*

- B. **RESOLUTION NO. 2023-49:** A RESOLUTION ACCEPTING A BID FROM AQUASCAPES, LLC D/B/A THE FISH TANK TO PROVIDE MAINTENANCE SERVICES FOR THE AQUARIUM AT THE ENVIRONMENTAL DISCOVERY CENTER, UNDER BID NO. 2023-02; AUTHORIZING THE EXECUTION OF A CONTRACT AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Robert Carolin, Leisure Services Director, (386) 676-3279*

- C. **RESOLUTION NO. 2023-50:** A RESOLUTION ACCEPTING A PROPOSAL FROM MCKIM & CREED, INC. FOR PROFESSIONAL ENGINEERING SERVICES REGARDING THE LIFT STATION 4P REHABILITATION PROJECT; AUTHORIZING THE EXECUTION OF A WORK AUTHORIZATION AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Alex Schumann, City Engineer, (386) 676-3302*

- D. **RESOLUTION NO. 2023-51:** A RESOLUTION ACCEPTING A PROPOSAL FROM PARKER MYNCHENBERG & ASSOCIATES, INC. FOR PROFESSIONAL ENGINEERING SERVICES REGARDING THE SHADOW CROSSINGS REUSE PUMP FACILITY UPGRADES PROJECT; AUTHORIZING THE EXECUTION OF A WORK AUTHORIZATION AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Alex Schumann, City Engineer, (386) 676-3302*

- E. **RESOLUTION NO. 2023-52:** A RESOLUTION AUTHORIZING THE EXECUTION OF A LEASE AGREEMENT BETWEEN THE CITY AND THE CASEMENTS GUILD FOR THE CITY OF ORMOND BEACH, INC.; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Robert Carolin, Leisure Services Director, (386) 676-3279*

- F. **RESOLUTION NO. 2023-53:** A RESOLUTION APPROVING A RENT ABATEMENT PAID BY GOLDEN EAGLE ASSOCIATES, INC. TO THE CITY FOR THE OPERATION OF THE CONCESSION STAND AT THE ANDY ROMANO BEACHFRONT PARK; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: *Robert Carolin, Leisure Services Director, (386) 676-3279*

- G. **RESOLUTION NO. 2023-54:** A RESOLUTION AUTHORIZING THE

EXECUTION OF A SECOND AMENDMENT TO THE SOLID WASTE, YARD WASTE, RECYCLING AND ROLL-OFF COLLECTION AND DISPOSAL AGREEMENT BETWEEN THE CITY OF ORMOND BEACH AND WASTE PRO OF FLORIDA, INC.; AUTHORIZING A COST OF LIVING INCREASE BASED ON THE CONSUMER PRICE INDEX; AUTHORIZING A PER UNIT INCREASE BASED ON UNUSUAL AND UNANTICIPATED COSTS OF DOING BUSINESS; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Kevin Gray, Deputy Public Works Director, (386) 676-3325

H. Intent to Bid - Pavilion Replacement at SONC

Staff Contact: Alex Schumann, City Engineer, (386) 676-3302

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

I. Intent to Bid - 2022 Water Treatment Plant Improvements

Staff Contact: Bob Preis, Utilities Manager, (386) 676-3305

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

J. Intent to Bid - Pre-treatment Effluent Pumps (PEP) Purchase

Staff Contact: Bob Preis, Utilities Manager, (386) 676-3305

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

K. Auto-Renew Contract - Neptune Water Meters (Ferguson Waterworks Inc.)

Staff Contact: Bob Preis, Utilities Manager, (386) 676-3305

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

L. Travel Approval for the City Manager

Staff Contact: Joyce Shanahan, City Manager, (386) 676-3200

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

M. City Manager Status Report, February 2023

Staff Contact: Joyce Shanahan, City Manager, (386) 676-3200

Disposition: Approve as recommended in the City Manager memorandum dated February 21, 2023.

8. PUBLIC HEARINGS

- A. ORDINANCE NO. 2023-13: AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO**

REZONE TWO PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 13.13 ACRES GENERALLY LOCATED SOUTH OF THE PLATTED ROAD OF PENNSYLVANIA AVENUE AND ALONG THE PLATTED ROADWAYS OF ROSEMARY STREET AND BENTON STREET, WEST OF PLANTATION OAKS BOULEVARD (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL IDENTIFICATION NUMBERS: 3136-01-08-0010 AND 3136-01-09-0001) FROM B-7, HIGHWAY TOURIST COMMERCIAL, TO R-4, SINGLE-FAMILY CLUSTER AND TOWNHOUSE; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- B. **ORDINANCE NO. 2023-15:** AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE ONE PARCEL OF REAL PROPERTY TOTALING 0.30± ACRES LOCATED AT 101 FIESTA DRIVE (VOLUSIA COUNTY PARCEL NUMBER 4220-01-00-0450) FROM R-3, SINGLE-FAMILY MEDIUM DENSITY, TO B-1, PROFESSIONAL OFFICE/HOSPITAL; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- C. **RESOLUTION NO. 2023-55:** A RESOLUTION AUTHORIZING THE EXECUTION AND ISSUANCE OF A DEVELOPMENT ORDER FOR A SPECIAL EXCEPTION TO ALLOW OUTDOOR ACTIVITY TO INCLUDE ITINERANT VENDING AND LIVE OUTDOOR MUSIC DURING RECOGNIZED SPECIAL EVENTS, AND LIVE OUTDOOR MUSIC ON SATURDAYS AND SUNDAYS AT "BOOT HILL SALOON OUTPOST" LOCATED AT 1089 NORTH US HIGHWAY 1, WITHIN THE B-5 (SERVICE COMMERCIAL) ZONING DISTRICT; ESTABLISHING CONDITIONS; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

9. DISCUSSION AND DIRECTION ITEMS

- A. **Impact Fee Update, Including Police and Fire Impact Fees**

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

10. REPORTS, SUGGESTIONS, REQUESTS

11. ADJOURNMENT

NOTICE – Pursuant to Section 286.0105 of the Florida Statutes, if any person decides to appeal any decision made by the City Commission with respect to any matter considered at this public meeting, such person will need a record of the proceedings and for such purpose, such person may need to ensure that a verbatim record of the proceedings is made, including the testimony and evidence upon which the appeal is to be based.

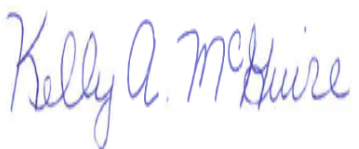


For special accommodations, please notify the City Clerk's Office at least 72 hours in advance.
Phone: 386-677-0311



Help for the hearing impaired is available through the Assistive Listening System. Receivers can be obtained from the City Clerk's Office.

In accordance with the Americans with Disabilities Act (ADA), persons with a disability, such as a vision, hearing or speech impairment, or persons needing other types of assistance, and who wish to attend City Commission meetings or any other board or committee meeting may contact the City Clerk's Office in writing, or may call 386-677-0311 for information regarding available aids and services.

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 4.A
Section:	PRESENTATIONS AND PROCLAMATIONS			
Item Category:	Presentation and Proclamations	Res./Ord. No:		
Strategic Goal:	Governance – Other			
Department :	Finance			
Subject:	Annual Comprehensive Financial Report Presentation Fiscal Year 2021-2022			
Budget Impact:	None.			
Summary:	Presentation of the FY 2021-2022 ACFR.			
Recommended Action:	Staff recommends the FY 2021-2022 Audit Report be approved as presented.			
Staff Contact:	Kelly McGuire, Finance Director, (386) 676-3226			
Approval:				
Kelly McGuire, Finance Director		2/15/2023		
Claire Whitley, Assistant City Manager		2/15/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Kelly McGuire, Finance Director
Date: February 21, 2023
Subject: Annual Comprehensive Financial Report Presentation Fiscal Year 2021-2022

Commission Goal: Governance – Other

Introduction

James Moore and Company will be presenting the annual financial report for Fiscal Year (FY) 2021-2022.

Background

The Annual Comprehensive Financial Report (ACFR) provides a complete set of financial statements that are prepared in conformity with generally accepted accounting principles (GAAP) and represents the financial position of the City and results of operations as of September 30, 2022. The City has received an unqualified opinion from James Moore and Company for the ACFR. The ACFR provides for an overview and narrative of financial activity and trends along with detailed and consolidated financial statements for all City funds. Notes to the financial statements are provided (beginning on page 40 of the report) to enhance the reader's understanding of the report.

Discussion

Financial Summary of Major Funds:

General Fund (includes Economic Development Fund) -

Revenues for the year totaled \$39.1 million as compared to the budget of \$37.8 million. The positive variance is a result of higher than expected Sales Tax and Revenue Sharing. These budget categories were estimated conservatively based on information from the State and economic uncertainties relating to the COVID pandemic.

Expenditures for the year totaled \$39.7 million and were 98% of the final budget amount. The positive variance is largely associated with vacancies primarily in Police

and Public Works.

Total fund balance for the General Fund decreased by \$648,615 and consists of:

Total Fund Balance	\$13,645,944
Less:	
<i>Non-spendable</i>	<i>(1,737,690)</i>
<i>Restricted</i>	<i>(67,211)</i>
<i>Assigned -</i>	
Economic Development Fund	<i>(411,717)</i>
Subsequent Year's Budget	<i>(2,085,427)</i>
Capital Improvements	<i>(360,442)</i>
Revenue Stabilization Fund	<i>(2,685,000)</i>
 Net General Fund Reserves	 \$6,298,457

The above figures represent the combined totals of the General Fund and Economic Development Fund as presented in the ACFR. The Economic Development Fund had \$1,191 in revenue and \$10,903 in expenditures for FY 2021-2022.

The Revenue Stabilization Fund serves as the City's emergency and disaster fund. Tentative commitments of these funds include \$450,000 to provide the City's match for damages related to Hurricane Ian and Hurricane Nicole and \$1.6 million to stabilize solid waste rates.

The General Reserve balance is 16.40% of General fund budget. The policy is to retain fund balance in an amount that is no less than 15% of General Fund net budget. The Government Finance Officers Association recommends a minimum reserve of 2 months or 16.7%.

Downtown Redevelopment Trust Fund - The Redevelopment Trust Fund is a special revenue fund that reports the financial activities of the Ormond Beach Downtown Community Redevelopment Area. At September 30, 2022, the restricted fund balance of the Redevelopment Trust Fund was \$3,470,110, reflecting a net increase of \$1,039,403 for planned capital improvements. The Fund received \$937,806 in tax increment revenues and \$523,942 in transfers from the General Fund in FY 2022. These funds are legally restricted to complete projects identified in the Granada Boulevard Master Plan.

Water and Wastewater Funds - Revenues and transfers in totaled \$22.9 million. Expenses and transfers out totaled \$16.9 million. Expenses shown in the audit report include depreciation, while expenses shown on the Budget Status report exclude depreciation.

Net assets for all Water & Wastewater Funds totaled \$90 million and this was an increase from the prior year largely due to the American Rescue Plan funds received (\$4.5 million). This amount represents the "net worth" of the utility system. Net assets are not a "checkbook" or cash balance. The Statement of Revenues and Expenses, and Changes in Fund Net Assets represents the consolidated results of all operating, debt

service, renewal and replacement, and capital funds of the water and sewer utility system.

Solid Waste Fund - Revenues for the year were \$10 million. Expenses and transfers to the General Fund of franchise fees were \$9.9 million. Net assets increased by \$116,807 to \$231,790.

Budget Impact

None.

Citizen Impact

An annual audit of the City's finances provides assurance that public funds are being spent and recorded in accordance with applicable standards and requirements.

Recommendation

Staff recommends the FY 2021-2022 Audit Report be approved as presented.

Attachments:

Approvals:



Kelly McGuire, Finance Director

Date: February 15, 2023



Claire Whitley, Assistant City Manager

Date: February 15, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

**MINUTES
ORMOND BEACH CITY COMMISSION
HELD AT CITY HALL COMMISSION CHAMBERS**

February 7, 2023	7:00 p.m.	Commission Chambers
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Present: Mayor Bill Partington, Commissioners Travis Sargent, Susan Persis and Harold Briley, City Manager Joyce Shanahan, City Attorney Randy Hayes, Assistant City Manager Claire Whitley and City Clerk Susan Carroll Dauderis.

A G E N D A

- 1. CALL TO ORDER**
- 2. INVOCATION**
- 3. PLEDGE OF ALLEGIANCE**
- 4. AUDIENCE REMARKS - REGARDING ITEMS NOT ON THE AGENDA**
- 5. APPROVAL OF MINUTES**
 - A. Minutes from City Commission meeting - January 24, 2023
- 6. CONSENT AGENDA**

The action proposed is stated for each item on the Consent Agenda. Unless a City Commissioner removes an item from the Consent Agenda, no discussion on individual items will occur and a single motion will approve all items.

 - A. **RESOLUTION NO. 2023-47:** A RESOLUTION AMENDING THE DATES AND TIMES FOR THE HOLDING OF REGULAR MEETINGS OF THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, FOR THE MONTHS OF APRIL AND NOVEMBER 2023; PROVIDING FOR EXCEPTIONS THERETO; AND SETTING FORTH AN EFFECTIVE DATE.
Staff Contact: Susan Dauderis, City Clerk, (386) 676-3340
 - B. **Request for Proposals - Telecommunications Evaluation and Upgrade Services**
Staff Contact: Alex Schumann, City Engineer, (386) 676-3302
Disposition: Approve as recommended in the City Manager memorandum dated February 7, 2023.
 - C. **2023 City of Ormond Beach Legislative Action Agenda**
Staff Contact: Brian Rademacher, Economic Development Director, (386) 676-3266
Disposition: Approve as recommended in the City Manager memorandum dated February 7, 2023.
 - D. **Letter to Volusia County in Support of a Dog-Friendly Beach Area**
Staff Contact: Susan Dauderis, City Clerk, (386) 676-3340
Disposition: Approve as recommended in the City Manager memorandum dated February 7, 2023.
- 7. PUBLIC HEARINGS**
 - A. **ORDINANCE NO. 2023-08:** AN ORDINANCE AMENDING THE FUTURE LAND USE ELEMENT OF THE COMPREHENSIVE PLAN OF THE CITY OF ORMOND BEACH BY AMENDING THE FUTURE LAND USE MAP TO CHANGE THE DESIGNATION OF ONE

PARCEL OF REAL PROPERTY TOTALING 0.30± ACRES LOCATED AT 101 FIESTA DRIVE (VOLUSIA COUNTY PARCEL NUMBER 4220-01-00-0450), FROM "LOW DENSITY RESIDENTIAL" TO "RESIDENTIAL, OFFICE, RETAIL"; PROVIDING FOR A MAP ANNOTATION THAT LIMITS THE FLOOR AREA RATIO TO ZERO AND THE RESIDENTIAL UNITS ALLOWED TO ZERO; PROVIDING FOR CONFLICT; AUTHORIZING TRANSMITTAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- B. **ORDINANCE NO. 2023-11:** AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A FIRST AMENDED DEVELOPMENT ORDER REGARDING ORMOND CENTRAL PLANNED BUSINESS DEVELOPMENT BY APPROVING AND AUTHORIZING A PLANNED BUSINESS DEVELOPMENT TO BE KNOWN AS "ORMOND CENTRAL UNIT 1 SELF STORAGE", LOCATED AT 1 SOUTH OLD KINGS ROAD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-09-0180), 760 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-09-0170), NO ADDRESS, SOUTH OLD KINGS ROAD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-11-0130), AND NO ADDRESS, WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-11-0120); AUTHORIZING A THREE-STORY INDOOR SELF-STORAGE USE WITH A BUILDING OF 106,140 SQUARE FEET AND ASSOCIATED SITE IMPROVEMENTS AS AN ALLOWED USE WITHIN THE ORMOND CENTRAL PROPERTY; AND BY AMENDING THE ALLOWED FLOOR AREA RATIO (FAR) FROM 55,000 SQUARE FEET TO 131,140 SQUARE FEET FOR THE ENTIRE ORMOND CENTRAL PROPERTY UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- C. **ORDINANCE NO. 2023-12:** AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A FIRST AMENDED DEVELOPMENT ORDER FOR THE "STOR IT NORTH ORMOND" PLANNED BUSINESS DEVELOPMENT, LOCATED AT 1405 NORTH U.S. HIGHWAY 1 (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL NUMBER 3136-01-45-0010); AUTHORIZING A THREE-STORY INDOOR SELF-STORAGE USE WITH A BUILDING OF 125,534 SQUARE FEET AND ASSOCIATED SITE IMPROVEMENTS AS AN ALLOWED USE WITHIN THE "STOR IT NORTH ORMOND" PLANNED BUSINESS DEVELOPMENT UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- D. **ORDINANCE NO. 2023-09:** AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE TWO CERTAIN PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 19.62 ACRES LOCATED AT 36 NORTH TYMBER CREEK ROAD

(VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0221) AND 2011 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0243) FROM VOLUSIA COUNTY RC, RESOURCE CORRIDOR, VOLUSIA COUNTY A-2, AGRICULTURE, AND ORMOND BEACH B-8, COMMERCIAL, TO PLANNED BUSINESS DEVELOPMENT; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- E. **ORDINANCE NO. 2023-10:** AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A DEVELOPMENT ORDER FOR A PLANNED BUSINESS DEVELOPMENT TO BE LOCATED AT 36 NORTH TYMBER CREEK ROAD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0221) AND 2011 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0243), TO BE KNOWN AS THE “TYMBER CREEK APARTMENTS”; AUTHORIZING THE DEVELOPMENT OF 300 MULTI-FAMILY RESIDENTIAL UNITS AND ASSOCIATED SITE IMPROVEMENTS UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

- F. **ORDINANCE NO. 2023-13:** AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE TWO PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 13.13 ACRES GENERALLY LOCATED SOUTH OF THE PLATTED ROAD OF PENNSYLVANIA AVENUE AND ALONG THE PLATTED ROADWAYS OF ROSEMARY STREET AND BENTON STREET, WEST OF PLANTATION OAKS BOULEVARD (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL IDENTIFICATION NUMBERS: 3136-01-08-0010 AND 3136-01-09-0001) FROM B-7, HIGHWAY TOURIST COMMERCIAL, TO R-4, SINGLE-FAMILY CLUSTER AND TOWNHOUSE; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Steven Spraker, Planning Director, (386) 676-3341

8. **FIRST READING OF ORDINANCES**

- A. **ORDINANCE NO. 2023-14:** AN ORDINANCE AMENDING SECTION 2-221, LEISURE SERVICES ADVISORY BOARD, OF ARTICLE VI, BOARDS, COMMISSIONS, COMMITTEES AND OTHER AGENCIES, OF CHAPTER 2, ADMINISTRATION, OF THE CODE OF ORDINANCES, BY AMENDING THE COMPOSITION OF THE BOARD; PROVIDING TERMS AND CONDITIONS; AND SETTING FORTH AN EFFECTIVE DATE.

Staff Contact: Susan Dauderis, City Clerk, (386) 676-3340

9. **REPORTS, SUGGESTIONS, REQUESTS**

10. **ADJOURNMENT**

MINUTES

Item #1 – Meeting Call to Order

Mayor Partington called the meeting to order at 7:00 p.m.

Item #2 – Invocation

Pastor Scott Smith, First United Methodist Church of Ormond Beach, provided the invocation and initiated a moment of silence for Ormond Beach Firefighter Ethan Wilson.

Item #3 – Pledge of Allegiance

Mayor Partington led the Pledge of Allegiance.

Item #4 – Audience Remarks

Ms. Debbie Kruck-Forrester, 15 Brookwood Drive, discussed Ormond Strong and their daily bridge walks. She invited the Commission and community to the sixth annual J.J. Martin Military and First Responder Family Appreciation Day on Saturday, February 25, 2023.

Ms. Ellen Orfinger, 1527 Oak Forest Drive, expressed her concerns regarding two young men riding motor bikes recklessly through neighborhoods. She explained several neighbors have the same concerns.

Mr. Charlie Wiles, 67 Hernandez Avenue, discussed beach parking and requested the Commission look into adding more beach front parking.

Mr. Donald Ucal Cunningham, 19 North Yonge Street, discussed the need for electric power, lack of need for more traffic lights in the downtown area and the need for the crusaders weapon system. He expressed concerns regarding his property's lease.

Ms. Sandra Lawson, Small Business Administration, reviewed the disaster totals from Hurricane Ian and Hurricane Nicole in the state and Volusia County. She explained funds have been received and were being dispersed. She discussed the deadlines extensions available for citizens.

Mr. Doyle Lewis, no address provided, expressed concerns regarding the Federal Emergency Management Agency and stated his bicycle and hat were stolen.

Mr. Doug Thomas, 132 River Bluff Drive, requested the Commission look into the building of an Emergency Operations Center (EOC) and community center.

Mayor Partington recognized Boy Scout Troop 403 in attendance and congratulated them on their communication badge.

Item #5 – Approval of Minutes

Mayor Partington advised the minutes of the January 24, 2023, meeting had been sent to the Commission for review and were posted on the city's website for public viewing. He asked for any corrections, additions, or omissions. He stated that hearing no corrections, the minutes would stand approved as presented.

Commissioner Briley moved, seconded by Commissioner Sargent, for approval of the January 24, 2023, City Commission meetings minutes.

The motion passed by voice vote.

Item #6 – Consent Agenda

Mayor Partington advised the actions proposed for the items on the Consent Agenda were so stated on the agenda. He asked if any member of the Commission had questions or wished to discuss any items separately.

Commissioner Persis requested to pull Item 6D.

Commissioner Briley moved, seconded by Commissioner Persis, for approval of the consent agenda absent Item 6D.

Call Vote:	Commissioner Sargent	Yes
	Commissioner Persis	Yes
	Commissioner Briley	Yes
	Mayor Partington	Yes
Carried.		

Item #6D – Letter to Volusia County in Support of a Dog-Friendly Beach Area

Ms. Joyce Shanahan, City Manager, explained there were minor edits to the letter from what was provided in the packet and displayed the wording on a PowerPoint slide.

Mayor Partington requested the first paragraph to read:
“On behalf of the Ormond Beach City Commission this letter is submitted in general support of designating a northern area of Volusia County beaches as dog-friendly.”

Mayor Partington requested the second paragraph to read:
“It is the Commission’s suggestion that the area near the Michael Crotty Bicentennial Park be considered as a dog-friendly beach.”

Commissioner Persis moved, seconded by Commissioner Sargent, for approval of Item 6D with edits to the letter.

Call Vote:	Commissioner Sargent	Yes
	Commissioner Persis	Yes
	Commissioner Briley	Yes
	Mayor Partington	Yes
Carried.		

Comments on the Consent Agenda

There were no comments on the Consent Agenda.

Item #7 – Public Hearings

Mayor Partington opened the Public Hearings.

Mayor Partington announced the applicant for Items 7D, Ordinance No. 2023-09 and 7E, Ordinance No. 2023-10, requested a continuance until the applicant was ready to bring back the items after sufficient legal notice.

Commissioner Briley moved, seconded by Commissioner Sargent, for approval of the continuance on Items 7D and 7E.

Mr. Mark Watts, Cobb Cole, explained there were neighborhood meetings held and a number of revisions they wished to make before bringing the items before the Commission.

Call Vote:	Commissioner Persis	Yes
	Commissioner Briley	Yes
	Commissioner Sargent	Yes
	Mayor Partington	Yes
Carried.		

Item #7A –Small Scale Comprehensive Plan Land Use Map Amendment, 101 Fiesta Drive

City Clerk Susan C. Dauderis read by title only:

ORDINANCE NO. 2023-08
AN ORDINANCE AMENDING THE FUTURE LAND USE ELEMENT OF THE COMPREHENSIVE PLAN OF THE CITY OF ORMOND BEACH BY AMENDING THE FUTURE LAND USE MAP TO CHANGE THE DESIGNATION OF ONE PARCEL OF REAL PROPERTY TOTALING 0.30± ACRES LOCATED AT 101 FIESTA DRIVE (VOLUSIA COUNTY PARCEL NUMBER 4220-01-00-0450), FROM “LOW DENSITY RESIDENTIAL” TO “RESIDENTIAL, OFFICE, RETAIL”; PROVIDING FOR A MAP ANNOTATION THAT LIMITS THE FLOOR AREA RATIO TO ZERO

AND THE RESIDENTIAL UNITS ALLOWED TO ZERO; PROVIDING DIRECTION TO THE CITY’S SITE PLAN REVIEW COMMITTEE; PROVIDING FOR CONFLICT; AUTHORIZING TRANSMITTAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Mr. Paul Holub,1185 West Granada Boulevard, explained the applicant would like to place a vinyl fence on the west end of the property and a six-foot precast masonry wall. He informed the Commission the applicant was able to locate a vendor who could match the existing brick fence at the neighborhood entrance for the east side of the property. He stated the applicant disconnected the lights that were of concern from the last Commission meeting.

Mr. Terry Whimpey, 102 Cuadro Place, stated Mr. Holub answered all his questions and asked when installing the fence, the applicant avoid sprinklers.

Ms. Toni Nurder, 104 Cuadro Place, expressed her concerns the fence and glare from the building. She believed there should be solid materials between all residential and commercial properties.

Mr. Holub stated the vinyl fence would be a commercial grade and discussed the precast masonry wall and neighboring fences.

Commissioner Persis moved, seconded by Commissioner Sargent, for approval of Ordinance No. 2023-08, on second reading, as read by title only.

Commissioner Briley disclosed he met with the neighbors and Mr. Holub. He inquired if it was possible for the vinyl fence to have a decorative stone side; whereby, Mr. Holub stated if there was a commercial grade they could look into it.

Mr. Randy Hayes, City Attorney, reminded the Commission the item was for land use designation not a site plan designation and noted the Commission could offer a recommendation to the Site Plan Review Committee.

Mayor Partington inquired if an amendment was needed; whereby, Randy indicated no amendment was needed.

Call Vote:	Commissioner Briley	Yes
	Commissioner Sargent	Yes
	Commissioner Persis	Yes
Carried.	Mayor Partington	Yes

Item #7B – Issuance of a Development Order, Ormond Central Self-Storage, Planned Business Development Amendment

City Clerk Susan C. Dauderis read by title only:

ORDINANCE NO. 2023-11
AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A FIRST AMENDED DEVELOPMENT ORDER REGARDING ORMOND CENTRAL PLANNED BUSINESS DEVELOPMENT BY APPROVING AND AUTHORIZING A PLANNED BUSINESS DEVELOPMENT TO BE KNOWN AS “ORMOND CENTRAL UNIT 1 SELF STORAGE”, LOCATED AT 1 SOUTH OLD KINGS ROAD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-09-0180), 760 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-09-0170), NO ADDRESS, SOUTH OLD KINGS ROAD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-11-0130), AND NO ADDRESS, WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4241-01-11-0120); AUTHORIZING A THREE-STORY INDOOR SELF-STORAGE USE WITH A BUILDING OF 106,140 SQUARE FEET AND ASSOCIATED SITE IMPROVEMENTS AS AN ALLOWED USE WITHIN THE ORMOND CENTRAL PROPERTY; AND BY AMENDING THE ALLOWED FLOOR AREA RATIO (FAR) FROM 55,000 SQUARE FEET TO 131,140 SQUARE FEET FOR THE ENTIRE ORMOND CENTRAL PROPERTY UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Commissioner Persis moved, seconded by Commissioner Sargent, for approval of Ordinance No. 2023-11, on second reading, as read by title only.

Commissioner Briley complimented the planned landscaping.

Call Vote:	Commissioner Sargent	Yes
	Commissioner Persis	Yes
	Commissioner Briley	Yes
Carried.	Mayor Partington	Yes

Item #7C – Issuance of a Development Order, Stor-It North Ormond, Planned Business Development Amendment

City Clerk Susan C. Dauderis read by title only:

ORDINANCE NO. 2023-12
AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A FIRST AMENDED DEVELOPMENT ORDER FOR THE “STOR IT NORTH ORMOND” PLANNED BUSINESS DEVELOPMENT, LOCATED AT 1405 NORTH U.S. HIGHWAY 1 (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL NUMBER 3136-01-45-0010); AUTHORIZING A THREE-STORY INDOOR SELF-STORAGE USE WITH A BUILDING OF 125,534 SQUARE FEET AND ASSOCIATED SITE IMPROVEMENTS AS AN ALLOWED USE WITHIN THE “STOR IT NORTH ORMOND” PLANNED BUSINESS DEVELOPMENT UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE. **(SECOND READING)**

Commissioner Briley moved, seconded by Commissioner Persis, for approval of Ordinance No. 2023-11, on second reading, as read by title only.

Call Vote:	Commissioner Sargent	Yes
	Commissioner Persis	Yes
	Commissioner Briley	Yes
Carried.	Mayor Partington	Yes

Item #7D – Zoning Map Amendment, Tymber Creek Apartments

ORDINANCE NO. 2023-09
AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE TWO CERTAIN PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 19.62 ACRES LOCATED AT 36 NORTH TYMBER CREEK ROAD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0221) AND 2011 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0243) FROM VOLUSIA COUNTY RC, RESOURCE CORRIDOR, VOLUSIA COUNTY A-2, AGRICULTURE, AND ORMOND BEACH B-8, COMMERCIAL, TO PLANNED BUSINESS DEVELOPMENT; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

Item #7E – Issuance of a Development Order, Tymber Creek Apartments, Planned Business Development

ORDINANCE NO. 2023-10
AN ORDINANCE AUTHORIZING THE EXECUTION AND ISSUANCE OF A DEVELOPMENT ORDER FOR A PLANNED BUSINESS DEVELOPMENT TO BE LOCATED AT 36 NORTH TYMBER CREEK ROAD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0221) AND 2011 WEST GRANADA BOULEVARD (VOLUSIA COUNTY PARCEL NUMBER 4125-00-00-0243), TO BE KNOWN AS THE “TYMBER CREEK APARTMENTS”; AUTHORIZING THE DEVELOPMENT OF 300 MULTI-FAMILY RESIDENTIAL UNITS AND ASSOCIATED SITE

IMPROVEMENTS UNDER CERTAIN CONDITIONS; ESTABLISHING CONDITIONS AND EXPIRATIONS OF APPROVAL; AND SETTING FORTH AN EFFECTIVE DATE.

Item #7F – RidgeHaven West, Zoning Map Amendment

City Clerk Susan C. Dauderis read by title only:

ORDINANCE NO. 2023-13
AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH LAND DEVELOPMENT CODE, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE TWO PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 13.13 ACRES GENERALLY LOCATED SOUTH OF THE PLATTED ROAD OF PENNSYLVANIA AVENUE AND ALONG THE PLATTED ROADWAYS OF ROSEMARY STREET AND BENTON STREET, WEST OF PLANTATION OAKS BOULEVARD (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL IDENTIFICATION NUMBERS: 3136-01-08-0010 AND 3136-01-09-0001) FROM B-7, HIGHWAY TOURIST COMMERCIAL, TO R-4, SINGLE-FAMILY CLUSTER AND TOWNHOUSE; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

Mr. Steven Spraker, Planning Director, explained the item was for a zoning map amendment to be consistent with the land use approved at the January 24, 2023, City Commission.

Commissioner Sargent moved, seconded by Commissioner Persis, for approval of Ordinance No. 2023-13, on first reading, as read by title only.

Call Vote:	Commissioner Persis	Yes
	Commissioner Briley	Yes
	Commissioner Sargent	Yes
	Mayor Partington	Yes
Carried.		

Mayor Partington closed the public hearings.

Item #8 – First Reading of Ordinances

Item #8A – Amendment to Section 2-221 of the Code of Ordinances, Leisure Services Advisory Board

City Clerk Susan C. Dauderis read by title only:

ORDINANCE NO. 2023-14
A RESOLUTION AUTHORIZING THE ACCEPTANCE OF A PUBLIC STORMWATER DRAINAGE, ACCESS, AND MAINTENANCE EASEMENT FROM CASEY EDWARD FORD AND MEGAN MARIE FORD, FOR PROPERTY LOCATED AT 363 PUTNAM AVENUE; PROVIDING FOR RECORDATION; AND SETTING FORTH AN EFFECTIVE DATE.

Mayor Partington stated there were issues with getting a quorum at the meetings due to the size of the Leisure Services Advisory Board (LSAB). He explained one idea discussed was to have five members and alternates. He inquired if alternates were able to participate and vote even if not needed for quorum purposes; whereby, Mr. Hayes stated one option was to reduce the memberships from 13 to seven with two alternates being selected from the four athletic groups already participating on the LSAB.

Commissioner Briley asked if the issue was from the prior year or if it was an ongoing issue; whereby, Ms. Joyce Shanahan, City Manager, explained it was an ongoing issue and was problematic in the prior year.

Mayor Partington inquired if an amendment would be needed for there to be five members with two alternates totaling seven members; whereby, Mr. Hayes explained

with the amendment it would require a rewrite of the ordinance and recommended the item be pulled from the agenda and staff could bring back at a later date.

Mayor Partington inquired if there were any objections to allowing staff to pull the item from agenda.

Item #9 – Reports, Suggestions, Requests

Events

Ms. Shanahan discussed the Strategic Plan Update and Stormwater Master Plan workshops.

Commissioner Sargent discussed the events he attended including Family Art Night and the First Step Shelter Gala.

Commissioner Persis discussed the events she attended including a contest at Pathways Elementary School and the First Step Shelter Gala. She asked for the community to keep the victims of the Syria and Turkey earthquakes in their prayers.

Commissioner Briley complimented the First Step Shelter Gala and discussed adopting the panhandling signage presented at the January 24, 2023 City Commission meeting.

Mayor Partington discussed upcoming events including a ribbon cutting on February 15, 2023 and the Taste of Ormond event. He inquired if the Commission would support Ms. Shanahan reaching out to have the city lobbyist reach out to Speaker of the Florida House of Representatives, Paul Renner, and Florida House of Representatives, Tom Leek, to schedule a meeting with staff and members of the Commission to facilitate a request for funding for design and construction of an Emergency Operations Center (EOC) and west side Community Center.

Commissioner Briley moved, seconded by Commissioner Persis, to provide staff direction to set up the meetings with the Representatives to discuss funding for an EOC and Community Center.

Call Vote:	Commissioner Sargent	Yes
	Commissioner Persis	Yes
	Commissioner Briley	Yes
Carried.	Mayor Partington	Yes

Police Department

Commissioner Sargent discussed a campaign from K9's for Warriors for emotional support dogs at Police Departments across the country and requested staff look into it; whereby, Ms. Shanahan stated staff was already looking into it.

Sidewalks

Commissioner Briley inquired the status on the east side of South Beach Street's sidewalks; whereby, Mr. Shawn Finley, Public Works Director, stated Volusia County needed to repair the seawall before the city could repair the sidewalks.

Item #11 – Adjournment

The meeting was adjourned at 8:14 p.m.

APPROVED: February 21, 2022

BY: _____
Bill Partington, Mayor

ATTEST:

Susan Carroll Dauderis,
City Clerk

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.A
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-48	
Strategic Goal:	Contract Awards - Miscellaneous Crafts & Trades			
Department :	Leisure Services			
Subject:	Contract Awards - Miscellaneous Crafts & Trades			
Budget Impact:	The Facilities Renewal and Replacement Fund FY 2022-2023 Budget includes funds for various Miscellaneous Crafts & Trades projects. Additionally, smaller projects which are done on an as-needed basis are funded through the General Fund Building Maintenance account. It is important to note that larger trades projects (in excess of \$25,000) would not fall under these contracts and would be bid separately.			
Summary:	This agenda item pertains to the awarding of contracts for "Miscellaneous Crafts & Trades Services - As Needed" for a variety of specialized services.			
Recommended Action:	Staff recommends that the contractors listed above be awarded as the new contractors to provide Miscellaneous Crafts and Trades Services for the City of Ormond Beach.			
Staff Contact:	Robert Carolin, Leisure Services Director, (386) 676-3279			
Approval:				
Kelly McGuire, Finance Director		1/18/2023		
Claire Whitley, Assistant City Manager		1/30/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Robert Carolin, Leisure Services Director
Date: February 21, 2023
Subject: Contract Awards - Miscellaneous Crafts & Trades
Commission Goal: Contract Awards - Miscellaneous Crafts & Trades

Introduction

This is a recommendation for the City Commission to authorize the awarding of contracts for "Miscellaneous Crafts & Trades Services - As Needed" for Carpentry, Fire Alarm Monitoring Equipment Services, Fire Suppression Systems, HVAC, Roofing, Fencing, Painting, Docks/Decking, Electrical, Overhead Door Services, Pressure Washing/Power Washing Services, Pool/Splash Pad Maintenance, and Audio/Visual and Theatrical Equipment Servicing.

Background

At the November 1, 2022 City Commission meeting staff notified the City Commission of the intent to advertise RFP #2022-27 with the objective of being able to select one contractor per trade to provide repair, installation and/or renovation services for various buildings and park facilities throughout the City.

Discussion

The City received and opened the proposals for the miscellaneous crafts and trades on December 8, 2022. Fifteen contractors submitted proposals by trade category; three of those contractors submitted a proposal for two different categories. Overall there was a total of 19 different trades associated with RFP #2022-27. Proposals were received as follows:

Carpentry - Ruby Builders, Inc. (only proposal received)
Fire Alarm Monitoring - Village Key and Alarm (only proposal received)
Fire Suppression - Village Key and Alarm (only proposal received)
Plumbing - No Bids Received. A new RFP has been advertised for this service.
HVAC - Flair Service, Inc.(only proposal received)
Flooring - No Bids Received. A new RFP has been advertised for this service.

Roofing - AAT Roofing (only proposal received)
Painting - Southern Painting and Waterproofing (only proposal received)
Fencing - Fence Services d/b/a AAA Fence, (only proposal received)
Docks/Decking - Custom Built Docks (only proposal received)
Electrical - Economy Electric (only proposal received)
Elevator - No Bids Received. A new RFP has been advertised for this service.
Overhead Doors - C & D Industrial Maintenance, LLC (only proposal received)
Electric Gates - Fence Services d/b/a AAA Fence, C & D Industrial Maintenance, LLC
Pest Control - No Bids Received. A new RFP has been advertised for this service.
Pool/Splash Pad - John D. Schofield Jr, (only proposal received)
Event Services - Special Event Services (only proposal received)
Audio/Visual Equipment - Special Events Services (only proposal received)

The proposals came in at varying prices as illustrated on the attached Evaluation Sheets and were evaluated by the three members on the evaluation committee, Bill Rose, Contracts Manager, Mike Demchak, Contracts Manager, and John Fowler, Building Maintenance Supervisor, at the January 10th Evaluation Meeting as shown on the accompanying evaluation documentation. The proposals were evaluated as shown on the attached Scoring Sheets by the three evaluation committee members, based on the evaluation criteria as spelled out in the RFP as follows:

- Contractor's Price 50% - Scoring by the evaluation committee was based on overall pricing which was reflected in their scores.
- Contractor's Licensing & Insurance Requirements 10% - Scoring by the evaluation committee was based on contractor's provision of all required documents pertaining to mandatory licenses and insurance.
- Contractor's References 20% - Scoring by the evaluation committee was based on a list of satisfactory references for at least three similar projects or work of a similar nature.
- Contractor's Years of Experience in Field 20% - Scoring by the evaluation committee was based on contractor's years of experience in their field as provided in their proposal. Based on the highest overall scores, the Evaluation Committee chose the following contractors to be awarded as the new contractors, with contract terms to begin upon expiration of current contracts in February 2018.

The recommended contract awards are as follows:

Carpentry - Ruby Builders, Inc.
Fire Alarm Monitoring - Village Key and Alarm
Fire Suppression - Village Key and Alarm
HVAC - Flair Service, Inc.
Roofing - AAT Roofing
Painting - Southern Painting and Waterproofing
Fencing - Fence Services d/b/a AAA Fence
Docks/Decking - Custom Built Docks
Electrical - Economy Electric
Overhead Doors - C & D Industrial Maintenance, LLC
Electric Gates - Fence Services d/b/a AAA Fence

Pool/Splash Pad - John D. Schofield Jr,
Event Services - Special Event Services
Audio/Visual Equipment - Special Events Services

Budget Impact

The Facilities Renewal and Replacement Fund FY 2022-2023 Budget includes funds for various Miscellaneous Crafts & Trades projects. Additionally, smaller projects which are done on an as-needed basis are funded through the General Fund Building Maintenance account. It is important to note that larger trades projects (in excess of \$25,000) would not fall under these contracts and would be bid separately.

Citizen Impact

In having a miscellaneous crafts and trades services contract in place, the City has the ability to provide much needed repairs and improvements in a timely manner and at a more competitive price, both of which are important to citizens.

Recommendation

Staff recommends that the contractors listed above be awarded as the new contractors to provide Miscellaneous Crafts and Trades Services for the City of Ormond Beach.

Attachments:

1. 23-48 Misc Crafts & Trades (P23-0013G)
2. Exhibit A RFP form
3. Exhibit B Contract form
4. RFP 2022-27 Score summary
5. RFP 2022-27 Recommendation of Award

Approvals:



Kelly McGuire, Finance Director

Date: January 18, 2023



Claire Whitley, Assistant City Manager

Date: January 30, 2023

A handwritten signature in blue ink that reads "Joyce Shanahan". The signature is fluid and cursive, with the first name "Joyce" and last name "Shanahan" clearly distinguishable.

Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-48

A RESOLUTION ACCEPTING PROPOSALS AND AUTHORIZING THE EXECUTION OF MISCELLANEOUS CRAFTS & TRADES CONTRACTS WITH ELEVEN (11) FIRMS FOR FOURTEEN (14) CATEGORIES: CARPENTRY; FIRE ALARM MONITORING; FIRE SUPPRESSION; HVAC; ROOFING; PAINTING; FENCING; DOCKS/DECKING; ELECTRICAL; OVERHEAD DOORS; ELECTRIC GATES; POOL/SPLASH PAD; EVENT SERVICES; AND AUDIO/VISUAL EQUIPMENT ON AN AS-NEEDED BASIS, UNDER RFP 2022-27; REJECTING ALL OTHER PROPOSALS; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, the City advertised a Request for Proposals (RFP No. 2022-27) for carpentry, fire alarm monitoring, fire suppression, HVAC, roofing, painting, fencing, docks/decking, electrical, overhead doors, electric gates, pool/splash pad, event services and audio/visual equipment services relative to various projects throughout the City on an as-needed basis (“the Project”) (*a copy of the form of RFP No. 2022-27 is attached hereto as Exhibit “A” and is incorporated herein by reference*), and

WHEREAS, the City's evaluation committee has reviewed the proposals received and has selected eleven(11) firms to provide the aforescribed professional services based on the evaluation criteria as stated in the RFP, and

WHEREAS, the City Commission concurs with the foregoing recommendations, now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The City Commission hereby approves the generic form of the miscellaneous crafts & trades contract for the aforementioned services relative to various projects throughout the City. *A copy of the form of the contract is attached hereto as Exhibit “B” and is incorporated herein by reference.*

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute contracts for the aforescribed services with the following firms and the associated category of work:

1. Ruby Builders, Inc. (carpentry)
2. Village Key and Alarm, Inc. (fire alarm monitoring)
3. Village Key and Alarm, Inc. (fire suppression)
4. Flair Service, Inc. (HVAC)
5. AAT Roofing, LLC (roofing)
6. Southern Painting & Waterproofing, LLC (painting)
7. Fence Service, Inc. d/b/a AAA Fence (fencing)
8. Custom Built Docks, Inc. (docks/decking)
9. Latour Enterprizes, Inc. d/b/a Economy Electric Company (electrical)
10. C & D Industrial Maintenance, LLC (overhead doors)
11. Fence Service, Inc. d/b/a AAA Fence (electric gates)
12. JD's Atlantic Pool Services, LLC (pool/splash pad)
13. Special Event Services, Inc. (event services)
14. Special Event Services, Inc. (audio visual equipment)

SECTION THREE. All other proposals within a particular category described above relative to the aforescribed Project shall be deemed rejected upon the execution of all contracts with those firms in a particular category as listed in SECTION TWO above under the.

SECTION FOUR. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk



City of Ormond Beach

22 South Beach Street
Ormond Beach, Florida 32174
Telephone (386) 676-3223
Fax (386) 676-3374

REQUEST FOR PROPOSALS

PROPOSER ACKNOWLEDGEMENT FORM

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

RFP TITLE: Miscellaneous Crafts and Trades Services (As Needed)
RFP NUMBER: 2022-27
RFP OPENING DATE & TIME: December 8, 2022 2:00PM
RFP OPENING LOCATION: City Hall Training Room (breezeway)
PRE-SUBMITTAL MEETING: For pest control services only - November 28th, meeting in the Training Room (breezeway) at City Hall, 22 South Beach St., Ormond Beach. At 9:00 AM. Site Visits to follow. Prospective bidders are urged to attend.

Submittals Received After the Above Date and Time Will Not Be Accepted.

PROPOSER'S NAME: _____

PROPOSER'S MAILING ADDRESS: _____

CITY-STATE-ZIP: _____

F.E.I.N.: _____

PHONE NUMBER: _____

FAX NUMBER: _____

If returning as a "No Submittal", please state reason (s): _____

I certify that this Proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a Proposal for the same materials, services, supplies, or equipment, and is in all respects fair and made without collusion or fraud. I agree to abide by all conditions of this RFP and certify that I am authorized to sign this RFP for the Proposer. In submitting a RFP to the City of Ormond Beach, the Proposer offers and agrees that if the Proposal is accepted, the Proposer will convey, assign or transfer to the City of Ormond Beach all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Antitrust laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the City of Ormond Beach. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the Proposer.

X _____
AUTHORIZED SIGNATURE (MANUAL)

NAME (TYPED)

TITLE

DATED

GENERAL CONDITIONS

PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity, may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit Proposals on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

DISCRIMINATION: Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid or proposal on a contract to provide any goods or services to a public entity, may not submit a bid or proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit bid or proposal on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

PUBLIC RECORDS/NON-CONFIDENTIALITY OF BIDS AND/OR PROPOSALS.

The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119.01, F.S., The Public Records Law. Information and materials received by the City of Ormond Beach in connection with all Proposers' response shall be deemed to be public records subject to public inspection upon award, recommendation for award, or 30 days after bid opening, whichever occurs first. Section 119.071, F.S.

DISTRIBUTION OF BIDS AND RFP'S: The City uses the services of DemandStar (www.demandstar.com) to distribute its bids and RFP's on-line on the Internet. If you have received a copy of this RFP from any source other than DemandStar, please be aware that you may not have received the latest version of the RFP or any related addendums.

SUBMISSION OF RESPONSES: The Request for Proposals (RFP) number, title, and opening date shall be clearly displayed on the outside of the sealed envelope (and on the outside of any express shipping package). The delivery of said submittal to the Purchasing Office, City Hall, 22 South Beach Street, Room 101, Ormond Beach FL 32174, on or before the specified opening date and time is solely and strictly the responsibility of the Submitter. Any submittal received by the Purchasing Office after the specified date and time will not be accepted. Submittals must be presented on forms provided by the City. No other forms will be accepted. Responses submitted by telephone, fax or email will not be considered. No Submittal may be

modified after opening. No Submittal may be withdrawn after opening for a period of ninety (90) days unless otherwise specified.

EXECUTION OF SUBMITTAL: Submittals must contain a manual signature of authorized representative in the space(s) provided. Submittals must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by Submitter to any Submittal entry must be initialed. The company name and Federal Employer Identification Number (F.E.I.N.) number shall appear in the space(s) provided.

RFP OPENING: Submittals shall be opened and the name of the submitters shall be read publicly. No discussion of the Submittals will occur at this time.

SUBMITTAL TABULATION: The RFP Tabulation will be posted on Demandstar (www.demandstar.com). Any submitter wishing to receive a paper copy of the tabulation is required to enclose a stamped, self-addressed envelope with their Submittal response.

CLARIFICATION/CORRECTION OF RFP ENTRY: The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

INTERPRETATION: Any questions concerning conditions and specifications shall be directed to the Purchasing Coordinator. Those interpretations which may affect the eventual outcome of this Submittal will be furnished in writing to all prospective Submitters. No interpretation shall be considered binding unless provided in writing by the City of Ormond Beach.

MINORITY POLICIES: The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

LICENSES AND PERMITS: The Vendor/Contractor is responsible for obtaining all necessary permits and licenses to comply with all Federal, State, local laws, rules and regulations required to perform work in accordance with the specifications.

ADDITIONAL TERMS AND CONDITIONS: The City of Ormond Beach reserves the right to reject Submittals containing any additional terms or conditions not specifically requested in the original conditions and specifications.

TAXES: The City of Ormond Beach is exempt from Federal Excise Taxes and all sales taxes.

SILENCE OF SPECIFICATIONS: The apparent silence of any specification and any supplemental specifications as to any details or the omission from same of any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship is to be first quality. All interpretations of the specifications shall be made upon the basis of this statement.

ASSIGNMENT: Any purchase order or contract issued pursuant to a Submittal and the monies which may become due hereunder are not assignable except with the prior written approval of the City Manager or City Commissioner, whichever authorized the purchase or Agreement.

LIABILITY: The Contractor shall hold and save the City of Ormond Beach, its officers, agents, and employees harmless against claims by third parties resulting from the Contractor's or supplier's breach of contract or negligence, including all attorney's fees and costs, and shall pay any and all damages, fees, and costs assessed on behalf of the City. The City expressly reserves all rights, privileges and benefits of sovereign immunity.

PATENTS AND ROYALTIES: The Contractor, without exception, shall indemnify and save harmless the City of Ormond Beach and its employees from liability of any kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Ormond Beach. If the Contractor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the Submittal prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

NON-APPROPRIATION OF FUNDS: In the event sufficient budget funds are not available for a new fiscal period, the CITY shall notify the VENDOR/CONTRACTOR of such occurrence and the contract shall terminate on the last day of the current fiscal period, without any penalty or expense to the CITY of any kind whatsoever.

AWARDS: The CITY reserves the right, in its sole discretion, as the best interest of the CITY may require, to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or with one or more vendors, contractors, consultants or specialists; or to reject any and all Submittals or waive any minor irregularity or technicality in the Submittals received.

OTHER AGENCIES: All Bidder(s) awarded contracts from this bid or proposal may, permit any municipality or other government agency to participate in the contract under the same prices, terms, and conditions, if agreed to by both parties.

It is understood that at no time will any city, municipality, or other agency be obligated for placing an order for any other city, municipality, or agency: nor will any city, municipality, or agency be obligated for any bills incurred by any other city, municipality, or agency. Further, it is understood that each agency will issue its own purchase orders to the awarded bidder(s).

COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW:

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

- (a) Keep and maintain public records required by the City to perform the contracted service.
- (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
- (d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
- (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174
(386)676-0311
CITYCLERK@ORMONDBEACH.ORG
or online at
<https://www.ormondbeach.org/prr>**

Ref: Fla. Stat. §119.0701(2016)

THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO REJECT ANY OR ALL PROPOSALS, AND TO WAIVE INFORMALITIES AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE CITY.

TERMS AND CONDITIONS

- A. The City of Ormond Beach reserves the right without prejudice to reject any or all proposals, to request clarification of information submitted, and to request additional information of one or more proposers.
- B. The City reserves the right to award the contract to the next most qualified firm if the successful firm fails to execute a contract within two weeks after the award of the contract by the City Commission.
- C. In accordance with federal, State, and local regulations, the firm shall not discriminate under the contract against any person.
- D. The firm shall not assign or transfer any interest in the contract without prior approval of the City Commission.
- E. The City reserves the right to terminate the contract at any time due to the vendor's default under terms of agreement.
- F. Submission of a proposal indicates acceptance by the firm of the conditions contained in this Request for Proposals unless clearly and specifically noted in the proposal submitted and confirmed in the contract between the City of Ormond Beach and the firm selected.
- G. Submittals should include a copy of firm's insurance certificate, Conflict, Non-Conflict of Interest Statement/Litigation Statement, Drug Free Workplace Certificate and E-Verify Statement.

THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO REJECT ANY OR ALL PROPOSALS, AND TO WAIVE INFORMALITIES AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE CITY.

CITY OF ORMOND BEACH
REQUEST FOR PROPOSAL
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

STATEMENT OF PURPOSE:

The City of Ormond Beach, Florida, is soliciting proposals and intends to select one or more qualified contractors interested in performing repair and renovation services at City facilities on a time and materials basis. It is the intent of the City to enter in to a contractual agreement (or agreements) with crafts and trades contractors to do work on an "as needed" basis. The contract(s) will be for miscellaneous short-term projects requiring services relative to the following fields of work: carpentry; plumbing; HVAC; flooring; roofing; electrical; painting/waterproofing; overhead door; electric gates; fire suppression equipment; fencing; docks/decking; elevator inspections and repairs, including wheelchair lifts; fire alarm monitoring; event services; audio/visual & theatrical equipment; pool/splash pad maintenance; and pest control. Contractors may submit quotations for one, more than one, or all of the aforementioned fields of work.

AWARD OF CONTRACT:

The City of Ormond Beach reserves the right to award one or more, all-inclusive contracts or to award multiple, field-of-work specific contracts, whichever is in the best interest of the City. However, it is anticipated that multiple awards will be made. The City seeks to accept the most responsive, responsible proposal(s), thus allowing City departments to choose the contractor(s) that best meets their requirements based on factors including, but not limited to, price, availability, and experience.

TERM OF AGREEMENT:

The initial term of this Agreement shall be for a period of one (1) year. The Contract shall be automatically renewed for one (1) year periods unless either party provides a written notice of non-renewal sixty (60) calendar days prior to the Contract expiration date not to exceed four (4), additional one year terms.

SUBMITTAL INSTRUCTIONS:

Proposal Delivery: You must submit one (1) unbound original plus one (1) electronic copy on compact disk (CD) or flash drive of the proposal no later than the date and time specified above. Submit proposals to: Rob Hart, Purchasing Coordinator, at City Hall down stairs in Room 101, 22 South Beach Street, Ormond Beach, FL 32174. The RFP title and number shall be plainly marked on the outside of the delivery envelope or package. It is solely the responsibility of the submitter to ensure that the Proposal is delivered on or before the specified date and time. Late proposals will not be accepted.

Addenda and Supplements to the Request for Proposals (RFP): In the event that it becomes necessary to revise any part of this RFP, or if additional information is necessary to enable the proposing firm to make an adequate interpretation of the provisions of this RFP, a supplement to the RFP will be provided to each firm that has requested a copy of this document.

Rejection Rights: The City of Ormond Beach reserves the right, at any time, to modify, waive or otherwise vary the terms and conditions of this RFP including, but not limited to, the deadlines for submission and submission requirements. The City further reserves the right to reject any or all submittals, to cancel or withdraw this RFP at any time and to negotiate with any party prior to or after submittal of proposals.

Cost of Proposal Preparation: No reimbursement will be made by the City of Ormond Beach for any costs incurred in the preparation of the proposal or presentation.

Proposals to be in Effect: Each proposal shall state that it is valid for a period of not less than ninety (90) days from date of receipt.

GENERAL INSTRUCTIONS:

Equipment: Contractor shall own and have in good repair all equipment necessary to perform the described services in particular and the equipment necessary to complete related tasks.

Quantities: The services listed in this RFP will be ordered on an "AS NEEDED" basis by the City of Ormond Beach. No firm statement of quantity, totally or individually, can be made. Any quantity listed herein is an "estimated quantity" and does not bind the City to issue any work orders under the terms of this RFP or resulting contract. The City does not know how often services will be required during the life of the contract however, a yearly expenditure of approximately \$900,000 for miscellaneous crafts and trades services is anticipated. That amount is an estimate of the combined yearly expenditure for all fields of work and may increase or decrease due to unknowable circumstances. For the duration of the agreement, the City reserves the right to purchase more than or less than any amounts listed herein, depending entirely upon the City's needs.

Response Time: Contractor shall be able to start all non-emergency projects within five (5) working days of authorization from the City. The Contractor shall complete each non-emergency job within the time specified in their project estimate. Contractor shall respond to calls for emergency service within four (4) hours after notification from the City. For the purpose of this proposal, an "emergency" is defined as any conditions which is a threat to the health, welfare or safety of people and/or property or a condition that will adversely affect an essential public service, as determined solely by the City. **Contractor shall provide a twenty-four hour call answering services.**

Work Standards: All work shall be performed according to the standards of the industry and to the complete satisfaction of the City. All work shall conform fully with the

City of Ormond Beach Code of Ordinances. Contractor shall be licensed by the State of Florida and registered by the City. All contractors and subcontractors performing service for the City are required and shall comply with all Occupational Safety and Health Administration (OSHA) standards, State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also Contractor (and subcontractors) shall be held totally responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site.

Material and Parts: All materials and parts to be utilized shall conform to standards of the trade, manufacturers' recommendations, and be acceptable by the City of Ormond Beach. All equipment, material and parts that the City desires to salvage shall be removed and stored in an area selected by the City.

Warranty: All work performed by the Contractor, under this Contract, shall be warranted by the Contractor to be free from defects for a period of not less than one (1) year. The contractor shall promptly correct work rejected by the City as failing to conform to the requirements of the contract documents. The Contractor shall bear the cost of correcting such rejected work. Recurring problems, which the City determines to be directly attributable to the work of the Contractor, shall be remedied by the Contractor, at no additional expense to the City. All parts, materials and equipment installed by the Contractor shall be new and shall have full manufacturer's warranty in place, said warranties being fully transferable to the City. Any damages to City property caused by the Contractor's personnel while performing work under this contract shall be fully repaired at the Contractor's expense.

Charges: Billable hours paid under this contract shall be only for productive hours at the job site or for work performed at the Contractor's shop. Time spent for transportation of workers, material acquisition, handling and delivery, or for movement of Contractor owned or rental equipment is not chargeable directly but is to be considered Contractor's overhead and shall be included in the hourly rates quoted for labor or services.

Regular service calls shall be made available between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding City recognized holidays. Work requested outside of these times shall be considered "after hours" service and may be charged at the rates specified in the proposal.

Invoices for materials and/or equipment supplied and installed by the Contractor shall show Contractor's actual cost, including any and all discounts offered by their supplier, plus the agreed upon percentage markup. Material and equipment prices are subject to verification. **The City reserves the right to furnish the necessary materials or equipment, and may do so when deemed to be in its best interest of the City.**

Annual Rate Adjustment: Following the first full year of the contract, and if the contract is allowed to automatically renew, the Contractor's rates may be adjusted annually for changes in the cost of doing business. Requests for adjustments shall be made, in writing, to the City's Facilities Maintenance Contract Manager, no later than June

1, of each contract year. The rate adjustment may reflect up to the change in the cost of doing business, as measured by fluctuations in the Consumer Price Index (CPI), All Urban Consumers, as published by the U. S. Department of Labor, Bureau of Labor Statistics, for the preceding July 1 – June 30 period. **The maximum increase for any annual period shall be four percent (4%), which will only apply to the future year.** Increases will not be retroactive. The adjusted rate, if approved, shall take effect on October 1, of the year in which approved. If the parties cannot agree to such an adjustment, either party may terminate this Agreement sixty (60) days from the receipt of a written notice of termination.

Estimates: Contractor shall provide written "not-to-exceed" or "firm fixed-price" estimates on all work that is likely to exceed five hundred dollars (\$500), except for emergency calls. This estimate shall include the estimated number of hours, hourly rate, number and types of employees required, estimated material cost and number of calendar days required for project completion. Contractor shall verbally respond to requests for estimates for non-emergency work within two (2) business days of the request, and provide written estimates within three (3) business days thereafter. It shall be the Contractor's responsibility to ensure they have all the information necessary to prepare fair and accurate estimates.

Competitive Price: It is the City's intent to get the best quality work at a competitive price. If, in the City's opinion, an estimate seems unreasonable, the City will inform the Contractor. If an agreement on a competitive price cannot be reached, the City may elect to use another contractor to perform the work.

Purchase Orders: Work exceeding City of Ormond Beach purchasing threshold will be authorized through a City purchase order. Purchase orders issued pursuant to the pending work will include only the cost of labor, materials and parts as noted in the Price Schedule.

Large Projects: No single project estimated to cost over \$25,000 will be performed under the terms of this contractual agreement. The City will solicit sealed bids for projects estimated to exceed \$24,999 in total cost, and will award the work to the Contractor submitting the lowest responsive and responsible bid.

Workmanship And Inspection: All work under the resulting contract shall be performed in a skillful and workmanlike manner. The City may, in writing, require the Contractor to remove any Contractor employee from the work that the City desires. Further, the City may, from time to time, make inspections of the work performed under this contract. Any inspection by the City does not relieve the Contractor from any responsibility regarding defective parts, equipment or service.

Unsatisfactory Work: In the event the work performance of the Contractor is unsatisfactory, the Contractor will be notified by the City and shall correct the work at no additional cost to the City. All emergency work shall be corrected immediately. Non-emergency work shall be corrected within twenty-four (24) hours of notification.

Clean-Up: The Contractor shall be responsible for removing all debris from the site and cleaning affected areas. Contractor shall keep the premises free of debris and unusable materials resulting from their work and as work progresses; or upon request by the City's representative, shall remove such debris and materials from the property. The Contractor shall leave all affected areas as they were prior to beginning work.

Protection Of Property: The Contractor shall make necessary repairs to in such a manner that does not damage property. In the event damage occurs to property by reason of any repairs or installations performed under this Contract, the Contractor shall replace or repair the same at no cost to the City. If damage caused by the Contractor has to be repaired or replaced by the City, the cost of such work shall be deducted from the monies due the Contractor.

Protection Of Materials: It shall be the sole responsibility of the Contractor performing services for this contract to safeguard their own materials, tools, and equipment. The City shall not assume any responsibility for vandalism and/or theft of materials, tools and/or equipment. The Contractor shall obtain the permission of the City's representative regarding any needed storage of materials, parts and equipment. Such storage shall be done in such a manner as not to interfere with the City's daily operations. Contractor shall be held reasonable for any and all accidents caused by negligence from this source. The City does not accept responsibility for losses of material or equipment regardless of approval to store in any of the using institution's facilities or grounds.

Employees Of The Contractor: No one, except authorized employees of the Contractor, are allowed on job premises. Contractor's employees are NOT to be accompanied in the work area by acquaintances, family members, assistants or any other person unless said person is an authorized employee of the Contractor. At the City's option, security screenings of all Contractor employees performing work may be required.

CITY'S RESPONSIBILITIES:

The City's Facilities Maintenance Contract Manager (or his designee) shall be responsible for:

- Instructing the Contractor of the scope of work and of the materials and parts which may be needed, when applicable.
- Approving a record of time and materials used for the job and state on the work ticket that they have inspected and accepted the work performed and the date.
- In the event that overtime rates are required to complete the work, prior approval shall be obtained from the City's representative.
- Processing invoices for labor, materials and parts supplied and installed by the Contractor in a timely manner. Invoices shall show Contractor's actual cost of materials and parts (including any and all discounts offered by their supplier) plus the agreed upon percentage markup. Material and parts prices are subject to

verification. The City reserves the right to furnish the necessary materials and parts, and may do so when deemed to be in its best interest of the City.

Payment: Payment will be made only after satisfactory completion of the work. Invoices approved by the Facilities Maintenance Contract Manager (or his designee) will be paid by the City within thirty (30) days, in accordance with the Florida Prompt Payment Act (Part VII, Chapter 218, *Florida Statutes*). Submit invoices, along with signed work report recording time and material for each job performed to the City's Facilities Maintenance Contract Manager or, Leisure Services Department, 501 N. Orchard Street, Ormond Beach, FL 32174. When billing by monthly statement, submit statements directly to the Accounts Payable office, Ormond Beach City Hall, 22 S. Beach Street, Ormond Beach FL 32174.

Evaluation Criteria: Proposals will be evaluated based on the following criteria:

- Contractor's Price. (50pts)
- Contractor's years of experience in the field. (20pts)
- Contractor's ability to meet all licensing and risk management requirements. (10pts)
- Contractor's references and past experiences. (20pts)

CONTRACTOR'S RESPONSIBILITIES:

Contractor's Qualifications: By responding to this Request for Proposal, the Contractor warrants and represents itself to be experienced and an expert in the field of service(s) contemplated. Contractor further understands that in awarding an agreement, the City of Ormond Beach is relying upon the representations and warranties of the Contractor(s) herein contained.

Contractors are required to be "certified contractors", licensed and insured in the State of Florida. Respondents shall accompany their proposal with a current copy of their contractor's license and insurance.

In addition to the above, each Contractor is required to submit the following information:

- A statement showing that the Contractor can meet all **licensing and risk management requirements** and has the experience, ability and equipment to perform the work described herein, and has been actively and regularly engaged in the business, performing the type of work described herein, for a minimum of five (5) years. Submit copies of current licenses and insurance.
- A list of **satisfactory references** for at least three (3) similar projects or work of a similar nature. For each reference, include the name and location of the project or work; the name, address, telephone and fax number of the project manager or authorized contact person; and a brief description of the work.

Proposals received without the requested information may be considered non-responsive.

Contractor General Supervision: Daily, the Contractor shall visit the work site to ensure that the services are being accomplished correctly and safely, and that the progress being made is sufficient to meet the project schedule. Based on the daily site visit, the Contractor shall work jointly and cooperatively to resolve project quality and scheduling problems with the City's Facilities Maintenance Contract Manager (or his designee). The cost of Contractor's general supervision shall be an element of the Contractor's overhead burden in the applicable hourly labor rates.

Working Supervisor Defined: The Working supervisor shall have the ability to plan, organize, direct, and prioritize the work of the Contractor's personnel and shall be knowledgeable of supervisory practices, procedures, inspection techniques, codes, ordinances, regulations, recordkeeping and reporting duties. Typical responsibilities of a Working supervisor shall include, but not be limited to, the following:

- Visits construction sites to determine equipment and materials needs and provides this information to the City's Facilities Maintenance Contract Manager (or his designee);
- Evaluates progress of work for completeness, accuracy and conformance with standards, blueprints, schematic diagrams and other specifications;
- Prepares and approves work proposals, time cards and work schedules;
- Implements and monitors established construction safety policies, procedures and regulations;
- Provides technical assistance to workers in the area of specialty;
- Reviews and resolves project quality, scheduling and progress problems;
- Determines when projects are ready for final inspection;
- Ensures projects are secured, safe, and provides a minimum of inconvenience during nonworking periods and during emergencies;
- Working supervisors shall be required to perform in both a supervisory and lead worker capacity, allocating such time to both tasks as required.

Personnel: All Contractor personnel providing services to the City under the terms of this contract shall be full-time, permanent employees of the contracted company only, **unless** express written permission to use temporary employees or to subcontract a portion of the work is provided to and authorized by the City's Facilities Maintenance Contract Manager (or his designee). The Contractor(s) shall only use tradesmen 18 years or older, who have not been convicted of a felony or first-degree misdemeanor.

Personnel Classifications: The following minimum personnel qualifications shall apply to any and all labor provided under the pending contract and shall form the basis for development of individual rates in the Price Schedule.

1. JOURNEYMAN shall have a minimum of five (5) years of experience.

2. APPRENTICE shall have a minimum of two (2) years' experience working directly with a Journeyman.
3. HELPER shall have a minimum of one (1) year experience working directly with a Journeyman.
4. WORKING SUPERVISOR shall be qualified as a Journeyman and have a minimum of five (5) years' experience, including two (2) years in a supervisory or leadership capacity.

NOTE: For those crafts and trades without formal Journeyman and Apprentice ratings, personnel designated under this contract shall possess an equivalent number of years of experience and degree of proficiency equivalent to accepted Journeyman, Apprentice and Helper standards.

Personnel Conduct: All individuals performing services under this contract shall adhere to City of Ormond Beach rules and regulations regarding appropriate attire, prohibition of smoking, usage of proper language, prohibition of use and possession of controlled substances and alcoholic beverages, prohibition, of the possession of firearms, either on their person or in their personal vehicles and any other restrictions or prohibitions as may apply. Radios and other portable music playing equipment will not be allowed on any City sites. Additionally, all individuals will adhere to and comply with the requirements as generally set forth in the terms and conditions of this RFQ.

Contractor shall notify City personnel and follow customary check-in procedures when they are physically on-site at any City facility. All Contractor personnel are required wear clothing identifying Contractor by either name or logo, and to have in possession and present upon request, by City personnel, a form of picture identification (i.e.- drivers license, ID card). Failure of Contractor's personnel to adhere to City rules and regulations described herein will result in removal of the individual(s) from the job site.

Work Proposals: Prior to performance of any work, the Contractor shall visit the site, become familiar with the conditions under which the work is to be performed, and correlate personal observation with the job requirements as communicated by the City's Facilities Maintenance Contract Manager (or his designee). Failure to do this shall not excuse the Contractor from performing the work in strict accordance with the terms of the contract documents. Further, if the Contractor, in the course of site inspection or during performance of the work, finds any discrepancy between actual site conditions and the scope of work, it shall be his duty to immediately inform the City's Facilities maintenance Manager (or his designee). Any work done after such discovery, without authorization, will be done at the Contractor's risk.

Based on the site examination, the Contractor shall submit a written work proposal detailing the required personnel classification(s), the number of hours and appropriate hourly rate (as indicated on the Price Schedule). Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. The Contractor will provide his own hand tools, including powered hand tools. The proposal shall be either for a "not-to-

exceed" or "firm fixed-price" amount, based on the scope of the work to be performed and as directed by the City's Facilities Maintenance Contract Manager (or his designee). The City reserves the right to accept or reject the requirements of the written work proposal before the commencement of activities by the Contractor.

If the proposal is for a "not-to-exceed" amount, the Contractor will not exceed the proposed number of hours accepted by the City without prior authorization from the City's Facilities Maintenance Contract Manager (or his designee).

If the proposal is for a "firm fixed-price" amount, the Contractor will perform the work authorized for the price proposed, regardless of the final cost incurred by the Contractor, unless a change order is authorized and successfully negotiated in advance between the City and Contractor for out-of-scope work. The Contractor shall not be entitled to additional compensation if it subsequently finds the conditions require additional labor or equipment that it did not anticipate.

Permits: Contractor is responsible for pulling all applicable permits and scheduling applicable inspections with the City's Building Inspections Office.

REGISTRATION AND RISK MANAGEMENT REQUIREMENTS:

The Contractor, including any Sub-Contractor's, shall be **registered** to do business in the City of Ormond Beach and shall provide proof of, abide by and maintain, for the entire life of the Contractual Agreement, including any and all approved time extensions, such **insurance and Service Bond** as specified in the attachment marked as: **Exhibit "A", Requirements of the City of Ormond Beach**, shall be incorporated in and made part of the contract documents.

SCOPE OF SERVICES:

The work will be performed on an "as-needed" basis. The work covered by this contract consists of repair, installation and/or renovation services, including, but not limited to:

- **carpentry** (rough and finished carpentry, including repair, installation and light demolition),
- **plumbing** (repair and installation of piping and plumbing fixtures),
- **HVAC** (repair and installation),
- **flooring** (carpet, tile and wood floor repair and installation),
- **roofing** (repair and installation),
- **electrical** (installation, repair and maintenance),
- **painting/waterproofing** (painting interior/exterior),
- **overhead door** (repair and installation)
- **electric gates** (repair and installation)
- **fire suppression systems** (repair, maintenance, and inspections),
- **fencing** (repair and installation)
- **docks/decking** (repair, renovation, pile driving),
- **elevators and wheelchair lifts** (inspections service and repairs)
- **fire alarm monitoring** (equipment monitoring and repairs)

- **event services** (various equipment rental, setup, dismantle and delivery)
- **purchase of audio/visual and theatrical** (service repair and installation),
- **splash pad/pool maintenance**
- **pest control** (treatment and prevention). The Contractor shall provide all the labor, materials and tools required to satisfactorily complete the Work.

The scope of each specific project will be identified by the City's Facilities Maintenance Contract Manager (or his designee) with sufficient detail to enable the Contractor to fully understand the scope of the work. A meeting with the Facilities Maintenance Contract Manager (or his designee) regarding the work may be held to further clarify all aspects of the project. If the work will exceed the current purchasing threshold, the Contractor will provide the City with the estimated cost for accomplishing the work, based on the labor, materials and parts rates as established in the contract agreement, and a **written project schedule**. This price and schedule will be reviewed by the City and if further negotiations are necessary, they will be conducted by the Facilities Maintenance Contract Manager (or his designee) with the Contractor. Once an agreement for the work has been established, the City will issue a Purchase Order to the Contractor. Small projects, not exceeding the city's purchasing threshold in total cost, can be verbally authorized by the City's Facilities Maintenance Contract Manager (or his designee). Inspection and contract administration for the projects will be performed by the City.

CONTRACTOR'S PROPOSAL:

Pursuant to the City of Ormond Beach's Request for Proposal (RFP No. 2022-27) including the Scope of Services and all terms, conditions, provisions and exhibits contained therein, the undersigned Contractor hereby proposes to do all the work and furnish all superintendence, labor, machinery, equipment, tools, materials and parts necessary to perform and complete the work upon which he quotes, as detailed and set forth in this RFQ and binds himself, upon the City's acceptance of his proposal, to execute a contractual agreement with the City for performing and completing the said work within the required time, and furnish all guarantees, for the prices stated in the following Price Schedule for this **Miscellaneous Crafts and Trades Services (As-Needed)** project. It is understood that any quantities of work referenced in this RFP are only approximate and are subject to increase or decrease and the undersigned Contractor offers to do the work at the unit price(s) stated in the Price Schedule regardless of any actual quantities ordered.

Inquiries:

Questions relating to this solicitation should be directed to the City's Purchasing Coordinator, Rob Hart, City of Ormond Beach, 22 South Beach Street, Ormond Beach, Florida 32174; Facsimile 386-676-3374; e-mail: rob.hart@ormondbeach.org. Answers will be provided by written addenda and sent to all appropriate Proposers via DemandStar.com. In order to give a timely response, questions will only be responded to prior to **seven (7) business days prior to due date**. It is the sole responsibility of the Proposer to ensure all addenda are received. No interpretation shall be considered binding unless provided in writing by the City of Ormond Beach. Proposers, their agents

and associates shall not contact or solicit any City of Ormond Beach employee or official regarding this RFP. Failure to comply with this provision may result in disqualification of the proposer, at the option of the City of Ormond Beach. Only that individual listed as the contact person in the specifications shall be contacted.

Contractors may submit proposals for one, more than one, or all of the following fields of work.

Please indicate which Craft(s)/Trade(s) in submittal:

Craft / Trade	Complete Corresponding Page Number(s) along with all other RFP forms	Check here
Carpentry	Page 18	
Plumbing	Page 19	
HVAC	Page 20	
Flooring	Page 21	
Roofing	Page 22	
Electrical	Page 23	
Painting/Waterproofing	Pages 24-25	
Overhead Door	Page 26	
Electric Gates	Page 27	
Fire Suppression	Page 28	
Fencing	Page 29	
Docks/Decking	Page 30	
Elevator Inspections/Repairs	Page 31	
Fire Alarm Monitoring	Page 32	
Event Services	Page 33	
Purchase/Installation of A/V equipment	Page 34	
Splash pad/pool maintenance	Page 35	
Pest control	Pages 36-37	

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
CARPENTRY		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
PLUMBING		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
HVAC		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Refrigerant (Cost plus %)	_____ %
4.	Replacement Units (Cost plus %)	_____ %
5.	Rental Equipment (Cost plus %)	_____ %
6.	Journeyman or equivalent (regular time)	\$ _____ /per hour
7.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
8.	Apprentice or equivalent (regular time)	\$ _____ /per hour
9.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
10.	Helper or equivalent (regular time)	\$ _____ /per hour
11.	Helper or equivalent (after hours time)	\$ _____ /per hour
12.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
13.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
14.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
FLOORING		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
ROOFING		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
ELECTRICAL		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour
13.	Bucket/Line Truck Rental 55 ft. (incl. one electrician)	\$ _____ /per hour
14.	Bucket/Line Truck Rental 80 ft. (incl. one electrician)	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PAINTING/WATERPROOFING
PRICE SCHEDULE for Standard Projects

Item No	Description	unit price
1	Pressure Washing up to 3500psi @ 8 g.p.m.: This shall include masonry block walls, wood, metal beams and panels, roofs, concrete floors, walkway covers, stucco, and other related surfaces. Price shall be per square foot and be inclusive of any dirt, grease, mold or mildew. Detergents/Chemicals shall be approved by the City prior to use. Price per square foot shall be inclusive of all labor, materials, equipment, etc.	\$ _____ /per square foot
2	Sandblasting: This shall include masonry block walls, wood, metal beams, panels, roofs, concrete, walkway covers, stucco and other related surfaces. Price per square foot shall be inclusive of all labor, materials, equipment, etc.	\$ _____ /per square foot
3	Surface Preparation: This shall include scraping, sanding, covering all windows, boxes, hardware, floors, plants, filling small quarter size holes in drywall, walls, masonry blocks, wood, applying caulking to windows, trim, fascia and hair line cracks. Spot prime wood, metal, drywall, stucco, concrete block, bush and tree trimmings, etc. Price per square foot shall be inclusive of all labor, materials, equipment, etc.	\$ _____ /per square foot
4	Primer Coat: This shall include all primers. Solvent base, latex, surface conditioners, block fillers, sealers, blastomeric and epoxies. The application method shall be: roller, brush or spray. Price per square foot shall be inclusive of all labor, materials, equipment, etc. Name of Manufacturer: _____	\$ _____ /per square foot
5	Finish Coat: This shall include all finishes. Solvents base, latex base, epoxies, lacquers, oils and polyurethanes. The applications shall be: roller, brush or spray. (Number or required coats: 2) Price per square foot shall be inclusive of all labor, materials, equipment, etc. Name of Manufacturer: _____	\$ _____ /per square foot

6	Trim Work and Window Frames - Up to 4" in Width: This shall include all preparations and finishes. This shall include soffit, decorative moldings, etc, (Number of required coats: 2) Price per linear foot shall be inclusive of all labor, materials, equipment, etc.	\$ _____ /per linear foot
7	Trim Work and Window Frames - Over 4" in Width: This shall include all preparations and finishes. This shall include soffit, decorative moldings, etc, (Number of required coats: 2) Price per linear foot shall be inclusive of all labor, materials, equipment, etc.	\$ _____ /per linear foot

PAINTING/WATERPROOFING
PRICE SCHEDULE for Extrordinary Projects – including but not limited to stucco, sheetrock and plaster repairs

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
OVERHEAD DOOR		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
ELECTRIC GATES		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
FIRE SUPPRESSION EQUIPMENT, INSPECTIONS, AND REPAIR.		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
FENCING		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Rental Equipment (Cost plus %)	_____ %
4.	Journeyman or equivalent (regular time)	\$ _____ /per hour
5.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
6.	Apprentice or equivalent (regular time)	\$ _____ /per hour
7.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
8.	Helper or equivalent (regular time)	\$ _____ /per hour
9.	Helper or equivalent (after hours time)	\$ _____ /per hour
10.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
12.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
DOCKS/DECKING		
1.	Materials and Parts costing \$0-\$100 (Cost plus %)	_____ %
2.	Material and Parts costing over \$100 (Cost plus %)	_____ %
3.	Pile Driving (Cost plus Material)	_____ %
4.	Rental Equipment (Cost plus %)	_____ %
5.	Journeyman or equivalent (regular time)	\$ _____ /per hour
6.	Journeyman or equivalent (after hours time)	\$ _____ /per hour
7.	Apprentice or equivalent (regular time)	\$ _____ /per hour
8.	Apprentice or equivalent (after hours time)	\$ _____ /per hour
9.	Helper or equivalent (regular time)	\$ _____ /per hour
10.	Helper or equivalent (after hours time)	\$ _____ /per hour
11.	Working Supervisor or equivalent (regular time)	\$ _____ /per hour
12.	Working Supervisor or equivalent (after hours time)	\$ _____ /per hour
13.	Refuse Removed from Site	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
ELEVATOR INSPECTIONS AND REPAIRS SERVICES, INCLUDING WHEELCHAIR LIFTS		
1.	Materials and Parts costing \$0-\$100 (percent above Contractor's cost)	_____ %
2.	Materials and Parts costing over \$100 (percent above Contractor's cost)	_____ %
3.	Inspections/Testing (non-urgent service call)	\$ _____/per hour
3.	Repairs/Labor (non-urgent service call)	\$ _____/per hour
4.	Repairs/Labor (urgent service call)	\$ _____/per hour
5.	Repairs/Labor (emergency service call)	\$ _____/per hour
6.	Repairs/Labor (after hours service call)	\$ _____/per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
FIRE ALARM MONTIORING SERVICES		
1.	Materials and Parts costing \$0-\$100 (percent above Contractor's cost)	_____ %
2.	Materials and Parts costing over \$100 (percent above Contractor's cost)	_____ %
3.	Labor (non-urgent service call)	\$ _____ /per hour
4.	Labor (urgent service call)	\$ _____ /per hour
5.	Labor (emergency service call)	\$ _____ /per hour
6.	Labor (after hours service call)	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
	EVENT SERVICES	

1	Rental of Audio/Visual equipment and cables* (percentage off publicly available published price)	%
2	Rental of tables, chairs, linens* (percentage off publicly available published price)	%
3	Rental of tents, event staging, fences, etc.* (percentage off publicly available published price)	%
4	Rental of lighting systems, control boards etc.* (percentage off publicly available published price)	%
5	Labor to set-up, operate and dismantle (standard rate 8:00 AM – 5:00 PM weekdays)	/per hour
6	Labor to set-up, operate and dismantle (after hours, weekend, holidays)	/per hour
7	Delivery and Pickup Fee (to any location within city limits)	

***Any Work Proposal submitted as result of an executed agreement from this RFP must have publicly available rental rates (website, catalog, etc.) to verify rental discount being received by the city. Please indicate website where prices can be found here: _____ or include catalog displaying of rental prices with submittal.**

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>
	PURCHASE & INSTALLATION OF AUDIO/VISUAL & THEATRICAL EQUIPMENT AND SERVICES	
1.	Materials and Parts costing \$0-\$100 (percent above Contractor's cost)	_____ %
2.	Materials and Parts costing over \$100 (percent above Contractor's cost)	_____ %
3.	Labor (non-urgent service call)	\$ _____ /per hour
4.	Labor (urgent service call)	\$ _____ /per hour
5.	Labor (emergency service call)	\$ _____ /per hour
6.	Labor (after hours service call)	\$ _____ /per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

PRICE SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>Monthly</u>	<u>Annually</u>
1.	Andy Romano Beachfront Park Full service pool/splash pad maintenance, including, but not limited to, chemicals needed to test and balance water chemistry including pH, calcium, alkalinity, chlorine and stabilizer. Service to be 7 days per week. Splash pad is not in operation Dec. through Feb.		
2.	South Ormond Neighborhood Center Full service pool/splash pad maintenance, including, but not limited to, chemicals needed to test and balance water chemistry including pH, calcium, alkalinity, chlorine and stabilizer. Service to be 7 days per week. Splash pad is not in operation Dec. through Feb.		
3.	Labor (emergency service call)	\$	/per hour
4.	Labor (after hours service call)	\$	/per hour

Hourly rates shall include Contractor's overhead, profit, permit fees and any incidentals. Contractor will provide a **written project schedule** detailing number of hours, materials/parts any upcharge or discount prior to commencement of any work under any agreement resulting from this RFP.

Comments and/or explanation of other charges not included in the above: _____

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)

Proposing Firm: _____

Pest Control Services

Location	Address	Quantity	U.O.M.	Unit Price	Annually
City Hall	22 South Beach Street	12	Monthly		
Ames House	173 South Beach	12	Monthly		
Ames House Annex	173 South Beach	12	Monthly		
Ames Park	173 South Beach	12	Monthly		
Police Dept.	170 West Granada	12	Monthly		
P.A.L. House	194 Central Ave.	12	Monthly		
Fire Station # 91	364 South Atlantic	12	Monthly		
Fire Station # 92	189 South Nova Rd.	12	Monthly		
Fire Station # 93	300 Wilmette Ave.	12	Monthly		
Fire station # 94	2301 Airport Rd.	12	Monthly		
Public Works	501 North Orchard St.	12	Monthly		
Fleet Maint. Admin.	500 North Orchard St.	12	Monthly		
Performing Arts	399 North US1	12	Monthly		
Senior Center	351 Andrews Street	12	Monthly		
Casements	25 Riverside Drive	12	Monthly		
Nova Gymnastics	400 North Nova Rd.	12	Monthly		
Bailey Riverbridge	1 North Beach Street	12	Monthly		
Memorial Art	78 East Granada Blvd.	12	Monthly		
O.B.Tennis Center	38 East Granada Blvd.	12	Monthly		
Shuffleboard	700 Hull Rd.	12	Monthly		
Nova Gym.	442 North Nova Rd.	12	Monthly		
Nova Tennis Center	440 North Nova Rd.	12	Monthly		
Nova Concession	440 North Nova Rd.	12	Monthly		
Nova East Field	401 North Nova Rd.	12	Monthly		
S.O.N.C.	176 Division Ave.	12	Monthly		
Airport tower	725 Hull Rd.	12	Monthly		
Airport Sports Office	700 Hull Rd.	12	Monthly		

Airport Sports Baseball Bldg..	700 Hull Rd.	12	Monthly		
Airport Sports Softball quad	700 Hull Rd.	12	Monthly		
Airport Sports Soccer Concession	700 Hull Rd.	12	Monthly		
Airport Sports Soccer Clubhouse	700 Hull Rd.	12	Monthly		
W.T.P. admin.	301 Jefferson Street	12	Monthly		
W.W.T.P. Admin.	550 North Orchard	12	Monthly		
Bait house	1 South Beach Street	12	Monthly		
Casen Park	1 South Beach Street	12	Monthly		
Fortunato Park	2 John Anderson Rd.	12	Monthly		
Central Park 1	601 Fleming Ave.	12	Monthly		
Central Park 2	601 Hammock Lane	12	Monthly		
Sanchez Park	329 Sanchez Ave.	12	Monthly		
Andy Romano Park	839 South Atlantic	12	Monthly		
Environmental Discovery Center	601 Division Ave.	12	Monthly		
Airport Sports Pride Restrooms	700 Hull Rd.	12	Monthly		
Airport Sports Soccer concession	700 Hull Rd.	12	Monthly		
Airport Sports Soccer Meeting room	700 Hull Rd.	12	Monthly		
Championship field restrooms	700 Hull Rd.	12	Monthly		
Nova Skate Park	440 North Nova Rd.	12	Monthly		

Cost per rodent box (various locations as requested) \$ _____

Cost for monthly monitoring per rodent box \$ _____

- **A date to inspect facilities for pest control services is set for November 28th, meeting in the Training Room (breezeway) at City Hall, 22 South Beach St., Ormond Beach. At 9:00 AM. Prospective bidders are urged to attend.**

**City of Ormond Beach
Request for Proposals (RFP)
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022 -27)**

RFP RESPONSE FORM

THIS RESPONSE IS SUBMITTED TO:

Purchasing Coordinator
City of Ormond Beach
22 S. Beach Street, Room 101
Ormond Beach, Florida 32174

The undersigned SUBMITTER proposes and agrees, if this Submittal is accepted, to enter into a Contract with the CITY that reflects the items of this Request for Proposal (RFP) and to provide all services, as specified or indicated in the RFP Documents, in full accordance with the terms and conditions set forth in therein.

SUBMITTER accepts all of the terms and conditions of the General Conditions. SUBMITTER will sign the Contract) and submit the Contract security (when applicable) and other documents required by the Contract Documents within ten (10) days after the date of CITY's Notice of Award.

In submitting this information, SUBMITTER represents, as more fully set forth in the Agreement, that:

SUBMITTER has examined copies of all the RFP Documents and of the following Addenda:

Addendum Date

Addendum Number

Receipt of all of which is hereby acknowledged.

This Submittal is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; SUBMITTER has not directly or indirectly induced or solicited any other Submitter to submit a false or sham Submittal; SUBMITTER has not solicited or induced any person, firm or a corporation to refrain from bidding; and SUBMITTER has not sought by collusion to obtain for himself any advantage over any other Bidder or over the CITY.

THIS RESPONSE IS SUBMITTED BY:

COMPANY NAME: _____

VENDOR/CONTRACTOR LICENSE NUMBER: _____

ADDRESS: _____

PHONE NO.: _____ FAX NO.: _____

SUBMITTER'S NAME: _____

(Typed or Printed in Ink)

TITLE: _____

AUTHORIZED SIGNATURE: I, _____ hereby
(Original signature required in each document)

declare that I have read and fully understand the RFP Documents and, including the General Conditions and the Scope of Work, and that I am duly authorized to sign and submit this Submittal.

The CITY reserves the right to reject any and all Submittals, to waive informalities, and to accept any Submittal or parts thereof as the CITY, in its sole discretion, determines to be in the best interest of the CITY.

PROPOSER: PLEASE ENSURE THAT YOU HAVE SIGNED THE RFP RESPONSE FORM OF THIS REQUEST FOR PROPOSAL. OMISSION OF A SIGNATURE ON THAT PAGE WILL RESULT IN REJECTION OF YOUR PROPOSAL.

THIS PAGE MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

City of Ormond Beach
CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT

1.

- ☐ To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- ☐ The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

2.

- ☐ The undersigned firm has had no litigation on any project in the last five (5) years.
- ☐ The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

COMPANY NAME

AUTHORIZED SIGNATURE

SIGNER'S NAME (PRINT OR TYPE)

TITLE

DATE

THIS PAGE MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)
CITY OF ORMOND BEACH, FLORIDA
DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL OR “TIE” SUBMITTALS: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more proposals which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business’s policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.
- 3) Give each employee that engages in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
- 4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.
- 5) Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee’s community, by any employee who is so convicted.
- 6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

Company Name

Authorized Signature

Print Name

CITY OF ORMOND BEACH
REQUEST FOR PROPOSALS
Miscellaneous Crafts and Trades Services (As-Needed)
(RFP No. 2022-27)
VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

1. Undersigned firm warrants it **IS** currently registered with the U.S. Department of Homeland Security's E-Verify system, **and** is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
2. Undersigned firm warrants it **has not** had any contracts terminated as a result of violations of Sections 448.09 or 448.095, *Florida Statutes*, that prohibit it from contracting with a public agency.
3. Undersigned firm warrants that if it enters into an agreement with a subcontractor, an express provision shall be included in all of its subcontracts requiring subcontractors, who perform work or provide services pursuant to the contract, to use the E-Verify system to verify employment eligibility of all new employees hired by the subcontractor during the contract term.
4. Undersigned firm understands that any subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and the contractor understands it shall maintain any such affidavits for the duration of the contract, and the contract with the subcontractor must be immediately terminated if the City has a good faith belief that the subcontractor knowingly violated Section 448.09 (1), *Florida Statutes*.
5. Undersigned firm understands that in the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and the contractor may not be awarded a public contract for a period of at least one (1) year after the date of termination. The contractor may be held liable for any additional costs incurred by the City as a result of termination of the contract.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME

TITLE

DATE

REGISTRATION AND INSURANCE REQUIREMENTS FOR VENDOR/CONTRACTOR WORKING ON CITY PROJECTS

Registration Requirements

VENDOR'S doing business within the City Limits must be registered with the City. Requirements for registering a business are as follows:

Copy of City Business Tax Receipt (where your business is located).

Certificate of Insurance showing General Liability and Workers' Comp (or State Workers' Comp Exemption form).

Application Fee: \$25.00 For more information, contact the City's Business Tax Receipt official.

State Certified/Registered Contractors

All registered contractors must be registered with Volusia County. Volusia County Contractor Licensing, 123 W. Indiana Ave., Rm 203, Deland, FL 32720 (386) 736-5957 Opt. 2 –(386) 248-8158 Fax. Certified Contractors have the option of registering with Volusia County, or providing information directly to the business tax receipt official.

If you have any questions regarding the above requirements, please contact the business tax receipt official at (386) 676-3370.

EXHIBIT A Risk Management and Insurance Requirements

A. Payment and Performance Bonds

- 1.** Except as otherwise provided herein, the Contractor shall, prior to beginning performance, deliver to the City, and the City shall record in the public records of Volusia County, Florida, the Contractor's Payment and Performance Bond in an amount equal to the full amount of the Contract.
- 2. (a)** Payment and Performance Bonds shall not be required for any contract except those which are for the construction of a public building, for the prosecution and completion of a public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time) or for repairs upon a public building or public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time).
- (b)** With respect to those Contracts for which Payment and Performance Bonds are otherwise required:
 - i.** Unless the City Manager, or his designee, determines such Bond to be necessary to protect the interests of the City, no Contractor shall be required to provide a Payment and

Performance Bond for any Contract which is for \$25,000.00 or less.

- ii. Upon the request of the contractor, good cause shown by the Contractor, and a determination that the public health, safety and welfare will be sufficiently protected, the City Commission may exempt the contractor from the requirement of providing a Payment and Performance Bond for any Contract which is for more than \$25,000.00 but is less than \$200,000.00.
3. The Payment and Performance Bond shall list the Contractor as Principal and be issued by a surety insurer authorized to do business in Florida as a surety and listed as an acceptable surety in the Federal Register.
4. The Payment and Performance Bond shall be executed pursuant to Section 255.05, **Florida Statutes**, and be in a form substantially similar to the form set forth in Section 255.05(3), **Florida Statutes**.
5. The Payment and Performance Bond shall specifically provide coverage for delay damages due to a default by the Contractor.
6. The Payment and Performance Bond shall not make the Contract part of the Bond agreement.
7. In lieu of the Payment and Performance Bond, the Contractor may file with the Finance Director of the City, in an amount equal to the full amount of the Contract, cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in Part II, Chapter 625, **Florida Statutes**.
8. In the event the surety on any Payment and Performance Bond furnished by the Contractor is declared bankrupt or becomes insolvent, or its right to do business in the State of Florida is terminated, the Contractor shall, within five (5) working days thereafter, substitute another Payment and Performance Bond and surety acceptable to the City.
9. The Contractor is totally and solely responsible for keeping its surety informed as to the Base Contract Price as bid, significant changes in the Project Scope, and the overall progress and completion of the Project for the entire life of the Contract.
10. The payment and performance bond requirements stated herein above shall not be applicable to service-related contracts unless otherwise determined by the City Manager in order to protect the health, safety and welfare of the general public.

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include at a minimum, the following, or substantially similar, provisions:

1. Hold Harmless and Indemnity

The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the Contractor in the performance of this Contract. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this provision.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph. Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary. The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences. Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith,

temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a)** Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident
\$100,000 Each Employee Bodily Injury by Disease
\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage—all maritime coverage.)

(b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):

- a. Premises, Operations, Products and Completed Operations
- b. Owners' & Contractors' Protective
- c. Products & Completed Operation
- d. Explosion, Collapse & Underground Conditions
- e. Blanket Contractual Liability
- f. Personal Injury Liability
- g. Broad Form Property Damage Endorsement, including Completed Operations
- h. Independent Contractors
- i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
- j. Pollution Liability (if applicable)
- k. Asbestos Abatement (if applicable)
- l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence

\$2 Million General Aggregate

\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract. ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million	Combined Single Limit for Bodily Injury and Property Damage
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- (d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,000 per occurrence.

- (e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

- (f) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of

the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.

2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-), in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carrier; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.
4. The City shall be named an Additional Insured on General Liability including products and completed operations and Automobile Liability policies of insurance and certificates thereof.

EXHIBIT "B"

AGREEMENT

THIS AGREEMENT is made and entered into by and between the **City of Ormond Beach** ("City"), a Florida municipal corporation, 22 South Beach Street, Ormond Beach, Volusia County, Florida and _____ ("Contractor"), _____, and in consideration of the mutual promises and covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to the following:

1. **Scope of Work.** The Proposal ("Miscellaneous Crafts & Trades Services (As Needed), RFP 2022-27") attached hereto as Exhibit "A", is incorporated herein by reference and is a material part of this Agreement. The Contractor shall fully comply with the terms and conditions described in the attached exhibit.

Written Work Authorizations are required prior to proceeding which shall include: a written "not-to-exceed" or "firm fixed-price" estimate on all work that is likely to exceed five hundred dollars (\$500.00), except for emergency calls. This estimate shall include the estimated number of hours, hourly rate, number and types of employees required, estimated material cost and number of calendar days required for project completion.

2. **Term.** This Agreement shall be effective on the date it is fully executed by the parties and shall have an initial term of one (1) year. This Agreement shall be automatically renewed for one-year periods (not to exceed four renewals) unless either party provides at least sixty (60) days prior written notice of its intent not to renew.
3. **Consideration.** Contractor shall perform the services at the prices set forth on Exhibit "A". Contractor shall prepare and submit invoices to the City at the address set forth in Paragraph 9 of this Agreement. All such invoices shall be paid by the City within thirty (30) days.

No single project estimated to cost over \$25,000.00 will be performed under the terms of this Agreement. The City will solicit sealed bids for projects estimated to exceed \$24,999.00 in total cost, and will award the work to the Contractor submitting the lowest responsive and responsible bid.

4. **Delivery.** Contractor shall complete the project within the time frame set forth on Exhibit "A".
5. **Termination of Agreement.**
 - (a) The City Commission shall have the right to terminate the Agreement in the event the Contractor files any petition or proceeding for bankruptcy relief, or is adjudicated to be bankrupt or insolvent, or fails to pay just debts as they ordinarily become due; or for a material breach of this agreement that remains uncured for at least thirty days after prior written receipt of a notice of violation of same.
 - (b) This Agreement may not be terminated by the Contractor.

EXHIBIT "B"

6. **Assignment.** The Contractor shall not assign, convey or transfer all or any part of this Agreement, or all or any part of Contractor's interest herein, or all or any part of any interest in the Contractor, without the prior written consent of the City Commission, which consent shall not be unreasonably withheld.
7. **Complete Agreement.** This Agreement, including the provisions set forth in the exhibit attached hereto and incorporated by reference herein, constitutes the entire and complete agreement of the parties, and the promises and covenants herein contained shall survive the life of this Agreement.
8. **Amendment to Agreement.** Any amendment, change, or modification of this Agreement must be in writing and fully executed by both parties.
9. **Notices.** All notices which are required by this Agreement shall be provided to the parties at the following addresses, or such other addresses as may be requested in writing by either party:

City of Ormond Beach
Joyce Shanahan, City Manager
(copy to City Attorney)
22 South Beach Street
Ormond Beach, FL 32174

Contractor

10. **Sovereign Immunity.** The City expressly retains and reserves all rights, privileges, immunities, and benefits of sovereign immunity. This provision shall be construed broadly in favor of the City.
11. **Venue.** The terms and conditions of this Agreement shall be construed and enforced under the laws of the State of Florida. Any action or proceeding, either at law or in equity, regarding this Agreement shall be brought in the circuit court, Seventh Judicial Circuit in and for Volusia County, Florida. Venue in any other jurisdiction or forum, whether it be any other circuit, state or federal venue, is hereby expressly waived.
12. **Waiver of Conditions.** No waiver by the City of any condition or breach of performance by the Contractor shall constitute an irrevocable, continuing, or subsequent waiver by the City of the same condition or breach of performance, or of any other condition or other breach of performance.
13. **Severability.** If any part of this Agreement is declared to be unenforceable or void by a court of competent jurisdiction, the remaining parts of the Agreement shall remain in full force and effect as long as the services to be provided by the Contractor are not materially affected, altered or impaired as a result of said judicial declaration.

EXHIBIT "B"

14. **Conflicting Provisions.** In the event of any conflict between the provisions of this Agreement and any exhibits, the provision most favorable to the City shall control and shall be given full force and effect.
15. **Indemnification.** The City, its agents, employees, and officials, both elected and appointed, shall be indemnified and held harmless by Contractor from any and all liabilities, claims, and causes of action which may arise out of the willful, negligent, or unlawful acts or omissions of the Contractor or its subcontractors in the performance of this Agreement, unless such claims are a result of the City's sole negligence, as determined by the final decision maker of such claim.
16. **Duty to Defend.** The Contractor shall defend all suits and administrative actions, including all appellate proceedings, brought against the City, its agents, employees, and officials, both elected and appointed and shall pay all attorneys' fees and costs associated with the City's legal defense, as may be selected by the City, arising from all claims and causes of action described in Section 15 above. Such payment on behalf of the City shall be in addition to any and all other legal or equitable remedies available to the City and shall not be considered to be the City's exclusive remedy.
17. **Contractor's Insurance.** The Contractor shall purchase and maintain for the entire life of this Agreement, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under this Agreement, whether such operations be by the Contractor, or by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.
18. **Types of Insurance and Limits of Liability**

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident
\$100,000 Each Employee Bodily Injury by Disease

EXHIBIT "B"

\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):
- a. Premises, Operations, Products and Completed Operations
 - b. Owners' & Contractors' Protective
 - c. Products & Completed Operation
 - d. Explosion, Collapse & Underground Conditions
 - e. Blanket Contractual Liability
 - f. Personal Injury Liability
 - g. Broad Form Property Damage Endorsement, including Completed Operations
 - h. Independent Contractors
 - i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
 - j. Pollution Liability (if applicable)
 - k. Asbestos Abatement (if applicable)
 - l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

EXHIBIT "B"

\$1 Million Each Occurrence
\$2 Million General Aggregate
\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract.

ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million	Combined Single Limit for Bodily Injury and Property Damage
-------------	---

- (d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

- (e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

- (f) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

19. Requirements for Certificates of Insurance.

EXHIBIT "B"

- (a) With the execution of this Agreement, the Contractor shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain a provision that the coverage under the policies will not be canceled, non-renewed or materially changed until at least **thirty (30)** days' prior written notice of such cancellation, non-renewal or change [except for nonpayment of premium, which shall be **ten (10)** days] has been given to the City. The Contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of this Agreement.
- (b) New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
- (c) If requested by the City, the Contractor shall furnish complete copies of the Contractor's insurance policies, forms and endorsements.
- (d) For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
- (e) If the Contractor fails to obtain and maintain for the life of the Agreement the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Agreement.
- (f) **Policies of Insurance**
 - 1. Except as otherwise provided herein, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-) in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
 - 2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carriers; written confirmation is required.
 - 3. All policies of insurance or certificates thereof referred to herein shall be deposited with the City Clerk.

EXHIBIT "B"

4. The City shall be named an Additional Insured on General Liability and Automobile Liability policies of insurance and certificates thereof.
20. **Enforcement of Costs.** If any legal action or other proceeding is brought for the enforcement of this Agreement, or because of an alleged dispute, breach, default, or misrepresentation in connection with any provision of this Agreement, the successful or prevailing party or parties shall be entitled to recover reasonable attorneys' fees, court costs, and all expenses even if not taxable court costs (including, without limitation, all such fees, costs and expenses incident to arbitration, appellate, bankruptcy, and post-judgment proceedings), incurred in that action or proceeding or any appeal, in addition to any other relief to which the party or parties may be entitled. Attorneys' fees include legal assistant fees, expert witness fees, investigative fees, administrative costs, and all other charges billed by the attorney for the prevailing party.
21. **Compliance With Laws.** Contractor shall comply with all applicable federal, state and local laws and regulations.
22. **Compliance With Florida Public Records Law.** Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:
- (a) Keep and maintain public records required by the City to perform the contracted service.
 - (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
 - (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
 - (d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
 - (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

EXHIBIT "B"

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32175. (386)677-0311
CITYCLERK@ORMONDBEACH.ORG**

Ref: Fla. Stat. §119.0701(2016)

23. **Limitation of Remedy and Liability.** Contractor and Owner expressly waive any claim for consequential damages against the other including but not limited to, a waiver of claims for diminished bonding capacity, loss of financing, loss of business reputation, lost profits on other projects or other lost opportunity damage claims.

Contractor expressly agrees that any claim (tort, contract, claim in equity, or otherwise) by Contractor for damages against Owner shall not exceed the total amount of the contract price, less any amounts actually paid to the Contractor by the Owner.

24. **Waiver of Right to Jury Trial.** THE PARTIES HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY RIGHT WHICH ANY PARTY MAY HAVE TO TRIAL BY JURY IN RESPECT OF ANY PROCEEDING, LITIGATION OR COUNTERCLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. IF THE SUBJECT MATTER OF ANY LAWSUIT IS ONE IN WHICH THE WAIVER OF JURY TRIAL IS PROHIBITED, NO PARTY TO THIS AGREEMENT SHALL PRESENT AS A NON-COMPULSORY COUNTERCLAIM IN ANY SUCH LAWSUIT ANY CLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. FURTHERMORE, NO PARTY TO THIS AGREEMENT SHALL SEEK TO CONSOLIDATE ANY SUCH ACTION IN WHICH A JURY TRIAL CANNOT BE WAIVED.

25. **Verification of Employment Status Using E-Verify System**

(a) Section 448.09, *Florida Statutes*, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, either for herself or himself, or on behalf of another, for private or public employment within the state, an alien who is not duly authorized to work in the United States. Contractor warrants that it is registered with the U.S.

EXHIBIT "B"

Department of Homeland Security's E-Verify system, and is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.

- (b) Contractor agrees that if the contractor enters into an agreement with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and contractor warrants it shall maintain any such affidavits for the duration of the contract. If the City has a good faith belief that a subcontractor knowingly violated Section 448.09 (1), the City shall promptly notify the contractor and order the contractor to immediately terminate the contract with the subcontractor.
 - (c) In the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and as provided by statute, the contractor may not be awarded a public contract for at least one (1) year after the date of termination. The contractor may also be held liable for any additional costs incurred by the City as a result of the termination of the contract.
26. **No Conflict of Interest.** The Contractor warrants and agrees that neither it, nor any of its employees, agents, officers, directors, shareholders and independent contractors are, or will become, under contract with or accept compensation from any individual, business, corporation or governmental entity that has the possibility of an adverse interest to those of the City of Ormond Beach. The Contractor and its officers, directors, shareholders, employers, agents and subcontractors, agree not to provide any services or assistance to any entity directly or indirectly relating to the services provided to the City and to immediately notify the City Manager and City Attorney of any contact with any entity that has, or potentially has, a conflict of interest with the City of Ormond Beach. This provision shall be interpreted as broadly as possible to prevent any potential or actual conflict of interest presently or in the future by the Contractor.
27. **Effective Date.** This Agreement shall become effective upon the date last signed by the parties hereto.

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be signed on the dates indicated hereinbelow.

DATED this ____ day of _____, 2023.

Witnesses:

CITY OF ORMOND BEACH

Print Name: _____

By: _____
BILL PARTINGTON
Mayor

Print Name: _____

By: _____
JOYCE SHANAHAN
City Manager

EXHIBIT “B”

DATED this ____ day of _____, 2023.

Witnesses:

(CONTRACTOR)

Print Name: _____

By: _____
Print Name: _____

Title: _____

Print Name: _____

Attest: _____

Print Name: _____

Title: _____

RFP 2022-27 Score Summary

Summary - Carpentry

Firm
Ruby Builders

Summary - Docks/Decking

Firm
Custom Built Docks

Summary - Electric Gates

Firm
C & D Industrial Maintenance, LLC
Fence Service, Inc DBA AAA Fence

Summary - Electrical

Firm
Economy Electric

Summary - Event Services

Firm
Special Event Services

Summary - Fencing

Firm
Fence Service, Inc DBA AAA Fence

Summary - Fire Alarm

Firm
VKA Security

Summary - Fire Suppression

Firm
VKA Security

Summary - HVAC

Firm
Flair

Summary - Overhead Door

Firm
C & D Industrial Maintenance, LLC

Summary - Painting

Firm
Southern Painting & Waterproofing

Summary - Audio/Visual

Firm
Special Event Services

Summary - Roofing

Firm
A.A.T. Roofing, LLC

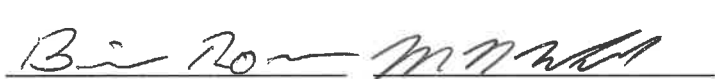
Summary - Splash Pad

Firm
John D Schofield Jr

Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	10	10	30	20	20	20	60	90	90	100	280	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	Exp. 20%	Bill	Mike	John	& Ins.	Bill	Mike	John	Ref. 20%	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	5	10	25	20	20	20	60	90	85	100	275	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
30	30	20	80	20	20	20	60	0	10	10	20	20	20	20	60	70	80	70	220	2
40	40	50	130	20	20	20	60	10	10	10	30	20	20	20	60	90	90	100	280	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	10	10	30	20	20	20	60	90	90	100	280	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
50	40	50	140	0	20	20	40	0	0	10	10	0	10	20	30	50	70	100	220	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	10	10	30	20	20	20	60	90	90	100	280	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	10	10	30	20	20	20	60	90	90	100	280	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
30	30	40	100	20	20	20	60	0	10	10	20	20	20	20	60	70	80	90	240	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	20	20	60	10	5	10	25	20	20	20	60	90	85	100	275	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
50	40	50	140	0	20	20	40	0	0	10	10	0	20	30	50	70	100	220	220	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
40	40	50	130	20	10	20	50	10	0	10	20	20	10	20	50	90	60	100	250	1
Price				Experience				Licensing/Insurance				Reverences				Totals				rank
Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	total	Bill	Mike	John	Total	
50	40	50	140	0	10	20	30	0	0	10	10	0	10	20	30	50	60	90	200	1



Rob Hart
Purchasing Coordinator



Bill Rose
Contract Manager



Mike Demchak
Contract Manager



John Fowler
Building Maint. Supervisor



RFP Evaluation Committee - Recommendation of Award - once vendor meets requirements

Project: Miscellaneous Crafts and Trades (As Needed)-Carpentry	Recommendation of Award: Ruby Builders
Project: Miscellaneous Crafts and Trades (As Needed)-Docks/Decking	Recommendation of Award: Custom Built Docks
Project: Miscellaneous Crafts and Trades (As Needed)-Electric Gates	Recommendation of Award: AAA Fence
Project: Miscellaneous Crafts and Trades (As Needed)-Electrical	Recommendation of Award: Economy Electric
Project: Miscellaneous Crafts and Trades (As Needed)-Event Services	Recommendation of Award: Special Event Services
Project: Miscellaneous Crafts and Trades (As Needed)-Fencing	Recommendation of Award: AAA Fence
Project: Miscellaneous Crafts and Trades (As Needed)-Fire Alarm	Recommendation of Award: VKA Security
Project: Miscellaneous Crafts and Trades (As Needed)-Fire Suppression	Recommendation of Award: VKA Security
Project: Miscellaneous Crafts and Trades (As Needed)-HVAC	Recommendation of Award: Flair
Project: Miscellaneous Crafts and Trades (As Needed)-Overhead Door	Recommendation of Award: C & D Industrial
Project: Miscellaneous Crafts and Trades (As Needed)-Painting	Recommendation of Award: Southern Paiting & Waterproofing
Project: Miscellaneous Crafts and Trades (As Needed)-Audio Visual Equipment	Recommendation of Award: Special Event Services
Project: Miscellaneous Crafts and Trades (As Needed)- Roofing	Recommendation of Award: A.A.T. Roofing
Project: Miscellaneous Crafts and Trades (As Needed)-Splash Pad	Recommendation of Award: John D Schofield Jr

Rob Hart

Purchasing Coordinator

Bill Rose

Contract Manager

Mike Demchak

Contract Manaager

John Fowler

Building Maint. Supervisor

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.B
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-49	
Strategic Goal:	Quality of Life – Other			
Department :	Leisure Services			
Subject:	Contract Award - EDC Aquarium Maintenance to the Fish Tank			
Budget Impact:	Funding for this services is included in the FY 2022-23 General Fund budget of the EDC.			
Summary:	This item requests approval for awarding the weekly aquarium maintenance at the EDC to The Fish Tank, the sole responsive bidder and successful provider of services to the EDC aquarium since the EDC was opened.			
Recommended Action:	The staff's recommendation is to award the weekly aquarium maintenance at the EDC to The Fish Tank at an annual cost of \$33,600.			
Staff Contact:	Robert Carolin, Leisure Services Director, (386) 676-3279			
Approval:				
Kelly McGuire, Finance Director		1/30/2023		
Claire Whitley, Assistant City Manager		2/6/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Robert Carolin, Leisure Services Director
Date: February 21, 2023
Subject: Contract Award - EDC Aquarium Maintenance to the Fish Tank
Commission Goal: Quality of Life – Other

Introduction

This is a recommendation for the City Commission to authorize the awarding of a contract for the weekly aquarium maintenance at the Environmental Discovery Center (EDC).

Background

This agenda item is to award a ***maintenance agreement*** for the cleaning, inspection, and testing of the aquarium equipment and environment, as well as stocking, feeding, and caring for the reptiles and fish. At the December 6, 2022 City Commission meeting, staff notified the City Commission of the intent to solicit these services through BID# 2023-02 for the weekly aquarium maintenance at the Ormond Beach EDC. At a previously City Commission meeting on January 24, 2022, replacement of the EDC fish aquariums and reptile cages was approved by the City Commission due to age-related deterioration and repair needs.

Discussion

The Weekly Aquarium maintenance at the Environmental Discovery Center bid was advertised for proposals in December of 2023. The City received one (1) bid from The Fish Tank in January of 2023. Staff reviewed the bid and determined all requirements had been met. The Fish Tank has been serving Volusia and Flagler County for both fresh and saltwater needs for over 50 years. The current owner of The Fish Tank previously worked at the Volusia County Marine Science Center and has over ten years of aquarium retail experience. His team is supported by a service department manager with over 20 years of fresh and saltwater aquarium maintenance experience, a store manager with over 30 years of experience working with fresh and saltwater aquariums, a freshwater plant specialist, and a coral specialist.

Budget Impact

Funding for this services is included in the FY 2022-23 General Fund budget of the EDC.

Citizen Impact

Having a clean and properly maintained aquarium ensures necessary care for the tank and the fish, and enhances the experience while visiting the EDC.

Recommendation

The staff's recommendation is to award the weekly aquarium maintenance at the EDC to The Fish Tank at an annual cost of \$33,600.

Attachments:

1. 23-49 Aquarium Maint-Aquascapes (P23-0020G)
2. Aquascapes agreement
3. City of Ormond Non Conflict Statement
4. BID 2023-02 tabulation

Approvals:



Kelly McGuire, Finance Director

Date: January 30, 2023



Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-49

A RESOLUTION ACCEPTING A BID FROM AQUASCAPES, LLC d/b/a THE FISH TANK TO PROVIDE MAINTENANCE SERVICES FOR THE AQUARIUM AT THE ENVIRONMENTAL DISCOVERY CENTER, UNDER BID NO. 2023-02; AUTHORIZING THE EXECUTION OF A CONTRACT AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, the City advertised for bids (Bid No. 2023-02) regarding maintenance services for the aquarium at the Environmental Discovery Center (“the Project”) pursuant to section 2-300, *Code of Ordinances*, and

WHEREAS, the City's professional staff have reviewed the only bid received and have determined that the bid submitted by Aquascapes, LLC d/b/a The Fish Tank in the amount of \$33,600.00 is the lowest responsible and responsive bid (a copy of said bid being incorporated in the contract which is attached hereto and incorporated herein by reference), and

WHEREAS, the City Manager has certified that funds have been appropriated to the credit of the General Fund for the Project and have not been appropriated for any other purpose, now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The bid submitted by Aquascapes, LLC d/b/a The Fish Tank to perform the Project in the amount of \$33,600.00 is hereby accepted.

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute a contract with Aquascapes, LLC d/b/a The Fish Tank for the performance of the Project at the said price, and to pay the cost thereof from the General Fund.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

AGREEMENT FOR SERVICES

THIS AGREEMENT is made and entered into by and between the **City of Ormond Beach** ("City"), a Florida municipal corporation, 22 South Beach Street, Ormond Beach, Volusia County, Florida and **Aquascapes, LLC d/b/a The Fish Tank** ("Contractor"), 820 N. Nova Road, Daytona Beach, FL 32117, and in consideration of the mutual promises and covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to the following:

1. **Scope of Work.** The Bid ("EDC-Weekly Aquarium Maintenance", Bid No. 2023-02) attached hereto as Exhibit "A", is incorporated herein by reference and is a material part of this Agreement. The Contractor shall fully comply with the terms and conditions described in the attached exhibit.
2. **Term.** This Agreement shall be effective on the date it is fully executed by the parties and shall have an initial term of two (2) years. This Agreement may be renewed for three (3) additional one-year periods upon mutual agreement of the parties hereto.
3. **Consideration.** Contractor shall perform the services at the prices set forth on Exhibit "A". Contractor shall prepare and submit invoices to the City at the address set forth in Paragraph 9 of this Agreement. All such invoices shall be paid by the City within thirty (30) days.
4. **Delivery.** Contractor shall complete the project within the time frame set forth on Exhibit "A".
5. **Termination of Agreement.**
 - (a) The City Commission shall have the right to terminate the Agreement in the event the Contractor files any petition or proceeding for bankruptcy relief, or is adjudicated to be bankrupt or insolvent, or fails to pay just debts as they ordinarily become due; or for a material breach of this agreement that remains uncured for at least thirty days after prior written receipt of a notice of violation of same.
 - (b) This Agreement may not be terminated by the Contractor.
6. **Assignment.** The Contractor shall not assign, convey or transfer all or any part of this Agreement, or all or any part of Contractor's interest herein, or all or any part of any interest in the Contractor, without the prior written consent of the City Commission, which consent shall not be unreasonably withheld.
7. **Complete Agreement.** This Agreement, including the provisions set forth in the exhibit attached hereto and incorporated by reference herein, constitutes the entire and complete agreement of the parties, and the promises and covenants herein contained shall survive the life of this Agreement.

8. **Amendment to Agreement.** Any amendment, change, or modification of this Agreement must be in writing and fully executed by both parties.
9. **Notices.** All notices which are required by this Agreement shall be provided to the parties at the following addresses, or such other addresses as may be requested in writing by either party:

City of Ormond Beach
Joyce Shanahan, City Manager
(copy to City Attorney)
22 South Beach Street
Ormond Beach, FL 32174

Aquascapes, LLC
d/b/a The Fish Tank
Brad Lewis, Owner
820 N. Nova Road
Daytona Beach, FL 32117

10. **Sovereign Immunity.** The City expressly retains and reserves all rights, privileges, immunities, and benefits of sovereign immunity. This provision shall be construed broadly in favor of the City.
11. **Venue.** The terms and conditions of this Agreement shall be construed and enforced under the laws of the State of Florida. Any action or proceeding, either at law or in equity, regarding this Agreement shall be brought in the circuit court, Seventh Judicial Circuit in and for Volusia County, Florida. Venue in any other jurisdiction or forum, whether it be any other circuit, state or federal venue, is hereby expressly waived.
12. **Waiver of Conditions.** No waiver by the City of any condition or breach of performance by the Contractor shall constitute an irrevocable, continuing, or subsequent waiver by the City of the same condition or breach of performance, or of any other condition or other breach of performance.
13. **Severability.** If any part of this Agreement is declared to be unenforceable or void by a court of competent jurisdiction, the remaining parts of the Agreement shall remain in full force and effect as long as the services to be provided by the Contractor are not materially affected, altered or impaired as a result of said judicial declaration.
14. **Conflicting Provisions.** In the event of any conflict between the provisions of this Agreement and any exhibits, the provision most favorable to the City shall control and shall be given full force and effect.
15. **Indemnification.** The City, its agents, employees, and officials, both elected and appointed, shall be indemnified and held harmless by Contractor from any and all liabilities, claims, and causes of action which may arise out of the willful, negligent, or unlawful acts or omissions of the Contractor or its subcontractors in the performance of this Agreement, unless such claims are a result of the City's sole negligence, as determined by the final decision maker of such claim.
16. **Duty to Defend.** The Contractor shall defend all suits and administrative actions, including all appellate proceedings, brought against the City, its agents, employees, and officials,

both elected and appointed and shall pay all attorneys' fees and costs associated with the City's legal defense, as may be selected by the City, arising from all claims and causes of action described in Section 15 above. Such payment on behalf of the City shall be in addition to any and all other legal or equitable remedies available to the City and shall not be considered to be the City's exclusive remedy.

17. **Contractor's Insurance.** The Contractor shall purchase and maintain for the entire life of this Agreement, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under this Agreement, whether such operations be by the Contractor, or by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

18. **Types of Insurance and Limits of Liability**

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident
\$100,000 Each Employee Bodily Injury by Disease
\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):

- a. Premises, Operations, Products and Completed Operations
- b. Owners' & Contractors' Protective
- c. Products & Completed Operation
- d. Explosion, Collapse & Underground Conditions
- e. Blanket Contractual Liability
- f. Personal Injury Liability
- g. Broad Form Property Damage Endorsement, including Completed Operations
- h. Independent Contractors
- i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
- j. Pollution Liability (if applicable)
- k. Asbestos Abatement (if applicable)
- l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence
\$2 Million General Aggregate
\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract.

ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million Combined Single Limit for Bodily Injury
and Property Damage

(d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

(e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

(f) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

19. Requirements for Certificates of Insurance.

- (a) With the execution of this Agreement, the Contractor shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain a provision that the coverage under the policies will not be canceled, non-renewed or materially changed until at least **thirty (30)** days' prior written notice of such cancellation, non-renewal or change [except for nonpayment of premium, which shall be **ten (10)** days] has been given to the City. The Contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of this Agreement.

- (b) New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
- (c) If requested by the City, the Contractor shall furnish complete copies of the Contractor's insurance policies, forms and endorsements.
- (d) For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
- (e) If the Contractor fails to obtain and maintain for the life of the Agreement the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Agreement.
- (f) **Policies of Insurance**
 - 1. Except as otherwise provided herein, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-) in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
 - 2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carriers; written confirmation is required.
 - 3. All policies of insurance or certificates thereof referred to herein shall be deposited with the City Clerk.
 - 4. The City shall be named an Additional Insured on General Liability and Automobile Liability policies of insurance and certificates thereof.

20. **Enforcement of Costs.** If any legal action or other proceeding is brought for the enforcement of this Agreement, or because of an alleged dispute, breach, default, or misrepresentation in connection with any provision of this Agreement, the successful or prevailing party or parties shall be entitled to recover reasonable attorneys' fees, court costs, and all expenses even if not taxable court costs (including, without limitation, all such fees, costs and expenses incident to arbitration, appellate, bankruptcy, and post-judgment proceedings), incurred in that action or proceeding or any appeal, in addition to

any other relief to which the party or parties may be entitled. Attorneys' fees include legal assistant fees, expert witness fees, investigative fees, administrative costs, and all other charges billed by the attorney for the prevailing party.

21. **Compliance With Laws.** Contractor shall comply with all applicable federal, state and local laws and regulations.
22. **Compliance With Florida Public Records Law.** Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:
 - (a) Keep and maintain public records required by the City to perform the contracted service.
 - (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
 - (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
 - (d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
 - (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32175. (386)677-0311
CITYCLERK@ORMONDBEACH.ORG**

23. **Limitation of Remedy and Liability.** Contractor and Owner expressly waive any claim for consequential damages against the other including but not limited to, a waiver of claims for diminished bonding capacity, loss of financing, loss of business reputation, lost profits on other projects or other lost opportunity damage claims.

Contractor expressly agrees that any claim (tort, contract, claim in equity, or otherwise) by Contractor for damages against Owner shall not exceed the total amount of the contract price, less any amounts actually paid to the Contractor by the Owner.

24. **Waiver of Right to Jury Trial.** THE PARTIES HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY RIGHT WHICH ANY PARTY MAY HAVE TO TRIAL BY JURY IN RESPECT OF ANY PROCEEDING, LITIGATION OR COUNTERCLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. IF THE SUBJECT MATTER OF ANY LAWSUIT IS ONE IN WHICH THE WAIVER OF JURY TRIAL IS PROHIBITED, NO PARTY TO THIS AGREEMENT SHALL PRESENT AS A NON-COMPULSORY COUNTERCLAIM IN ANY SUCH LAWSUIT ANY CLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. FURTHERMORE, NO PARTY TO THIS AGREEMENT SHALL SEEK TO CONSOLIDATE ANY SUCH ACTION IN WHICH A JURY TRIAL CANNOT BE WAIVED.

25. **Verification of Employment Status Using E-Verify System**

- (a) Section 448.09, *Florida Statutes*, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, either for herself or himself, or on behalf of another, for private or public employment within the state, an alien who is not duly authorized to work in the United States. Contractor warrants that it is registered with the U.S. Department of Homeland Security's E-Verify system, and is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
- (b) Contractor agrees that if the contractor enters into an agreement with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and contractor warrants it shall maintain any such affidavits for the duration of the contract. If the City has a good faith belief that a subcontractor knowingly violated Section 448.09 (1), the City shall promptly notify the contractor and order the contractor to immediately terminate the contract with the subcontractor.
- (c) In the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and as provided by statute, the contractor may not be awarded a public contract for at least

one (1) year after the date of termination. The contractor may also be held liable for any additional costs incurred by the City as a result of the termination of the contract.

26. **No Conflict of Interest.** The Contractor warrants and agrees that neither it, nor any of its employees, agents, officers, directors, shareholders and independent contractors are, or will become, under contract with or accept compensation from any individual, business, corporation or governmental entity that has the possibility of an adverse interest to those of the City of Ormond Beach. The Contractor and its officers, directors, shareholders, employers, agents and subcontractors, agree not to provide any services or assistance to any entity directly or indirectly relating to the services provided to the City and to immediately notify the City Manager and City Attorney of any contact with any entity that has, or potentially has, a conflict of interest with the City of Ormond Beach. This provision shall be interpreted as broadly as possible to prevent any potential or actual conflict of interest presently or in the future by the Contractor.
27. **Effective Date.** This Agreement shall become effective upon the date last signed by the parties hereto.

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be signed on the dates indicated hereinbelow.

DATED this _____ day of _____, 2023.

Witnesses:

CITY OF ORMOND BEACH

Print Name: _____

By: _____
BILL PARTINGTON
Mayor

Print Name: _____

By: _____
JOYCE SHANAHAN
City Manager

DATED this _____ day of _____, 2023.

Witnesses:

AQUASCAPES, LLC
d/b/a The Fish Tank

By: _____

Print Name: _____

Print Name: _____

Title: _____

Attest: _____

Print Name: _____

Print Name: _____

Title: _____



City of Ormond Beach

22 South Beach Street
Ormond Beach, Florida 32174
Telephone (386) 676-3223
Fax (386) 676-3330

INVITATION TO BID

BIDDER ACKNOWLEDGEMENT FORM

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID

BID TITLE: EDC – Weekly Aquarium Maintenance

BID NUMBER: 2023-02

BID OPENING DATE & TIME: January 11, 2023 at 2:00 PM

BID OPENING LOCATION: City Hall Training Rm, Ormond Beach City Hall 22 S. Beach Street

PRE-BID MEETING DATE & TIME: N/A

PRE-BID MEETING LOCATION: N/A

Bids Received After The Above Date And Time Will Not Be Accepted.

BIDDER'S NAME: The Fish Tank

BIDDER'S MAILING ADDRESS: 820 N. Nova Rd

CITY-STATE-ZIP: Daytona Beach, FL 32117

F.E.I.N. or S.S. NUMBER: 45-5200051

PHONE NUMBER: 386-255-2253

EMAIL: aquascapesdb@gmail.com

If returning as a "No Bid", please state reason (s): _____

I certify that this Bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a Bid for the same materials, supplies, or equipment, and is in all respects fair and made without collusion or fraud. I agree to abide by all conditions of this Bid and certify that I am authorized to sign this Bid for the Bidder. In submitting a Bid to the City of Ormond Beach, the Bidder offers and agrees that if the Bid is accepted, the Bidder will convey, assign or transfer to the City of Ormond Beach all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Antitrust laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the City of Ormond Beach. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the Bidder.

X

AUTHORIZED SIGNATURE (MANUAL)

Brad Lewis

NAME (TYPED)

Business Owner

TITLE

12/16/2022

DATED

GENERAL CONDITIONS

PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Bid on a contract to provide any goods or services to a public entity, may not submit a Bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit Bids on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

DISCRIMINATION: Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid or proposal on a contract to provide any goods or services to a public entity, may not submit a bid or proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit bid or proposal on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

PUBLIC RECORDS/NON-CONFIDENTIALITY OF BIDS AND/OR PROPOSALS.

The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119.01, F.S., The Public Records Law. Information and materials received by the City of Ormond Beach in connection with all Proposers' response shall be deemed to be public records subject to public inspection upon award, recommendation for award, or 10 days after bid opening, whichever occurs first. Section 119.071, F.S.

NOTIFICATION OF BIDS AND RFP'S: The City uses the services of DemandStar (www.demandstar.com) for notification of its Bids and RFP's on-line on the Internet. If you have received a copy of this Bid/RFP from any source other than DemandStar, please be aware that you may not have received the latest version of the Bid/RFP or any related addendums.

SUBMISSION OF BIDS: All Bids shall be submitted in a sealed envelope. The Invitation to Bid (ITB) number, title, and opening date shall be clearly displayed on the outside of the sealed envelope. The delivery of said Bid to the Purchasing Office on or before the specified opening date and time is solely and strictly the responsibility of the Bidder. Any Bid received by the Purchasing Office after the specified date and time will not be accepted. Bids must be submitted on forms provided by the City. No other forms will be accepted. Telephone, telefax and telegraph Bids will not be considered. No Bid may be modified after opening. **No Bid may be withdrawn after opening for a period of ninety (90) days unless otherwise specified.**

EXECUTION OF BID: Bid must contain a manual signature of authorized representative in the space(s) provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by Bidder to any Bid entry must be initialed. The company name and Federal Employer Identification Number (F.E.I.D.) or Social Security (S.S.) number shall appear in the space(s) provided.

BID OPENING: Bids shall be opened and the name of the Bidders and the bid amounts shall be read publicly. Bid amounts announced at the bid opening are subject to change due to math errors made by Bidders

BID TABULATION: Any Bidder wishing to receive a copy of the Bid tabulation is required to enclose a stamped, self-addressed envelope with their Bid response. Bid opening tabulations will be posted on DemandStar.com.

CLARIFICATION/CORRECTION OF BID ENTRY: The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

INTERPRETATION: Any questions concerning conditions and specifications shall be directed to the Purchasing Coordinator. Those interpretations which may affect the eventual outcome of this Bid will be furnished in writing to all prospective Bidders. No interpretation shall be considered binding unless provided in writing by the City of Ormond Beach.

MINORITY POLICIES: The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

LICENSES AND PERMITS: The vendor is responsible for obtaining all necessary permits and licenses to comply with all Federal, State, and Local laws, rules and regulations required to perform work in accordance with the specifications.

LOCAL VENDOR PREFERENCE: The City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded. A Local Vendor Affidavit of Eligibility shall accompany the bid submittal to be considered valid.

PRICING: Firm prices shall be proposed and include FOB DESTINATION, all packing, handling, shipping charges and delivery to any point within the City of Ormond Beach to a secure area or inside delivery. Prices shall be valid for ninety (90) days from date of Bid opening. In the event there is a discrepancy between the unit price and the extended amount, the unit price will prevail.

ADDITIONAL TERMS AND CONDITIONS: The City of Ormond Beach reserves the right to reject Bids containing any additional terms or conditions not specifically requested in the original conditions and specifications.

TAXES: The City of Ormond Beach is exempt from Federal Excise Taxes and all sales taxes.

DISCOUNTS: All discounts EXCEPT THOSE FOR PROMPT PAYMENT shall be considered in determining the lowest net cost for Bid evaluation purposes. If a Bidder offers a discount, it is understood that the discount time will be computed from the date of satisfactory delivery, at the place of acceptance, and receipt of correct invoice, at the office specified, whichever occurs last.

SILENCE OF SPECIFICATIONS: The apparent silence of any specification and any supplemental specifications as to any details or the omission from same of any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship is to be first quality. All interpretations of the specifications shall be made upon the basis of this statement.

ASSIGNMENT: Any purchase order or contract issued pursuant to a Bid and the monies which may become due thereunder are not assignable except with the prior written approval of the City Manager or City Commissioner, whichever authorized the purchase.

LIABILITY: The vendor shall hold and save the City of Ormond Beach, its officers, agents, and employees harmless against claims by third parties resulting from the vendor's or supplier's breach of contract or negligence, including all attorney's fees and costs, and shall pay any and all damages, fees, and costs assessed on behalf of the City. The City expressly reserves all rights, privileges and benefits of sovereign immunity.

PATENTS AND ROYALTIES: The Bidder, without exception, shall indemnify and save harmless the City of Ormond Beach and its employees from liability of any kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Ormond Beach. If the Bidder uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the Bid prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

SAFETY WARRANTY: The selling dealer, distributor, supplier, and manufacturer shall be responsible for compliance with all Federal, State and local laws, rules and regulations concerning the equipment and/or service specified and the use thereof, applicable and

effective on the date of manufacture including safety and environmental standards as apply to both private industry and governmental agencies.

WARRANTY: The Bidder agrees that, unless otherwise specified, the services furnished under the Bid shall be covered by the most favorable commercial warranty for comparable services, and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the City of Ormond Beach by other provision of the Bid.

AWARDS: The City reserves the right, in its sole discretion, as the best interest of the City may require, to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or with one or more vendors or contractors; or to reject any and all Bids or waive any minor irregularity or technicality in the Bids received.

NON-APPROPRIATION OF FUNDS: In the event sufficient budget funds are not available for a new fiscal period, the CITY shall notify the VENDOR/CONTRACTOR of such occurrence and the contract shall terminate on the last day of the current fiscal period, without any penalty or expense to the CITY of any kind whatsoever.

OTHER AGENCIES: All Bidder(s) awarded contracts from this bid or proposal may, permit any municipality or other government agency to participate in the contract under the same prices, terms, and conditions, if agreed to by both parties.

It is understood that at no time will any city, municipality, or other agency be obligated for placing an order for any other city, municipality, or agency: nor will any city, municipality, or agency be obligated for any bills incurred by any other city, municipality, or agency. Further, it is understood that each agency will issue its own purchase orders to the awarded bidder(s).

COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW:

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

- (a) Keep and maintain public records required by the City to perform the contracted service.
- (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
- (d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to

perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City. (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32175.
(386)677-0311
CITYCLERK@ORMONDBEACH.ORG
Or
www.ormondbeach.org/prr**

Ref: Fla. Stat. §119.0701(2016)

THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, AND TO WAIVE INFORMALITIES, AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE CITY.
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DEFINITIONS:

BIDDER - The term used herein refers to any individual, company or other entity submitting a Bid to the CITY in response to an Invitation to Bid (ITB).

CITY/OWNER - The terms CITY or OWNER herein refers to the City of Ormond Beach, Florida, and its duly authorized representatives.

CONTRACT MANAGER - The term refers to the CITY representative(s) who will be acting on the CITY's part to manage all the Contract actions.

FURNISH - The terms "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install, complete in place and ready for service".

PROJECT - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

PROJECT MANUAL - The term "Project Manual" includes Bid Requirements, General Conditions, Scope of Work, Specifications, Risk Management requirements and any associated attachments.

SPECIFICATIONS - The term refers to those portions of the Project Manual consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

SUPPLIER - The term used herein refers to any individual, company or other entity supplying services pursuant to the terms, conditions, and quotations of a Bid or Proposal.

VENDOR, CONTRACTOR, or VENDOR/CONTRACTOR - The term(s) used herein refers to any individual, company, or other entity that is awarded a contract by the CITY, pursuant to the terms, conditions, and quotations of a bid/proposal.

WORK - The entire, completed job or the various separately identifiable parts thereof, required to be furnished under the Contract Documents. Work is the result of providing goods and/or services, furnishing labor and/or furnishing and incorporating materials and equipment into the construction, as required by the Contract Documents.

NON-APPROPRIATION OF FUNDS: In the event sufficient budget funds are not available for a new fiscal period, the CITY shall notify the VENDOR/CONTRACTOR of such occurrence and the contract shall terminate on the last day of the current fiscal period, without any penalty or expense to the CITY of any kind whatsoever.

City of Ormond Beach
EDC – Weekly Aquarium Maintenance
Bid No. 2023-02

GENERAL INSTRUCTIONS:

Bid Delivery: Submit one (1) signed and unbound original of the complete Bid packet and one (1) electronic file, with all required attachments, by the closing date and time. Deliver Bids to: Rob Hart, Purchasing Coordinator, Ormond Beach City Hall Room 101, 22 South Beach Street, Ormond Beach, Florida 32174. **Make sure the bid number is clearly visible on the outside of the delivery package. Bids delivered after the time and date specified will not be accepted.** For any question regarding bid delivery contact the purchasing office at 386-676-3223.

Technical Questions: Submit all technical questions regarding this Bid to the City's Purchasing Coordinator, Robert Hart, by e-mailing rob.hart@ormondbeach.org.

Rejection Rights: The City of Ormond Beach reserves the right, at any time, to modify, waive or otherwise vary the terms and conditions of this Bid including, but not limited to, the deadlines for submission and submission requirements. The City further reserves the right to reject any or all submittals, to cancel or withdraw this Bid at any time and to negotiate with any party prior to or after submittal of Bid.

Cost of Bid Preparation: No reimbursement will be made by the City of Ormond Beach for any costs incurred in the preparation of the Bid, proposal or presentation.

Bids to be in Effect: Each Bid shall state that it is valid for a period of not less than ninety (90) days from date of receipt.

Equipment: Contractor shall own and have in good repair all equipment necessary to perform the described services in particular and the equipment necessary to complete related tasks. The City will not provide any equipment to do this work.

Registration And Risk Management Requirements: Any Vendor delivering a product or Contractor doing work for the City of Ormond Beach, on City property shall be **registered** to do business in the City of Ormond Beach and shall provide **proof of**, abide by and maintain, for the entire life of the Contractual Agreement, including any and all approved time extensions, such **insurance** as is required by City ordinance, which shall be incorporated in and made part of the contract documents. A vendor using a common carrier is exempt from this requirement. This proof of insurance will be required prior to commencement of any **on-site** work. Refer to **Attachment A** for the City's registration and risk management requirements.

Background:

Environmental Discovery Center

Mission Statement

The Environmental Discovery Center's mission is to foster an awareness and appreciation of the natural environment by providing stimulating environmental education programs that inspire participants to be active stewards of their surrounding natural resources.



Ormond Beach Environmental Discovery Center at Central Park

About the Center

The City of Ormond Beach's Environmental Discovery Center (EDC) provides visitors with a glimpse into the diverse ecosystems of Ormond Beach, specifically Central Park. This 2,000 square foot facility is designed to be self-guided. The building serves as a hub for the programming and special events that will immerse visitors in these ecosystems and provide hands-on education.

**Located in Central Park at:
601 Division Avenue
Ormond Beach, FL 32174
(386) 615-7081**

SCOPE OF WORK:

GENERAL

The City of Ormond Beach invites qualified companies to submit Bid for:

Daily Services

Monday–Friday, 2 (min) hrs. per day, duties must include:

- Feeding and monitoring of animal health
- Identification of parasitic, fungal, and bacterial infections of fish, reptiles and amphibians
- Supplying medications and treating when necessary
- Keep daily written records of weights, growth rates, feedings, medications, water tests, additives, reason for any losses, etc.

Weekly Services

Once per week duties must include:

- Testing of water parameters, parameter corrections, water changes, filter cleaning and/or replacement, media replacement, change of reptile bedding
- Weighing of snake to monitor and determine dietary needs

Monthly Services

Detailed services not otherwise performed on a daily or weekly basis.

Examples include but are not limited to:

- Ultra violet sterilization bulb replacement
- Cleaning of quartz sleeves
- Cleaning and replacement of exhibit decorations
- Par readings of aquaponics system

Special Events/Weekend/Emergency Call outs

- Will be available on an as needed basis, including before/after natural disasters
- Must respond within (1) hour of initial contact from staff
- Expected to work on holidays and weekends when needed
- May be required to attend/speak at special events

Additionally

Must be able to provide food, medications and various supplies including but not limited to additives, plants, bedding, decorations, replacement filters and filtration, misc. accessories, lamps, testing equipment etc. for:

- 1 Aquarium featuring invasive Florida Fish
- 1 Aquarium featuring native Florida Fish
- 2 Native Snake Displays
- 1 Red Bellied Cooter Turtle display
- 1 Box Turtle Display
- 1 Amphibian Display

*Must have valid licensing to purchase, hold, and distribute requested livestock and plants.

* Services must also include up to 30 days offsite quarantine of livestock replacements for exhibits.

AWARD:

The City reserves the right to award any contract(s) to the bidder(s) which it deems to offer the best overall service; therefore, the City is not bound to award any contract(s) based solely on lowest quoted price. The City also reserves the right to negotiate separately with competing bidders as deemed to be in the City's best interest.

COST ADJUSTMENTS:

No later than June 1, of each contract year, the Contractor may petition the City through the Contract Manager for a rate adjustment to reflect the change in the cost of doing business, as measured by fluctuations in the Consumer Price Index (CPI), All Urban Customers, published by the U.S. Department of Labor, Bureau of Labor Statistics, for the preceding July 1-June 30 period. The maximum increase for any annual period shall be four (4%) percent which will only apply to the future year, increases will not be retroactive. The adjusted rate, if approved shall take effect on October 1, of the year in which approved.

TAXES:

The Contractor is responsible for paying any and all taxes associated with this agreement.

TERM

The initial term of this agreement shall be for a period of two (2) years and may be automatically renewed for three (3), one-year terms thereafter upon mutual written agreement.

OTHER AGENCIES:

Any bidder(s) awarded a contract resulting from this bid is/are given the privilege and is/are required to permit all public and governmental entities in the State of Florida to participate in the contract under the same terms and conditions.

It is understood that at no time will any agency be obligated for placing an order for any other agency. Each agency will only have the authority to obligate itself and will not be held responsible for bills incurred by any other agency. Further, it is understood that each agency will issue its own purchase order(s) or contract to successful bidder(s).

City of Ormond Beach
EDC – Weekly Aquarium Maintenance
Bid No. 2023-02

VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

1. Undersigned firm warrants it **IS** currently registered with the U.S. Department of Homeland Security's E-Verify system, **and** is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
2. Undersigned firm warrants it **has not** had any contracts terminated as a result of violations of Sections 448.09 or 448.095, *Florida Statutes*, that prohibit it from contracting with a public agency.
3. Undersigned firm warrants that if it enters into an agreement with a subcontractor, an express provision shall be included in all of its subcontracts requiring subcontractors, who perform work or provide services pursuant to the contract, to use the E-Verify system to verify employment eligibility of all new employees hired by the subcontractor during the contract term.
4. Undersigned firm understands that any subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and the contractor understands it shall maintain any such affidavits for the duration of the contract, and the contract with the subcontractor must be immediately terminated if the City has a good faith belief that the subcontractor knowingly violated Section 448.09 (1), *Florida Statutes*.
5. Undersigned firm understands that in the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and the contractor may not be awarded a public contract for a period of at least one (1) year after the date of termination. The contractor may be held liable for any additional costs incurred by the City as a result of termination of the contract.

The Fish Tank

COMPANY NAME

AUTHORIZED SIGNATURE

Brad Lewis

NAME

Business Owner

TITLE

12/16/2022

DATE

City of Ormond Beach
EDC – Weekly Aquarium Maintenance
Bid No. 2023-02

BID RESPONSE FORM

THIS BID IS SUBMITTED TO:
(Name and Address of Owner)

Purchasing Coordinator
City of Ormond Beach
22 S. Beach Street
Ormond Beach, Florida 32174
Phone: (386) 676-3223

The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with the CITY in the form included in the Bid Documents to complete all Work as specified or indicated in the Bid Documents for the Contract Price and within the Contract Time indicated in this Bid and in full accordance with the Bid Documents.

BIDDER certifies that he has investigated the requirements to do business in the jurisdiction where the project is located, and that he is either qualified to do business or will obtain such prequalification prior to award of the contract.

BIDDER accepts all of the terms and conditions of the General Conditions. BIDDER will sign the Agreement (Contract) and submit the Contract security (when applicable) and other documents required by the Contract Documents within ten (10) days after the date of CITY's Notice of Award.

In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

BIDDER has examined copies of all the Bid Documents and of the following Addenda:

<u>Addendum Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____
_____	_____

Receipt of all of which is hereby acknowledged.

BIDDER has examined the site and locality where the Work is to be performed, when applicable, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.

BID RESPONSE FORM
(continued)

This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over the CITY.

THIS BID IS SUBMITTED BY:

COMPANY NAME: The Fish Tank

VENDOR/CONTRACTOR LICENSE NUMBER: BT-34902

ADDRESS: 820 N. Nova Rd, Daytona Beach, FL 32117

PHONE NO.: 386-255-2253

EMAIL: aquascapesdb@gmail.com

SUBMITTER'S NAME: Brad Lewis

(Typed or Printed in Ink)

TITLE: Business Owner

AUTHORIZED SIGNATURE: I,  hereby
(Original Signature)

declare that I have read and fully understand the Invitation to Bid, including the General Conditions, Specifications and Drawings (when applicable) and that I am duly authorized to sign and submit this bid.

The CITY reserves the right to reject any and all bids, to waive informalities, and to accept any bid or parts thereof as the CITY, in its sole discretion, determines to be in the best interest of the CITY.

City of Ormond Beach
EDC – Weekly Aquarium Maintenance
Bid No. 2023-02
BIDDING SPECIFICATIONS

The BIDDER will complete the Work, as described herein, for the following price(s):

<u>Item No:</u>	<u>Description:</u>	<u>BID SCHEDULE</u>			
		<u>Quantity:</u>	<u>Unit:</u>	<u>Unit Price:</u>	<u>Total Price:</u>
1.	Hourly Rate for Weekly Maintenance	520	EA	\$ <u>60.00</u>	\$ <u>31,200</u>
2.	Estimated Monthly Livestock	12	EA	\$ <u>200.00</u>	\$ <u>2,400</u>

TOTAL BID FOR CONTRACT

\$ 33,600.00

(Figures)
Thirty Three Thousand Six Hundred Dollars and 00/100
(Words)

City of Ormond Beach
EDC – Weekly Aquarium Maintenance
Bid No. 2023-02

CITY OF ORMOND BEACH, FLORIDA

**CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT**

1.

- ☒ To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- ☐ The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

2.

- ☒ The undersigned firm has had no litigation on any project in the last five (5) years.
- ☐ The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

The Fish Tank

COMPANY NAME



AUTHORIZED SIGNATURE

Brad Lewis

NAME (PRINT OR TYPE)

Business Owner

TITLE

12/16/2022

DATE

CITY OF ORMOND BEACH
DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL OR "TIE" BID: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more Bids which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a Bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie Bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.

Give each employee that engages in providing the commodities or contractual services that are under proposal a copy of the statement specified in subsection (1).

In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.

Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

The Fish Tank

COMPANY NAME

AUTHORIZED SIGNATURE

Brad Lewis

NAME (PRINT OR TYPE)

LOCAL VENDOR PREFERENCE

The following is taken from the Code of Ordinances, City of Ormond Beach, Chapter 2, Financial Matters, Division 3, Purchasing, Article IX, Section 2-304:

Except where otherwise provided by federal or state law or other funding source restrictions, purchases of goods and services under the Purchasing Code shall give preference to local businesses as follows:

- (a) Under a competitive bid solicitation, the City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded.
- (b) A *local business* shall mean a vendor that has a valid occupational license issued by the City of Ormond Beach at least one year prior to bid opening, with a physical business address located within the municipal boundaries of the City of Ormond Beach from which the vendor operates or performs business on a day-to-day basis that is a substantial component of the goods or services being offered and has provided a Local Vendor Affidavit of Eligibility at the time the bid is submitted.
- (c) A *Local Vendor Affidavit of Eligibility* shall accompany the bid submittal to be considered valid and shall include, but not be limited to, the following information:
 - (1) A physical business and location address;
 - (2) A copy of current City of Ormond Beach Local Business Tax Receipt (occupational license) to verify the business location;
 - (3) Proof of payment of business tax and real property tax due to the City of Ormond Beach;
 - (4) A copy of the firm's most recent annual corporation report to the Florida Division of Corporations;
 - (5) Any additional information necessary to verify local status.
- (d) *Exemptions:* Goods or services provided under a cooperative purchasing agreement, contracts for professional services subject to Consultants' Competitive Negotiation Act, purchases or contracts funded in whole or part by a governmental entity that does not allow local preferences, purchases made under another agency's agreements or contracts (piggybacking), purchases under emergency or sole source situations and procurements subject to formal proposals including but not limited to request for proposals (RFP) or continuing contract, and request for quotes (RFQ) versus straight competitive bids.
- (e) This section shall not be deemed to require the granting of a local preference, and nothing herein prohibits the award of a contract to a non-local vendor where such award is in the public interest.



Local Vendor Affidavit of Eligibility

I certify that my company meets all of the following qualifications to be eligible for the local vendor preference:

- My company has a physical business address located within the municipal boundaries of the City of Ormond Beach which is used to perform business on a day-to-day basis.
- My company holds any business (occupational) or contractor license required by the City of Ormond Beach at least one year prior to bid opening.
- Payment of business tax and real property tax due to the City of Ormond Beach is current
- My company is in compliance with annual reporting to the Florida Division of Corporations

Company Name: The Fish Tank

Address: 820 N. Nova Rd, Daytona Beach, FL 32117

Business or Contractor License Number: BT-34902

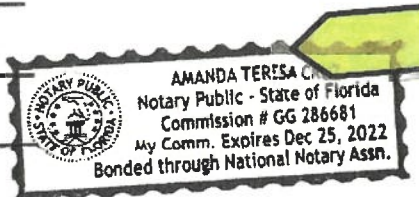
Phone Number: 386-255-2253 Fax Number: 386-872-5185

Owner's Name: Brad Lewis Signature: Brad Lewis

Sworn to before me this 16th day of December

Notary Public for the State of Florida My Commission Expires Dec 25, 2022

Notary Public Signature: Amanda Printed Name: Amanda



To be approved as a local bidder and receive bid preference on an eligible local project, this affidavit of eligibility, a copy of your local business or contractor license, copy of business tax/real property tax and a copy of the firm's most recent annual corporation report must be submitted with your bonafide BID package. Bid preference is provided at the City's sole discretion.

VENDOR DO NOT COMPLETE BELOW

To be verified and completed by an authorized representative of the City of Ormond Beach's Purchasing Department:

Vendor Certified by: _____ Date: _____

Attachment A
City of Ormond Beach
REGISTRATION AND INSURANCE REQUIREMENTS FOR VENDOR/CONTRACTOR
WORKING ON CITY PROJECTS

Registration Requirements

VENDORS doing business within the City Limits must be registered with the City.

Requirements for registering a business are as follows:

Copy of City Business Tax Receipt (where your business is located).

Certificate of Insurance showing General Liability and Workers' Comp (or State Workers' Comp Exemption form).

Application Fee: \$25.00 For more information, contact the City's Business Tax Receipt official.

State Certified/Registered Contractors

All registered contractors must be registered with Volusia County. Volusia County Contractor Licensing, 123 W. Indiana Ave., Rm 203, Deland, FL 32720 (386) 736-5957 Opt. 2 – (386) 740-5215 Fax. Certified Contractors have the option of registering with Volusia County, or providing information directly to the business tax receipt official.

If you have any questions regarding the above requirements, please contact the business tax receipt official at (386) 676-3234.

Insurance Requirements

[From Ormond Beach Code of Ordinances establishing minimum requirements for risk management, commercial general liability insurance, and comprehensive general liability insurance, as amended by Resolution No. 2021-144 (9/22/21)]:

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include at a minimum, the following, or substantially similar, provisions:

1. Hold Harmless and Indemnity

The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally

wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the Contractor in the performance of this Contract. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this provision.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph. Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary. The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences. Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith, temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible

property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:**

\$100,000 Each Accident Bodily Injury by Accident
\$100,000 Each Employee Bodily Injury by Disease
\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage—all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):**

- a. Premises, Operations, Products and Completed Operations
- b. Owners' & Contractors' Protective

- c. Products & Completed Operation
- d. Explosion, Collapse & Underground Conditions
- e. Blanket Contractual Liability
- f. Personal Injury Liability
- g. Broad Form Property Damage Endorsement, including Completed Operations
- h. Independent Contractors
- i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
- j. Pollution Liability (if applicable)
- k. Asbestos Abatement (if applicable)
- l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence

\$2 Million General Aggregate

\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract. ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million

Combined Single Limit for Bodily Injury and Property Damage

- (d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an

Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

(e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

(f) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.
2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments

or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.

5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-), in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carrier; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.
4. The City shall be named an Additional Insured on General Liability including products and completed operations and Automobile Liability policies of insurance and certificates thereof.

City of Ormond Beach

**EDC – Weekly Aquarium Maintenance
Bid No. 2023-02**

CITY OF ORMOND BEACH, FLORIDA

**CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT**

1.

- ☒ To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- ☐ The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

2.

- ☒ The undersigned firm has had no litigation on any project in the last five (5) years.
- ☐ The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

The Fish Tank

COMPANY NAME



AUTHORIZED SIGNATURE

Brad Lewis

NAME (PRINT OR TYPE)

Business Owner

TITLE

12/16/2022

DATE



BID OPENING TABULATION

Project: EDC - Weekly Aquarium Maintenance

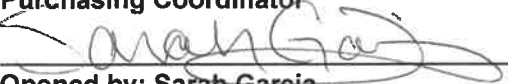
Bid Number: 2023-02

Date & Time: January 11, 2023 at 2:00 PM

Bidder	Bid Bond	Total
The Fish Tank	no	\$33,600.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00
0	0	\$0.00

Please Note: The bid proposals are currently being reviewed. All submittals accepted by the City of Ormond Beach are subject to the City's terms and conditions and any and all additional terms and conditions submitted by the bidders are rejected and shall have no force and effect. Bid documents from the bidders listed herein are the only submittals received timely as of the above opening date and time. All other bid documents submitted in response to this solicitation, if any, are hereby rejected as late.


Tabulated by: Robert Hart
Purchasing Coordinator


Opened by: Sarah Garcia
Environmental Discovery Center Coordinator

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.C
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-50	
Strategic Goal:	Water Quality & Environment - Other			
Department :	Public Works - Engineering			
Subject:	Work Authorization - Lift Station 4P Rehabilitation Design Services			
Budget Impact:	This project is included in Fiscal Year 2022-23 budget of Fund 409-Water and Wastewater Capital Improvements.			
Summary:	This is a request to award a Work Authorization to McKim & Creed, for design services to rehabilitate Lift Station 4P, including design and bidding services.			
Recommended Action:	Staff recommends approval of work authorization for engineering design services related to the City's Lift Station Rehabilitation Project to McKim & Creed, Inc. for the not-to-exceed amount of \$164,612.			
Staff Contact:	Alex Schumann, City Engineer, (386) 676-3302			
Approval:				
Kelly McGuire, Finance Director		1/30/2023		
Claire Whitley, Assistant City Manager		2/6/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Alex Schumann, City Engineer
Date: February 21, 2023
Subject: Work Authorization - Lift Station 4P Rehabilitation Design Services
Commission Goal: Water Quality & Environment - Other

Introduction

This is a request to award a Work Authorization to McKim & Creed, Inc. (McKim & Creed) for design services to rehabilitate Lift Station 4P.

Background

To encourage reliable and efficient operation and maintenance of its wastewater collection system, a planned schedule and investment of regular system improvements is necessary. Lift Station 4P has been in service since the 1960's, is one of the City's oldest lift station facilities with antiquated components, and is identified as a scheduled capital improvement project in the wastewater collection maintenance plan.

Discussion

In accordance with Section 2-300(c) of the Code of Ordinances, Staff negotiated a scope of work with its continuing contract engineering consultant, McKim & Creed. The consultant provided a detailed scope of work for each element necessary to accomplish the design. The project primarily involves upgrades to existing components to include replacing the pumps and controls with standard Xylem-Flygt pump assemblies, SCADA integration, equipment rack and electrical components.

Budget Impact

This project is included in Fiscal Year 2022-23 budget of Fund 409-Water and Wastewater Capital Improvements.

Citizen Impact

Scheduling priority-based repairs for utility infrastructure provides for reliable sanitary

sewer treatment systems and regulatory operations.

Recommendation

Staff recommends approval of work authorization for engineering design services related to the City's Lift Station Rehabilitation Project to McKim & Creed, Inc. for the not-to-exceed amount of \$164,612.

Attachments:

1. 23-50 Lift Stn 4P Rehab-McKim & Creed (P23-0016G)
2. Mckim & Creed Lift Station 4P design

Approvals:



Kelly McGuire, Finance Director

Date: January 30, 2023



Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-50

A RESOLUTION ACCEPTING A PROPOSAL FROM McKIM & CREED, INC. FOR PROFESSIONAL ENGINEERING SERVICES REGARDING THE LIFT STATION 4P REHABILITATION PROJECT; AUTHORIZING THE EXECUTION OF A WORK AUTHORIZATION AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, pursuant to the Continuing Engineering Services Agreement between the City and McKim & Creed, Inc., the appropriate City staff members have negotiated with McKim & Creed, Inc. to provide professional engineering services for the Lift Station 4P rehabilitation project (“the Project”), as described on the attached Work Authorization and Scope of Work, at a cost not to exceed \$164,612.00, and

WHEREAS, the City Manager has certified that funds have been appropriated to the credit of the Water & Wastewater Renewal & Replacement Fund (409) for the Project and have not been appropriated for any other purpose, and

WHEREAS, the City Commission concurs with the foregoing recommendations, now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The proposal submitted by McKim & Creed, Inc. to perform the Project in the amount of \$164,612.00 is hereby accepted.

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute a Work Authorization with McKim & Creed, Inc. for the performance of the

Project at the said price, and to pay the cost thereof from the Water & Wastewater Renewal & Replacement Fund.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

WORK AUTHORIZATION

In accordance with and incorporating the terms of the Continuing Contract dated March 20, 2017 between the City of Ormond Beach, Florida, and McKim & Creed, Inc. the following Scope of Work and Schedule of Payments are agreed to by the parties to the Agreement:

Project Title: Lift Stations 4P Improvements – Design, Permitting and Bidding Services

Project Description: Design of improvements to Lift Station 4P, located on Seminole Avenue on the peninsula to include electrical, odor control, piping, valving, and aesthetic features at the site. Permitting and bidding services will also be performed, all as detailed in the attached scope of services and fee schedule.

Estimated Project Construction Cost: \$500,000

Schedule of Payments and Fee Basis

<u>Required Work Task</u>	<u>Fee Basis</u>	<u>Fee</u>
Project Kick-off & Data Collection	Actual Cost	\$8,548.00
Design	Actual Cost	\$139,744.00
Permitting	Actual Cost	\$2,511.00
Bidding	Actual Cost	\$13,809.00
Total Fee Authorized:	Not to Exceed	<u>\$164,612.00</u>

Funding Source: Water/Wastewater R & R Fund (409)

Estimated Time for Completion: 185 Days from Authorization to Proceed

AUTHORIZED:
CITY OF ORMOND BEACH

ACCEPTED:
MCKIM & CREED, INC.

By: _____
Bill Partington
Mayor

By: _____
Charles Hill, P.E.
Senior Project Manager

Date: _____

Date: _____

By: _____
Joyce A. Shanahan
City Manager

Date: _____

I. COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

- (a) Keep and maintain public records required by the City to perform the contracted service.
- (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
- (d) Upon completion of the contract transfer, at no cost to the City, all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
- (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174 (386) 676-3331
CITYCLERK@ORMONDBEACH.ORG**

Ref: Fla. Stat. §119.0701(2016)

II. VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

- 1. Section 448.09, *Florida Statutes*, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, either for herself or himself, or on behalf of another, for private or public employment within the state, an alien who is not duly authorized to work in the United States. Contractor warrants that it is registered with the U.S. Department of Homeland Security's E-Verify system, and is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
- 2. Contractor agrees that if the contractor enters into an agreement with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and contractor warrants it shall maintain any such affidavits for the duration of the contract. If the City has a good faith belief that a subcontractor knowingly violated Section 448.09 (1), the City shall promptly notify the contractor and order the contractor to immediately terminate the contract with the subcontractor.
- 3. In the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and as provided by statute, the contractor may not be awarded a public contract for at least one (1) year after the date of termination. The contractor may also be held liable for any additional costs incurred by the City as a result of the termination of the contract.



ENGINEERS

SURVEYORS

PLANNERS

**CITY OF ORMOND BEACH
PROPOSAL FOR LIFT STATION 4P IMPROVEMENTS**

PROPOSAL FOR DESIGN, PERMITTING AND BIDDING SERVICES

I. PROJECT DESCRIPTION

Lift Station 4P is a wet pit/dry pit facility and is located on Seminole Avenue on the beachside. The improvements to the lift station are numerous and will be discussed in detail in the following paragraphs.

II. OBJECTIVE

The objective of this project is to replace certain pieces of equipment, including electrical, odor control, piping, valving and aesthetic features at the lift station site. More specifically, the work includes the following list of items:

Lift Station 4P

- Replace odor control system; investigate various technologies for removing odor from the site.
- Investigate whether wet well lining requires rehabilitation.
- Replace all electrical equipment/hardware.
- Replace existing automatic transfer switch.
- Provide a new Allen-Bradley RTU.
- Install a generator receptacle on the new control panel (male end on panel).
- Remove roof and block walls of framed structure and convert existing wet pit/dry pit station to a submersible pump station.
- Cut openings in dry pit roof slab for removal of submersible pumps.
- Improve driveway for easier access to the site.
- Relocate generator to the top slab of the wet well.
- Relocate fuel storage tank to north side of building and install fuel piping underground.

III. SCOPE OF SERVICES

This Scope of Services has been developed to address the anticipated project requirements. Task items not specifically identified in this Scope of Services are not included. If, during the course of the Work Assignment, it is determined that additional work or assistance is necessary to complete this project, those items can be added as additional services only by approval of the City of Ormond Beach (CITY).

In preparing this Scope of Work and engineering service fee, McKim & Creed, Inc. (CONSULTANT) makes the following assumptions:

- The CITY will provide available record drawings of the existing lift station.
- The CITY will provide a record of easements and rights-of-way at the site.
- Consistent with the professional standard of care and unless specifically provided herein, the CONSULTANT shall be entitled to rely upon the accuracy of data and information provided by the CITY or others without independent review or evaluation.

The CONSULTANT shall provide the SCOPE OF SERVICES as outlined below:

TASK 1: PROJECT KICK-OFF & DATA COLLECTION

- CONSULTANT shall develop project documents that will include project setup, project schedule, project management plan, hard and electronic filing systems, and conduct an internal kick-off meeting with the design team.
- A Project Kick-Off Meeting will be held with the CITY to discuss the overall project scope, approach, and schedule. The CONSULTANT shall prepare the meeting agenda and a detailed schedule for the kick-off meeting. Key team members will be identified and procedures for communication and data collection will be established. Meeting minutes will be prepared by the CONSULTANT and distributed to meeting attendees.
- CONSULTANT shall work with the CITY to coordinate gathering any existing drawings and data for the lift station, and any other data relative to the project.

TASK 2: DESIGN SERVICES

- CONSULTANT shall perform a topographic survey of the lift station site.
- CONSULTANT shall prepare a Project Manual to incorporate the latest front end documents and technical sections.
- CONSULTANT shall prepare electrical design for 60%, 90% and 100% submittals. Electrical design scope shall follow the sub-categories listed on the fee matrix table.
- CONSULTANT shall prepare structural design for 60%, 90% and 100% submittals.
- CONSULTANT shall prepare civil/mechanical design for 60%, 90% and 100% submittals. Civil/mechanical design scope shall follow the sub-categories listed on the fee matrix table.

- CONSULTANT shall schedule and conduct design review meetings at 60%, 90% and 100% completion. Three (3) sets of design review drawings and specifications shall be submitted to the CITY seven (7) days prior to the review meetings.
- CONSULTANT shall prepare an Opinion of Probable Construction Cost at the 60%, 90%, and 100% milestones. Any opinion of construction cost represents the CONSULTANT'S judgment as a design professional and is supplied for the general guidance to the CITY.
- Quality Control and Quality Assurance (QA/QC) shall be conducted by a senior level engineer not directly involved with the project in accordance with the CONSULTANT'S QA/QC procedures prior to each submittal.
- CONSULTANT shall provide electronic files of the Drawings and Project Manual to the CITY that is suitable for placement on the CITY'S website for bidders and suppliers.

TASK 3: PREPARE PERMIT APPLICATIONS

- CONSULTANT shall prepare and submit a construction permit application to the Florida Department of Environmental Protection (FDEP). Response to one (1) Request for Additional Information (RAI) will be included in this proposal.
- The permit processing fee will be paid by the CITY.
- CONSULTANT shall prepare permit drawings so contractor may submit to the Building Department.

TASK 4: BIDDING SERVICES

- CONSULTANT shall attend the Pre-Bid Meeting to discuss the Project with prospective Contractors and answer questions they may have about the Project.
- CONSULTANT shall provide Drawing and Specification clarification and prepare and distribute addenda.
- CONSULTANT shall attend the Bid Opening and collect a copy of each bid submitted.
- CONSULTANT shall review and check the bids and prepare a detailed bid tabulation.
- CONSULTANT shall contact the low bidder and obtain references.
- CONSULTANT shall prepare an award recommendation letter.

- After bid award by the City Commission, CONSULTANT shall prepare construction contract documents (five sets required) and mail the contracts to the Contractor. The Contractor shall return the construction contracts to the Engineer for review of the contract, insurance certificates and bonds. The documents will then be forwarded to the City for execution.

IV. PROJECT DELIVERABLES

- Meeting Minutes.
- Three (3) hard copies of 11" x 17" design Drawings and a CD in CAD & PDF format at the 60% milestone.
- Three (3) hard copies of 11" x 17" design Drawings, one (1) Project Manual and a CD in CAD, PDF and Word format at the 90% milestone.
- A copy of the Opinion of Probable Construction Cost at the 60%, 90% and 100% milestones.
- Three (3) copies of the 100% design 11" x 17" Drawings; one (1) copy of 24" x 36" Drawings, and three (3) Project Manuals.
- Five (5) copies of the Conformed Contracts and construction Drawings.
- One (1) electronic CD with AutoCAD, PDF, and Word format of the 100% Final Documents.

V. OTHER INFORMATION

Post-design services were not requested by the CITY and are not included in this proposal.

VI. SCHEDULE

This schedule is based on several tasks being performed concurrently. This Work Assignment will remain in effect through the completion of the project. The following schedule is proposed. Times shown are after a Notice to Proceed has been issued.

Task 1: Project Kick-Off and Data Collection	15 days
Task 2: Design Services	120 days
Task 3: Prepare Permit Applications.....	5 days
<u>Task 4: Bidding Services</u>	<u>45 days</u>
Total Tasks 1 thru 4	185 days

*Does not include review time by the City

COMPENSATION

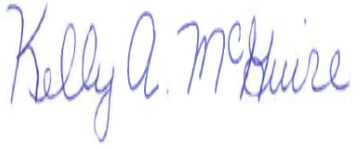
The CONSULTANT is proposing to complete the Scope of Services for Task 1 thru Task 4 for an Actual cost, not to exceed fee of \$ 164,612.00. A Services Fee Matrix Table is attached as Exhibit A. The CONSULTANT will not conduct services that require fee adjustments outside this scope of services without notification to and written authorization from the CITY.

Task 1: Project Kick-Off & Data Collection	\$ 8,548.00
Task 2: Design Services	\$ 139,744.00
Task 3: Prepare Permit Applications	\$ 2,511.00
<u>Task 4: Bidding Services</u>	<u>\$ 13,809.00</u>
Total Tasks 1 thru 4	\$ 164,612.00

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EXHIBIT "A"
MCKIM CREED
PROPOSAL FOR DESIGN, PERMITTING AND BIDDING SERVICES
CITY OF ORMOND BEACH - LIFT STATION 4P IMPROVEMENTS - FEE MATRIX
JANUARY, 2023

STAFF CLASSIFICATION		Engineer Manager (RMI)		Engineering Director (EN6)		Senior Electrical Engineer (PM3)		Senior Structural Engineer (PM5)		I&C Group Manager (EN5)		Senior Project Engineer (EN4)		Project Manager (PM1)		Electrical Engineer (EN3)		Electrical Engineer (EN2)		CAD Designer IV - Structural (DS4)		Engineer Intern (EI)		CAD Designer II (DS2)		Senior Administrator (AD3)		Direct Expenses	TOTAL PER TASK	
TASK NO	DESCRIPTION	RATE:	\$220	RATE:	\$220	RATE:	\$202	RATE:	\$220	RATE:	\$195	RATE:	\$180	RATE:	\$171	RATE:	\$149	RATE:	\$130	RATE:	\$124	RATE:	\$115	RATE:	\$102	RATE:	\$93			
		HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL	HOURS	TOTAL			
1	PROJECT KICKOFF & DATA COLLECTION																													
1.1	In-House Project Management/Internal Kickoff Meeting	1	\$220			4	\$808					10	\$1,800			2	\$298							1	\$102	12	\$1,116			
1.2	Kickoff Meeting with City Staff	2	\$440							1	\$195	4	\$720			2	\$298	2	\$260				1	\$115	2	\$204	2	\$186		
1.3	Coordinate Data Collection	2	\$440							2	\$390	2	\$360			4	\$596													
TASK 1 SUBTOTAL		5	\$1,100			4	\$808			3	\$585	16	\$2,880			8	\$1,192	2	\$260				1	\$115	3	\$306	14	\$1,302		\$8,548
2	DESIGN SERVICES																													
2.1	Topographic Survey of Site											2	\$360															\$2,485		
2.2	Prepare Project Manual	8	\$1,760									12	\$2,160													20	\$1,860	\$200		
2.3	Electrical Design for 60%, 90% and 100% submittals																													
2.3.1	Remove and Replace all Electrical Equipment/Hardware					2	\$404									15	\$2,235	30	\$3,900							6	\$558			
2.3.2	Remove and Replace Automatic Transfer Switch					1	\$202									8	\$1,192	12	\$1,560							4	\$372			
2.3.3	Remove and Replace RTU Panel with Allen Bradley					1	\$202									6	\$894	6	\$780							2	\$186			
2.3.4	Provide Electrical Design for New Odor Control System					1	\$202									8	\$1,192	16	\$2,080							4	\$372			
2.3.5	Assist with Relocation Design for Generator/Fuel Tank					1	\$202									6	\$894	12	\$1,560							2	\$186			
2.4	I&C Design for 60%, 90% and 100% submittals									28	\$5,460											48	\$5,520							
2.5	Structural Design for 60%, 90% and 100% submittals							84	\$18,480											114	\$14,136									
2.6	Civil/Mechanical Design for 60%, 90% and 100% submittals	10	\$2,200																					190	\$19,380					
2.6.1	Replace Odor Control System; Investigate Methods for Removing Odors	10	\$2,200											28	\$4,788															
2.6.2	Investigate Condition of Wet Well Lining	6	\$1,320									4	\$720																	
2.6.3	Convert Existing Wet Pit/Dry Pit to Submersible Pump Station	6	\$1,320									32	\$5,760	16	\$2,736															
2.6.4	Improve Driveway for Better Access to Structure	2	\$440									6	\$1,080																	
2.6.5	Relocate Generator and Fuel Tank	4	\$880									4	\$720																	
2.6.6	Site Work	6	\$1,320									8	\$1,440																	
2.7	Design Review Meetings with City Staff/Update Design	8	\$1,760									16	\$2,880												16	\$1,632	6	\$558	\$100	
2.8	Prepare Construction Cost Estimate at 60%, 90% and 100% Design	2	\$440					8	\$1,760			12	\$2,160	12	\$2,052	4	\$596	8	\$1,040							6	\$558			
2.9	Quality Assurance/Quality Control			26	\$5,720																									
2.10	Provide Electronic File/Hard Copies to City																							2	\$204	2	\$186	\$200		
TASK 2 SUBTOTAL		62	\$13,640	26	\$5,720	6	\$1,212	92	\$20,240	28	\$5,460	96	\$17,280	56	\$9,576	47	\$7,003	84	\$10,920	114	\$14,136	48	\$5,520	208	\$21,216	52	\$4,836		\$136,759	
3	PREPARE PERMIT APPLICATIONS																													
3.1	Submit Permit Application to FDEP	2	\$440							1	\$195	2	\$360													2	\$186			
3.2	Provide One (1) Response to FDEP Concerns	1	\$220									1	\$180			2	\$298	2	\$260							4	\$372			
3.3	Prepare Permit Drawings for Building Department																													
TASK 3 SUBTOTAL		3	\$660							1	\$195	3	\$540			2	\$298	2	\$260							6	\$558		\$2,511	
4	BIDDING SERVICES																													
4.1	Conduct Pre-Bid Meeting	3	\$660									3	\$540													2	\$186			
4.2	Prepare/Distribute Addenda/RFI's	3	\$660			1	\$202	12	\$2,640	2	\$390	6	\$1,080					4	\$520			2	\$230	8	\$816	8	\$744			
4.3	Attend Bid Opening	1	\$220									2	\$360			6	\$894													
4.4	Prepare Bid Tabulation	1	\$220									2	\$360													4	\$372			
4.5	Background Check of Low Bidder											2	\$360													4	\$372			
4.6	Prepare Recommendation of Award Letter	1	\$220									1	\$180													1	\$93			
4.7	Prepare Construction Contract Documents											2	\$360													10	\$930	\$200		
TASK 4 SUBTOTAL		9	\$1,980			1	\$202	12	\$2,640	2	\$390	18	\$3,240			6	\$894	4	\$520			2	\$230	8	\$816	29	\$2,697		\$13,609	
Subtotal		79	\$17,380	26	\$5,720	11	\$2,222	104	\$22,880	34	\$6,630	133	\$23,940	56	\$9,576	63	\$9,387	92	\$11,960	114	\$14,136	51	\$5,865	219	\$22,338	101	\$9,393	\$3,185		
	TOTAL TASK NOS 1-4																													\$164,612

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.D
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-51	
Strategic Goal:	Water Quality & Environment - Other			
Department :	Public Works - Engineering			
Subject:	Work Authorization - Shadow Crossings Reuse Facility Upgrades Design Services			
Budget Impact:	This project was included in Fiscal Year 2022 - 2023 budget of Fund 409 - Water and Wastewater Renewal and Replacement Capital Improvements. Sufficient funding is available to approve this work authorization.			
Summary:	This is a request to award a Work Authorization to Parker Mynchenberg for design services to upgrade the Shadow Crossings Reuse Facility. The major tasks include design and bidding services.			
Recommended Action:	Staff recommends award of the design and bidding services for the Shadow Crossings Reuse Pump Facility Upgrades Project to Parker Mynchenberg, for the not-to-exceed amount of \$46,390.			
Staff Contact:	Alex Schumann, City Engineer, (386) 676-3302			
Approval:				
Kelly McGuire, Finance Director		1/31/2023		
Claire Whitley, Assistant City Manager		2/6/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Alex Schumann, City Engineer
Date: February 21, 2023
Subject: Work Authorization - Shadow Crossings Reuse Facility Upgrades Design Services

Commission Goal: Water Quality & Environment - Other

Introduction

This is a request to award a Work Authorization to Parker Mynchenberg & Associates, Inc. (Parker Mynchenberg) for design services to upgrade the Shadow Crossings Reuse Facility.

Background

The existing Shadow Crossings reuse facility was constructed in 1990. The station contains two 25 horsepower pumps and one 60 horsepower fire pump. The 25 horsepower pumps are undersized to meet present day peak irrigation demands and the pump controllers, actuator controls, and motor starters need to be replaced. All pumps are at the end of their useful service life. Pump and motor assemblies, piping modifications, and electrical upgrades are recommended for replacement of aged and undersized equipment in order to meet existing irrigation demand and to improve reliability of reuse supply to fire hydrants in the area.

Discussion

In accordance with Section 2-300(c) of the Code of Ordinances, staff negotiated a scope of work from its continuing contract engineering consultant, Parker Mynchenberg. The consultant provided a detailed scope of work for each element necessary to accomplish the design. The major tasks include design and bidding services. The scope of services is attached for reference.

Budget Impact

This project was included in Fiscal Year 2022 - 2023 budget of Fund 409 - Water and Wastewater Renewal and Replacement Capital Improvements. Sufficient funding is

available to approve this work authorization.

Citizen Impact

Scheduling priority-based repairs for utilities infrastructure provides for reliable reclaimed water irrigation systems and regulatory operations. Award of publicly advertised bids to companies determined as being most responsive provides competitive pricing and qualified contractors for the City's citizens and utility customers.

Recommendation

Staff recommends award of the design and bidding services for the Shadow Crossings Reuse Pump Facility Upgrades Project to Parker Mynchenberg, for the not-to-exceed amount of \$46,390.

Attachments:

1. 23-51 Shadow Cross upgrade-Parker Mynchenberg (P23-0021G)
2. Parker Mynchenbert Shadow Crossings Reuse Pump Facility Upgrades - Design

Approvals:



Kelly McGuire, Finance Director

Date: January 31, 2023



Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-51

A RESOLUTION ACCEPTING A PROPOSAL FROM PARKER MYNCHENBERG & ASSOCIATES, INC. FOR PROFESSIONAL ENGINEERING SERVICES REGARDING THE SHADOW CROSSINGS REUSE PUMP FACILITY UPGRADES PROJECT; AUTHORIZING THE EXECUTION OF A WORK AUTHORIZATION AND PAYMENT THEREFOR; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, pursuant to the Continuing Engineering Services Agreement between the City and Parker Mynchenberg & Associates, Inc., the appropriate City staff members have negotiated with Parker Mynchenberg & Associates, Inc. to provide professional engineering services for the Shadow Crossings reuse pump facility upgrades project (“the Project”), as described on the attached Work Authorization and Scope of Work, at a cost not to exceed \$46,390.00, and

WHEREAS, the City Manager has certified that funds have been appropriated to the credit of the Water & Wastewater Renewal & Replacement Fund (409) for the Project and have not been appropriated for any other purpose, and

WHEREAS, the City Commission concurs with the foregoing recommendations, now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The proposal submitted by Parker Mynchenberg & Associates, Inc. to perform the Project at a total cost not to exceed \$46,390.00 is hereby accepted.

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute a Work Authorization with Parker Mynchenberg & Associates, Inc. for the

performance of the Project at the said price, and to pay the cost thereof from the Water & Wastewater Renewal & Replacement Fund.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

WORK AUTHORIZATION

In accordance with and incorporating the terms of the Continuing Contract dated March 20, 2017 between the City of Ormond Beach, Florida, and Parker Mynchenberg and Associates, Inc., the following Scope of Work and Schedule of Payments are agreed to by the parties to the Agreement:

Project Title: Shadow Crossings Reuse Pump Facility Upgrades - Design

Project Description: Professional engineering services for design, bidding, and construction administration services to rehabilitate the Shadow Crossings reuse pump station. The project scope of work includes replacing the existing pumps, controls, piping modifications, electrical switch gear, new variable frequency drives (VFD's), and new HVAC equipment, as detailed in the attached proposal and fee schedule.

Estimated Project Construction Cost: \$240,000

Schedule of Payments and Fee Basis

<u>Required Work Task</u>	<u>Fee Basis</u>	<u>Fee</u>
Design	Fixed Fee	\$25,515.00
Bidding Services	Fixed Fee	\$6,260.00
Construction Administration	Fixed Fee	\$9,915.00
Subconsultant	Fixed Fee	\$4,200.00
Reimbursable Expenses	Actual Cost	\$500.00
Total Fee Authorized:	Not To Exceed	<u>\$46,390.00</u>

Funding Source: Water/Wastewater Renewal & Replacement Fund (409)

Estimated Time for Completion: 160 Days From Authorization to Proceed

CITY OF ORMOND BEACH

By: _____
Bill Partington
Mayor

PARKER MYNCHENBERG & ASSOCIATES

By: _____
Parker Mynchenberg, P.E., R.L.A.
President

Date: _____

Date: _____

By: _____
Joyce A. Shanahan
City Manager

Date: _____

I. COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

- (a) Keep and maintain public records required by the City to perform the contracted service.
- (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
- (d) Upon completion of the contract transfer, at no cost to the City, all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
- (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174 (386) 676-3331
CITYCLERK@ORMONDBEACH.ORG**

Ref: Fla. Stat. §119.0701(2016)

II. VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

- 1. Section 448.09, *Florida Statutes*, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, either for herself or himself, or on behalf of another, for private or public employment within the state, an alien who is not duly authorized to work in the United States. Contractor warrants that it is registered with the U.S. Department of Homeland Security's E-Verify system, and is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
- 2. Contractor agrees that if the contractor enters into an agreement with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and contractor warrants it shall maintain any such affidavits for the duration of the contract. If the City has a good faith belief that a subcontractor knowingly violated Section 448.09 (1), the City shall promptly notify the contractor and order the contractor to immediately terminate the contract with the subcontractor.
- 3. In the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and as provided by statute, the contractor may not be awarded a public contract for at least one (1) year after the date of termination. The contractor may also be held liable for any additional costs incurred by the City as a result of the termination of the contract.

January 18, 2023

Mr. Mike Stephenson, P.E.
Utility Engineer
City of Ormond Beach
22 South Beach Street
Ormond Beach, FL 32174

Via email: mike.stephenson@ormondbeach.org

**Re: CITY OF ORMOND BEACH
Shadow Crossings Reuse Pump Station
Professional Engineering Services Proposal**

Dear Mr. Stephenson:

We are pleased to offer the Professional Engineering Services for rehabilitation and improvements to the existing reuse pump station at Shadow Crossings. This project will complete the design phase, based on 60% submittal of plans and specifications previously prepared for the City by another consultant. This proposal includes design, permitting, bidding, and construction phase services.

The existing pump station is in need of mechanical pump, piping, and electrical upgrades. The project scope includes:

- (3) New pumps
- New electrical switchgear, VFDs, and control system
- Existing generator may be reused or replaced
- Building ceiling, insulation, soffit, and insulated roll-up door for air conditioner installation
- New flow meter
- Specification for temporary pumping system during construction

This Professional Services Proposal includes design, bidding, and construction phase services.

The Scope of Work is as follows:

PART A – DESIGN PHASE

1. Coordinate with Owner
2. Coordinate with the following Consultants:
 - a. Electrical Engineer
3. Prepare construction plans and specifications
4. Submit plans and specifications to the City for review at 60% and 90% completion
5. Incorporate City review comments into the bid documents
6. Apply for FDEP operation permit modification

PART B – BIDDING ASSISTANCE

1. Prepare bid documents to City standards
2. Attend pre-bid meeting
3. Provide responses to bidder questions
4. Prepare addenda
5. Review and check bids and prepare a bid tabulation
6. Prepare an award recommendation letter

PART C – CONTRACT ADMINISTRATION AND PROJECT CERTIFICATION

1. Contract Administration
 - a. Attend Pre-Construction Meeting
 - b. Review Shop Drawings
 - c. Attend Progress Meetings
 - d. Pay Request Review and Approval
2. Project Close-out
 - a. Review As-builts
 - b. Perform Final Inspection
 - c. Attend onsite walkthrough with City Staff and Contractor
 - d. Create Engineering Punchlist
 - e. Re-inspect Site for Completeness

PART D – SUBCONSULTANTS

1. Subconsultant allowance for the Electrical Engineer. Subconsultant cost will be billed at actual cost. Subconsultant proposals attached for reference.

PART E – MISCELLANEOUS

1. Expenses (including reproducibles, mileage, postage, etc.)

Not included in the above Scope of Work are as follows:

1. Permit application and fees (to be borne by the Owner).
2. Boundary, topographic, jurisdictional wetland, and tree survey (by a registered land surveyor).
3. Preparation of Easement Sketch and Legal Descriptions (if required).
4. Wetland Jurisdictional determination/flagging (including but not limited to vegetation mapping, on-site endangered or protected species inventory and environmental permitting associated with site plan approval, stormwater and dredge and fill permitting (mitigation plan) (if required) (PMA to provide environmental ACOE consultant, dredge and fill exhibit only). Obtaining the Army Corp of Engineer's Permit for wetlands impacts is the sole responsibility of the environmental consultant. PMA will assist with exhibits etc. However, the wetland jurisdiction impacts, mitigation plan, and obtaining the permit are NOT included in PMA's scope of work.
5. Preparation of Architectural Building Plans and Elevations. (to be prepared by Project Architect).
6. Preparation of Signage Plans (to be provided by architect or sign company).
7. Geotechnical Soil Testing (to be performed by a Geotechnical Engineer) (if required).
8. Cultural Assessment Survey and Report in response to the Division of Historical Resources (if required).
9. Preparation and assistance associated with LEED design certification.
10. Title Opinion.
11. Traffic Studies (to be prepared by Traffic Engineer) (if required).
12. Preparation of Environmental Reports (if required by the County/SJRWMD).
13. Comprehensive Plan, Rezoning Amendments and Future Land Use Modification (if required).
14. Preparation of Structural Permit Applications.
15. Preparation of Colored Renderings.
16. Preparation of a Lighting Plan including Photometric Plan and Lift Station Electrical Service and Electrical Design. (to be prepared by an Electrical Engineer).
17. Gopher Tortoise Survey or Permitting Relocation.
18. Preparation of an Endangered and Threatened Species Report.
19. Onsite Construction supervision.
20. Landscape Architecture Services.
21. Attendance at Public Hearings, including Neighborhood Meetings, Planning Board, Redevelopment Board and City Commission Meetings unless specially included in the Scope of Work.
22. Coordination of Telephone, Gas, Cable, and Power (PMA to provide plans only to private utilities) (Electrical Engineer to coordinate power).
23. Traffic Fair Share Agreement.

24. Sanitary Pump Station Design and Permitting (if required)
25. As-Built of civil, landscaping and irrigation improvements (to be prepared by a registered land surveyor or sub-contractor as part of their contract).
26. Required bacteriological testing in conjunction with water main clearance (if required).
27. FDEP NPDES Notice of Intent (NOI) Permit (To be applied and obtained by the Contractor through the FDEP. PMA will assist but obtaining the NOI is NOT included in PMA's Scope of Work)

I anticipate the Professional Engineering Fee associated with the above Scope of Work not to exceed the following:

PART A – DESIGN PHASE:	\$	25,515.00
PART B – BIDDING ASSISTANCE:	\$	6,260.00
PART C – CONTRACT ADMINISTRATION:	\$	9,915.00
PART D – SUBCONSULTANTS:	\$	4,200.00
PART E – MISCELLANEOUS:	\$	500.00
TOTAL:	\$	<u>46,390.00</u>

FOURTY-SIX THOUSAND THREE HUNDRED NINETY DOLLARS AND 00/100

Please note that miscellaneous expenses such as reproducibles, mileage, postage, etc. are estimated and included in the above Scope of Work. Billing will be monthly, based on the ***Hourly Rate Schedule*** included with this proposal.

After reviewing this proposal, if it meets with your approval, please execute the ***Professional Service Agreement*** and return to me as the Notice to Proceed. Please feel free to call with any questions you may have concerning this proposal or the project in general.

Thank you for considering Parker Mynchenberg & Associates, Inc. for your Professional Engineering needs.

Yours truly,



Parker Mynchenberg, P.E., R.L.A.

HOURLY RATE SCHEDULE

Principal Engineer.....	\$300.00/hour
Senior Project Engineer	\$250.00/hour
Landscape Architect.....	\$250.00/hour
Project Engineer.....	\$175.00/hour
Senior CAD Technician.....	\$150.00/hour
CAD Technician	\$130.00/hour
Administrative	\$ 55.00/hour

STANDARD RATE FOR MISCELLANEOUS EXPENSES

PRINTS

24"x36".....	\$2.00/ea.
30"x42".....	\$3.00/ea.
36"x48".....	\$4.00/ea.
42"x60".....	\$6.00/ea.

REPRODUCIBLES

Mylar.....	\$20.00/ea.
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COPIES

8.5"x11"	\$0.25/ea.
8.5"x14"	\$0.35/ea.
11"x17"	\$0.40/ea.
Color	\$1.50/ea.

OTHER

Postage.....	Current Rate
Phone Calls	As Billed

FEE MATRIX							
		\$ 250	\$ 175	\$ 150	\$ 55		
		Senior Project Engineer (PE)	Engineer Intern (EI)	Senior CAD Technician	Clerical	Man Hours	Cost
Task	Description	(PE)	(EI)				Total
PART A – DESIGN PHASE							
1)	Coordinate with Owner	4	4	-	4	12.0	\$1,920.00
2)	Coordinate with Consultants	4	2	2	1	9.0	\$1,705.00
3)	Prepare Construction Plans and Specifications						
	60% Plans and Specifications	8	16	24	8	56.0	\$8,840.00
	90% Plans and Specifications	12	8	16	2	38.0	\$6,910.00
	100% Plans and Specifications	4	4	8	2	18.0	\$3,010.00
4)	Submit Plans for Review	1	-	-	2	3.0	\$360.00
5)	FDEP Permit Modification	4	2	8	4	18.0	\$2,770.00
							\$25,515.00
PART B - BIDDING ASSISTANCE							
1)	Prepare bid documents to City Standards	4	-	2	4	10.0	\$1,520.00
2)	Attend Pre-Bid Meeting	2	-	-	1	3.0	\$555.00
3)	Provide Responses to Bidder Questions	2	4	4	2	12.0	\$1,910.00
4)	Prepare Addenda	2	2	2	2	8.0	\$1,260.00
5)	Review Bids and Preapre Bid Tabulation	1	1	-	2	4.0	\$535.00
6)	Prepare an Award Recommendation Letter	1	1	-	1	3.0	\$480.00
							\$6,260.00
PART C – CONTRACT ADMINISTRATION							
1)	Attend Preconstruction Meeting	2	-	-	2	4.0	\$610.00
2)	Attend Monthly on-site meetings	12	-	-	4	16.0	\$3,220.00
3)	Shop drawing review	4	-	4	2	10.0	\$1,710.00
4)	Substantial and final walk-thru/punch list	4	-	-	1	5.0	\$1,055.00
5)	As-built review and certification	1	2	-	1	4.0	\$655.00
6)	RFI's	2	2	4	1	9.0	\$1,505.00
7)	Field Orders	1	-	2	1	4.0	\$605.00
8)	Change Orders	2	-	-	1	3.0	\$555.00
							\$9,915.00
PART D - SUBCONSULTANTS							
1)	Electrical Engineer Allowance	-	-	-	-	0.0	\$4,200.00
							\$4,200.00
PART E - MISCELLANEOUS							
1)	Expenses (including reproducibles, postage, etc.)	-	-	-	-	0.0	\$500.00
							\$500.00
		77	48	76	48	249	
		\$19,250.00	\$8,400.00	\$11,400.00	\$2,640.00		\$46,390.00
							\$46,390.00

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.E
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-52	
Strategic Goal:	Quality of Life – Other			
Department :	Leisure Services			
Subject:	Lease Agreement - Casements Guild			
Budget Impact:	There is no impact upon the City budget.			
Summary:	This is a lease agreement for The Casements Guild to operate a gift shop at The Casements.			
Recommended Action:	Staff recommends approval of the lease agreement with The Casements Guild for operation of The Casements Guild Shop.			
Staff Contact:	Robert Carolin, Leisure Services Director, (386) 676-3279			
Approval:				
Kelly McGuire, Finance Director		1/24/2023		
Claire Whitley, Assistant City Manager		1/30/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Robert Carolin, Leisure Services Director
Date: February 21, 2023
Subject: Lease Agreement - Casements Guild
Commission Goal: Quality of Life – Other

Introduction

This is a lease agreement for The Casements Guild to operate a gift shop at The Casements.

Background

The Casements Guild (the Guild) has served as the volunteer group on behalf of The Casements for the City of Ormond Beach since 1979. The Guild, a 501(C)(3) volunteer organization, has operated a gift shop in the northwest corner of the first floor of The Casements for several years. It provides visitors an opportunity to purchase reasonably priced gift items, books, and cards relating to the historic period of The Casements. The shop has a volunteer manager and treasurer that report to The Casements Guild Board, accounting for all expenses and revenues and the payment of all sales taxes to the proper authorities.

Beginning in 2002, an annual lease was executed between the City and the Guild for this space. The Guild pays \$1.00 annually for this lease.

Discussion

The net proceeds from the gift shop and the Guild events are a primary source of the donations and improvements made to The Casements each year.

Budget Impact

There is no impact upon the City budget.

Citizen Impact

This lease provides a way for citizens to do meaningful volunteer work for their community and the City benefits greatly from their service to the community.

Recommendation

Staff recommends approval of the lease agreement with The Casements Guild for operation of The Casements Guild Shop.

Attachments:

1. 23-52 Casements Guild Lease (P23-0019G)
2. Casements Guild Lease 2023 (P23-0019G)
3. 2022 Agreement

Approvals:



Kelly McGuire, Finance Director

Date: January 24, 2023



Claire Whitley, Assistant City Manager

Date: January 30, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-52

A RESOLUTION AUTHORIZING THE EXECUTION OF A LEASE AGREEMENT BETWEEN THE CITY AND THE CASEMENTS GUILD FOR THE CITY OF ORMOND BEACH, INC.; AND SETTING FORTH AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The Mayor and City Manager are hereby authorized and directed to execute a Lease Agreement between the City and The Casements Guild For the City of Ormond Beach, Inc., a copy of said Lease Agreement being attached hereto and incorporated herein by reference.

SECTION TWO. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

LEASE AGREEMENT

THIS LEASE AGREEMENT, made and entered into by and between the **CITY OF ORMOND BEACH**, a Florida municipal corporation, (“the City”), and **THE CASEMENTS GUILD FOR THE CITY OF ORMOND BEACH, INC.**, a Florida non-profit corporation (“the Guild”).

WITNESSETH:

NOW THEREFORE, FOR AND IN CONSIDERATION of the covenants, promises, agreements and conditions to be kept and performed by the respective parties hereto, it is hereby mutually stipulated, covenanted and agreed by and between the parties hereto as follows:

1. TERM. The City hereby leases unto the Guild, and the Guild hereby leases from the City, that portion of the Casements building located at 25 Riverside Drive, Ormond Beach, FL 32176, commonly described as the "gift shop" in the Northwest area of the first floor bordered by the front and north entrance lobbies (“the Premises”). The term of this Lease Agreement shall be for one (1) year, from June 1, 2023, through May 31, 2024, inclusive.

2. RENT. The Guild shall pay to the City for its use of the Premises the sum of one (\$1.00) dollar, payable in advance.

3. GENERAL. The Guild shall:

- a.** make no unlawful, improper or offensive use of Premises;
- b.** observe and obey all laws, ordinances, rules and regulations promulgated and enforced by the city and by any other governmental authority having jurisdiction or responsibility over the conduct and operations at the Premises;
- c.** not use or permit the use of the Premises for any purpose or purposes other than as a gift shop with proceeds benefiting the Guild;
- d.** not assign this Lease Agreement, or sublet any part of the Premises, without the advance written consent of the City; and

e. quit and deliver up the Premises and all additions, improvements and alterations made to the same at the expiration of the term of this Lease Agreement, or any earlier term thereof, in good condition.

4. MAINTENANCE AND IMPROVEMENTS. The Guild covenants, promises and agrees, at its own expense, to keep and maintain the Premises, including all additions, improvements, and alterations made thereto, in a neat, clean, sanitary, well-painted condition, and good state of repair, throughout the term of this Lease Agreement. The Guild further promises and agrees to provide the City with notice, and receive approval of the City, prior to any structural changes being made in and to the Premises.

5. INSURANCE. The Guild covenants, promises and agrees that it will, at its own expense, purchase and maintain in full force and effect at all times during the term of this Lease Agreement, and any extension thereof, insurance as set forth in Section Two of Resolution No. 2021-144 as approved by the City Commission on September 22, 2021.

a. Fire Insurance. The Premises shall be insured against loss by fire at the highest insurable value, with a loss payable clause to the City. In case of loss by fire, the monies received in respect to such insurance shall be expended to repair and replace such loss.

b. Proof of Insurance. The Guild shall furnish evidence of all required insurance in the form of Certificates of Insurance which shall clearly outline all hazards covered, as itemized above, the amounts of insurance applicable to each hazard, the expiration dates and shall contain the following language as to cancellation:

“In the event of cancellation of this policy by the insurer or any insured, the company shall give not less than thirty (30) days’ advance written notice to:

City Clerk
City of Ormond Beach
Post Office Box 277
Ormond Beach, FL 32175-0277”

If requested by the City, the Guild shall furnish copies of the insurance contracts to support the Certificates of Insurance. In the event such required insurance shall lapse, the City expressly reserves the right to renew the insurance at the expense of the Guild.

6. INDEMNIFICATION. To the extent allowed by law, the Guild shall indemnify and hold harmless the City and its agents, officers and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from the performance of this Lease Agreement, including any claim, damage, loss or expense caused in whole or in part by any negligent act or omission of the Guild or its members, agents or employees or any subcontractor or anyone directly or indirectly employed by any one of them.

7. DEFAULT. It is expressly agreed between the parties hereto that, if default should be made in the Guild's performance of any of the covenants, agreements or conditions herein contained, and if such default continues after two (2) weeks' notice in writing to the Guild, this Lease agreement shall thereupon immediately terminate and expire, and it shall be lawful for the City, its successors and assigns, at any time thereafter, at its election, without notice or demand, to reenter the Premises either with or without process of law.

IN WITNESS WHEREOF, the undersigned parties have caused this Lease Agreement to be signed on the dates indicated hereinbelow.

DATED this _____ day of _____, 2023.

**Signed, Sealed and Delivered
In the Presence of:**

CITY OF ORMOND BEACH

Name: _____

By: _____

BILL PARTINGTON

Mayor

Name: _____

Attest: _____

JOYCE A. SHANAHAN

City Manager

DATED this _____ day of _____, 2023.

**Signed, Sealed and Delivered
In the Presence of:**

**THE CASEMENTS GUILD FOR THE
CITY OF ORMOND BEACH, INC.**

Name: _____

By: _____

CHRISTINE DAVENPORT

Title _____

Name: _____

Attest: _____

SUE EASTON

Title _____

RESOLUTION NO. 2022-35

A RESOLUTION AUTHORIZING THE EXECUTION OF A LEASE AGREEMENT BETWEEN THE CITY AND THE CASEMENTS GUILD FOR THE CITY OF ORMOND BEACH, INC.; AND SETTING FORTH AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The Mayor and City Manager are hereby authorized and directed to execute a Lease Agreement between the City and The Casements Guild For the City of Ormond Beach, Inc., a copy of said Lease Agreement being attached hereto and incorporated herein by reference.

SECTION TWO. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 22nd day of March, 2022.



BILL PARTINGTON
Mayor

ATTEST:



SUSAN CARROLL DAUDERIS
City Clerk

LEASE AGREEMENT

THIS LEASE AGREEMENT, made and entered into by and between the **CITY OF ORMOND BEACH**, a Florida municipal corporation, (“the City”), and **THE CASEMENTS GUILD FOR THE CITY OF ORMOND BEACH, INC.**, a Florida non-profit corporation (“the Guild”).

WITNESSETH:

NOW THEREFORE, FOR AND IN CONSIDERATION of the covenants, promises, agreements and conditions to be kept and performed by the respective parties hereto, it is hereby mutually stipulated, covenanted and agreed by and between the parties hereto as follows:

1. TERM. The City hereby leases unto the Guild, and the Guild hereby leases from the City, that portion of the Casements building located at 25 Riverside Drive, Ormond Beach, FL 32176, commonly described as the "gift shop" in the Northwest area of the first floor bordered by the front and north entrance lobbies (“the Premises”). The term of this Lease Agreement shall be for one (1) year, from June 1, 2022, through May 31, 2023, inclusive.

2. RENT. The Guild shall pay to the City for its use of the Premises the sum of one (\$1.00) dollar, payable in advance.

3. GENERAL. The Guild shall:

- a.** make no unlawful, improper or offensive use of Premises;
- b.** observe and obey all laws, ordinances, rules and regulations promulgated and enforced by the city and by any other governmental authority having jurisdiction or responsibility over the conduct and operations at the Premises;
- c.** not use or permit the use of the Premises for any purpose or purposes other than as a gift shop with proceeds benefiting the Guild;
- d.** not assign this Lease Agreement, or sublet any part of the Premises, without the advance written consent of the City; and

e. quit and deliver up the Premises and all additions, improvements and alterations made to the same at the expiration of the term of this Lease Agreement, or any earlier term thereof, in good condition.

4. MAINTENANCE AND IMPROVEMENTS. The Guild covenants, promises and agrees, at its own expense, to keep and maintain the Premises, including all additions, improvements, and alterations made thereto, in a neat, clean, sanitary, well-painted condition, and good state of repair, throughout the term of this Lease Agreement. The Guild further promises and agrees to provide the City with notice, and receive approval of the City, prior to any structural changes being made in and to the Premises.

5. INSURANCE. The Guild covenants, promises and agrees that it will, at its own expense, purchase and maintain in full force and effect at all times during the term of this Lease Agreement, and any extension thereof, insurance as set forth in Section Two of Resolution No. 2021-144 as approved by the City Commission on September 22, 2021.

a. Fire Insurance. The Premises shall be insured against loss by fire at the highest insurable value, with a loss payable clause to the City. In case of loss by fire, the monies received in respect to such insurance shall be expended to repair and replace such loss.

b. Proof of Insurance. The Guild shall furnish evidence of all required insurance in the form of Certificates of Insurance which shall clearly outline all hazards covered, as itemized above, the amounts of insurance applicable to each hazard, the expiration dates and shall contain the following language as to cancellation:

“In the event of cancellation of this policy by the insurer or any insured, the company shall give not less than thirty (30) days’ advance written notice to:

City Clerk
City of Ormond Beach
Post Office Box 277
Ormond Beach, FL 32175-0277”

If requested by the City, the Guild shall furnish copies of the insurance contracts to support the Certificates of Insurance. In the event such required insurance shall lapse, the City expressly reserves the right to renew the insurance at the expense of the Guild.

6. **INDEMNIFICATION.** To the extent allowed by law, the Guild shall indemnify and hold harmless the City and its agents, officers and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from the performance of this Lease Agreement, including any claim, damage, loss or expense caused in whole or in part by any negligent act or omission of the Guild or its members, agents or employees or any subcontractor or anyone directly or indirectly employed by any one of them.

7. **DEFAULT.** It is expressly agreed between the parties hereto that, if default should be made in the Guild's performance of any of the covenants, agreements or conditions herein contained, and if such default continues after two (2) weeks' notice in writing to the Guild, this Lease agreement shall thereupon immediately terminate and expire, and it shall be lawful for the City, its successors and assigns, at any time thereafter, at its election, without notice or demand, to reenter the Premises either with or without process of law.

IN WITNESS WHEREOF, the undersigned parties have caused this Lease Agreement to be signed on the dates indicated hereinbelow.

DATED this 23 day of March, 2022.

**Signed, Sealed and Delivered
In the Presence of:**

CITY OF ORMOND BEACH


Name: Kathleen E. Settle

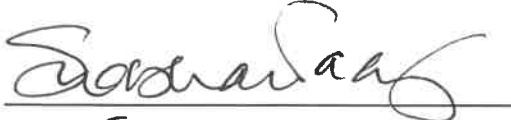
By: 
BILL PARTINGTON
Mayor

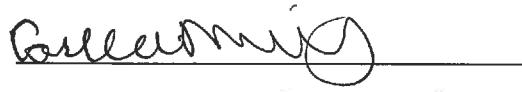

Name: Taylor Lochert

Attest: 
JOYCE A. SHANAHAN
City Manager

DATED this 22 day of March, 2022.

**Signed, Sealed and Delivered
In the Presence of:**

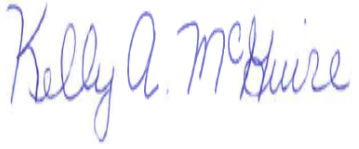

Name: Siobhan Daly


Name: Carlee McKinney

**THE CASEMENTS GUILD FOR THE
CITY OF ORMOND BEACH, INC.**

By: 
CHRISTINE DAVENPORT
Title FIRST VICE PRESIDENT

Attest: 
SUE EASTON
Title U.S. Director
2nd Vice President

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.F
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-53	
Strategic Goal:	Quality of Life – Other			
Department :	Leisure Services			
Subject:	Rent Abatement - Golden Eagle Associates, Inc.			
Budget Impact:	Abating the rent for the period of September 26, 2022 through February 5, 2023, will result in a budget impact to the General Fund in the amount of \$3,644.20.			
Summary:	This is a request by Golden Eagle Associates for a reduction in rent for the Andy Romano Beachfront concession stand due to the financial impacts recent hurricanes and park closures have had on the business.			
Recommended Action:	Staff recommends approval of the reduction in rent for the Andy Romano Beachfront concession stand because of the financial impacts the hurricanes and park closures have had on the business.			
Staff Contact:	Robert Carolin, Leisure Services Director, (386) 676-3279			
Approval:				
Kelly McGuire, Finance Director		2/2/2023		
Claire Whitley, Assistant City Manager		2/13/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Robert Carolin, Leisure Services Director
Date: February 21, 2023
Subject: Rent Abatement - Golden Eagle Associates, Inc.
Commission Goal: Quality of Life – Other

Introduction

This is a request for a rent abatement for the concession stand at Andy Romano Beachfront Park, made by the vendor, Golden Eagle Associates, Inc., because of the closing of the park due to damage caused by Hurricanes Ian and Nicole. The requested rent abatement is for the period of September 26, 2022 through February 5, 2023.

Background

Mr. Roy Savoca is the president of Golden Eagle Associates, Inc. The **Andy Romano Beachfront Park** (ARBFP) concession stand is owned by the City and leased to Golden Eagle Associates. Mr. Savoca has successfully operated the concession stand since 2013 and is a valued partner in serving the residents and visitors of Ormond Beach as they enjoy the park. Mr. Savoca is a great steward for the park and he and his team represent the high level of service and quality of life Ormond Beach is known for.

Discussion

Due to park closures and facility damage from Hurricanes Ian and Nicole, Mr. Savaco was unable to operate the ARBFP concession stand from September 26, 2022 through February 5, 2023. The Park was initially closed on September 26 following Hurricane Ian and was re-opened on October 14, 2022. However, repairs to the building extended beyond this period and prevented a full re-opening of the concession stand. Shortly thereafter, the park was closed again due to Hurricane Nicole on November 9, 2022, and remained closed until it was partially reopened on January 28, 2023. Mr. Savoca was able to re-open the concession stand after cleaning and restocking the facility on February 6, 2023.

Due to the park closures and resulting facility damage, Mr. Savoca is requesting a rent abatement for the period of September 26, 2022 through February 5, 2023.

Budget Impact

Abating the rent for the period of September 26, 2022 through February 5, 2023, will result in a budget impact to the General Fund in the amount of \$3,644.20.

Citizen Impact

Adjusting the rent will help Golden Eagle Associates recover from the impact of the park closure and continue to provide concession services to park visitors.

Recommendation

Staff recommends approval of the reduction in rent for the Andy Romano Beachfront concession stand because of the financial impacts the hurricanes and park closures have had on the business.

Attachments:

1. 23-53 Golden Eagle rent abatement (P23-0024G)
2. Rent Abatement
3. Golden Eagle Agreement

Approvals:



Kelly McGuire, Finance Director

Date: February 02, 2023



Claire Whitley, Assistant City Manager

Date: February 13, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-53

A RESOLUTION APPROVING A RENT ABATEMENT PAID
BY GOLDEN EAGLE ASSOCIATES, INC. TO THE CITY FOR
THE OPERATION OF THE CONCESSION STAND AT THE
ANDY ROMANO BEACHFRONT PARK; AND SETTING
FORTH AN EFFECTIVE DATE.

WHEREAS, the City and Golden Eagle Associates, Inc. entered into an Agreement for the operation of a concession stand located at the Andy Romano Beachfront Park dated, March 21, 2013, and

WHEREAS, as a result of Hurricane Ian and Hurricane Nicole, the Andy Romano Beachfront Park and concession stand sustained damages, and

WHEREAS, Roy Savoca, President of Golden Eagle Associates, Inc., has petitioned the City Commission for a rent abatement in the amount of \$3,644.20 to offset the financial hardship associated with closing the concession stand from September 26, 2022 through February 5, 2023, and

WHEREAS, the City Commission finds the abatement to be reasonable and in the overall best interest of all parties, now therefore,

**BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF
ORMOND BEACH, FLORIDA, THAT:**

SECTION ONE. The City Commission hereby approves and authorizes the rent abatement in the amount of \$3,644.20 to Golden Eagle Associates, Inc. to offset the financial hardship associated with closing the concession stand from September 26, 2022 through February 5, 2023 following Hurricanes Ian and Nicole.

SECTION TWO. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

Andy Romano Park Rent Abatement

Hurricanes Ian and Nicole

The park closed for Ian on September 26th and reopened on October 14th. The air conditioning was damaged during Ian and was not able to be replaced until November 4th. Sales were seriously impacted during the no A/C period because the temperature in the stand exceeded 90 degrees during the day. Because of this we were unable to offer ice cream to our customers. The park closed on the morning of November 9th and has been closed since. The current plan is to reopen the park in the next week or two. We will need time to clean and restock. I am requesting no rent for the period of October through the end of February. I would like to use the March April sales to compare with last year's sales for the same period to judge the impact of having parts of the park closed, the playground and the only access to the beach being the driving ramp and adjust the rent going forward while these repairs are being made.

Thank you,

Roy Savoca

AGREEMENT

THIS AGREEMENT is made and entered into by and between the **City of Ormond Beach** ("City"), a Florida municipal corporation, 22 South Beach Street, Ormond Beach, Volusia County, Florida and **Golden Eagle Associates, Inc., individually and d/b/a Rita's Ices** ("Contractor"), 212 Cessna Blvd., Unit 7, Port Orange, FL 32128, and in consideration of the mutual promises and covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to the following:

1. **Scope of Work.** The Proposal dated January 16, 2013, attached hereto as Exhibit "A", is incorporated herein by reference and is a material part of this Agreement. The Contractor shall fully comply with the terms and conditions described in the attached exhibit.
2. **Term.** This Agreement shall be effective on the date it is fully executed by the parties. The initial term of this Agreement shall be for a period of one (1) year and may be automatically renewed for additional one (1) year periods unless either party provides at least ninety (90) days prior written notice to the other party of their intent not to renew the Agreement.
3. **Consideration.** Contractor shall pay to the City an Annual Guarantee and an Annual Percentage Fee as set forth on Exhibit "A".
4. **Termination of Agreement.**
 - (a) The City Commission shall have the right to terminate the Agreement in the event the Contractor files any petition or proceeding for bankruptcy relief, or is adjudicated to be bankrupt or insolvent, or fails to pay just debts as they ordinarily become due; or for a material breach of this agreement that remains uncured for at least thirty days after prior written receipt of a notice of violation of same.
 - (b) This Agreement may not be terminated by the Contractor.
5. **Assignment.** The Contractor shall not assign, convey or transfer all or any part of this Agreement, or all or any part of Contractor's interest herein, or all or any part of any interest in the Contractor, without the prior written consent of the City Commission, which consent shall not be unreasonably withheld.
6. **Complete Agreement.** This Agreement, including the provisions set forth in the exhibit attached hereto and incorporated by reference herein, constitutes the entire and complete agreement of the parties, and the promises and covenants herein contained shall survive the life of this Agreement.
7. **Amendment to Agreement.** Any amendment, change, or modification of this Agreement must be in writing and fully executed by both parties.

8. **Notices.** All notices which are required by this Agreement shall be provided to the parties at the following addresses, or such other addresses as may be requested in writing by either party:

City of Ormond Beach
Joyce Shanahan, City Manager
(copy to City Attorney)
22 South Beach Street
Ormond Beach, FL 32174

Golden Eagle Associates, Inc.
Roy Savoca, President
212 Cessna Blvd., Unit 7
Port Orange, FL 32128

9. **Sovereign Immunity.** The City expressly retains and reserves all rights, privileges, immunities, and benefits of sovereign immunity. This provision shall be construed broadly in favor of the City.
10. **Venue.** The terms and conditions of this Agreement shall be construed and enforced under the laws of the State of Florida. Any action or proceeding, either at law or in equity, regarding this Agreement shall be brought in the circuit court, Seventh Judicial Circuit in and for Volusia County, Florida. Venue in any other jurisdiction or forum, whether it be any other circuit, state or federal venue, is hereby expressly waived.
11. **Waiver of Conditions.** No waiver by the City of any condition or breach of performance by the Contractor shall constitute an irrevocable, continuing, or subsequent waiver by the City of the same condition or breach of performance, or of any other condition or other breach of performance.
12. **Severability.** If any part of this Agreement is declared to be unenforceable or void by a court of competent jurisdiction, the remaining parts of the Agreement shall remain in full force and effect as long as the services to be provided by the Contractor are not materially affected, altered or impaired as a result of said judicial declaration.
13. **Conflicting Provisions.** In the event of any conflict between the provisions of this Agreement and any exhibits, the provision most favorable to the City shall control and shall be given full force and effect.
14. **Indemnification.** The City, its agents, employees, and officials, both elected and appointed, shall be indemnified and held harmless by Contractor from any and all liabilities, claims, and causes of action which may arise out of the willful, negligent, or unlawful acts or omissions of the Contractor or its subcontractors in the performance of this Agreement, unless such claims are a result of the City's sole negligence, as determined by the final decision maker of such claim.
15. **Duty to Defend.** The Contractor shall defend all suits and administrative actions, including all appellate proceedings, brought against the City, its agents, employees, and officials, both elected and appointed and shall pay all attorneys' fees and costs associated with the City's legal defense, as may be selected by the City, arising from all claims and causes of action described in Section 14 above. Such payment on behalf of the City shall

be in addition to any and all other legal or equitable remedies available to the City and shall not be considered to be the City's exclusive remedy.

16. **Contractor's Insurance.** The Contractor shall purchase and maintain for the entire life of this Agreement, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under this Agreement, whether such operations be by the Contractor, or by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

17. **Types of Insurance and Limits of Liability.** The insurance required herein shall be written for not less than the limits of liability specified herein or as required by law, whichever is greater, and shall include the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000. Each Accident Bodily Injury by Accident
\$100,000. Each Employee Bodily Injury by Disease
\$500,000. Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverages.)

- (b) **Commercial General Liability Insurance** shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 88, or its successor form, including but not limited to the following coverages (any deviation shall be noted on the Certificates of Insurance), and the CITY OF ORMOND BEACH shall be named as an additional insured:

1. Premises and Operations
2. Owners' & Contractors' Protective
3. Products & Completed Operations
4. Explosion, Collapse & Underground Conditions
5. Blanket Contractual Liability
6. Personal Injury Liability
7. Broad Form Property Damage Endorsement, including Completed Operations
8. Independent Contractors
9. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
10. Pollution Liability (if applicable)
11. Asbestos Abatement (if applicable)
12. Fire Damage Liability

Certain coverages outlined above may not be required if they do not relate to the Agreement, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less than the following for all tiers of Contractors and Subcontractors:

<u>Contract Value</u>	<u>Limits (not less than)</u>
0 - 25,000	\$300,000 Each Occurrence \$300,000 General Aggregate* \$300,000 Aggregate Products & Completed Operations \$ 25,000 Fire Damage (any one fire)
\$25,001 - \$250,000	\$500,000 Each Occurrence \$1 Million General Aggregate* \$1 Million Aggregate Products & Completed Operations \$ 50,000 Fire Damage (any one fire)
\$250,001 - \$3,000,000	\$1 Million Each Occurrence \$1 Million General Aggregate* \$1 Million Aggregate Products &

	Completed Operations Fire Damage (any one fire)
	\$ 50,000
\$3,000,001 & over	20% of the Value of the Contract [Minimum \$1 Million Each Occurrence/\$2 Million General Aggregate]

*NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) **Automobile Liability Insurance** for the operation, use, maintenance, loading or unloading of automobiles - ISO Symbol 1 (Any Auto) or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos). The coverage limits shall be no less than the following for all tiers of Contractors and Subcontractors:

<u>Contract Value</u>	<u>Limits (not less than)</u>
0 - 25,000	\$300,000 Combined Single Limit
\$25,001 - \$250,000	\$500,000 Combined Single Limit
\$250,001 and over	\$1 Million Combined Single Limit

- (d) **Excess Liability**

For Contracts of \$250,000 or more, and in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention for occurrences insured in this Excess Policy not to exceed \$25,000 and a minimum limit of \$1 Million.

- (e) **Professional Liability, Malpractice and/or Errors and Omissions**

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provide a retroactive date no later than the inception date of claims made coverage.

18. Requirements for Certificates of Insurance.

- (a) With the execution of this Agreement, the Contractor shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies

shall contain a provision that the coverage under the policies will not be canceled, non-renewed or materially changed until at least **thirty (30)** days' prior written notice of such cancellation, non-renewal or change [except for nonpayment of premium, which shall be **ten (10)** days] has been given to the City. The Contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of this Agreement.

- (b) New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
- (c) If requested by the City, the Contractor shall furnish complete copies of the Contractor's insurance policies, forms and endorsements.
- (d) For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
- (e) If the Contractor fails to obtain and maintain for the life of the Agreement the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Agreement.
- (f) **Policies of Insurance**
 - 1. Except as otherwise provided herein, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-) in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
 - 2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carriers; written confirmation is required.
 - 3. All policies of insurance or certificates thereof referred to herein shall be deposited with the City Clerk.

4. The City shall be named an Additional Insured on all policies of insurance and certificates thereof.

19. **Enforcement of Costs.** If any legal action or other proceeding is brought for the enforcement of this Agreement, or because of an alleged dispute, breach, default, or misrepresentation in connection with any provision of this Agreement, the successful or prevailing party or parties shall be entitled to recover reasonable attorneys' fees, court costs, and all expenses even if not taxable court costs (including, without limitation, all such fees, costs and expenses incident to arbitration, appellate, bankruptcy, and post-judgment proceedings), incurred in that action or proceeding or any appeal, in addition to any other relief to which the party or parties may be entitled. Attorneys' fees include legal assistant fees, expert witness fees, investigative fees, administrative costs, and all other charges billed by the attorney for the prevailing party.
20. **Effective Date.** This Agreement shall become effective upon the date last signed by the parties hereto.

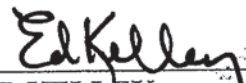
IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be signed on the dates indicated hereinbelow.

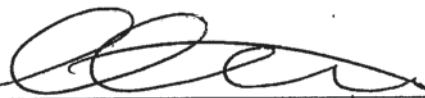
DATED this 19th day of March, 2013.

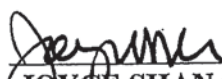
Witnesses:

CITY OF ORMOND BEACH


Print Name: Lois Toway

By: 
ED KELLEY
Mayor

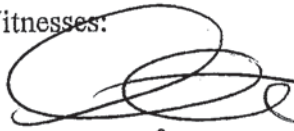

Print Name: Colby Cilento

By: 
JOYCE SHANAHAN
City Manager

DATED this 21st day of March, 2013.

Witnesses:

GOLDEN EAGLE ASSOCIATES, INC.


Print Name: Colby Cilento

By: 
Print Name: ROY SAVOCA
Title: President

Print Name: _____

Attest: _____
Print Name: _____
Title: _____



City of Ormond Beach

22 South Beach Street
Ormond Beach, Florida 32174
Telephone (386) 676-3223
Fax (386) 676-3374

REQUEST FOR PROPOSALS

PROPOSER ACKNOWLEDGEMENT FORM

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR PROPOSAL

RFP TITLE: Ormond Beach's Andy Romano Beachfront Park Concession

RFP NUMBER: 2013-03

RFP OPENING DATE & TIME: December 12, 2012 – 3:00pm

RFP OPENING LOCATION: 2nd Floor Conference Room, City Hall, 22 South Beach Street

PRE-SUBMITTAL MEETING: N/A

Submittals Received After The Above Date And Time Will Not Be Accepted.

PROPOSER'S NAME: Golden Eagle Associates, Inc.

PROPOSER'S MAILING ADDRESS: 212 Cessna Blvd. Unit 7

CITY-STATE-ZIP: Port Orange, FL 32128

F.E.I.N.: 20-8092543

PHONE NUMBER: (386) 682-2111 FAX NUMBER: N/A

If returning as a "No Submittal", please state reason (s):

I certify that this Proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a Proposal for the same materials, services, supplies, or equipment, and is in all respects fair and made without collusion or fraud. I agree to abide by all conditions of this RFP and certify that I am authorized to sign this RFP for the Proposer. In submitting a RFP to the City of Ormond Beach, the Proposer offers and agrees that if the Proposal is accepted, the Proposer will convey, assign or transfer to the City of Ormond Beach all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Antitrust laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the City of Ormond Beach. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the Proposer.

X

Roy Savoca
AUTHORIZED SIGNATURE (MANUAL)

Roy Savoca

NAME (TYPED)

President

TITLE

January 16, 2013

DATED

GENERAL CONDITIONS

PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity, may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

DISCRIMINATION: Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid or proposal on a contract to provide any goods or services to a public entity, may not submit a bid or proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit bid or proposal on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

PUBLIC RECORDS/NON-CONFIDENTIALITY OF BIDS AND/OR PROPOSALS: The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119.01, F.S., The Public Records Law. Information and materials received by the City of Ormond Beach in connection with all Proposers' response shall be deemed to be public records subject to public inspection upon award, recommendation for award, or 30 days after bid opening, whichever occurs first. Section 119.071, F.S.

DISTRIBUTION OF BIDS AND RFP'S: The City uses the services of Onvia DemandStar (www.demandstar.com) to distribute its bids and RFP's on-line on the Internet. If you have received a copy of this RFP from any source other than Onvia DemandStar, please be aware that you may not have received the latest version of the RFP or any related addendums.

SUBMISSION OF RESPONSES: All submittals shall be delivered in a sealed envelope. The Request for Proposals (RFP) number, title, and opening date shall be clearly displayed on the outside of the sealed envelope (and on the outside of any express shipping package). The delivery of said submittal to the Purchasing Office on or before the specified opening date and time is solely and strictly the responsibility of the Submitter. Any submittal received by the Purchasing Office after the specified date and time will not be accepted. Submittals must be presented on forms provided by the City. No other forms will be accepted. Telephone, telefax and telegraph Submittals will not be considered. No Submittal may be modified after opening. No Submittal may be withdrawn after opening for a period of ninety (90) days unless otherwise specified.

EXECUTION OF SUBMITTAL: Submittals must contain a manual signature of authorized representative in the space(s) provided. Submittals must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by Submitter to any Submittal entry must be initialed. The company name and Federal Employer Identification Number (F.E.I.N.) number shall appear in the space(s) provided.

RFP OPENING: Submittals shall be opened and the name of the submitters shall be read publicly. No discussion of the Submittals will occur at this time.

SUBMITTAL TABULATION: Any submitter wishing to receive a copy of the tabulation is required to enclose a stamped, self-addressed envelope with their Submittal response.

CLARIFICATION/CORRECTION OF RFP ENTRY: The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

INTERPRETATION: Any questions concerning conditions and specifications shall be directed to the Purchasing Coordinator. Those interpretations which may affect the eventual outcome of this Submittal will be furnished in writing to all prospective Submitters. No interpretation shall be considered binding unless provided in writing by the City of Ormond Beach.

MINORITY POLICIES: The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

LICENSES AND PERMITS: The Vendor/Contractor is responsible for obtaining all necessary permits and licenses to comply with all Federal, State, local laws, rules and regulations required to perform work in accordance with the specifications.

ADDITIONAL TERMS AND CONDITIONS: The City of Ormond Beach reserves the right to reject Submittals containing any additional terms or conditions not specifically requested in the original conditions and specifications.

TAXES: The City of Ormond Beach is exempt from Federal Excise Taxes and all sales taxes.

SILENCE OF SPECIFICATIONS: The apparent silence of any specification and any supplemental specifications as to any details or the omission from same of any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship is to be first quality. All interpretations of the specifications shall be made upon the basis of this statement.

ASSIGNMENT: Any purchase order or contract issued pursuant to a Submittal and the monies which may become due hereunder are not assignable except with the prior written approval of the City Manager or City Commissioner, whichever authorized the purchase or Agreement.

LIABILITY: The Contractor shall hold and save the City of Ormond Beach, its officers, agents, and employees harmless against claims by third parties resulting from the Contractor's or supplier's breach of contract or negligence, including all attorney's fees and costs, and shall pay any and all damages, fees, and costs assessed on behalf of the City. The City expressly reserves all rights, privileges and benefits of sovereign immunity.

PATENTS AND ROYALTIES: The Contractor, without exception, shall indemnify and save harmless the City of Ormond Beach and its employees from liability of any kind, including cost

and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Ormond Beach. If the Contractor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the Submittal prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

NON-APPROPRIATION OF FUNDS: In the event sufficient budget funds are not available for a new fiscal period, the CITY shall notify the VENDOR/CONTRACTOR of such occurrence and the contract shall terminate on the last day of the current fiscal period, without any penalty or expense to the CITY of any kind whatsoever.

AWARDS: The CITY reserves the right, in its sole discretion, as the best interest of the CITY may require, to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or with one or more vendors, contractors, consultants or specialists; or to reject any and all Submittals or waive any minor irregularity or technicality in the Submittals received.

THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO REJECT ANY OR ALL PROPOSALS, AND TO WAIVE INFORMALITIES AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE CITY.

TERMS AND CONDITIONS

- A. The City of Ormond Beach reserves the right without prejudice to reject any or all proposals, to request clarification of information submitted, and to request additional information of one or more proposers.
- B. The City reserves the right to award the contract to the next most qualified firm if the successful firm fails to execute a contract within two weeks after the award of the contract by the City Commission.
- C. In accordance with federal, State, and local regulations, the firm shall not discriminate under the contract against any person.
- D. The firm shall not assign or transfer any interest in the contract without prior approval of the City Commission.
- E. The City reserves the right to terminate the contract at any time.
- F. Submission of a proposal indicates acceptance by the firm of the conditions contained in this Request for Proposals unless clearly and specifically noted in the proposal submitted and confirmed in the contract between the City of Ormond Beach and the firm selected.
- G. Submittals should include a copy of firm's insurance certificate, Conflict, Non-Conflict of Interest Statement/Litigation Statement, and Drug Free Workplace Certificate.

I. OBJECTIVE OF THE REQUEST FOR PROPOSALS

The purpose of this Request for Proposals (RFP) is to solicit competitive sealed proposals to provide concession services for the City of Ormond Beach's Andy Romano Beachfront Park (*OBARBFP*) as more particularly set forth in this RFP. The concession stand consists of a single-window service counter and a total operating space of 19'8"x 17'8" equipped with triple wash sink, and a power supply consistent with running coolers, ice machines, etc. The successful Respondent or Respondents will demonstrate the ability to provide a safe, consistent and reliable delivery system for the specified goods and services that will:

1. Maximize the public's use and enjoyment of the park;
2. Encourage tourism;
3. Provide an accurate and verifiable system to account for all revenue collected;
4. Provide an accurate and verifiable system to determine the dates and times of operation;
5. Adequately compensate the City of Ormond Beach, as the trustee of the public's interest in Ormond Beach's Andy Romano Beachfront Park and to offset the City's costs of operating and maintaining the park.

II. SCOPE OF SERVICES

Concession Operations

- a) The successful respondent shall be responsible for reviewing and complying with all laws, regulations, and ordinances applicable to Concessionaires.
- b) The successful respondent shall provide all necessary equipment related to operating a successful concession business. *For Example:* coffee machines, refrigerators, ice machine, coolers, etc., are the sole responsibility of the contracted Concessionaire. The Concessionaire shall make any repairs caused by Concessionaire's negligence at Concessionaire's expense. Existing items within the designated concession stand will remain the City's throughout the duration of the contract. Equipment or replacement equipment desired by the Concessionaire will be acquired and installed at Concessionaire's expense. If any public agency having jurisdiction over such matters require safety or other improvements to any of the equipment used by the Concessionaire in their operations, Concessionaire shall be required to effect these improvements at their sole expense. Any desired modifications to existing concession stand must obtain prior approval by the Director of Leisure Services or his/her designee. All approved modifications become property of the City of Ormond Beach.
- c) The public's right shall not be infringed upon by an activity of the Concessionaire or any of its employees, agents, or subcontractors. The activities of the Concessionaire shall be such as to render service to the public in a dignified manner.

- d) The Concessionaire shall use no undue pressure, coercion or persuasion in an attempt to influence the public to use the services or products of the Concessionaire.
- e) Except as expressly permitted by the resulting contract, solicitation outside of the designated concession area is prohibited.
- f) The Concessionaire shall operate in a manner that will ensure the convenience and safety of the public.
- g) All employees, officers, agents, and subcontractors of the Concessionaire shall be neatly attired in uniforms that properly identify them as official City of Ormond Beach Concessionaire personnel.
- h) The design of such uniforms shall be subject to the prior approval of the City of Ormond Beach's Director of Leisure Services or his/her designee. All uniforms worn shall be maintained in a neat and clean manner.
- i) All employees, officers, agents, and subcontractors of the Concessionaire shall wear photo identification badges that will be furnished by and at the expense of the awarded Respondent.
- j) The City of Ormond Beach's Director of Leisure Services or his designee shall have the right to require any employee(s) of the Concessionaire to be permanently removed from the beach premises whenever it appears to be in the best interest of the City of Ormond Beach.
- k) The Concessionaire shall be required to participate in any food, beverage and product sponsorship agreements currently in place with the City of Ormond Beach or any which may be put in place during the term of the Contract.
- l) The Concessionaire shall offer quality products at competitive prices at least consistent with similar goods and services presently being offered locally in other local facilities.
- m) All pricing for all goods and services are to be posted and visible for all customers.
- n) The concessionaire will be responsible for the signing in and out of the mobility impaired chair (MIC) stored onsite. Please note there is no rental fee associated with the usage of the MIC. Procedures for usage of the MIC will be determined and approved by the Director of Leisure Service or his/her designee.

Maintenance

- a) The Concessionaire shall maintain all facilities and equipment in a clean and sanitary condition. All food and beverage facilities shall be in accordance with all applicable rules, ordinances and/or laws pertinent to the health authorities

of Volusia County, the Florida State Board of Health and any other health department having jurisdiction.

- b) The Concessionaire shall be responsible for maintaining a clean, safe and appealing environment in and around the concession area. The Concessionaire shall develop and adhere to a recycling program approved by the City of Ormond Beach.

Personnel and Experience of the Concessionaire

- a) All persons involved in concession activities are required to undergo a background check and drug test at the Concessionaire's expense. In addition, it is the Concessionaire's responsibility to insure all new hires, officers, and agents, are communicated to the City of Ormond Beach's Director of Leisure Services or his/her designee after completion of the background checks and drug testing. It is the responsibility of the successful Respondent to issue individual identification badges upon successful completion of the background check and drug test. No individual shall be permitted to work in the park without this identification. The City of Ormond Beach reserves the right to request random drug testing of all of the successful Respondent's personnel.
- b) The City of Ormond Beach includes a diverse population and the successful Respondent shall reflect this diversity by encouraging diversity in employment of concessions.
- c) The successful Respondent shall have documented experience in the applicable industry for the goods and services which will be managed. This documentation and references are a requirement and evaluation factor of this RFP.

Concession Fee

- A. As consideration for the City of Ormond Beach granting the concession privileges to the successful Respondent or Respondents, the Concessionaire shall pay to the City of Ormond Beach an Annual Guarantee *and* an Annual Percentage Fee, as follows:

Annual Guarantee:

For each lease year, or pro rata portion thereof, during the term of the Contract, the Concessionaire shall pay to the City of Ormond Beach, in twelve equal payments, monthly in advance, an Annual Guarantee as proposed by the Respondent, *and*

Annual Percentage Fee:

For each lease year during the term of the Contract, the Concessionaire shall pay to the City of Ormond Beach no later than May 15th, an Annual Percentage Fee proposed by the Respondent of the Gross Receipts reported on the previous year's Income Tax Return derived from the operation of the Beach Concession.

- B. The proposed Annual Guarantee and Annual Percentage Fee will be factors in the decision to award a Contract to the successful Respondent. The agreed upon Annual Guarantee and Annual Percentage Fee will increase annually by an amount proposed by

the Respondent, which will also be a factor in the decision to award a Contract. The annual increase of the Annual Guarantee and Annual Percentage Fee will take effect at the anniversary of each Contract term.

- C. This concession fee shall not be listed as a separate line item on any receipt provided to any customer or member of the public.

Reporting and Financials

- a) The successful Respondent shall ensure all concession venues are equipped with a cash register system with duplicate receipt capability.
- b) Concessionaire shall provide quarterly income statements and will be required to send these reports electronically to the City of Ormond Beach's Director of Leisure Services and City of Ormond Beach Finance Director.
- c) The City of Ormond Beach reserves the right to audit any financial documentation at anytime.
- d) Respondent shall include in the quarter report, days and time worked for the reporting month. This information shall be verifiable through the cash register system.

Menu Items

The successful Respondent is expected to serve quality pre-packaged food, drink and sundry items (example: ice cream, potato chips, crackers, canned/bottled sodas, water, suntan lotion, etc.) to meet the needs of the visiting public. Simple menu items should be offered at competitive prices. Alcoholic beverages are not permitted on the premises. Each proposer will be required to include a sample menu of products to be offered with a proposed price list corresponding to each product.

III. TERM OF AGREEMENT

The successful Respondent shall comply with all federal, state and local rules and regulations regarding food handling, operation of a concession business, and any other laws that would apply to operating a similar type of business. Special attention must be paid to the regulations outlined by the State of Florida, Department of Professional and Business Regulation, Division of Hotels and Restaurants.

The initial term of this agreement shall be for a period of one (1) year and will be automatically renewed for one year thereafter unless either party provides at least ninety (90) days prior written notice to the other party of their intent not to renew the agreement.

IV. QUALIFICATIONS

In order to be considered responsive, Proposers shall, at a minimum, demonstrate compliance with the following Pre-Qualification Criteria in their proposal. All requested documentation and/or information shall be provided in the Proposal to confirm that the Proposer has satisfied the Prequalification Criteria in order to be properly evaluated as listed herein. Proposers failing to meet these requirements shall be deemed non-responsive. The Proposer shall, at the time of

Proposal submittal, time of award, and throughout the duration of the Contract, continue to meet the following Pre-qualification Criteria requirements as stated in the Solicitation Documents.

- Must be a registered Concessionaire in Florida.
 - Must submit copy of license with proposal.
- Must complete all attached contract documents.
- Must submit a sample menu including all items and pricing.
- A schedule of operations must be submitted with proposal and any deviation from that schedule must be approved by the Leisure Services Director or his/her designee.
- Must submit a proposed schedule of hours of operation for the concession for Winter Season and Summer Season. This schedule of hours of operation shall be in the best interests of meeting the needs of the public and will be a factor in the decision to award a Contract to the successful Respondent.

The Concessionaire shall have proven successful and progressive leadership (three years in a like business) in offering to the public those services as outlined. References are required as per the defined Evaluation Criteria listed in this package and shall be submitted on the forms provided with the proposal. A minimum of three (3)/maximum of five (5) customer references should include name and address of agency, length of contract, contact name, telephone number, fax number and email address. A minimum of two (2)/maximum of three (3) supplier references are also required and should include the above information.

V. PROPOSAL PROCESS

The firm or individual(s) interested in this contract should include a response to each of the following items in their written proposal:

1. A Submittal Letter signed by authorized agent of the firm with documentation, such as a Memorandum of Authority, that this individual is authorized to commit the firm to a Contract. Clearly state the name, title and contact information for the individual designated by the firm as contact point for any requests for additional information required by Volusia County.
2. A profile of the firm, including:
 - a. A brief history of the business.
 - b. Organizational structure of business.
 - c. Designation of the legal entity by which the business operates (i.e., sole proprietorship, partnership, limited liability partnership, corporation, Limited Liability Corporation, etc.).
 - d. Ownership interests.
 - e. Active business venues (counties, states, cities, etc.).
 - f. Present status and projected direction of business.
 - g. The overall qualifications of the business to provide the services requested.

- h. The qualifications of the firm's employees who will work on this contract.
 - i. Documentation from the appropriate state's agency confirming firm's legal entity type (i.e. sole proprietorship, partnership, limited liability partnership, corporation, Limited Liability Corporation, etc.). For non-Florida businesses submit documentation from the state in which the business was formed and documentation from the State of Florida providing authorization to perform business in the state of Florida.
 - j. Federal Identification Number of firm.
3. Business Plan
- The business plan should include the approach to the project and vision of Beach concessions; it should include the following:
- Equipment and inspection plan
 - Training plan
 - Transition plan and timeline
 - Green initiatives.
4. References
- List at least three (3) recent references where the proposed services have been used within the past year.
5. Business Tax Receipt (BTR)
- To be responsive to this solicitation, each Respondent who is currently required to have a Business Tax Receipt (BTR) at the time of submittal shall provide a copy of their current BTR in their response to this solicitation.
6. Concessionaire Registration/License
- Respondent must provide proof of that they have properly registered as a Concessionaire in the State of Florida.
7. Menu:
- Respondent must provide a sample menu with the proposal.

VI. PROPOSAL SUBMITTAL

Please check the contents of your RFP package carefully to ensure that you have in your possession all the necessary documents, as referenced within this RFP, including any addenda. If you are missing any items, please contact the City's Purchasing Coordinator at 386-676-3223, or by e-mail at: chris.byle@ormondbeach.org.

Submission of a proposal pursuant to this RFP shall constitute acknowledgement and acceptance of the terms and conditions set forth herein. Portions of this RFP and the contents of the proposal submitted by the successful proposer may become contractual obligations if an Agreement is awarded. Failure of the successful proposer to accept these obligations may result in cancellation of the award of contract.

The City reserves the right to withdraw this RFP at any time without prior notice. All proposals submitted in response to this RFP become the property of the City of Ormond Beach.

Deadline for Submission: To be considered, proposals must be received no later than 3:00 p.m., December 12, 2012.

Inquiries: Technical questions may arise as firms are preparing their proposals. The City will accept written inquiries regarding this RFP until seven (7) working days prior to the RFP due date. Questions received after that time will not be responded to. Answers to questions that warrant attention of all the potential proposers will be distributed in the form of an addendum.

Please direct written inquiries to:

Chris Byle
City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174
Telephone: (386) 676-3223
FAX: (386) 676-3374
Chris.byle@ormondbeach.org

Signature Requirements: Proposals must be signed by a duly authorized official(s) of the proposing firm. Consortiums, joint ventures, or teams submitting proposals, although permitted and encouraged, will not be considered responsive unless it is established that all contractual responsibility rests solely with one firm or legal entity which shall not be a subsidiary or affiliate with limited resources. Each proposal shall indicate the entity responsible for execution on behalf of the proposal team.

Proposal Delivery: The City must receive one (1) unbound original and three (3) bound copies of your submittal no later than the date and time specified above. Submit proposals to: Chris Byle, Purchasing Coordinator, City Hall, 22 South Beach Street, Ormond Beach, FL 32174. The RFP title and number shall be plainly marked on the outside of the delivery envelope or package. It is solely the responsibility of the submitter to ensure that the Proposal is delivered on or before the specified date and time. Late proposals will not be accepted.

Addenda and Supplements to the Request for Proposals (RFP): In the event that it becomes necessary to revise any part of this RFP, or if additional information is necessary to enable the proposing firm to make an adequate interpretation of the provisions of this RFP, a supplement to the RFP will be provided to each firm that has requested a copy of this document.

Rejection Rights: The City of Ormond Beach reserves the right, at any time, to modify, waive or otherwise vary the terms and conditions of this RFP including, but not limited to, the deadlines for submission and submission requirements. The City further reserves the right to reject any or all submittals, to cancel or withdraw this RFP at any time and to negotiate with any party prior to or after submittal of proposals. Selection is also dependent upon the negotiation of a mutually acceptable contract with the successful proposers.

Cost of Proposal Preparation: No reimbursement will be made by the City of Ormond Beach for any costs incurred in the preparation of the proposal or presentation.

Proposals to be in Effect: Each proposal shall state that it is valid for a period of not less than 90 days from date of receipt.

VII. EVALUATION PROCESS AND CRITERIA

The City of Ormond Beach will conduct an evaluation of all proposals, submitted by the deadline, to determine compliance with proposal requirements and mandatory document submissions. The committee will evaluate proposals and select the Proposer that meets the best interests of the City, and will make a recommendation of Award of Contract to the City Commission.

Evaluation Criteria:

For the purposes of further evaluation, the responsive proposals will be evaluated on, but shall not be limited to, consideration of the following criteria:

Qualifications and Experience (30 points)

Price (30 points)

References (30 points)

Business Plan (10 points)

Responsive proposals will be ranked in each of the criteria

The City reserves the following rights:

Conduct pre-award discussion and/or pre-award negotiations with any or all responsive and responsible Proposer(s) who submit proposals determined to be reasonably acceptable of being selected for award; conduct personal interviews or require presentations of any or all Proposer(s) prior to selection.

Request that Proposer(s) furnish additional information as the City may reasonably require.

Process the selection of the successful Proposer without further discussion.

Accept or reject qualifications or proposals in part or whole.

Limit and/or determine the actual contract services to be included in a contract.

Engage outside experts to assist staff in evaluating the merits and viability of each Proposer.

Obtain information for use in evaluating submittals from any source.

Verify the information received in the proposal. If a proposer knowingly and willfully submits false information or data, the City of Ormond Beach reserves the right to reject that proposal. If it is determined that an Agreement was awarded as a result of false statements or other data submitted in response to this RFP, the City of Ormond Beach reserves the right to terminate the Agreement.

Waive any irregularity in any proposal, or reject any or all submittals, should it be deemed in the best interest of the City of Ormond Beach to do so.

The City shall be the sole judge of the proposer's qualifications.

REGISTRATION AND INSURANCE REQUIREMENTS FOR VENDOR/CONTRACTOR WORKING ON CITY PROJECTS

Registration Requirements

VENDORS doing business within the City Limits must be registered with the City. Requirements for registering a business are as follows:

Copy of City Business Tax Receipt (where your business is located).

Certificate of Insurance showing General Liability and Workers' Comp (or State Workers' Comp Exemption form).

Application Fee: \$25.00 For more information, contact the City's Business Tax Receipt official.

State Certified/Registered Contractors

All registered contractors must be registered with Volusia County. Volusia County Contractor Licensing, 123 W. Indiana Ave., Rm 203, Deland, Fl. 32720 (386) 736-5957 Opt. 2 –(386) 740-5215 Fax. Certified Contractors have the option of registering with Volusia County, or providing information directly to the business tax receipt official.

If you have any questions regarding the above requirements, please contact the business tax receipt official at (386) 676-3234.

EXHIBIT A

Risk Management and Insurance Requirements

A. Payment and Performance Bonds

1. Except as otherwise provided herein, the Contractor shall, prior to beginning performance, deliver to the City, and the City shall record in the public records of Volusia County, Florida, the Contractor's Payment and Performance Bond in an amount equal to the full amount of the Contract.

2.
 - (a) Payment and Performance Bonds shall not be required for any contract except those which are for the construction of a public building, for the prosecution and completion of a public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time) or for repairs upon a public building or public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time).
 - (b) With respect to those Contracts for which Payment and Performance Bonds are otherwise required:
 - i. Unless the City Manager, or his designee, determines such Bond to be necessary to protect the interests of the City, no Contractor shall be required to provide a Payment and Performance Bond for any Contract which is for \$25,000.00 or less.
 - ii. Upon the request of the contractor, good cause shown by the Contractor, and a determination that the public health, safety and welfare will be sufficiently protected, the City Commission may exempt the contractor from the requirement of providing a Payment and Performance Bond for any Contract which is for more than \$25,000.00 but is less than \$200,000.00.
3. The Payment and Performance Bond shall list the Contractor as Principal and be issued by a surety insurer authorized to do business in Florida as a surety and listed as an acceptable surety in the Federal Register.
4. The Payment and Performance Bond shall be executed pursuant to Section 255.05, **Florida Statutes**, and be in a form substantially similar to the form set forth in Section 255.05(3), **Florida Statutes**.
5. The Payment and Performance Bond shall specifically provide coverage for delay damages due to a default by the Contractor.
6. The Payment and Performance Bond shall not make the Contract part of the Bond agreement.
7. In lieu of the Payment and Performance Bond, the Contractor may file with the Finance Director of the City, in an amount equal to the full amount of the Contract, cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in Part II, Chapter 625, **Florida Statutes**.
8. In the event the surety on any Payment and Performance Bond furnished by the Contractor is declared bankrupt or becomes insolvent, or its right to do business in the State of Florida is terminated, the Contractor shall, within five (5) working days thereafter, substitute another Payment and Performance Bond and surety acceptable to the City.

9. The Contractor is totally and solely responsible for keeping its surety informed as to the Base Contract Price as bid, significant changes in the Project Scope, and the overall progress and completion of the Project for the entire life of the Contract.
10. The payment and performance bond requirements stated herein above shall not be applicable to service-related contracts unless otherwise determined by the City Manager in order to protect the health, safety and welfare of the general public.

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include the following, or substantially similar, provisions:

1. Hold Harmless

(a) General

The City, its agents, employees, and officials, both elected and appointed, shall be held harmless from and against all claims for bodily injury, sickness, disease, death or personal injury or damage to property or loss of use resulting therefrom, arising out of the agreement, contract or lease unless such claims are a result of the City's sole negligence, as determined by the final arbiter of such claim.

(b) Professional Services Contracts

The City, its agents, employees, and officials, both elected and appointed shall be held harmless from and against all claims for bodily injury, sickness, disease, death or personal injury or damage to property or loss of use resulting therefrom arising out of performance of the agreement or contract, unless such claims are a result of the City's sole negligence, as determined by the final arbiter of such claim.

The City, its agents, employees, and officials, both elected and appointed shall also be held harmless from and against all claims for financial loss with respect to the provision of or failure to provide professional or other services resulting in professional, malpractice, or errors and omissions liability arising out of performance of the agreement or contract, unless such claims are a result of the City's sole negligence, as determined by the final arbiter of such claim.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph.

Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary.

The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences.

Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith, temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000. Each Accident Bodily Injury by Accident
\$100,000. Each Employee Bodily Injury by Disease
\$500,000. Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 88, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):

- a. Premises and Operations
- b. Owners' & Contractors' Protective
- c. Products & Completed Operation
- d. Explosion, Collapse & Underground Conditions
- e. Blanket Contractual Liability
- f. Personal Injury Liability
- g. Broad Form Property Damage Endorsement, including Completed Operations
- h. Independent Contractors
- i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
- j. Pollution Liability (if applicable)
- k. Asbestos Abatement (if applicable)
- l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less than the following amounts for all tiers of Contractors and Subcontractors:

<u>Contract Value</u>	<u>Limits (not less than)</u>
0 - \$25,000	\$300,000 Each Occurrence \$300,000 General Aggregate* \$300,000 Aggregate Products & Completed Operations \$ 25,000 Fire Damage (any one fire)
\$25,001 - \$250,000	\$500,000 Each Occurrence \$1 Million General Aggregate* \$1 Million Aggregate Products & Completed Operations \$ 50,000 Fire Damage (any one fire)
\$250,001 - \$3,000,000	\$1 Million Each Occurrence \$1 Million General Aggregate* \$1 Million Aggregate Products & Completed Operations \$ 50,000 Fire Damage (any one fire)
\$3,000,001 & over	20% of the Value of the Contract [Minimum \$1 Million Each Occurrence/\$2 Million General Aggregate]

* NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance for the operation, use, maintenance, loading or unloading of automobiles - ISO Symbol 1 (Any Auto) or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos).

<u>Contract Value</u>	<u>Limits (not less than)</u>
0 - \$25,000	\$300,000 Combined Single Limit
\$25,001 - \$250,000	\$500,000 Combined Single Limit
\$250,001 and over	\$1 Million Combined Single Limit

- (d) Excess Liability

For Contracts of \$250,000 or more, and in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention for occurrences insured in this Excess Policy not to exceed \$25,000 and a minimum limit of \$1 Million.

(e) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service-related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.
2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.

5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-), in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carriers; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.
4. The City shall be named an Additional Insured on General Liability and Automobile Liability policies of insurance and certificates thereof.

**City of Ormond Beach
Request for Proposals (RFP)
Ormond Beach's Andy Romano Beachfront Park Concession
(RFP No. 2013-03)**

RFP RESPONSE FORM

THIS RESPONSE IS SUBMITTED TO:

Purchasing Coordinator
City of Ormond Beach
22 S. Beach Street
Ormond Beach, Florida 32174

The undersigned SUBMITTER proposes and agrees, if this Submittal is accepted, to enter into a Contract with the CITY that reflects the items of this Request for Proposal (RFP) and to provide all services, as specified or indicated in the RFP Documents, in full accordance with

the terms and conditions set forth in therein.

SUBMITTER accepts all of the terms and conditions of the General Conditions. SUBMITTER will sign the Contract) and submit the Contract security (when applicable) and other documents required by the Contract Documents within ten (10) days after the date of CITY's Notice of Award.

In submitting this information, SUBMITTER represents, as more fully set forth in the Agreement, that:

SUBMITTER has examined copies of all the RFP Documents and of the following Addenda:

Addendum Date
Dec. 6, 2012
Jan. 11, 2013

Addendum Number
Number 1
Number 2

Receipt of all of which is hereby acknowledged.

This Submittal is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; SUBMITTER has not directly or indirectly induced or solicited any other Submitter to submit a false or sham Submittal; SUBMITTER has not solicited or induced any person, firm or a corporation to refrain from bidding; and SUBMITTER has not sought by collusion to obtain for himself any advantage over any other Bidder or over the CITY.

THIS RESPONSE IS SUBMITTED BY:

COMPANY NAME: Golden Eagle Associates, Inc.

VENDOR/CONTRACTOR LICENSE NUMBER: FEIN 20-8092543

ADDRESS: 212 Cessna Blvd. Unit 7
Port Orange FL 32128

PHONE NO.: (386) 682-2111

FAX NO.: N/A

SUBMITTER'S NAME: Roy Savoca

(Typed or Printed in Ink)

TITLE: President

AUTHORIZED SIGNATURE: I, Roy Savoca hereby
(Original signature required in each document)

declare that I have read and fully understand the RFP Documents and, including the General Conditions and the Scope of Work, and that I am duly authorized to sign and submit this Submittal.

The CITY reserves the right to reject any and all Submittals, to waive informalities, and to accept any Submittal or parts thereof as the CITY, in its sole discretion, determines to be in the best interest of the CITY.

PROPOSER: PLEASE ENSURE THAT YOU HAVE SIGNED THE RFP RESPONSE FORM OF THIS REQUEST FOR PROPOSAL. OMISSION OF A SIGNATURE ON THAT PAGE WILL RESULT IN REJECTION OF YOUR PROPOSAL.

**City of Ormond Beach
Request for Proposals (RFP)
Ormond Beach's Andy Romano Beachfront Park Concession
(RFP No. 2013-03)**

CITY OF ORMOND BEACH, FLORIDA

**CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT**

- ☒ To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- ☐ The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

- ☐ The undersigned firm has had no litigation on any project in the last five (5) years.
- ☒ The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

Golden Eagle Associates, Inc.

COMPANY NAME

AUTHORIZED SIGNATURE

Roy Savoca

NAME (PRINT OR TYPE)

President

TITLE

January 16, 2013

DATE

Golden Eagle Associates, Incorporated

In the spring of 2010 a dispute arose regarding a lease for space in the Pavilion in Port Orange. This resulted in a lawsuit against Golden Eagle Associates, Inc., Roy Savoca, and Kathy Savoca. In the spring of 2011 the dispute was resolved and the suit was dismissed with prejudice.

City of Ormond Beach
Request for Proposals (RFP)
Ormond Beach's Andy Romano Beachfront Park Concession
(RFP No. 2013-03)

CITY OF ORMOND BEACH, FLORIDA
DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL OR "TIE" SUBMITTALS: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more proposals which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.
- 3) Give each employee that engages in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
- 4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.
- 5) Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
- 6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

Golden Eagle Associates, Inc.

Company Name

Authorized Signature

Roy Savoca

Print Name

President

Title

**ADDENDUM NO. 1
TO RFP DOCUMENTS FOR**

**Ormond Beach's Andy Romano Beachfront Park Concession:
RFP NO. 2013-03**

December 6, 2012

TO: All Prospective Proposers

SUBJECT: Addendum NO. 1 to the Request for Proposals
Ormond Beach's Andy Romano Beachfront Park Concession
RFP No. 2013-03

This addendum is being issued to provide all prospective proposers with information on answers to questions and inquires to the proposal. **Please note the RFP Opening date has changed and is scheduled for January 18, 2013, at 3:00 p.m., in the Upstairs Conference Room, located at City Hall, 22 South Beach Street, Ormond Beach, Florida.**

In order to give a timely response, **additional questions pertaining to RFP No. 2013-03, Ormond Beach's Andy Romano Beachfront Park Concession will be received until 5 p.m. on January 9, 2013** with a final addendum to be issued shortly thereafter if needed.

1. **Question: The question I have is in the Menu Items section (page 8), "The Successful Respondent is expected to serve quality pre-packaged food, drinks". Does this mean all foods served must be prepackaged and prepared of premises, no Fryer, no Griddle, and no Soda Fountain?**

✓ *The City will consider all proposals whether for pre-package food, prepared food, or a combination of offerings. Microwave ovens, soda fountains, electric commercial hotdog rollers, and similar devices may be utilized. However, the facility is not equipped to facilitate onsite cooking.*

2. **Question: Will there be beach access from the Park, and will there be signage outside the Park indicating this?**

✓ *Yes, there will be beach access from the park. Signage will follow Volusia County standards of design and placement.*

3. **Question: Will the City allow signage, i.e.: *Hershey's Ice Cream*, and would this signage be visible to travelers along A1A?**

✓ *Removable signage will be located at concession window only. The sign will not be visible from A1A as current codes do not allow for this.*

4. Question: The description of the concession stand "consisting of" does not mention air conditioning. Will the building be air conditioned?

✓ Yes

5. Question: Along those lines, I did not see it mentioned who is responsible for utilities costs?

✓ The City of Ormond Beach will supply utilities for the concession stand operation.

6. Question: The bid states "adequately compensate the City of Ormond Beach to offset City costs of operating and maintaining the park". Does the City have an estimate of what those costs will be and, if you can, let me know what percent of those costs you expect to have the concession stand provide.

✓ The City does not have a specific expectation as to the revenue generated by the concession stand in relation to the total cost to operate and maintain the park. Each proposer will need to determine the amount of concession fees they are willing to pay based upon their expected gross margin. The proposed concession fees (annual guarantee amount and annual percentage fee) will be part of the determination for award used by the selection committee.

7. Question: Regarding "properly or neatly attired in uniform as City of Ormond Beach Concessionary personnel", will the City provide the uniforms or will there be a cost to obtain them?

✓ No. It is the successful respondent's responsibility to provide uniforms for their staff.

8. Question: "Initial term of this agreement shall be for one year and automatic renewal for one year thereafter." Does this mean that a new bid offering will go out every two years for the concession stand?

✓ No. Both the City and the winning proposer will have the ability to decide each year if the contract is renewed for another annual term. The language for the terms of the contract are amended to read: The initial term of this agreement shall be for a period of one year with automatic annual renewals thereafter unless either party provides at least ninety days prior written notice to the other party of their intent not to renew the agreement.

9. Question: "Schedule of Operation": Is the City expecting the concession to be open the same hours as the Park.

✓ *No, that is a bid qualifier and as such will be part of the determination for award by the selection committee.*

10. Question: If so, does the City post the hours, i.e.: Park open from dusk to dawn?

✓ *Park hours will be posted.*

11. Question: Will the Park provide a seating area with umbrellas or is there a covered area with picnic tables near the concession?

✓ *The park will have several covered areas with picnic tables.*

12. I am not familiar with the workings of "Payment and Performance Bonds". Would you please provide clarification of this on pages 14 and 15 and the service bond on page 16?

✓ *This is standard language used in all requests for proposals and is not applicable to this particular proposal. Neither payment and performance bonds nor service bonds will be required.*

13. Question: Are there exceptions to payment agreement of the annual guarantee and annual percentage fee in the case of a serious weather condition such as hurricane or tornado which would drastically affect the operation and income of the concession?

✓ *In the event that the concession stand cannot be operated as a result of a natural disaster, the City will consider a request for temporary abatement of the concession fees.*

14. Question: It appears that the concept is that the concession be a full service operation selling in addition to ice cream, a variety of packaged snack and food items. Do you also anticipate that the concessioner would offer cooked items, such as burgers, hot dogs, French fries, etc.?

✓ *As indicated in answer #1, the facility is not equipped for cooking.*

15. How much floor space total is in the RFP

✓ *19'8" x 17'8", 352 square feet.*

16. Will there be a hood installed on the property? If no, can we submit a bid that includes one as well?

✓ *There will not be a hood installed.*

17. Is there a grease trap available? Once again, if no, can we submit a bid that includes one?

✓ *A grease trap is not available.*

18. What is your vision for this property and when can we meet to discuss?

✓ *The vision is to have a concession stand that serves the visitors of Ormond Beach's Andy Romano Beachfront Park with quality food and sundries, while representing the City of Ormond Beach in a positive, professional manner. After reviewing all submissions, the RFP committee will contact the top proposers for further discussion.*

In all other respects, except as specifically stated herein, the subject RFP remains unchanged.

**THIS ADDENDUM MUST BE ACKNOWLEDGED AND RETURNED WITH
YOUR RFP**

COMPANY NAME: Golden Eagle Associates, Inc.

SIGNATURE: *R. Savoca* DATE: Jan 16, 2013

The foregoing changes are hereby incorporated into the Request for Proposals Requirements and Contract Documents for **Ormond Beach's Andy Romano Beachfront Park Concession, RFP No. 2013-03**, for the City of Ormond Beach.

City of Ormond Beach, Florida
County of Volusia

END OF ADDENDUM NO. 1

**ADDENDUM NO. 2
TO RFP DOCUMENTS FOR**

**Ormond Beach's Andy Romano Beachfront Park Concession:
RFP NO. 2013-03**

January 11, 2013

TO: All Prospective Proposers

SUBJECT: Addendum NO. 2 to the Request for Proposals
Ormond Beach's Andy Romano Beachfront Park Concession
RFP No. 2013-03

This addendum is being issued to provide all prospective proposers with information on answers to questions and inquires to the proposal. Please note the **RFP Opening** date has not changed and is scheduled for **January 18, at 3:00 p.m.**, in the Upstairs Conference Room, located at City Hall, 22 South Beach Street, Ormond Beach, Florida.

1. Question: Are there any food, beverage, or product sponsorship agreements currently in place for the City of Ormond Beach?

✓ *There are currently no such agreements in place.*

2. Question: After the initial drug test; who is responsible for the fees associated with the random drug testing?

✓ *Random drug testing will be at the sole expense of the contracted concessionaire.*

3. Question: Who is responsible for the cleaning and restocking of the restrooms?

✓ *City of Ormond Beach staff will be responsible for the stocking, upkeep and maintenance of the restrooms.*

4. Question: What will the electrical amperage available to the concession stand be?

✓ *There is a 100amp, single phase service dedicated to the operations of the concession stand.*

5. Question: What type of security systems will be installed at the concession stand? Cameras? Safe?

- ✓ *No safe or cameras are being installed. It is the sole responsibility of the successful respondent to provide any security items they feel are needed to operate.*

6. Question: Will there be access between the office, the utility room, and the concession area?

- ✓ *No, that area is reserved for City of Ormond Beach staff.*

7. Question: The answer given was "The City of Ormond Beach will supply utilities for the concession stand operation." To clarify, does this mean The City will pay monthly utilities charges incurred in and surrounding The Concession, i.e. power, lighting, gas, HVAC bills?

- ✓ *Yes, the City of Ormond Beach will pay water, sewer and electric associated with the operation of the concession throughout the duration of the approved contract.*

8. Question: Please clarify the point you intend to make entitled TAXES, on page 3 of 24. How does this relate to the Concessionaire? Are sales taxes to be collected on menu items bought by the Concessionaire and/or sold at The Concession?

- ✓ *Yes, unless the concessionaire is a bona fide tax exempt entity, the concessionaire is responsible for collecting and reporting all appropriate sales tax associated with concessions operations.*

In all other respects, except as specifically stated herein, the subject RFP remains unchanged.

**THIS ADDENDUM MUST BE ACKNOWLEDGED AND RETURNED WITH
YOUR RFP**

COMPANY NAME: Golden Eagle Associates, Inc.

SIGNATURE: *R. Sanoca* **DATE:** Jan. 16, 2013

The foregoing changes are hereby incorporated into the Request for Proposals Requirements and Contract Documents for **Ormond Beach's Andy Romano Beachfront Park Concession, RFP No. 2013-03**; for the City of Ormond Beach.

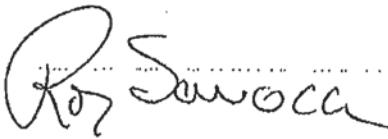
City of Ormond Beach, Florida
County of Volusia

END OF ADDENDUM NO. 2

Golden Eagle Associates, Incorporated

January 16, 2013

Roy Savoca, President of Golden Eagle Associates, Inc. is a duly authorized representative of the corporation and, as such, is authorized to commit the firm into a contract with the City of Ormond Beach. Roy is the designated point of contact for all information regarding the contract. This proposal is valid until April 30, 2013.



Roy Savoca
President
(386) 682-2111 Office
(386) 451-4838 Cell
roy@savoca.us

Golden Eagle Associates, Incorporated

Firm Profile

Golden Eagle Associates, Inc. is a Delaware corporation registered to do business in Florida. The corporation does business using the names Rita's Ices and Rita's Italian Ices. The corporation opened a store at 2429-41 North Atlantic Ave in Daytona Beach in May of 2008. The corporation operates several mobile carts throughout Volusia County.

The corporation consists of Roy Savoca (50% owner) as President and Kathy Savoca (50% owner) as Vice President.

In addition to the fixed location in Daytona Beach, the corporation operates several mobile facilities at venues including but not limited to, the City of Port Orange – Recreational Sports Facility, Daytona Beach Pop Warner Football, Ormond Beach Pop Warner Football, Bethune-Cookman University (at various sporting events and on campus), the Daytona Cubs, Daytona Lagoon, all Volusia County YMCA Swim meets, Daytona Beach Speed Swimming meets, Spruce Creek HS Swim meets.

The fixed location and the mobile operations have grown since their opening and continue to grow. The current plan is to expand the mobile operations by adding additional facilities and locations. The fixed location will continue to grow through increasing local awareness and increasing the products being offered.

Keeping customers continually interested (and regularly frequenting the location) requires a variety of offerings. The limited space of a concession stand restricts an operator's ability to overstock products. Our ability to operate fixed and mobile locations uniquely positions us for success operating the Andy Romano Park Concession Facility. Our ability to create a varied menu using the fewest base ingredients and the minimum number of dry goods will allow us to save on storage space without sacrificing the variety customers demand to regularly patronize the establishment. The success of our locations (fixed and mobile) demonstrates this ability. Our ability to operate in the variety of venues demonstrates our flexibility to adapt to the various requirements of our hosts. The close proximity of our fixed location will allow us to easily restock items as needed. In any venture of this nature, customer service is a key to success. Our experience in this area is second to none.

Several of the local Colleges and Universities have hospitality programs. Students in these programs are perfect candidates for the concession stand. They have knowledge of the business and, as college students, have demonstrated an ability to learn. We do not limit our search to only hospitality students; we look at any person with strong interpersonal skills and an ability to learn. Our on-campus presence provides the ability to recruit students who meet our criteria. Many of the local people possess the same skills; our contact with them through our fixed location allows us to reach out to them with employment opportunities. We strongly support diversity. Our current staff ranges in age from college age to mid 50s, is multiracial, and men and women.

Federal ID - 208092543

Golden Eagle Associates, Incorporated

Business Plan

A day at the beach should be one of stress free fun. Our vision for the Andy Roman Park Concession stand is to aid in this goal by minimizing the number of items a family (or person) needs to bring to the beach. To accomplish this we will be providing a reasonable source for forgotten items (sunglasses and sunscreen), snacks, hot and cold beverages, breakfast, and lunch.

The business will require a dipping cabinet, a chest freezer, a beverage refrigerator, a refrigerator, a safe, ice maker, 2 cash registers, a hot dog roller, a toaster, hot cheese dispenser, and 2 slow cookers. Our managers will be knowledgeable of all equipment and will call appropriate service technicians when a problem is encountered. We will schedule regular maintenance by certified technicians as specified by the manufacturer or industry standards. The total cost of the equipment is estimated to be less than \$5,000 and will be paid for from company reserves.

We will be using the same training methodology used in our fixed location. The training consists of classroom (or virtual classroom) familiarization with the business, the job details, procedures for making customer products, cleaning, opening and closing procedures, and use of the equipment. This is followed with on site training with an experienced team member. The trainee team member must take a food safety class (Food Safety Management Principle 2nd Edition by NEHA Training) and pass the associated exam.

We anticipate a three pronged approach to opening the concession stand. One prong will be to find and hire a staff. The staff will consist of senior and junior people. We foresee the summer staff being larger than the winter staff. The second prong will be the specifying and purchasing of the equipment. We estimate these steps will take approximately 1 month. The third prong will be to contact the health department and work with them to certify the location. In our past experience this process can be accomplished in a week. This becomes a question of the coordination and timing of the equipment installation, the delivery of inventory, the inspector's availability, and the issuing of the CoFO. After the equipment is installed and tested, we will begin in-store training. The in-store training will take approximately 1 week.

We are strong believers in being "Green". Wherever practical we use green products and methods. We reduce power consumption by using CFLs, turning off unused equipment, setting equipment to minimum setting required, and using times and set back thermostats. We use energy star equipment whenever practical. We serve in green containers i.e. paper cups rather than Styrofoam. We identify all materials which are recyclable and recycle them.

Golden Eagle Associates, Incorporated

Our current beachside location does approximately 26,000 transactions per year; we assume 40% of those transactions occur during "beach" hours. Each transaction consists of 2 to 3 treats. Using this as a basis conservatively we estimate 2.5 times the number of transactions for an on beach location – 26,000 transactions. On the low side; if each transaction consists of 2 \$3.50 items then total sales would be \$182,000 including 6.5% sales tax; 170,892 sales without sales tax. Using \$11.00 per transaction the numbers become \$286,000 and 268,545 respectively.

We propose the following fee schedule:

Annual Guarantee - \$ 10,000
Percentage of Sales 12% from \$ 100,001 to 175,000
 15% above \$ 175,000

Using the numbers above on 170,892 in sales we would pay
\$ 10,000 - Annual Guarantee
\$ 20,507 - % Sales
\$ 30,507 - Total

Using the numbers above on 268,545 in sales we would pay
\$ 10,000 - Annual Guarantee
\$ 35,031 - % Sales
\$ 45,031 - Total

We will increase these numbers by 1% per year

Hours of Operation:

Winter - Monday to Thursday - Noon to Park Close
Friday, Saturday, and Sunday - 10am to Park Close

Summer -- Sunday to Monday -- 8am to Park Close

Golden Eagle Associates, Incorporated

Sample Menu

All prices include Sales Tax

Sunscreen	\$ 7.00
Aloe Vera	\$ 7.00
Sunglasses	\$ 5.00

English Muffin	\$ 1.25
Yogurt Parfait	\$ 2.75

Pulled Pork Sandwich With Cole Slaw and Water	\$ 5.00
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Pulled Pork Sandwich With Cole Slaw and Soda	\$ 5.50
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Pulled Pork Sandwich With Cole Slaw and Gatorade	\$ 6.00
---	---------

Chicken Breast Sandwich With Cole Slaw and Water	\$ 5.00
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Chicken Breast Sandwich With Cole Slaw and Soda	\$ 5.50
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Chicken Breast Sandwich With Cole Slaw and Gatorade	\$ 6.00
--	---------

Add Cheese to Any Sandwich	\$ 0.50
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Hot Dogs with Chips	\$ 3.00
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Chili Dogs with Chips	\$ 4.00
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Chili with Chips	\$ 4.00
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Bottled Water	\$ 1.00
---------------	---------

Bottled Soda	\$ 1.50
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Gatorade	\$ 2.00
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Fresh Lemonade	\$ 2.50
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Coffee/Tea (small)	\$ 1.50
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Coffee/Tea (large)	\$ 2.00
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Nachos with Cheese	\$ 3.00
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Nachos with Cheese and Chili	\$ 4.00
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Golden Eagle Associates, Incorporated

References

Venues

Bethune-Cookman University

Matt Knox – Assistant Athletic Director Marketing and Promotions

(386) 481-2033

(386) 481-2238 FAX

knoxm@cookman.edu

Fall 2011 – current

Daytona Cubs

Josh Lawther – Assistant General Manager

(386) 257-3172

(386) 257-3382

joshlawther@daytonacubs.com

Spring 2010 – Current

City of Port Orange – Parks and Recreation

Mike Peace – Athletic Supervisor

(386) 506-5855

(386) 756-5351

mpeace@port-orange.org

Fall 2011 – Current

Suppliers

B&S Paper & Janitorial Supplies

JoAnn Biddle – Account Manager

(386) 253-1860

(386) 253-4082 FAX

jorunn22@aol.com

Restaurant Depot

Craig Miller

(718) 559-4221

(718) 359-9079

cmiller@jettrord.com

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.G
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:	2023-54	
Strategic Goal:	Governance – Other			
Department :	Public Works			
Subject:	Waste Pro CPI Request			
Budget Impact:	The net annual cost above the FY 2022-2023 budget for the requested increase is estimated to be \$1.6 million. Funding is available in the General Stabilization Fund to cover the current year's cost without adjusting customer rates. Since this will create an ongoing expenditure, customer rates will be reviewed as part of the FY 2023-2024 budget process.			
Summary:	This is a request from Waste Pro of Florida, Inc. to approve an annual CPI adjustment of 8.54%, adjust rates by \$3.55 per unit for unusual and unanticipated costs, amend contract language to provide an automatic annual adjustment for the actual CPI amount, and approve a six year extension of the agreement through September 30, 2030. Adjustments will be applied to the rates remitted by the City to WP, customer rates will not increase at this time.			
Recommended Action:	Staff is recommending the City Commission approve the proposed increases and contract extension for a term to end September 30, 2030.			
Staff Contact:	Kevin Gray, Deputy Public Works Director, (386) 676-3325			
Approval:				
Kelly McGuire, Finance Director		2/14/2023		
Claire Whitley, Assistant City Manager		2/15/2023		
Joyce Shanahan, City Manager		2/16/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Kevin Gray, Deputy Public Works Director
Date: February 21, 2023
Subject: Waste Pro CPI Request
Commission Goal: Governance – Other

Introduction

This is a request from Waste Pro of Florida, Inc. (WP) to approve an annual adjustment for solid waste and disposal services for Fiscal Year (FY) 2022-2023 and to approve a contract extension for a term to end September 30, 2030. The proposed fee adjustment will be applied to the rates remitted by the City to WP retroactively to October 1, 2022. Customer rates will not be increased at this time and will be reviewed as part of the FY 2023-2024 budget process.

Background

On October 1, 2014, the City of Ormond Beach entered into a five-year contract for the provision of solid waste collection and disposal services, to include solid waste, yard waste, and recycling collection, with Waste Pro of Florida, Inc. The agreement with Waste Pro was renewed in 2019 for an additional five-year period and expires in 2024.

The terms of the current agreement provide that Waste Pro may petition the City Commission for a rate increase based on the Consumer Price Index (CPI), up to a maximum of 3%, during certain years of the contract period, and may also request adjustments based on unusual and unanticipated costs of doing business. The contract stipulates that the CPI adjustment is based on the Consumer Price Index, All Urban Consumers, published by the US Department of Labor Statistics immediately preceding October 1 of the contract year.

On June 20, 2022, WP submitted the following requests for the October 1, 2022 contract year:

- Rate increase for the CPI at the capped amount of 3%
- Rate adjustment for unusual and unanticipated costs of \$3.55 per unit
- Rate increase for the difference between the actual CPI of 8.54% and the capped CPI amount of 3%

- Increase for solid waste and recycling transportation costs at the transfer station

Discussion

In light of market rates, comparable city contracts for solid waste services, and ongoing increases in costs, including but not limited to labor and fuel increases, staff worked with WP to negotiate agreeable terms and secure a six-year contract extension for the City through September 30, 2030. The proposed contract extension includes the following terms for City Commission consideration:

- CPI adjustment of 8.54%
- \$3.55 per unit increase for unusual and unanticipated costs
- Amend contract to provide for automatic annual adjustment to the actual CPI
- Extend the term of the agreement for six additional years, through September 30, 2030

Staff and WP agreed *not* to include Waste Pro's initial request for an increase to solid waste and recycling transportation costs at the transfer station in the proposed agreement.

During the previous eight (8) years of the contract, WP has successfully delivered services, been responsive to staff and citizen inquires, and worked proactively in addressing critical issues. The rate adjustments in the current proposal contemplate incremental increases in an effort to avoid steep increases at future renewals by maintaining current market rates and providing for necessary increases due to rising costs such as labor, fuel, and vehicles.

Budget Impact

The net annual cost above the FY 2022-2023 budget for the requested increase is estimated to be \$1.6 million. Funding is available in the General Stabilization Fund to cover the current year's cost without adjusting customer rates. Since this will create an ongoing expenditure, customer rates will be reviewed as part of the FY 2023-2024 budget process.

Citizen Impact

Extending the current Waste Pro agreement will ensure Ormond Beach residents and businesses will continue to receive high quality and reliable solid waste services well into the future.

Recommendation

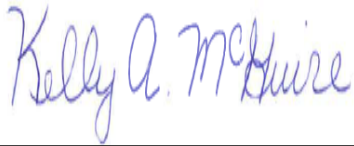
Staff is recommending the City Commission approve the proposed increases and

contract extension for a term to end September 30, 2030.

Attachments:

1. 23-54 Waste Pro 2nd Amend (P22-0138G)
2. Waste Pro 2nd Amendment (P22-0138G)
3. Waste Pro Rquest 2022 2023

Approvals:



Kelly McGuire, Finance Director

Date: February 14, 2023



Claire Whitley, Assistant City Manager

Date: February 15, 2023



Joyce Shanahan, City Manager

Date: February 16, 2023

RESOLUTION NO. 2023-54

A RESOLUTION AUTHORIZING THE EXECUTION OF A SECOND AMENDMENT TO THE SOLID WASTE, YARD WASTE, RECYCLING AND ROLL-OFF COLLECTION AND DISPOSAL AGREEMENT BETWEEN THE CITY OF ORMOND BEACH AND WASTE PRO OF FLORIDA, INC.; AUTHORIZING A COST OF LIVING INCREASE BASED ON THE CONSUMER PRICE INDEX; AUTHORIZING A PER UNIT INCREASE BASED ON UNUSUAL AND UNANTICIPATED COSTS OF DOING BUSINESS; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, on October 1, 2014, the City of Ormond Beach and Waste Pro of Florida, Inc. entered into a Solid Waste, Yard Waste, Recycling and Roll-Off Collection and Disposal Services Agreement (the “Agreement”), subsequently amended on February 5, 2019, and

WHEREAS, the Agreement allows the contractor to request an annual cost of living increase based on the Consumer Price Index (“CPI”) as well as a rate adjustment based upon unusual and unanticipated increases in the cost of doing business, and

WHEREAS, the request by Waste Pro of Florida, Inc., submitted on June 20, 2022, amounts to an 8.54% CPI increase and a \$3.55 per unit increase pursuant to the Agreement, and

WHEREAS, the parties desire to amend the aforesaid agreement to address future cost of living increases and to extend the term of the agreement to September 30, 2030, (a copy of the Second Amendment and Extension of Contract is attached hereto and incorporated herein by reference), and

WHEREAS, the City Manager has certified that the funds necessary to make the payments required under the Second Amendment and Extension of Contract will be generated by revenue received for the provision of the services being contracted for, now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The City Commission hereby authorizes an 8.54% CPI increase and a \$3.55 per unit increase for the provision of solid waste, yard waste, recycling and roll-off collection and disposal services, said increase is effective retroactively to October 1, 2022.

SECTION TWO. The Mayor and City Manager are hereby authorized and directed to execute the Second Amendment and Extension of Contract for Solid Waste, Yard Waste, Recycling and Roll-Off Collection and Disposal Services with Waste Pro of Florida, Inc.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

SECOND AMENDMENT AND EXTENSION OF CONTRACT

THIS SECOND AMENDMENT AND EXTENSION OF CONTRACT is made and entered into by and between the **CITY OF ORMOND BEACH**, a Florida municipal corporation, hereinafter referred to as “City”, and **WASTE PRO OF FLORIDA, INC.**, hereinafter referred to as “Waste Pro”, for the purposes stated herein as follows:

WHEREAS, the City and Waste Pro are parties to a certain Contract for the provision of solid waste, yard waste, recycling and roll-off collection and disposal services by Waste Pro to the City for an initial term of five years effective on October 1, 2014 and which was subsequently amended on February 5, 2019, and

WHEREAS, the parties desire to extend the Contract term, and

WHEREAS, the parties additionally desire to amend the subject Contract to address cost of living increases, now therefore;

1. **Article I: Term of Agreement**, is hereby amended to read as follows:

The term of this Agreement shall be for a period commencing on October 1, 2014 and terminating on September 30, 2030, unless terminated prior thereto. All work under this Agreement shall commence on October 1, 2014. Failure to commence work as required will result in forfeiture of the performance bond and damages, including but not limited to liquidated damages, as further provided in this Agreement.

2. **Subparagraph 2. Cost of living increases, of Paragraph L. Rate Adjustments of Article IX: Contractor’s Relationship to the City**, is hereby amended to read as follows:

On or before October 1, 2023 and each October 1, the City Commission will provide for a cost of living rate adjustment to reflect the percentage increase, if any, in the Consumer Price Index (CPI), All Urban Consumers, published by the US Department of Labor, Bureau of Labor Statistics, determined by comparing the CPI for the March immediately preceding the CPI for March of the prior year. The maximum increase for any annual period shall be the actual posted CPI increase referenced above and shall be documented by a Resolution and will take effect on October 1 of the year in which it was approved. At such time as the Contractor receives a rate increase pursuant to this Paragraph, the City franchise fee shall be automatically adjusted by an equivalent percentage.

3. This Second Amendment and Extension of Contract, including the recitals set forth hereinabove, is made a material part of the aforesaid Contract previously executed by the parties.

4. All other terms and conditions set forth in the Contract previously executed by the parties shall remain the same.

IN WITNESS WHEREOF, the parties hereto have caused this Second Amendment and Extension of Contract to be executed by the following duly authorized representatives of the parties on the dates indicated below.

DATE: _____, 2023.

DATE: _____, 2023.

CITY OF ORMOND BEACH

WASTE PRO OF FLORIDA, INC.

By: _____
BILL PARTINGTON
Mayor

By: _____
Print Name _____
Title _____

Attest: _____
JOYCE A. SHANAHAN
City Manager

Attest: _____
Print Name _____
Title _____

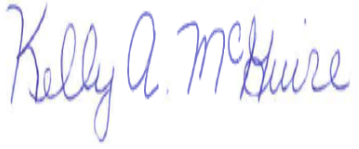
Waste Pro Daytona Beach

City of Ormond Beach

Rates for Contract Year October 1, 2022 to September 30, 2023

CPI adjustment rate = 8.54% plus Unusual & Unanticipated Cost Increase

Description	Unit	Current	8.54% CPI	Unusual Costs	2022-2023 Rates
Residential solid waste & yard waste	per month	\$ 17.84	\$ 1.52	\$ 3.55	\$ 22.91
Extraordinary service	per service	\$ 39.28	\$ 3.35	\$ 7.81	\$ 50.45
Each additional yard	per yard	\$ 11.23	\$ 0.96	\$ 2.23	\$ 14.42
Front end loader commercial service	per yard	\$ 8.73	\$ 0.75	\$ 1.74	\$ 11.22
Front end loader compactor service	per yard	\$ 15.45	\$ 1.32	\$ 3.07	\$ 19.84
Commercial can service	per month	\$ 23.89	\$ 2.04	\$ 4.75	\$ 30.68
Residential recycling	per month	\$ 5.01	\$ 0.43	\$ 0.85	\$ 6.29
Rolloff Franchise Fee	per pull	\$ 52.75	\$ 4.50	\$ 8.91	\$ 66.16
Rolloff/Compactor Haul Fee	per pull	\$ 185.75	\$ 15.86	\$ 30.68	\$ 232.30

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.H
Section:	CONSENT AGENDA			
Item Category:	Consent - Disposition Item	Res./Ord. No:		
Strategic Goal:	Quality of Life – Other			
Department :	Public Works - Engineering			
Subject:	Intent to Bid - Pavilion Replacement at SONC			
Budget Impact:	Funding for the pavilion replacement at the SONC was included in the Fiscal Year (FY) 2022-23 Capital Improvement Program budget with \$65,000 in funding to be provided through the 317-Facilities Renewal and Replacement Fund. The engineer's opinion of the probable cost for this project is \$65,000.			
Summary:	The work consists of replacing one (1) Pavilion and associated foundation, slab, and sitework at 176 Division Ave.			
Recommended Action:	Staff intends to proceed with advertising the plans and specifications for the bid, unless otherwise directed by the City Commission.			
Staff Contact:	Alex Schumann, City Engineer, (386) 676-3302			
Approval:				
Kelly McGuire, Finance Director		1/27/2023		
Claire Whitley, Assistant City Manager		1/30/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Alex Schumann, City Engineer
Date: February 21, 2023
Subject: Intent to Bid - Pavilion Replacement at SONC
Commission Goal: Quality of Life – Other

Introduction

This disposition item provides public notice of the City's intent to issue an invitation to bid for the Pavilion Replacement – SONC, Bid No. 2023-17. The work consists of Replacing one (1) Pavilion and associated foundation, slab, and sitework at 176 Division Ave.

Background

The steel pavilion located in the South Ormond Neighborhood Center (SONC), was constructed around 2004. Following a routine inspection of the pavilion, it was determined that due to exposure to the elements, rust and corrosion has occurred to such an extent that the pavilion is beyond repair and requires complete replacement.

Discussion

SONC, located off Division Avenue, has a steel pavilion that provided shade and shelter for City residents and visitors since being installed. The nearly 20 years of service in the salt air environment has taken a toll on this structure, to the point where it is beyond its useful service life and needs to be replaced. The structure will include columns and beams constructed with glued laminated wood, a 26 gage roof, stainless steel plates, fasteners and hardware. This will ensure a future long service life.

Budget Impact

Funding for the pavilion replacement at the SONC was included in the Fiscal Year (FY) 2022-23 Capital Improvement Program budget with \$65,000 in funding to be provided through the 317-Facilities Renewal and Replacement Fund. The engineer's opinion of the probable cost for this project is \$65,000.

Citizen Impact

The City's Park facilities are a great benefit to the City's residents and visitors and the shade and shelter provided by the pavilion makes it more enjoyable.

Recommendation

Staff intends to proceed with advertising the plans and specifications for the bid, unless otherwise directed by the City Commission.

Attachments:

1. PAVILION BID MANUAL FINAL COPY

Approvals:



Kelly McGuire, Finance Director

Date: January 27, 2023



Claire Whitley, Assistant City Manager

Date: January 30, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

PAVILION REPLACEMENT - SONC

Bid No. 2023-17



City of Ormond Beach

Project Manual

PREPARED BY:

ENGINEERING DIVISION OF PUBLIC WORKS

22 South Beach Street
Ormond Beach, Florida 32174

PAVILION REPLACEMENT - SONC
Ormond Beach, Florida

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Pavilion Replacement
Ormond Beach, Florida

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SECTION 00030
ADVERTISEMENT FORBIDS

Sealed bids for furnishing all labor, materials and equipment necessary for constructing the **Pavilion Replacement, Bid No. 2023 - 17** for the City of Ormond Beach, Florida, will be received at the Office of the Purchasing Coordinator, City Hall, Ormond Beach, Florida, until **March 30, 2023 at 2:00pm**, at which time bids will be opened and publicly read aloud in the Training Room located in the breezeway between City Hall and the Public Library. Bids received after the above time and date will be returned unopened.

The work consists of replacing one (1) Pavilion and associated foundation, slab, and sitework at 176 Division Avenue. The work is shown on the Drawings and specified in the Project Manual. The project Drawings, Specifications and related Bidding documents are available on-line at **www.demandstar.com**, or by calling DemandStar at (206) 940-0305. If you have difficulty obtaining these documents, please contact the City's purchasing office at (386) 676- 3223.

A **pre-bid conference** to discuss the details and requirements of the contract will be held on **March 15, 2023 at 2:00pm** in the Training Room at City Hall. All prospective bidders are strongly encouraged to attend. The deadline for submitting questions is **March 22, 2023** at 5:00pm.

END OF SECTION

SECTION 00100
INSTRUCTION TO BIDDERS

00101. Defined Terms

Terms used in these Instructions to Bidders are defined in the General Conditions of the Construction Contract and have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest, qualified, responsible Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

The OWNER for this project is:

The City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174

The ENGINEER for this project is:

The City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174

00102. Copies of Bidding Documents

2.1 The City uses the services of DemandStar (www.demandstar.com) to advertise/distribute its bids and RFP's via the internet.

2.2 Complete sets of the Bidding Documents may be obtained from the issuing office designated in the Advertisement for Bids.

2.3 Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.4 OWNER and ENGINEER in making copies of Bidding Documents available, on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

00102.1 COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

(a) Keep and maintain public records required by the City to perform the contracted service.

(b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.

(c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.

(d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.

(e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174 (386) 676-3297
CITYCLERK@ORMONDBEACH.ORG**

Ref: Fla. Stat. §119.0701(2016)

00102.2 Public Records/Non-Confidentiality of Bids

The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this bid solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119, F.S., the Public Records Act. Information and materials received by the City of Ormond Beach in connection with responsive bids shall be deemed to be public records subject to public inspection upon award, recommendation of award, or 30 days after bid opening, whichever occurs first.

00103. Qualifications of Bidders

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within seven days after the OWNER's request, written evidence of his ability to perform the work, such as financial data, previous experience, and evidence of authority to conduct business in the jurisdiction where the Project is located. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

00104. Public Entity Crimes:

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Proposal on a contract to provide any goods or services to a public entity, may not submit a Proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit Proposals on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

4.1 Discrimination Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

00105. Examination of Contract Documents and Site

5.1 Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.

5.2 Reference is made to the Supplementary Conditions for the identification of those reports of investigations and tests for subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by ENGINEER in preparing the Drawings and Specifications. OWNER will make such reports available for inspection to any Bidder or copies may be obtained from the ENGINEER by the Bidder at reproduction cost. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents. Before submitting his Bid each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of

the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

5.3 On request OWNER will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid. Bidders making such investigations shall return site to original condition and shall pay for any damages resulting therefrom.

5.4 The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Supplementary Conditions, General Requirements, or Drawings.

5.5 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 4 and that the Contract Documents are sufficient in Scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

00106. Clarification/Correction of Proposal

The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

00107. Interpretations

All questions about the meaning or intent of the Contract Documents shall be submitted in writing to the Purchasing Coordinator via email to Rob.Hart@ormondbeach.org. Replies will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

00108. Minority Policies

The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

00109. Bid Security

9.1 Bids shall be accompanied by a Bid Security. The Security shall be made payable to OWNER, in the amount of five percent (5%) of the total bid, and in the form of a certified or cashier's check or a Bid Bond issued by a Surety meeting the requirements of paragraph 5.1 of the General Conditions. The Bid Security shall be irrevocable after the time and date set for the opening of bids, and for a period of ninety (90) days thereafter.

9.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract

Security within fifteen (15) days of the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the seventh day after the "effective date of the Agreement" or the first day after the expiration of the period that Bids are specified to remain open in the Advertisement for Bids. Bid Security of other Bidders will be returned within seven (7) days of the Bid opening.

00110. Contract Time

The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Bid Form and will be included in the Agreement.

00111. Liquidated Damages

Provisions for liquidated damages, if any, are set forth in the Bid Form and Agreement.

00112. Subcontractors

12.1 If the Supplementary Conditions, Bid Form and/or Specifications require the identity of certain subcontractors to be submitted to the OWNER with the bid, the bidder will list in his bid all subcontractors proposed for those portions of the work for which such identification is so required. When requested, an experience statement, pertinent information as to similar projects satisfactorily completed and other evidence of qualifications for each listed subcontractor shall be submitted within seven (7) days after the bid. If the OWNER after due investigation has reasonable objection to any proposed subcontractor, OWNER may before giving the Notice of Award request the apparent low bidder to submit an acceptable substitute without an increase in his bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor so listed and to whom OWNER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER.

12.2 In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to OWNER those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with OWNER's written consent.

00113. Material and Equipment List (Manufacturers)

If the Supplementary Conditions, Bid Form and/or Specifications require the identity of certain material and equipment manufacturers be submitted to the OWNER with the bid, the bidder will list in his bid all material and equipment manufacturers proposed for those portions of the work for which such identification is so required. Such list shall be supplemented by product descriptions for each listed material and equipment item. Supplemental information will be submitted with the bid unless it has been prefilled with the ENGINEER. In this latter case, the bid shall state that the information has been prefilled. Equipment manufacturers/suppliers must agree to OWNER'S terms of purchase. In no event will OWNER accept terms of sale that limit OWNER'S ability to

reasonably recover in the event of equipment failure/defect such as, but not limited to; mandatory arbitration clauses, venue of court proceedings and applicable law outside of Volusia County, Florida, or damage limitations that preclude recovery for failed or defective equipment that would be less than full compensation for OWNER's loss. If the OWNER after due investigation has reasonable objection to any proposed material or equipment item, OWNER may before giving the Notice of Award request the apparent low bidder to submit an acceptable substitute without an increase in his bid price. If the apparent Successful Bidder declines to make any such substitution, the contract may not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any material or equipment manufacturer so listed and to whom OWNER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER. This acceptance of a material or equipment manufacturer does not relieve the CONTRACTOR from the responsibility of submitting shop drawings in accordance with Section 01300 before incorporating said material and/or equipment into the Work.

00114. Material and Equipment Substitutions

Excluding items called for in the bidders Equipment and Subcontractors List in the Bid, Section 00300, whenever it is indicated on the Drawings or specified in the Specifications that a substitute or "or equivalent" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the "effective date of the Agreement". The procedure for submittal of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Section 01630 - Substitutions and Product Options.

00115. Bid Form

15.1 Bids shall be submitted on standard forms which are furnished in this Project Manual.

15.2 Bid Forms must be completed in ink or by typewriter. All blank spaces must be filled. Where indicated on the Bid Form, the Bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence.

15.3 The estimate of the various quantities of work applicable to unit price items as shown on the Bid Form is approximate and is intended solely to provide the basis of comparison upon which the award of contract is made. Final payment will be made on the basis of the actual completed quantities of each item.

15.4 Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

15.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

15.6 Bids by a Joint Venture must be executed by all individuals, Partners, or Corporations interested in the Joint Venture in the same manner that bids by these separate entities are required to be executed.

15.7 All names must be typed or printed below the signature.

15.8 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

15.9 The address to which communications regarding the Bid are to be directed must be shown.

15.10 Only one bid from any individual, firm, partnership or corporation under the same or different names, will be considered. Should it appear to the OWNER that any Bidder is interested in more than one bid, all bids in which such Bidder is interested will be rejected.

00116. Submission of Bids

Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be included in an opaque sealed envelope, marked with the Bid Number, Project Title, and Bidder's Name and Address, accompanied by the Bid Security and other required documents. Include one (1) original bid form and (1) electronic file (thumb/flash drive or CD). If the Bid is sent through the mail or other delivery system, the sealed Bid shall be sent in a separate envelope with the notation "BID ENCLOSED" as well as the Bid Number, Project Title, and Bid Opening Date clearly displayed on the shipping envelope/package.

Submit bids to:

City of Ormond Beach
Purchasing Coordinator
22 South Beach Street, Room 101
Ormond Beach, FL 32174

00117. Modification and Withdrawal of Bids

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

00118. Opening of Bids

Bids will be opened publicly and read aloud and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

00119. Bids to Remain Open

All Bids shall remain open for ninety(90) days after the day of the Bid opening, but OWNER may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

00120. Award of Contract

20.1 OWNER reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated product of quantities and unit prices and the correct product thereof will be resolved in favor of the correct product. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

20.2 In evaluating Bids, OWNER shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid forms. It is OWNER's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form but OWNER may accept them in any order or combination.

20.3 OWNER may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items or material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by OWNER.

20.4 Irregular bids may be rejected. Irregular bids are defined as those containing serious omissions, unauthorized alternative bids, incomplete bids or unbalanced bids. Failure to provide all of the information required to accompany the bid will be considered to be a serious omission.

20.5 OWNER may conduct such investigations as he deems necessary to assist in the evaluation of any Bid.

20.6 OWNER reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to OWNER's satisfaction.

20.7 If the contract is to be awarded it will be awarded to the lowest responsible Bidder whose evaluation by OWNER indicates that the award will be in the best interests of the Project. The low bid will be based on the total cost of the Base Bid and, when applicable, any Additive or Deductive Alternates that are to be included in the Contract, as decided by the OWNER.

20.8 If the contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within the number of days after the day of the Bid opening specified in the Advertisement for Bids to remain open.

00121. Performance and Other Bonds

Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER's requirements as to performance and other Bonds. When the Successful Bidder delivers the executed Agreement to OWNER it shall be accompanied by the required Contract Security.

00122. Signing of Agreement

When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by at least five (5) unsigned counterparts of the Agreement and all other Contract Documents. Within ten (10) days thereafter CONTRACTOR shall sign all and deliver at least five (5) counterparts of the Agreement to OWNER with other Contract Documents attached. Within ten (10) days thereafter OWNER will deliver fully signed counterparts to CONTRACTOR.

00123. Special Requirements

23.1 Financing. Funds will be available for payment of estimate draws as they become due.

23.2 Prohibited Interests. No official of the OWNER who is authorized in such capacity, and on behalf of the OWNER to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project shall become directly or indirectly interested, personally, in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the OWNER who is authorized in such capacity and on behalf of the OWNER to exercise legislative, executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally, in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

23.3 Performance of Work by CONTRACTOR:

Contract Assignment. The successful Bidder (or Bidders) will be required to perform the work as a prime contractor.

The CONTRACTOR shall not sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of his right, title or interest therein, without written consent of the OWNER.

END OF INSTRUCTION TO BIDDERS

SECTION00300
BID

CONTRACTORS NAME _____ LICENSE NO. _____

PROJECT IDENTIFICATION:

PAVILION REPLACEMENT - SONC

CONTRACT IDENTIFICATION AND NUMBER:

Bid No. 2023 – 17

THIS BID IS SUBMITTED TO:

(Name and Address of Owner)

City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to complete all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

2. BIDDER certifies that he has investigated the requirements to do business in the jurisdiction where the project is located, and that he is either qualified to do business or will obtain such prequalification prior to award of the contract.

3. BIDDER accepts all of the terms and conditions of the Instructions to Bidders (Section 00100) including, without limitation, those dealing with the disposition of Bid Security, Public Entity Crimes, and Minority Policies. This Bid will remain open for 90 days after the day of Bid opening. BIDDER will sign the Agreement and submit the Contract security and other documents required by the Contract Documents within ten (10) days after the date of OWNER'S Notice of Award.

4. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

(a) BIDDER has examined copies of all the Contract Documents and of the following addenda:

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____
_____	_____

(receipt of all of which is hereby acknowledged) and also copies of the Advertisement to Bid and the Instructions to Bidders;

BID (Cont'd.)

**PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA**

(b) BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.

(c) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER; and

5. BIDDER will complete the Work for the following price(s):

BID SCHEDULE

Item Description	Item Quantity	Units	Unit Price	Total Estimated Price
Mobilization/Demobilization	1	LS		
Furnish/Install Concrete Footings (10 EA), Concrete Slab (1134 SF), Electrical Conduit	1	LS		
Furnish and Install Pre-fabricated Pavilion	1	LS		
Permit Fee and Miscellaneous Allowances	1	LS		\$2,500

TOTAL BID

\$ _____
(Figures)

(Words)

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

BIDDER acknowledges that the quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

BIDDER agrees that the Work will be substantially completed within 150 calendar days after the date when the Contract Time commences to run, and completed within 180 calendar days after the date when the Contract Time commences to run.

BIDDER recognizes that time is of the essence to complete this Project and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The BIDDER also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER has determined and BIDDER agrees to accept that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER FOUR HUNDRED Dollars (\$400) for each calendar day that expires after the time specified above for substantial completion until the Work is substantially complete. After substantial completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified above for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining work. In the event the CONTRACTOR is terminated or abandons the work prior to the scheduled date for final completion, the CONTRACTOR may be liable for both liquidated damages attributable to delay and for excess completion costs.

6. The following documents are attached to and made a condition of this Bid:

- (a) Required Bid Security in the form of
 - (1) a certified check drawn in favor of the City of Ormond Beach in the amount of 5 percent of the total bid; or
 - (2) a Bid Bond in the amount of 5 percent of the total bid.
- (b) Equipment, Material, and Subcontractors List
- (c) All information required by the Trench Safety Act (Part VI, Chapter 553, Florida Statutes).
- (d) Drug Free Workplace Certificate
- (e) Conflict, Non-Conflict of Interest, Litigation Statement
- (f) Local Vendor Preference
- (g) Verification of Employment Status Using E-Verify System

BID (Cont'd.)
PAVILION REPLACEMENT – SONC
ORMOND BEACH, FLORIDA

7. Communications to the BIDDER concerning this Bid shall be addressed to:

Mailing Address: _____
Street Address: _____
City, State, Zip Code: _____
Email: _____
Telephone No.: _____ Fax No.: _____

8. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract DOCUMENTS have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 20 ____.

If BIDDER is:

An Individual

By _____
(Individual's Name - Signature)

_____(SEAL)
(Individual's Name - Typed or Printed)

doing business as _____

Business address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

If BIDDER is:

A Partnership

By _____(SEAL)
(Firm Name)

(General Partner - Signature)

(General Partner - Typed or Printed)

Business Address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
PAVILION REPLACEMENT – SONC
ORMOND BEACH, FLORIDA

If BIDDER is:

A Corporation

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Name of Person Authorized to Sign - Signature)

(Name of Person Authorized to Sign - Typed or Printed)

(Title)

(Corporate Seal)

Attest _____

Business address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
PAVILION REPLACEMENT – SONC
ORMOND BEACH, FLORIDA

If BIDDER is:

A Joint Venture

By _____
(Name - Signature)

(Name - Typed or Printed)

Address: _____

Phone No.: _____

Fax No.: _____

By _____
(Name - Signature)

(Name - Typed or Printed)

Address: _____

Phone No.: _____

Fax No.: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

BID (Cont'd.)

**PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA**

EQUIPMENT AND SUBCONTRACTORS LIST

List the names of the manufacturers whose product is proposed for use. No more than one manufacturer's name shall be inserted for each item of material and/or equipment listed. Failure to list materials and equipment supplier may result in the Bid being rejected as incomplete and nonresponsive. If any Subcontractors are proposed to be used for any portions of the Work, the names, addresses, phone numbers and work classifications of each such Subcontractor must be listed. The failure to list all Subcontractors proposed for the work may result in the Bid being rejected as incomplete and nonresponsive. If more than one manufacturer or subcontractor is listed, selection will be made by the OWNER. If none is listed, those listed as the "Basis for Design" will be used.

Materials and Equipment:

<u>Item</u>	<u>Supplier</u>

Subcontractors:

Work Classification:

Name:

Address:

Phone Number:

Fax Number:

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

Subcontractors:

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

BID (Cont'd.)

**PAVILION REPLACEMENT – SONC
ORMOND BEACH, FLORIDA**

TRENCH SAFETY STANDARDS

If this project includes trench excavation in excess of five (5) feet in depth, the following trench safety standards will be in effect during the period of construction of the project:

The Occupational Safety and Health Administration's excavation safety standards, 29 C.F.R.s. 1926.650 Subpart P, and any regulation promulgated there under are hereby incorporated as the standard for this project.

The Bidder hereby certifies that the Contractor performing the trench excavation will comply with the applicable trench safety standards.

The Bidder further certifies that the cost (which is included in his unit cost) of compliance with applicable trench safety standards is:

	<u>Estimated Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Estimated Price</u>
<u>ITEM</u>				
1. Trench Excavation	_____	L.F.	-	_____
2. Sheet piling/Shoring	_____	S.F.	-	_____

Name (signature) Date

Name (typed or printed)

Title

BID (Cont'd.)

**PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA**

DRUG-FREE WORKPLACE CERTIFICATION

Identical Or “Tie” Bids: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more proposals which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business’s policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.
- 3) Give each employee that engages in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
- 4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.
- 5) Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee’s community, by any employee who is so convicted.
- 6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

Name (signature)

Date

Name (typed or printed)

Title

BID (Cont'd.)

**PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA**

**CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT**

1.

- [] To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- [] The undersigned firm, by attachment to this form, submits information which maybe a potential conflict of interest due to other clients or contracts for this project.

2.

- [] The undersigned firm has had no litigation on any project in the last five (5) years.
- [] The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

TITLE

DATE

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

LOCAL VENDOR PREFERENCE

The following is taken from the Code of Ordinances, City of Ormond Beach, Chapter 2, Financial Matters, Division 3, Purchasing, Article IX, Section 2-304:

Except where otherwise provided by federal or state law or other funding source restrictions, purchases of goods and services under the Purchasing Code shall give preference to local businesses as follows:

- (a) Under a competitive bid solicitation, the City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded.
- (b) A *local business* shall mean a vendor that has a valid occupational license issued by the City of Ormond Beach at least one year prior to bid opening, with a physical business address located within the municipal boundaries of the City of Ormond Beach from which the vendor operates or performs business on a day-to-day basis that is a substantial component of the goods or services being offered and has provided a Local Vendor Affidavit of Eligibility at the time the bid is submitted.
- (c) A *Local Vendor Affidavit of Eligibility* shall accompany the bid submittal to be considered valid and shall include, but not be limited to, the following information:
 - (1) A physical business and location address;
 - (2) A copy of current City of Ormond Beach Local Business Tax Receipt (occupational license) to verify the business location;
 - (3) Proof of payment of business tax and real property tax due to the City of Ormond Beach;
 - (4) A copy of the firm's most recent annual corporation report to the Florida Division of Corporations;
 - (5) Any additional information necessary to verify local status.
- (d) *Exemptions:* Goods or services provided under a cooperative purchasing agreement, contracts for professional services subject to Consultants' Competitive Negotiation Act, purchases or contracts funded in whole or part by a governmental entity that does not allow local preferences, purchases made under another agency's agreements or contracts (piggybacking), purchases under emergency or sole source situations and procurements subject to formal proposals including but not limited to request for proposals (RFP) or continuing contract, and request for quotes (RFQ) versus straight competitive bids.
- (e) This section shall not be deemed to require the granting of a local preference, and nothing herein prohibits the award of a contract to a non-local vendor where such award is in the public interest.

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

LOCAL VENDOR AFFIDAVIT OF ELIGIBILITY

I certify that my company meets all of the following qualifications to be eligible for the local vendor preference:

- a. My company has a physical business address located within the municipal boundaries of the City of Ormond Beach which is used to perform business on a day-to-day basis.
- b. My company holds any business (occupational) or contractor license required by the City of Ormond Beach at least one year prior to bid opening.
- c. Payment of business tax and real property tax due to the City of Ormond Beach is current
- d. My company is in compliance with annual reporting to the Florida Division of Corporations

Company Name: _____

Address: _____

Business or Contractor License Number: _____

Phone Number: _____ Fax Number: _____

Owner's Name: _____ Signature: _____

Sworn to before me this _____ day of _____

Notary Public for the State of _____ My Commission Expires _____

Notary Public Signature: _____

Printed Name: _____

To be approved as a local bidder and receive bid preference on an eligible local project, this affidavit of eligibility, a copy of your local business or contractor license, copy of business tax/real property tax and a copy of the firm's most recent annual corporation report must be submitted with your bonafide BID package. Bid preference is provided at the City's sole discretion.

VENDOR DO NOT COMPLETE BELOW

To be verified and completed by an authorized representative of the City of Ormond Beach's Purchasing Department:

Vendor Certified by: _____ Date: _____

BID (Cont'd.)
PAVILION REPLACEMENT - SONC
ORMOND BEACH, FLORIDA

VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

1. Undersigned firm warrants it **IS** currently registered with the U.S. Department of Homeland Security's E-Verify system, **and** is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
2. Undersigned firm warrants it **has not** had any contracts terminated as a result of violations of Sections 448.09 or 448.095, *Florida Statutes*, that prohibit it from contracting with a public agency.
3. Undersigned firm warrants that if it enters into an agreement with a subcontractor, an express provision shall be included in all of its subcontracts requiring subcontractors, who perform work or provide services pursuant to the contract, to use the E-Verify system to verify employment eligibility of all new employees hired by the subcontractor during the contract term.
4. Undersigned firm understands that any subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and the contractor understands it shall maintain any such affidavits for the duration of the contract, and the contract with the subcontractor must be immediately terminated if the City has a good faith belief that the subcontractor knowingly violated Section 448.09 (1), *Florida Statutes*.
5. Undersigned firm understands that in the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and the contractor may not be awarded a public contract for a period of at least one (1) year after the date of termination. The contractor may be held liable for any additional costs incurred by the City as a result of termination of the contract.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

TITLE

DATE

END OF BID

00300-15

SECTION00410
BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____

(hereinafter called *Principal*) and

(hereinafter called the *Surety*) a corporation chartered and existing under the Laws of the State _____ of with its principal offices in the County of _____ and authorized to do business in the State of Florida, in the full and just sum of _____ Dollars (\$ _____) good and lawful money of the United States of America, to be paid upon demand of the _____, Florida, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, and assigns, jointly and severally and firmly by these presents,

WHEREAS, the Principal is about to submit, or has submitted to the City of Ormond Beach, Florida, a bid for work to be done on the **PAVILION REPLACEMENT - SONC (Bid No. 2023-17)** in, and for the City and

WHEREAS, the Principal desires to file this bond in accordance with law, in lieu of a certified or cashier's check otherwise required to accompany this Bid.

NOW, THEREFORE: the conditions of this obligation are such that if the Bid be accepted the Principal shall within ten (10) days after the receipt of notification of the acceptance thereof execute a contract in accordance with the Bid and upon the terms, conditions and unit or lump sum prices set forth therein, in the form and manner required by the Owner, and execute a sufficient and satisfactory Contract Bond payable to the Owner, in an amount not less than the total contract price, as indicated by the approximate quantities shown in the Bid, in form and with security satisfactory to the said City, then this obligation to be void; otherwise to be and remain in full force and virtue in law; and the Surety shall upon the failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid City upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day _____, 20_____.

(Principal)

By: _____

ATTEST:

(Surety)

By: _____

(SEAL)

SECTION 00500
FORM OF AGREEMENT

THIS AGREEMENT is by and between City of Ormond Beach, a Municipal Corporation in the State of Florida (hereinafter called OWNER) and

(hereinafter called CONTRACTOR)

The bid for this contract was approved by the City Commission on _____, 2023.

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The work consists of replacing one (1) Pavilion and associated foundation, slab, and sitework at 176 Division Avenue.

The Project for which the Work under the Contract Documents maybe the whole or only a part is generally described as follows:

PAVILION REPLACEMENT - SONC
BID NUMBER 2023 - 17

Article 2. ENGINEER

The Project has been designed by City Engineer, 22 South Beach Street, Ormond Beach, FL 32174, who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed within 150 calendar days after the date when the Contract Time commences to run as provided in paragraph 2.3 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.10 of the General Conditions within 180 calendar days after the date when the Contract Time commences to run.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Four Hundred Dollars (\$400.00) for each calendar day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After

Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 3.1 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining work. In the event the Contractor is terminated or abandons the Work prior to the scheduled date for final completion, the Contractor may be liable for both liquidated damages attributable to delay and for excess completion costs.

Article 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work, in accordance with the Contract Documents, an amount in current funds equal to the lump sum TOTAL BID of \$ _____, as listed in the Bid Form. Payment shall be for the actual completed work, as specified in the Measurement and Payment section of the project Manual and in accordance with Article 14 of the General Conditions.

Article 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or about the 15th day of each month during construction as provided below, provided Applications for Payment are timely delivered pursuant to Article 14.1 of the General Conditions. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in paragraph 14.1 of the General Conditions.

5.1.1 When applicable, all progress payments shall be in an amount equal to:

Ninety-Five percent (95%) of the Work completed.

Ninety-Five percent (95%) of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case the aggregate of payments previously made and less such amounts as ENGINEER shall determine in accordance with paragraph 14.4 of the General Conditions.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.10 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.10.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

6.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

6.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 6.2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

6.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof and consists of the following:

7.1 This Agreement (pages 1 to 5, inclusive).

7.2 Exhibits to this Agreement (pages 6 to 10, inclusive).

7.3 Performance and other Bonds, identified as exhibits 00610 AND 00615 and consisting of 4 pages.

7.4 Notice of Award.

7.5 General Conditions (pages 1 to 35 , inclusive).

7.6 Supplementary Conditions (pages 1 to 7 , inclusive).

7.7 Specifications bearing the title:

PAVILION REPLACEMENT

and consisting of 16 divisions, as listed in table of contents thereof.

7.8 Drawings, consisting of 1 sheets numbered 1 through 1 inclusive and bearing the following general title:

PAVILION REPLACEMENT

7.9 Addenda numbers ____ to ____, inclusive.

7.10 CONTRACTOR'S Bid (pages 1 to 15, inclusive) marked exhibit ____ (Attach Bid Form only in special circumstances).

7.11 Documentation submitted by CONTRACTOR prior to Notice of Award (pages ____ to ____, inclusive).

7.12 Any Modification, including Change Orders, duly delivered after execution of Agreement.

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be altered, amended or repealed by a Modification (as defined in Section 1 of the General Conditions).

Article 8. MISCELLANEOUS

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement. One counterpart each has been delivered to OWNER and CONTRACTOR, and to ENGINEER as applicable. All portions of the Contract Documents have been signed by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2022

OWNER City of Ormond Beach CONTRACTOR _____

By _____ By _____

Bill Partington
Mayor

(Title)

[CITY SEAL]

[SEAL]

Attest _____ Attest _____

Joyce A. Shanahan
City Manager

(Title)

Address for giving notices:

City of Ormond Beach
PO Box 277
Ormond Beach, FL 32175-0277

Address for giving notices:

License No. _____

Registered Agent for service process:

(Name)

(Title)

END OF AGREEMENT

**SECTION 00610
PERFORMANCEBOND**

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a(n) _____, hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
_____, Dollars, (\$_____) in lawful money of the United
States, for the payment of which sum will and truly to be made, we bind ourselves, successors, and assigns, jointly
and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with
OWNER, dated _____ day of _____, 20_, for the construction of:

**PAVILION REPLACEMENT – SONC
Bid No. 2023-17**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants,
terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which
may be granted by the OWNER, with or without notice to the Surety and during the one-year guaranty period, and if
he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the
OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay
the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension
of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the
SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby
waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK
or to the SPECIFICATIONS The Surety agrees that modifications and changes to the terms and conditions of the
Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety
on this bond and notice to Surety is not required for such increased obligation.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the
right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be
(number)

deemed an original, this _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

Principal

By _____(s)

(SEAL)

(Witness to Principal)

(Address)

(Address)

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

Witness to Surety

Attorney-In-Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND. All BONDS signed by an agent must be accompanied by a certified copy of the authority to act.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

**SECTION 00615
PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a(n) _____, hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
_____, Dollars, (\$_____) in lawful money of the United
States, for the payment of which sum will and truly to be made, we bind ourselves, successors, and assigns, jointly
and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with
OWNER, dated _____ day of _____, 20_, for the construction of:

PAVILION REPLACEMENT

Bid No. 2023 - 17

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be
(number)

deemed an original, this _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

Principal

By _____(s)

(SEAL)

(Witness to Principal)

(Address)

(Address)

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

Witness to Surety

Attorney-In-Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND. All BONDS signed by an agent must be accompanied by a certified copy of the authority to act.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

OPINION OF ATTORNEY

This is to certify that I have examined the attached Contract Documents, and that I am of the opinion that such documents conform to the Laws of the State of Florida, and that the execution of the Contract is in due and proper form, and that the foregoing agreements constitute valid and binding obligations on such parties.

Attorney for Owner

This the _____ day of _____, 2023.

END OF SECTION

00670 - 1

SECTION 00700
GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

1.01. Addenda - Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents of the Contract Documents.

1.02. Agreement - The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.03. Application for Payment - The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payment and which is to include such supporting documentation as required by the Contract Documents.

1.04. Approve - The word approve is defined to mean review of the material, equipment or methods for general compliance with the design concepts and with the information given in the Contract Documents. It does not imply a responsibility on the part of the ENGINEER to verify in every detail conformance with the Drawings and Specifications.

1.05. Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.06. Bonds - Bid, Performance and Payment Bonds and other instruments of security.

1.07. Change Order - A written order to CONTRACTOR signed by OWNER authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after the effective date of the Agreement.

1.08. Contract - The Agreement.

1.09. Contract Documents - The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, Notice of Award, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, any other exhibits identified in the Agreement, together with all Modifications issued after the execution of the Agreement.

1.10. Contract Price - The Contract Price constitutes the total compensation (subject to authorized adjustments) payable by OWNER to CONTRACTOR for performing the Work.

1.11. Contract Time - The number of days (computed as provided in paragraph 16.2) or the

date stated in the Agreement for the completion of the Work.

1.12. CONTRACTOR - The person, firm or corporation with whom OWNER has entered into the Agreement.

1.13. Day - A calendar day of twenty-four hours measured from midnight to the next midnight.

1.14. Defective - Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment.

1.15. Drawings - The drawings, which will be identified in the Agreement, which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

1.16. Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

1.17. ENGINEER - The City Engineer of the City of Ormond Beach, Florida, or the designee of such Engineer.

1.18. Engineering Order - A written request issued by ENGINEER to CONTRACTOR requesting a cost for certain modifications to the Work. An Engineering Order is not an authorization to perform the modifications.

1.19. Field Order - A written order issued by ENGINEER which clarifies or interprets the Contract Documents or orders minor changes in the Work in accordance with paragraph 10.2, but which does not involve a change in the Contract Price or the Contract Time.

1.20. Furnish - The words "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install complete in place and ready for service".

1.21. General Requirements - Sections of Division 1 of the Specifications.

1.22. Inspection - The term "Inspection" and the act of inspecting as used in these Contract Documents is defined to mean examination of construction to ensure that it conforms to the design concept expressed in the Drawings and Specifications. These terms shall not be construed to mean supervision, superintending and/or overseeing.

1.23. Modification - (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may only be issued after the effective date of the Agreement and must be in writing to be effective.

- 1.24. Notice of Award - The written notice by OWNER to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.
- 1.25. Notice to Proceed - A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform his obligation under the Contract Documents.
- 1.26. OWNER - The City of Ormond Beach, Florida.
- 1.27. Product - Materials, systems, and equipment provided by the CONTRACTOR.
- 1.28. Project - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.
- 1.29. Project Manual - The term "Project Manual" includes Bidding Requirements, Conditions of the Contract, Specifications, and Drawings.
- 1.30. Project Representative - The authorized representative of ENGINEER who is assigned to the site or any part thereof.
- 1.31. Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by CONTRACTOR, a Subcontractor, manufacturer, fabricator, supplier or distributor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a manufacturer, fabricator, supplier or distributor and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.
- 1.32. Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.
- 1.33. Subcontractor - An individual, firm or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.
- 1.34. Substantial Completion - The point reached when the Work (or a specified part thereof), in the opinion of ENGINEER as evidenced by his final certificate of Substantial Completion, is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it was intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.10. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.
- 1.35. Surety - Any person, firm or corporation which is bound with CONTRACTOR and which engages to be responsible for CONTRACTOR and his acceptable performance of the Work by a Performance or Payment Bond, or by a Public Construction Bond.

1.36. Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

ARTICLE 2 - PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. OWNER shall furnish to CONTRACTOR, at OWNER's expense, up to three copies of the Contract Documents. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Time; Notice to Proceed:

2.3. The Contract Time will commence on the day indicated in the Notice to Proceed.

Starting the Project:

2.4. CONTRACTOR shall start to perform the work on the date when the Contract Time commences to run, but no work shall be done at the site prior to the date on which the Contract Time commences to run, and no work shall be done at the site before the Payment and Performance Bond is executed, delivered to the OWNER, and recorded in the public records of Volusia County, Florida.

Before Starting Construction:

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover; however, CONTRACTOR shall not be liable to OWNER for failure to report any conflict, error or discrepancy in the Drawings or Specifications, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof. No verbal agreement or conversation with any officer, agent or employee of OWNER, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

2.6. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is

required to purchase and maintain in accordance with paragraphs 5.3, 5.4, 5.6 and 5.7.

2.7. CONTRACTOR shall not allow any on-site Subcontractor to commence work on his subcontract until insurance required of the Subcontractor has been obtained and approved by the CONTRACTOR. Failure to obtain this insurance will be the sole responsibility of the CONTRACTOR.

ARTICLE 3 - CONTRACT DOCUMENTS; INTENT AND REUSE

3.1. The Contract Documents comprise the entire Agreement between OWNER and CONTRACTOR concerning the Work. They may be altered only by a Modification.

3.2. The Contract Documents are complementary; a requirement contained in one is applicable to all. If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, he shall report it to ENGINEER in writing at once and before proceeding with the Work affected thereby; however, CONTRACTOR shall not be liable to OWNER for failure to report any conflict, error or discrepancy in the Specifications or Drawings unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof. The various Contract Documents shall be given precedence, in case of conflict, error or discrepancy, as follows: Modifications, Agreement, Addenda, Supplementary Conditions, General Conditions, Drawings and Specifications. In a series of Modifications or Addenda the latest will govern.

3.3. It is the intent of the Specifications and Drawings to describe a complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended results shall be supplied whether or not it is specifically called for. When words which have well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual or code in effect at the time of opening of Bids (or, on the effective date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their agents or employees from those set forth in the Contract Documents. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided for in paragraph 9.2.

3.4. The Contract Documents will be governed by the law of the State of Florida, and venue for any action brought thereunder shall lie solely and exclusively in the Circuit Court in and for Volusia County, Florida.

Reuse of Documents:

3.5. Neither CONTRACTOR nor any Subcontractor, manufacturer, fabricator, supplier or distributor shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

ARTICLE 4 - AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands or easements entitles him to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Physical Conditions - Investigations and Reports:

4.2. Reference is made to the Supplementary Conditions for identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by ENGINEER in preparation of the Drawings and Specifications. Such reports are not guaranteed as to accuracy or completeness and are not part of the Contract Documents.

Unforeseen Physical Conditions:

4.3. CONTRACTOR shall promptly, after becoming aware of and before further disturbing conditions affected thereby or performing any work in connection therewith, notify ENGINEER in writing of any subsurface or latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the Contract Documents. CONTRACTOR, upon discovering and notifying OWNER of such subsurface or latent conditions, shall not perform work in the affected area until authorized to do so by OWNER. ENGINEER will promptly review those conditions and determine if further investigation or tests are necessary. If so determined by the ENGINEER, OWNER shall promptly obtain the necessary additional investigations and tests and furnish copies to CONTRACTOR. If ENGINEER finds that the results of such investigations or tests indicate that there are subsurface or latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by CONTRACTOR, a Change Order authorizing CONTRACTOR to perform the additional work may be issued incorporating the necessary revisions.

Reference Points:

4.4. OWNER shall provide engineering surveys for construction to establish reference points which in his judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for replacement or relocation of such reference points by professionally qualified personnel.

ARTICLE 5 - BONDS AND INSURANCE

Performance and Other Bonds:

5.1. CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. The City will record the bonds in the public records at the CONTRACTOR's expense. These Bonds shall remain in effect at least until one (1) year after the date of final payment, except as otherwise provided by law. All bonds shall be deemed to contain all of the Conditions of Section 255.05, Florida Statutes, even if such language is not directly contained within the bond. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by the bidding documents or Supplementary Conditions and be executed by such Sureties as (i) are licensed to conduct business in the State of Florida, and (ii) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the Surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of clauses (i) and (ii) of paragraph 5.1, CONTRACTOR shall within five (5) days after notice thereof, substitute another Bond and Surety, both of which shall meet the requirements of clauses (i) and (ii) of paragraph 5.1.

CONTRACTOR's Liability Insurance:

5.3. CONTRACTOR and on-site Subcontractors shall purchase and maintain such Commercial General Liability and other insurance as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether such performance is by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable;

5.3.1. Claims under workers' compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees.

5.3.4. Claims for damages insured by personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason.

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

5.3.6. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph 5.3 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the **Supplementary Conditions**, or required by law, whichever is greater. The Commercial General Liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed or renewal refused until at least **sixty** (60) days prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be fifteen (15) days) has been given to OWNER. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with paragraph 13.12. In addition, CONTRACTOR shall maintain such completed operations insurance for at least two years after final payment and furnish OWNER with evidence of continuation of such insurance at final payment and one year thereafter.

Contractual Liability Insurance:

5.4. The Commercial General Liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.15 and 6.16. The OWNER shall be named as "Additionally Insured" under the CONTRACTOR's Commercial General Liability insurance policy.

Owner's Liability Insurance:

5.5. OWNER may, at its option, purchase and maintain its own liability insurance and, at its option, may purchase and maintain such insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

Property Insurance:

5.6. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by law). This insurance shall include the interests of

OWNER, CONTRACTOR, and Subcontractors in the Work, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in the Application for Payment. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.6 and 5.7 shall contain provisions that the coverage afforded will not be canceled or materially changed until at least **sixty** (60) days prior written notice has been given to OWNER.

5.7. CONTRACTOR shall purchase and maintain such boiler and machinery insurance as may be required by the Supplementary Conditions or by law. This insurance shall include the interests of OWNER, CONTRACTOR and Subcontractors in the Work.

5.8. OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR or Subcontractors in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. If CONTRACTOR wishes property insurance coverage within the limits of such amounts, CONTRACTOR may purchase and maintain it at his own expense.

5.9. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policy, OWNER shall, if possible, include such insurance, and the cost thereof shall be charged to CONTRACTOR by appropriate Change Order. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

Waiver of Rights:

5.10. OWNER and CONTRACTOR waive all rights against each other and the Subcontractors and their agents and employees and separate contractors (if any) and their subcontractors' agents and employees, for damages caused by fire or other perils to the extent covered by insurance provided under paragraphs 5.6 and 5.7, inclusive, or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by OWNER as trustee. OWNER shall require similar written waivers from each separate contractor, and CONTRACTOR shall require similar written waivers from each Subcontractor (in accordance with paragraph 6.8 as applicable); each such waiver will be in favor of all other parties enumerated in this paragraph 5.10.

Receipt and Application of Proceeds:

5.11. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 shall be adjusted with CONTRACTOR and made payable to CONTRACTOR as trustee for the insured, as their interests may appear, subject to the requirements of paragraph 5.12. CONTRACTOR shall

deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order.

5.12. CONTRACTOR as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to CONTRACTOR's exercise of this power. If such objection be made, CONTRACTOR as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, CONTRACTOR as trustee shall upon the occurrence of an insured loss, give bond for the proper performance of his duties.

Acceptance of Bonds and Insurance:

5.13. If OWNER has any objection to the coverage afforded by or other provisions of the Bonds or Insurance required to be purchased and maintained by CONTRACTOR in accordance with Article 5 on the basis of non-conformance with the Contract Documents, OWNER shall so notify CONTRACTOR in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.6. CONTRACTOR shall provide to OWNER such additional information in respect of insurance provided as OWNER may reasonably request. If CONTRACTOR does not purchase or maintain all of the Bonds and Insurance required of CONTRACTOR by the Contract Documents, CONTRACTOR shall notify OWNER in writing of such failure to purchase prior to the start of the Work, or such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, OWNER may elect to obtain equivalent Bonds or Insurance to protect OWNER's interests at the expense of CONTRACTOR, and a Change Order shall be issued to adjust the Contract Price accordingly.

Partial Utilization - Property Insurance:

5.14. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.7; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies that the property insurance shall not be canceled or lapse on account of any such partial use of occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

6.1. CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

Materials and Equipment:

6.3. All materials and equipment installed in the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment.

Equipment manufacturers/suppliers must agree to OWNER'S terms of purchase. In no event will OWNER accept terms of sale that limit OWNER'S ability to reasonably recover in the event of equipment failure/defect such as, but not limited to; mandatory arbitration clauses, venue of court proceedings and applicable law outside of Volusia County, Florida, or damage limitations that preclude recovery for failed or defective equipment that would be less than full compensation for OWNER's loss.

6.4. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

Concerning Subcontractors:

6.5. CONTRACTOR shall not employ any Subcontractor or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, to which OWNER may have any reasonable objection. CONTRACTOR shall submit with his Bid in writing the names, mailing addresses, and work classifications of all Subcontractors proposed for the Work. The failure to list all Subcontractors proposed for the Work may result in the Bid being rejected as incomplete and nonresponsive. A Subcontractor or other person or organization identified in writing to OWNER by CONTRACTOR prior to the Notice of Award and not objected to in writing by OWNER prior to the Notice of Award will be deemed acceptable to OWNER. Acceptance of any Subcontractor, other person or organization of OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. If OWNER after due investigation has reasonable objection to any Subcontractor, other person or organization proposed by CONTRACTOR after the Notice of Award because the qualifications and experience of the Subcontractor, other person or organization indicate that he cannot perform or provide work, materials or equipment which will perform the specified functions, CONTRACTOR shall submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution, and an appropriate Change Order may be issued. CONTRACTOR shall not be required to employ any Subcontractor, other person or organization to which CONTRACTOR has any reasonable objection. Whether

objections are reasonable shall be determined as specified in paragraph 9.8.

6.6. CONTRACTOR shall be fully responsible for all acts and omissions of his Subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that CONTRACTOR is responsible for the acts and omissions of persons directly employed by CONTRACTOR. Nothing in the Contract Documents shall create any contractual relationship between OWNER and any Subcontractor or other person or organization having a direct contact with CONTRACTOR, nor shall it create any obligation on the part of OWNER to pay or to see to the payment of any moneys due any Subcontractor or other person or organization, except as may otherwise be required by law. OWNER may furnish to any Subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR on account of specific Work done.

6.7. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or delineating the Work to be performed by any specific trade.

6.8. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and contains waiver provisions as required by paragraph 5.10. CONTRACTOR shall pay each Subcontractor an appropriate share of any insurance proceeds received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.6 through 5.8.

6.9. Neither the OWNER nor the ENGINEER will undertake to settle any differences between CONTRACTOR and his Subcontractors or between Subcontractors.

Patent Fees and Royalties:

6.10. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall **indemnify** and **hold harmless** OWNER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights. OWNER will promptly notify CONTRACTOR of any such allegation of infringement of such rights.

Safety and Protection:

6.11. Precaution shall be exercised at all times by the CONTRACTOR for the protection of all persons, including employees, and property. The CONTRACTOR shall comply with all laws, regulations or ordinances related to safety and health, shall make special effort to detect hazardous conditions, and shall take prompt action where loss control/safety measures are reasonably expected. The OWNER may order work to be stopped if conditions exist that present on immediate danger to persons or property. The CONTRACTOR acknowledges that such stoppage will not shift responsibility for any damages from the CONTRACTOR to the OWNER.

6.12. CONTRACTOR be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.12.1. All employees on the Work and other persons who may be affected thereby.

6.12.2. All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

6.12.3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to in paragraph 6.12.2 or 6.12.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR. CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.12 that the Work is acceptable.

6.13. CONTRACTOR shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

Emergencies:

6.14. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give OWNER prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

Indemnification/Hold Harmless:

6.15 The parties recognize that the CONTRACTOR is an independent contractor. The CONTRACTOR agrees to assume liability for and indemnify, hold harmless, and defend the CITY, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the CONTRACTOR, its agents, officers, contractors, subcontractors, employees, or anyone else utilized by the CONTRACTOR in the performance of this Agreement. The CONTRACTOR's liability hereunder shall include all attorney's fees and costs incurred by the CITY in the enforcement of this indemnification provision. This includes claims made by the employees of the CONTRACTOR against the CITY and the CONTRACTOR hereby waives its entitlement, if any, to immunity under Section 440.11, Florida Statutes. Such obligations contained in this provision shall survive termination of this Agreement and shall not be limited by the amount of any insurance required to be obtained or maintained under this Agreement.

In the event of any claim arising out of the paragraph above, the CITY will elect, in its sole discretion, that either:

- 1) The CONTRACTOR assume control of the defense of any claim asserted by a third party against the CITY and, in connection with such defense, shall appoint lead counsel, in each case at the CONTRACTOR's expense. The CITY shall have the right, at its option, to participate in the defense of any third party claim, without relieving CONTRACTOR of any of its obligations hereunder. If the CONTRACTOR assumes control of the defense of any third party claim in accordance with this paragraph, the CONTRACTOR shall obtain the prior written consent of the CITY before entering into any settlement of such claim. If the CONTRACTOR assumes control of the defense and the CONTRACTOR has failed or is failing to prosecute or defend vigorously the third party claim, the CITY may assume the control of the defense as provided by sub (2); or
- 2) The CITY will assume control of the defense of any third party claim, but CONTRACTOR shall pay the fees of counsel retained by the CITY and all expenses, including experts' fees.

Each party shall cooperate, and cause its agents to cooperate, in the defense or prosecution of any third party claim and shall furnish or cause to be furnished such records and information, and attend such conferences, discovery proceedings, hearings, trials, or appeals, as may be reasonably requested in connection therewith. It is further the specific intent and agreement of said parties that all the Contract Documents on this Project are hereby amended to include the foregoing indemnification. CONTRACTOR expressly agrees that it will not claim, and waives any claim, that this indemnification violates Section 725.06, Florida Statutes or is unenforceable pursuant to Section 725.06, Florida Statutes.

Nothing contained in the foregoing indemnification shall be construed as a waiver of any immunity or limitation of liability the CITY may have under the doctrine of sovereign immunity or Section 768.28, Florida Statutes.

Precaution shall be exercised at all times by the CONTRACTOR for the protection of all persons, including employees and property. The CONTRACTOR shall comply with all applicable laws, regulation and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action with loss control/safety measures as are reasonably necessary. The CITY may order work to be stopped if conditions exist that present an immediate danger to persons or property. The CONTRACTOR acknowledges that such work stoppage will not shift responsibility for any damages from the CONTRACTOR to the CITY.

Payment on Behalf of OWNER:

6.16. The CONTRACTOR agrees to pay on behalf of the OWNER, and to pay the cost of the OWNER's legal defense, as may be selected by the OWNER, for all claims described in 6.15 Indemnification/Hold Harmless. Such payment on behalf of the OWNER shall be in addition to any and all other legal remedies available to the OWNER and shall not be considered to be the OWNER's exclusive remedy.

ARTICLE 7 - WORK BY OTHERS

7.1. OWNER may perform additional work related to the Project by itself, or have additional work performed by utility service companies, or let other direct contracts therefor which shall contain General Conditions similar to these. CONTRACTOR shall afford the utility service companies and the other contractors who are parties to such direct contracts (or OWNER, if OWNER is performing the additional work with OWNER's employees) reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate his Work with theirs.

7.2. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor or utility service company (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any patent or apparent defects or deficiencies in such work that render it unsuitable for such proper execution and results. CONTRACTOR's failure so to report shall constitute an acceptance of the work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

7.3. If the performance of additional work by other contractors or utility service companies or OWNER was not noted in the Contract Documents, written notice thereof shall be given to CONTRACTOR prior to starting any such additional work. If CONTRACTOR believes that the performance of such additional work by OWNER or others involves additional expense to CONTRACTOR or requires an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

7.4. Should any other contractor having, or who shall hereafter have, a contract with

OWNER for the performance of work upon the site of the Work to be performed hereunder sustain any damage through any act or omission of CONTRACTOR hereunder or through any act or omission of any Sub-contractor of CONTRACTOR, CONTRACTOR agrees to reimburse such other contractor for all such damages and to indemnify, defend and hold OWNER harmless from all such claims.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.1. OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.3 and 14.10.

8.3. OWNER's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting performance of the Work which have been relied upon by ENGINEER in preparing the Drawings and Specifications.

8.4. OWNER's responsibilities with respect to the purchase and maintenance of liability insurance are set forth in paragraph 5.5.

8.5. In connection with OWNER's rights to request changes in the Work in accordance with Article 10, OWNER (especially in certain instances as provided in paragraph 10.4) may execute Change Orders.

8.6. OWNER's responsibility with respect to certain inspections, tests and approvals is set forth in paragraph 13.4.

8.7. The provisions relative to the OWNER's right to stop Work or suspend Work are set forth in paragraphs 6.11, 13.10 and 15.1.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.1. ENGINEER will be OWNER's representative during the construction period. The authority of ENGINEER shall, under no circumstances, relieve CONTRACTOR from CONTRACTOR's responsibilities to perform the Work in accordance with this Contract.

Clarifications and Interpretations:

9.2. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall

intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

Rejecting Defective Work:

9.3. ENGINEER will have authority to disapprove or reject WORK which is defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Change Orders and Payments:

9.4. In connection with ENGINEER's responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.5. In connection with ENGINEER's responsibilities as to Applications for Payment, etc., see Article 14.

Project Representation:

9.6. ENGINEER may designate a Project Representative to assist ENGINEER in inspecting the performance of the Work. The duties, responsibilities and limitations of authority of any such Project Representative and assistants will be as provided in paragraphs 9.6.1 through 9.6.3.

9.6.1. General: Project Representative is ENGINEER's Agent. He shall have the authority to do anything which the ENGINEER could do. His dealings in matters pertaining to the on-site work will in general be only with OWNER, ENGINEER and CONTRACTOR. His dealings with subcontractors will only be through or with the full knowledge of CONTRACTOR or his superintendent.

9.6.2. Duties and Responsibilities: Project Representative shall:

9.6.2.1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions, schedule of values and other schedules prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.

9.6.2.2. Conferences: Attend preconstruction conferences.

9.6.2.3. Liaison: Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent, and assist him in understanding the intent of the Contract Documents. Assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.

9.6.2.4. Shop Drawings and Samples: Receive and record date of receipt of Shop Drawings and samples which have been furnished by CONTRACTOR. Review the Shop Drawings for conformance with the information given in the Contract Documents. Provide office review and approval of Shop Drawings (as that term is defined in Article 1) and samples, the results of tests

and inspections and other data which any contractor is required to submit, but only for conformance with the design concept of the project and compliance with the information given in the Contract Documents; determine the acceptability of substitute materials and equipment proposed by CONTRACTOR(S); and receive and review (for general content as required by the Specifications) maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection which are to be assembled by CONTRACTOR(S) in accordance with the Contract Documents.

9.6.2.5. Review of Work, Rejection of Defective Work, Inspections and Tests: Conduct on-site inspections of the Work in progress to assist ENGINEER in determining that the Project is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents. Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspections, tests or approvals required to be made; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing or inspection. Verify that tests, equipment and systems start-ups and operating and maintenance instructions are conducted as required by the Contract Documents and in the presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report appropriate details relative to the test procedures and start-ups.

9.6.2.6. Modifications: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report them to ENGINEER with recommendations. Prepare change orders as required; he may, as OWNER's representative, require special inspection or testing of the work; he shall act as interpreter of the requirements of the Contract Documents, judge of the performance thereunder by the parties thereto, and transmitter of clarification and interpretation of the Contract Documents. Process contract change orders to reflect final measured contract quantities and to reflect changes in the contract Drawings and Specifications.

9.6.2.7. Payment Requisitions: Based on his on-site observations and on his review of CONTRACTOR(S) applications for payment and the accompanying data and schedules, determine the amounts owed the CONTRACTOR(S). The ENGINEER will then approve in writing payments to CONTRACTOR(S) in such amounts; such approvals of payment will constitute a presentation to OWNER, based on such observations and review, that the Work has progressed to the point indicated and that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning Project upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, and to any qualifications stated in his approval).

9.6.2.8. Guarantees, Certificates, Maintenance and Operation Manuals: During the course of the Work verify that guarantees, certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this data to ENGINEER for his review prior to final acceptance of the Project.

9.6.2.9. Completion: Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring correction. Conduct final inspection in the company of CONTRACTOR and prepare a final list of items to be corrected. Verify that all items

on final list have been corrected and make recommendations to ENGINEER concerning acceptance.

9.6.3. Limitations of Authority: The Project Representative; shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent; shall not expedite Work for CONTRACTOR; shall not advise on or issue directions as to safety precautions and programs in connection with the Work; and shall not assist CONTRACTOR in maintaining up-to-date copies of Record Drawings.

Decisions on Disagreements:

9.7. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the Work shall be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter shall be delivered by the claimant to ENGINEER and the other party to the Agreement within fifteen days of the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data. Failure to give the required notice constitutes a waiver of the claim.

9.8. The rendering of a decision by ENGINEER pursuant to paragraph 9.7 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.13) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or at law in respect of any such claim, dispute or other matter. If the Owner agrees to pay all or part of a claim for which notice was not timely made, such agreement shall not be deemed a waiver of the right to enforce notice requirements in connection with any other claim.

Limitations on ENGINEER's Responsibilities:

9.9. Neither ENGINEER's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the Work.

9.10. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed" or terms of like effect or import are used, or the adjective "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used, to describe requirements, decision, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that ENGINEER shall have

Authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of paragraphs 9.11 or 9.12.

9.11. ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

9.12. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractors, or of the agents or employees of any CONTRACTOR or Subcontractor, or of any other persons at the site or otherwise performing any of the Work.

ARTICLE 10 - CHANGES IN THE WORK

10.1. Without invalidating the Agreement, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, CONTRACTOR shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 11 or Article 12 on the basis of a claim made by either party.

10.2. ENGINEER may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and shall be binding on OWNER, and also on CONTRACTOR who shall perform the change promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

10.3. Additional Work performed without authorization of a Change Order will not entitle CONTRACTOR to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in paragraph 6.14 and except as provided in paragraphs 10.2 and 13.9.

10.4. OWNER may execute appropriate Change Orders covering changes in the Work which are required by OWNER, or required because of unforeseen physical conditions or emergencies, or because of uncovering Work found not to be defective or as provided in paragraph 11.9, or because of any other claim of CONTRACTOR for a change in the Contract Time or the Contract Price which is recommended by ENGINEER.

10.5. If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be CONTRACTOR's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. CONTRACTOR shall furnish proof of such adjustment to OWNER.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable by OWNER to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered to ENGINEER within fifteen days of the occurrence of the event giving rise to the claim. Notice of the amount of the claim with supporting data shall be delivered within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain accurate cost data.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.9).

11.3.2. By mutual acceptance of a lump sum.

11.3.3. On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a Contractor's Fee for overhead and profit (determined as provided in paragraph 11.6).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon in advance by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis for their time spent on the Work. Payroll cost shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds, and all returns from sale of surplus materials

and equipment shall accrue to OWNER and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including, but not limited to, engineers, architects, testing laboratories, surveyors, lawyers and accountants) employed for services specifically related to the Work. Any such special consultants covered by the Consultants' Competitive Negotiations Act (Section 287.055, Florida Statutes), shall be selected in accordance with such Act.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workmen, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by any government authority.

11.4.5.5. Deposits lost for causes other than CONTRACTOR's negligence, royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the execution of the Work, provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's Fee. If, however, any such loss or damage requires construction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in his principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in subparagraph 11.4.1. - all of which are to be considered administrative costs covered by the Contractor's Fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for additional Bonds and insurance required because of changes in the Work).

11.5.5. Costs, including damages, due to the negligence of intentional acts of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

Contractor's Fee:

11.6. The Contractor's Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. A mutually acceptable fixed fee; or if none can be agreed upon,

11.6.2. A fee based on the following percentages of the various portions of the Cost of the Work;

11.6.2.1. For costs incurred under paragraphs 11.4.1. and 11.4.2., the Contractor's Fee shall be ten percent,

11.6.2.2. For costs incurred under paragraph 11.4.3., the Contractor's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall be ten percent, and

11.6.2.3. No fee shall be payable on the basis of costs itemized under paragraphs 11.4.4., 11.4.5. and 11.5.

11.7. The amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in costs, will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any.

Adjustment of Unit Prices:

11.8. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4. and 11.5., CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.9. Where the quantity of Work with respect to any item that is covered by a unit price differs materially and significantly from the quantity of such Work indicated in the Contract Documents, an appropriate Change Order may be issued on recommendation of ENGINEER to adjust the unit price.

ARTICLE 12 - CHANGE OF THE CONTRACT TIME

12.1. The Contract Time may only be changed by a written Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to ENGINEER within fifteen days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by ENGINEER if OWNER and CONTRACTOR cannot otherwise agree. Any change in the Contract Time resulting from any such claim shall be incorporated in a written Change Order.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefor as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional Work as contemplated by Article 7, or fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The CONTRACTOR shall not be entitled to any claim for damages on account of hindrances or delays from any cause whatsoever, but if occasioned by an act of God, or by any act or omission

on the part of the Owner, such act, hindrance or delay may entitle the CONTRACTOR to an extension of time in which to complete the work which shall be determined by the ENGINEER, provided that the CONTRACTOR will give notice in writing of the cause of such act, hindrance or delay within ten (10) days after its occurrence.

ARTICLE 13 - WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee:

13.1. CONTRACTOR warrants and guarantees to OWNER that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to CONTRACTOR. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

13.2. ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection and testing. CONTRACTOR shall provide proper and safe conditions for such access.

Tests and Inspections:

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If any law, ordinance, rule, regulation, code, or order of any public body having jurisdiction requires any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefor, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval. CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's acceptance of a manufacturer, fabricator, supplier, or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all other inspections, tests and approvals required by the Contract Documents shall be paid by OWNER (unless otherwise specified).

13.5. All inspections, tests or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR.

13.6. If any Work that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover such Work and ENGINEER

has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by ENGINEER, nor inspections, tests or approvals by others shall relieve CONTRACTOR from his obligations to perform the Work in accordance with the Contract Documents, and in all events in no less than a workmanlike manner.

Uncovering Work:

13.8. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, CONTRACTOR shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefor as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

Correction or Removal of Defective Work:

13.11. If required by ENGINEER, CONTRACTOR shall promptly, without cost to OWNER and as specified by ENGINEER, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with non-defective Work.

One Year Correction Period:

13.12. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with non-defective Work. If CONTRACTOR does not promptly comply with the terms of such

instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by CONTRACTOR.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of defective Work, OWNER prefers to accept it, OWNER may do so. In such case, if acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after such recommendation, an appropriate amount shall be paid by CONTRACTOR to OWNER.

OWNER May Correct Defective Work:

13.14. If CONTRACTOR fails, within a reasonable time after written notice of ENGINEER to proceed, to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11., or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising his rights under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise his rights under this paragraph. All direct and indirect costs of OWNER in exercising such rights shall be charged against CONTRACTOR in an amount verified by ENGINEER, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

Application for Progress Payment:

14.1. At least ten days before each progress payment falls due (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the

Application and accompanied by such supporting documentation as is required by the Contract Documents and also as ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by such data, satisfactory to OWNER, as will establish OWNER's title to the material and equipment and protect OWNER's interest therein, including applicable insurance. Each subsequent Application for Payment shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied to discharge in full all of CONTRACTOR's obligations reflected in prior Applications for Payment. The amount of retainage with respect to progress payments will be as stipulated in the Form of Agreement, Article 5.

CONTRACTOR's Warranty of Title:

14.2. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter in these General Conditions referred to as "Liens").

Review of Applications for Progress Payment:

14.3. ENGINEER will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. OWNER shall, within ten days of presentation to him of the ENGINEER's recommendation of payment, pay CONTRACTOR the amount recommended.

14.4. ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to OWNER. He may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.4.1. The Work is defective, or completed Work has been damaged requiring correction or replacement;

14.4.2. Written claims have been made against OWNER or Liens have been filed in connection with the Work;

14.4.3. The Contract Price has been reduced because of Modifications;

14.4.4. OWNER has been required to correct defective Work or complete the Work in accordance with paragraph 13.14;

14.4.5. Of CONTRACTOR's unsatisfactory prosecution of the Work in accordance with the Contract Documents, including failure to clean up;

14.4.6. Of liquidated damages payable by CONTRACTOR; or

14.4.7. CONTRACTOR's failure to make payment to Subcontractors, or for labor, materials or equipment.

Substantial Completion:

14.5. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall, in writing to ENGINEER, certify that the entire Work is substantially complete and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving his reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare a certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a list of items to be completed or corrected before final payment.

14.6. OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the list.

Partial Utilization:

14.7. Use by OWNER of completed portions of the Work may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.7.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any part of the Work which OWNER believes to be substantially complete and which may be so used without significant interference with construction of the other parts of the Work. If CONTRACTOR agrees, CONTRACTOR will certify to ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time thereafter CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify CONTRACTOR in writing giving his reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, ENGINEER will execute and deliver to CONTRACTOR a certificate to that effect, fixing the date of Substantial Completion as to that part of the Work, attaching thereto a list of items to be completed or corrected before final payment. OWNER shall have the right to exclude CONTRACTOR from any part of the Work which ENGINEER has so certified to be substantially complete, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the list.

14.7.2. In lieu of the issuance of a certificate of Substantial Completion as to part of the Work, OWNER may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately usable; provided that prior to any such takeover, OWNER and CONTRACTOR have agreed as to the division of responsibilities

between OWNER and CONTRACTOR for security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

14.7.3. No occupancy of part of the Work or taking over of operations of a facility will be accomplished prior to compliance with the requirements of paragraph 5.14 with regard to property insurance.

Final Inspection:

14.8. Upon written notice from CONTRACTOR that the work is complete, ENGINEER will make a final inspection with CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

Final Application for Payment:

14.9. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents - all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.13), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and such other data and schedules as ENGINEER may reasonably require, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor, manufacturer, fabricator, supplier or distributor fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

Final Payment and Acceptance:

14.10. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR has fulfilled all of his obligations under the Contract Documents, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing his recommendation of payment and present the Application for payment. Thereupon ENGINEER will give written notice to CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.13. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application.

If the Application and accompanying documentation are appropriate as to form and substance, OWNER shall, within thirty days after receipt thereof pay CONTRACTOR the amount recommended by ENGINEER.

14.11. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the Surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

CONTRACTOR's Continuing Obligation:

14.12. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.10, nor any correction of defective Work by OWNER shall constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents.

Waiver of Claims:

14.13. The making and acceptance of final payment shall constitute:

14.13.1. A waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled or unfilled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.8 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it shall not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.13.2. A waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled or unfilled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1. OWNER may, at anytime and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and Surety which

shall fix the date on which Work shall be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension of work at OWNER's request if he makes a claim therefor as provided in Articles 11 and 12.

Owner May Terminate:

- 15.2. Upon the occurrence of anyone or more of the following events:
 - 15.2.1. If CONTRACTOR is adjudged a bankrupt or insolvent;
 - 15.2.2. If CONTRACTOR makes a general assignment for the benefit of creditors;
 - 15.2.3. If a trustee or receiver is appointed for CONTRACTOR or for any of CONTRACTOR's property;
 - 15.2.4. If CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws;
 - 15.2.5. If CONTRACTOR repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment;
 - 15.2.6. If CONTRACTOR repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment;
 - 15.2.7. If CONTRACTOR violates any laws, ordinances, rules, regulations or orders of any public body having jurisdiction;
 - 15.2.8. If CONTRACTOR disregards the authority of ENGINEER; or
 - 15.2.9. If CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.

OWNER may after giving CONTRACTOR and his Surety seven (7) days' written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and demand the Surety to finish the Work by whatever methods he may deem expedient but subject to the approval of OWNER. The Surety shall use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may require. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR and the Surety shall be jointly and severally liable to pay the difference to OWNER. Such costs incurred by OWNER shall be incorporated in a Change Order, but in

finishing the Work OWNER shall not be required to accept the lowest figure for the Work to be performed by the Surety.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination shall not affect any rights of OWNER against CONTRACTOR or the Surety then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven (7) days' written notice to CONTRACTOR and Surety, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed, any expense sustained plus reasonable termination expenses.

CONTRACTOR May Stop Work or Terminate:

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety (90) days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty (30) days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, the CONTRACTOR may, upon seven (7) days' written notice to OWNER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven (7) days' notice to OWNER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of his obligations to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

ARTICLE 16 - MISCELLANEOUS

Giving Notice:

16.1. Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time:

16.2. When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

General:

16.3. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.15, 13.1, 13.11, 13.14, 14.2, and 15.2, and all of the rights and remedies available to OWNER thereunder, shall be in addition to, and not in limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by law or contractor, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents shall survive final payment and termination or completion of this Agreement.

Liquidated Damages:

16.4. OWNER and CONTRACTOR recognize that time is of the essence to complete this Project and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in Agreement, plus any extensions thereof allowed in accordance with Article 12. They also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER the amount stated in the Contract for each day that expires after the time specified in the Contract for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in the Contract or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining Work. In the event the CONTRACTOR is terminated or abandons the Work prior to the scheduled date for final completion, the CONTRACTOR may be liable for both liquidated damages attributable to delay and for excess completion costs.

Reports of Investigations and Tests of Subsurface and Latent Physical Conditions:

16.5. Reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the work which have been relied upon by ENGINEER in preparing the Drawings and Specifications are as listed in the Supplementary Conditions. OWNER will make such reports available for inspection to any Bidder or copies may be obtained from the ENGINEER by the Bidder at reproduction cost. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents.

Performance of Work by CONTRACTOR:

16.6. Contract Assignment. The successful bidder (or bidders) will be required to perform the work as a prime contractor. CONTRACTOR shall not sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of his right, title, or interest therein. CONTRACTOR shall perform on the site and with his own organization work equivalent to not

less than fifty (50%) percent of the total dollar value of the work to be performed under this contract except that work designated in the Supplementary Conditions as specialty work may be performed by subcontractors and the cost of any such specialty work so performed by subcontracts may be deducted from the total contract amount before computing the amount of work required to be performed by CONTRACTOR with his own organization.

Limitation of Remedy and Liability:

16.7 Contractor and Owner expressly waive any claim for consequential damages against the other including but not limited to, a waiver of claims for diminished bonding capacity, loss of financing, loss of business reputation, lost profits on other projects or other lost opportunity damage claims.

Contractor expressly agrees that any claim (tort, contract, claim in equity, or otherwise) by Contractor for damages against Owner shall not exceed the total amount of the contract price, less any amounts actually paid to the Contractor by the Owner (or by an insurer of the Owner).

All liability of the City allegedly resulting from, arising out of or connected with this Agreement, or from the performance or breach thereof, shall terminate three years from the termination of this Agreement.

Waiver of Right to Jury Trial:

16.8 THE PARTIES HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY RIGHT WHICH ANY PARTY MAY HAVE TO TRIAL BY JURY IN RESPECT OF ANY PROCEEDING, LITIGATION OR COUNTERCLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. IF THE SUBJECT MATTER OF ANY LAWSUIT IS ONE IN WHICH THE WAIVER OF JURY TRIAL IS PROHIBITED, NO PARTY TO THIS AGREEMENT SHALL PRESENT AS A NON-COMPULSORY COUNTERCLAIM IN ANY SUCH LAWSUIT ANY CLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. FURTHERMORE, NO PARTY TO THIS AGREEMENT SHALL SEEK TO CONSOLIDATE ANY SUCH ACTION IN WHICH A JURY TRIAL CANNOT BE WAIVED.

END OF SECTION

SECTION 00800
SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from, or add to the General Conditions of the Construction Contract (Section 00700). Where any article of the General Conditions is modified or any paragraph, subparagraph or clause thereof is modified or deleted by these supplements, the unaltered provisions of that article, paragraph, subparagraph or clause shall remain in effect.

ARTICLE 16 - MISCELLANEOUS

Section 16.5 – Reports of Investigations and Test of Subsurface and Latent Physical Conditions

Add the following subparagraph:

- 16.5.1 The list of reports of investigations and tests of subsurface and latent physical conditions as referred to in General Conditions Section 16.5 are as follows:

None

Add the following:

16.7 Minimum Requirements for the provision and maintenance of Payment and Performance Bonds, and Contractor's Insurance

In accordance with Resolution 2021-144 as it presently exists or may hereafter change, or applicable state, federal or local law, whichever is stricter, the following minimum requirements have been established:

A. Payment and Performance Bonds

1. Except as otherwise provided herein, the Contractor shall, prior to beginning performance, deliver to the City, and the City shall record in the public records of Volusia County, Florida, the Contractor's Payment and Performance Bond in an amount equal to the full amount of the Contract.
2.
 - (a) Payment and Performance Bonds shall not be required for any contract except those which are for the construction of a public building, for the prosecution and completion of a public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time) or for repairs upon a public building or public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time).
 - (b) With respect to those Contracts for which Payment and Performance Bonds are otherwise required:
 - i. Unless the City Manager, or designee, determines such Bond to be necessary to protect the interests of the City, no Contractor shall be

required to provide a Payment and Performance Bond for any Contract which is for \$25,000.00 or less.

- ii. Upon the request of the contractor, good cause shown by the Contractor, and a determination that the public health, safety and welfare will be sufficiently protected, the City Commission may exempt the contractor from the requirement of providing a Payment and Performance Bond for any Contract which is for more than \$25,000.00 but is less than \$200,000.00.
- 3. The Payment and Performance Bond shall list the Contractor as Principal and be issued by a surety insurer authorized to do business in Florida as a surety and listed as an acceptable surety in the Federal Register.
- 4. The Payment and Performance Bond shall be executed pursuant to Section 255.05, **Florida Statutes**, and be in a form substantially similar to the form set forth in Section 255.05(3), **Florida Statutes**.
- 5. The Payment and Performance Bond shall specifically provide coverage for delay damages due to a default by the Contractor.
- 6. The Payment and Performance Bond shall not make the Contract part of the Bond agreement.
- 7. In lieu of the Payment and Performance Bond, the Contractor may file with the Finance Director of the City, in an amount equal to the full amount of the Contract, cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in Part II, Chapter 625, **Florida Statutes**.
- 8. In the event the surety on any Payment and Performance Bond furnished by the Contractor is declared bankrupt or becomes insolvent, or its right to do business in the State of Florida is terminated, the Contractor shall, within five (5) working days thereafter, substitute another Payment and Performance Bond and surety acceptable to the City.
- 9. The Contractor is totally and solely responsible for keeping its surety informed as to the Base Contract Price as bid, significant changes in the Project Scope, and the overall progress and completion of the Project for the entire life of the Contract.
- 10. The payment and performance bond requirements stated herein above shall not be applicable to service-related contracts unless otherwise determined by the City Manager in order to protect the health, safety and welfare of the general public.

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include at a minimum, the following, or substantially similar, provisions:

1. Hold Harmless and Indemnity

The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the Contractor in the performance of this Contract. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this provision.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph.

Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary.

The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences.

Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith,

temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a)** Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident
\$100,000 Each Employee Bodily Injury by Disease
\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):
- a. Premises, Operations, Products and Completed Operations
 - b. Owners' & Contractors' Protective
 - c. Products & Completed Operation
 - d. Explosion, Collapse & Underground Conditions
 - e. Blanket Contractual Liability
 - f. Personal Injury Liability
 - g. Broad Form Property Damage Endorsement, including Completed Operations
 - h. Independent Contractors
 - i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
 - j. Pollution Liability (if applicable)
 - k. Asbestos Abatement (if applicable)
 - l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence

\$2 Million General Aggregate

\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract.

ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million	Combined Single Limit for Bodily Injury and Property Damage
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(d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

(e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

**(f) Professional Liability, Malpractice and/or Errors and Omissions
(N/A for construction contracts)**

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service-related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM

25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.

2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-), in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carrier; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.
4. The City shall be named an Additional Insured on General Liability including products and completed operations and Automobile Liability policies of insurance and certificates thereof.

END OF SECTION

LIEN WAIVER

The undersigned does hereby certify that through _____, 2022, the undersigned has performed labor and/or furnished materials for the construction of the _____ located at _____ owned by _____, at a price of \$ _____, and in consideration of the payment to the undersigned of such sum, the receipt of which is hereby acknowledged, the undersigned does hereby release and waive all liens and claims to liens which the undersigned may have as a result of the performance of such labor and/or the furnishing of such materials, and that the undersigned has paid in full for all materials purchased by the undersigned in connection with such project and for all labor furnished by the undersigned in connection with such project. The undersigned further certifies that the last date on which the undersigned furnished such labor and/or materials was _____, 2023.

CONTRACTOR

By _____ DATE: _____

TITLE: _____

THE STATE OF _____

COUNTY OF _____

Before me, the undersigned authority, on this day personally appeared _____, the _____ of _____, a corporation, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and as the act and deed of said corporation, and in capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this _____ day of _____, 2022.

Notary Public in and for
said County and State

SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Work Covered by Contract Documents:

Work under this Contract is described as: PAVILION REPLACEMENT – SONC

Bid Number 2023 - 17

The works consist of Replacing one (1) Pavilion and associated foundation, slab, and sitework at 176 Division Ave.

The Specification Divisions and Drawings are an integrated part of the Contract Documents and as such will not stand alone if used independently as individual Sections, Divisions or Drawings sheets.

The Specifications and Drawings establish minimum standards of quality for this project. They do not purport to cover all details entering into the design and construction of materials or equipment.

The CONTRACTOR is advised that the equipment arrangements as shown on the drawings may vary with different manufacturers and the CONTRACTOR is responsible at no cost to the OWNER for making the changes necessary to accommodate the specific equipment installed.

Omission of a specific item or component part of a system obviously necessary for the proper functioning of the system shall not relieve the CONTRACTOR of the responsibility of furnishing the item as part of the work at no additional cost to the OWNER.

Contracts:

Construct work under a single, lump sum contract.

1.02 QUALITY ASSURANCE

Laws and Regulations:

The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the work. If the CONTRACTOR observes that the Specifications or Drawings are at variance therewith, the CONTRACTOR shall give the ENGINEER prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the CONTRACTOR performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules and regulations, and without such notice to ENGINEER, the CONTRACTOR shall bear all costs arising there from; however, it shall not be the CONTRACTOR's

Primary responsibility to make certain that the Specifications and Drawings are in accordance with such laws, ordinances, rules and regulations.

1.03 JOB CONDITIONS

Taxes:

The CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the law of the place of the project.

Permits and Business Tax Receipts:

The CONTRACTOR shall obtain and pay for all construction permits and business tax receipts. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and business tax receipts. The CONTRACTOR shall provide OWNER with copies of all permits prior to commencing work.

The CONTRACTOR shall pay all charges of utility service companies for connections to the work, and the OWNER shall pay all charges of such companies for capital costs related thereto.

It shall be the responsibility of the CONTRACTOR to verify the existence of all necessary permits and business tax receipts prior to the start of work. The OWNER will obtain permits involving interagency agreements, i.e., State Highway Crossing Permits, Railroad Crossing Permits, and similar permits.

Fees for building permits and impact fees are the responsibility of CONTRACTOR.

The CONTRACTOR and each Subcontractor must be Registered with Volusia County or with the City of Ormond Beach. Requirements for registering a business are as follows:

STATE CERTIFIED CONTRACTORS

1. Register with Volusia County Contractor Licensing (386-248-8158)

OR

2. Provide City with:
Copy of local business tax receipt (where your business is located)
Copy of State License (if applicable)
Certificate of Insurance

For additional information regarding registration, permits or business tax receipts, please call:
(386) 676-3233

Labor, Materials and Equipment:

The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the work and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the work or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular

working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without the OWNER's written consent given after prior written notice to the ENGINEER.

Unless otherwise shown, the CONTRACTOR shall furnish all materials, equipment, labor transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the work.

The CONTRACTOR shall be responsible for all materials furnished by him and shall replace at his own expense all such material found to be defective in manufacture or damaged in handling. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

Contractor Use of Premises:

The CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The CONTRACTOR shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the ENGINEER with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for material storage.

The CONTRACTOR shall conduct his work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures or work of any kind, including permanent reference markers or property corner markers, or the interruption of utility service, shall be repaired or restored promptly at no additional expense to the OWNER.

The CONTRACTOR shall preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the ENGINEER. The CONTRACTOR will be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass by equipment. The CONTRACTOR will be liable for, or will be required to replace or restore at no additional expense to the OWNER, all vegetation not protected or preserved as required herein that may be destroyed or damaged.

The CONTRACTOR will not be required to move or remove any utilities except as specifically required by the Drawings and Specifications.

During the progress of the work, the CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from work. At the completion of the work, the CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the OWNER. The CONTRACTOR shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

The CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the CONTRACTOR subject any part of the work or adjacent property to stresses or pressures that will endanger it.

Subsurface Reports:

None

Notification of Construction:

The CONTRACTOR shall notify, in writing, all residents and businesses adjacent to the project work area of pending construction no later than 48 hours prior to commencement of actual construction. Copies of the written Notice shall be provided to the ENGINEER for approval of wording prior to public distribution.

Notification of Street Closure:

The CONTRACTOR is required to obtain permission from the City Engineer prior to initiating street closures.

In the event a street closure is required, the CONTRACTOR shall notify, in writing, all emergency services and agencies, residents and businesses directly effected by any partial or full street closure caused by the construction no later than 48 hours prior to actual closure.

Below is a list of the agencies that are required to be notified in the event of a street closure:

Agency:

Contact phone number:

EVAC Ambulance Service	(386) 252-4911
Ormond Beach CityHall	(386) 677-0311
Ormond Beach Fire Dept. Administration	(386) 676-3255
Ormond Beach Police Dept. Dispatch	(386) 676-3508
Ormond Beach Public Works Department	(386) 676-3220
Ormond Beach Postmaster (US Postal Service)	(386) 676-0693
Volusia CountySchool Board - Transportation	(386) 258-4677
Volusia County VOTRAN	(386) 756-7496

If a **County** or **State Road** is to be closed, add the following agencies to the list:

Volusia County Department of Public Works	(386) 239-6535
Volusia County Emergency Management	(386) 254-1500
Volusia County Fire Services	(386) 254-4657
Florida Highway Patrol Dispatch	(407) 737-2200

If the closure will last longer than 5 days, the CONTRACTOR shall also notify the general public of such closures by placing an advertisement in the "Area" section of the local newspaper no later than 48 hours prior to the closure. The advertisement shall include information describing the extent of the closure (i.e. between which streets; detour routes, etc.), the date the closure will begin,

and estimated date the road will be reopened. Provide a copy of the proposed notification, for approval by the ENGINEER, before placing the advertisement.

The CONTRACTOR shall maintain full compliance with the traffic regulations found in Paragraph 1.06, Section 01500 of this Contract.

Contractor's Hours of Operation:

Except in the event of an emergency, no work shall be done between the hours of 7:00 P.M. and 7:00 A.M., or on Saturdays and Sundays. If the proper and efficient execution of the work requires operations during the night or on week-ends, the written permission of the ENGINEER shall be obtained prior to starting such items of the work.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

This section defines the method which will be used to determine the quantities of work performed or materials supplied and establishes the basis upon which payment will be made.

1.02 ESTIMATED QUANTITIES

Where quantities are shown they are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. OWNER or ENGINEER do not assume any responsibility that the final quantities, nor shall CONTRACTOR claim misunderstanding because of such estimate of quantities. Final payment will be made only for the satisfactorily completed quantity of each item.

1.03 MEASUREMENT STANDARDS

All work completed under the Contract shall be measured according to United States Standard Methods.

1.04 METHOD OF MEASUREMENT

Measurement of Length:

Unless otherwise specified for the particular items involved, all measurements of distance for items to be paid for on the basis of length shall be taken horizontally or vertically.

Measurement of Area:

In the measurement of items paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the actual dimensions measured along the surface of the completed work within the neat lines shown or designated. At intersections, the measurement used for length of side area will be measured from the outside edge of the width allowed along the main trench.

1.05 PAYMENT

Lump Sum Items:

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum item within the limits of work shown or specified.

Unit Price Items:

Where payment for items is shown to be paid for on a unit price basis, separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work, shall be considered to be included in the scope of the appropriate listed work items.

1.06 COSTS INCLUDED IN PAYMENT ITEMS

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work.

- Clearing and grubbing (including disposal of material).
- Trench excavation, including necessary pavement removal and removal of vegetative surfaces.
- Dewatering and disposal of surplus water.
- Structural fill, backfill, and grading.
- Replacement of unpaved roadways, grass and shrubbery plots.
- Cleanup.
- Foundation and borrow materials, except as hereinafter specified.
- Testing and placing system in operation.
- Any material and equipment required to be installed and utilized for tests.
- Pipe, structures, pavement replacement, restoration and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
- Maintaining or detouring of the traffic.
- Appurtenant work as required for a complete and operable system.
- Surface restoration including removal and replacement of trees (under 4-inch diameter), shrubs, and sod disturbed by construction activities.
- Relocation and/or replacement of irrigation systems disturbed by construction.
- Relocation and/or replacement of mail boxes disturbed by construction.
- Furnishing adequate sanitary facilities for workers.
- Adjustment of valve boxes.
- Supporting of existing utilities during construction

Cleanup:

CONTRACTOR's attention is called to the fact that cleanup is considered a part of the work of construction. No payment will be made until cleanup is essentially complete.

At the end of each week of construction, the CONTRACTOR shall perform cleaning of the work site, to the satisfaction of the Owner, before proceeding to the next week's scheduled work.

Work Outside Authorized Limits:

No payment will be made for work constructed outside the authorized limits of work.

1.07 APPLICATIONS FOR PAYMENT

Applications for payment shall be prepared by the CONTRACTOR and submitted to the ENGINEER in accordance with the schedule established by the Conditions of the Contract and the Agreement. The applications for payment shall be submitted in the number and form established by the ENGINEER at the Preconstruction Conference. The form shall be completely filled out and executed by an authorized representative of the CONTRACTOR. Supporting data such as schedules of stored materials shall be attached to each copy of the application.

1.08 CHANGE ORDER PROCEDURE

As defined in the General Conditions, a Change Order is a written order to the CONTRACTOR signed by the OWNER authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time which is issued after the execution of the Agreement.

The following procedure shall be used in processing Change Orders:

For Additions to the Work:

The OWNER shall issue a written order to the CONTRACTOR directing him to accomplish the additional work. The CONTRACTOR shall review the order and if he feels that the additional work entitles him to additional payment or additional time, he may submit a claim as prescribed in the Conditions of the Contract.

For Deletions From the Work:

The OWNER shall issue a written order to the CONTRACTOR directing him to make the change. If the OWNER feels that the Contract price should be reduced as a result of the change, the OWNER shall make a claim for the reduction as provided in the Conditions of the Contract.

Cost of the changes in the work shall be determined in accordance with the requirements spelled out in the Conditions of the Contract. Modifications to incorporate the changes in cost will be made as the amount of any change is determined.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 BID ITEMS

Bid Item No. 1 - Mobilization/Demobilization

Payment. Payment will be made at the contract lump sum price for the Bid Item and payment shall be full compensation for furnishing all plant, labor, materials, and equipment necessary to complete the item per the construction documents, complete, accepted by the City and ready for use.

Bid Item No. 2 – Furnish/Install Concrete Footings (10 EA), Concrete Slab (1134 SF), Electrical Conduit

Payment. Lump sum for all concrete footers, slabs and sidewalk work that includes electrical conduit under slab. Concrete piers shall be approved on engineering drawings signed and sealed by a Professional Engineer registered in the State of Florida.

Bid Item No. 3 - Furnish and Install Pre-fabricated Pavilion

Payment. Payment will be made at the contract lump sum price for the Bid Item and payment shall be full compensation for furnishing all plant, labor, materials, and equipment necessary to complete the item per the construction documents, complete, accepted by the City and ready for use.

Bid Item No. 4 - Permit Fee and Miscellaneous Allowances

An allowance is established to reimburse costs associated with fees, inspections, and related expenses for the Pavilion Replacement – SONC Project. **This will be paid at actual cost. Allowance can also be used based upon prior, written approval from the Owner and Engineer.**

END OF SECTION

01025-4

SECTION 01040 COORDINATION

PART 1 - GENERAL

1.01 PROJECT COORDINATION

A. The Contractor shall provide for the complete coordination of the construction efforts. This shall include, but not necessarily be limited to, coordination of the following:

1. the work of subcontractors
2. the flow of material and equipment from suppliers
3. the interrelated work with public utilities companies
4. the interrelated work with the Owner where tie-ins to existing facilities are required
5. the effort of independent testing agencies.

B. The Contractor will be allowed the widest practicable latitude in establishing his work plan. Contractor shall submit a plan of work to Owner and Engineer.

1.02 CUTTING AND PATCHING

A. The Contractor shall do all cutting, fitting and patching of his work that may be required to make its several parts come together properly and integrate with such other work. The Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the Engineer and the others whose work will be affected.

PART 2 - MATERIALS AND EQUIPMENT

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01050 FIELDENGINEERING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

The Contractor shall provide and pay for field engineering service required for the project. Such work shall include survey work to establish lines and levels and to locate and lay out site improvements, structures, and controlling lines and levels required for the construction of the work. Also included are such Engineering services as are specified or required to execute the Contractor's construction methods. Engineers and Surveyors shall be licensed professionals under the laws of the state where the project is located.

1.02 GRADES, LINES AND LEVELS

Existing basic horizontal and vertical control points for the project are those designated on the Drawings. The Contractor shall locate and protect control points prior to starting site work and shall preserve all permanent reference points prior to starting site work and shall preserve all permanent reference points during construction. In working near any permanent property corners or reference markers, the Contractor shall use care not to remove or disturb any such markers. In the event that markers must be removed or are disturbed due to the proximity of the construction work, the Contractor shall have them referenced and reset by a Land Surveyor qualified under the laws of the state of the project.

1.03 LAYOUT DATA

The Contractor shall lay out the work at the location and to the lines and grades shown on the Drawings. Survey notes indicating the information and measurements used in establishing locations and grades shall be kept and furnished with the record drawings for the project.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

01050-1

SECTION 01200 PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Project meetings shall be scheduled as needed throughout the progress of the work. Those responsible for scheduling the meetings shall prepare the agenda, distribute written notice of each meeting not less than four days in advance of the meeting date, make physical arrangements for the meeting, preside at the meeting, record the minutes (include all significant proceedings and decisions), and reproduce and distribute copies of the minutes to all participants, all parties affected by decisions made, and the Engineer.

Representatives attending the meetings shall be qualified and authorized to act on behalf of the entities they represent.

1.02 PRE CONSTRUCTION CONFERENCE

Before the Contractor starts the work at the site, the Engineer will schedule a preconstruction conference which will be held for review and acceptance of the schedules referred to in Section 01300, to establish procedures for handling shop drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the work.

The date for the start of construction shall be established at this conference.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

01200-1

SECTION 01300 SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

The type of submittal requirements specified in this section include the following:

- Progress Schedules and Reports
- Product Data
- Shop Drawings
- Manufacturer's Data
- Miscellaneous

Submittals shall be clear and legible, printed or typed. Submittals received that are not so, shall be returned to be resubmitted when in legible form.

1.02 PROGRESS SCHEDULES AND REPORTS

Within 10 days after the effective date of the Agreement, the Contractor shall submit to the Engineer for review and acceptance an estimated progress schedule indicating the starting and completion dates of the various stages of the work, a preliminary schedule of shop drawing submissions, and a preliminary schedule of values of the work. Include subschedules of related activities which are essential to its progress.

Revised schedules shall be submitted periodically as changes become apparent.

Unless other format or use of a network analysis system is required, schedules shall be prepared in the form of a horizontal bar chart. A separate horizontal bar shall be provided for each trade or operation. The first work day of each week shall be identified on the horizontal time scale. Scale and spacing will be such as to allow space for notations and revisions.

Schedules shall show the complete sequence of construction by activity with dates for the beginning and completion of each major element of construction. Projected percentage of completion for each item as of the first day of each month shall be shown.

Progress Reports:

The Contractor shall prepare and submit a monthly progress report. The report shall indicate the progress at the date of submission of each activity shown on his progress schedule. It shall show changes occurring since previous submissions, activities modified since previous submissions, and revised projections of progress and completion. The submittal shall include a narrative report to define: problem areas, anticipated delays, and the impact on the schedule, and corrective action recommended and its effect.

1.03 PRODUCT DATA (Shop Drawings and Manufacturer's Data)

The Contractor shall prepare and submit to the Engineer a schedule of the shop drawings, product data and samples which are required for the work together with anticipated submittal time. Any drawings which require critical timing for maintaining delivery or construction schedules shall be so noted. Shop drawing submittal schedule shall be coordinated with the requirements of construction progress schedules.

Those submittals required under various sections of the specifications, but not listed on the Contract Submittal List shall be submitted as "RECORD SUBMITTALS" and given to the Engineer along with the Record Drawings as specified in Section 01700 - Contract Closeout.

Product data submitted for substitutions shall be handled as specified in Section 01630 - Substitutions and Product Options.

Definitions:

Work-related submittals of this section are categorized for convenience as follows:

Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to several projects.

Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed in the information.

Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standard, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.04 GENERAL SUBMITTAL REQUIREMENTS

After checking and verifying all field measurements, the Contractor shall submit to the Engineer for review and approval, in accordance with the accepted schedule of shop drawing submissions, five copies of all shop drawings, which shall have been checked by and stamped with the approval of the Contractor and identified as the Engineer may require. The data shown on the shop drawings will be complete with respect to dimensions, design criteria, materials of construction and like information to enable the Engineer to review the information as required.

The Contractor shall also submit to the Engineer for review and approval with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples will have

been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, and pertinent catalog numbers and the use for which intended. At the time of each submission, the Contractor shall, in writing, call the Engineer's attention to any deviations that the shop drawings or samples may have from the requirements of the Contract Documents.

The Engineer will review and approve with reasonable promptness shop drawings and samples, but the Engineer's review and approval shall be only for conformance with the design concept of the project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident to the work. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor shall make any corrections required by the Engineer and shall return the required number of corrected copies of shop drawings and resubmit new samples for review and approval. The Contractor shall direct specific attention, in writing, to revisions other than the corrections called for by the Engineer on previous submittals. The Contractor's stamp of approval on any shop drawing or sample shall constitute a representation to the Owner and the Engineer that the Contractor has either determined and verified all quantities, dimension, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that the Contractor has reviewed or coordinated each shop drawing or sample with the requirements of the work and the Contract Documents.

Where a shop drawing or sample is required by the Specifications, no related work shall be commenced until the submittal has been reviewed and approved by the Engineer.

The Engineer's review and approval of shop drawings or samples shall not relieve the Contractor from responsibility for any deviations from the Contract Documents unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submission and the Engineer has given written concurrence and approval to the specific deviation, nor shall any concurrence or approval by the Engineer relieve the Contractor from responsibility for errors or omissions in the shop drawings.

Systems to be submitted in the shop drawing submittal shall include but not necessarily be limited to:

1. Each item of equipment and/or materials listed in the project equipment and material schedules;

Certifications:

Whenever a standard of quality is established by a reference specification, the Contractor shall submit a certificate by the manufacturer that the material supplied meets the requirements of both the project and reference specification.

Schedule of Values:

At least 10 days prior to submitting the first Application for a progress payment, the Contractor shall submit to the Engineer a schedule of values of the work. This schedule shall be satisfactory in form and substance to the Engineer. The schedule of values shall include quantities and unit prices aggregating the contract price, and shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction. Upon acceptance of the schedule of values by the Engineer, it shall be incorporated into a form of Application for Payment acceptable to the Engineer.

Where estimated quantities and unit prices are shown in the Bid Form as the basis of payment, the quantities shown in the Bid Form are approximate and are given only as a basis of calculation upon which the award of the contract is to be made. The Owner or Engineer do not assume any responsibility that the final quantities will remain in accordance with estimated quantities, nor shall the Contractor claim misunderstanding or deception because of such estimate of quantities. Final payment will be made on the basis of the actual completed quantities of each item.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

01300-4

SECTION 01400 QUALITYCONTROL

PART 1 - GENERAL

1.01 TESTING LABORATORY SERVICES

Arrangements for testing laboratory services will be made by the Owner. Payment for testing to show compliance with specified requirements will be paid for by the Owner. The cost for tests, when materials and workmanship fail to meet specified requirements (failed tests), will be billed directly to the Contractor by the soils testing laboratory, or deducted from monies due the Contractor.

1.02 INSPECTION SERVICES

The authorized representative of all applicable Federal and/or State agencies, including Environmental Protection Agency, Corps of Engineers and Department of Environmental Regulation, shall be permitted to inspect all work, materials, payrolls, records of personnel, invoice of materials, and other relevant data and records. The Owner and his authorized representatives shall be permitted free access and every reasonable facility for the inspection of all work and materials, including the removal or uncovering of such portions of the finished work as may be directed. The Owner and his authorized representative shall also be permitted to inspect payrolls, invoices of materials and other relevant data and records.

1.03 INSPECTION OF WORK AWAY FROM SITE

If work to be done away from the construction site is to be inspected on behalf of the Owner during its fabrication, manufacture or testing or before shipment, the Contractor shall give notice to the Engineer of the time and place where such fabrication, manufacturing, testing or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

ENDOFSECTION

01400-1

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

This section specifies the minimum requirements for temporary facilities, utilities to be brought to the site, refuse/waste collection and control required to enable the construction of the project to progress adequately. The providing of adequate facilities at every stage of performing the work is the Contractor's sole responsibility, and is not limited by the requirement of this section.

Except as otherwise indicated, the Contractor may, at his option, provide stand-alone utility plants to provide needed services, in lieu of connected services from available public utilities, provided such stand-alone plant facilities comply with governing regulations. Prior to availability of temporary utility services, provide trucked-in/trucked-out containerized or unitized services for startup of construction operations at the site.

Except as otherwise indicated, the costs of providing and using temporary utility services are included in the Contract Sum.

1.02 TEMPORARY FACILITIES

The types of utility services required for general temporary use at the project site include the following (other specific services maybe required for specific construction methods or operations):

- Electrical Power Service
- Water Service (potable for certain uses)
- Sanitary
- Storm Sewer or Open Drainage/Run-off Control
- Refuse/Waste Collection

Temporary Electricity:

The Contractor shall make necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for proper completion of the work and during its entire progress up to time of final acceptance by the Owner. The Contractor shall provide and pay for all temporary switches, connections and meters.

Temporary Water:

The Contractor shall make all necessary application and arrangements, and pay all fees and charges for water necessary for the proper completion of the project up to the time of final acceptance. The Contractor shall provide and pay for any temporary piping and connections.

TemporarySanitary Facilities:

The Contractor shall provide adequate sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved.

The Contractor shall provide these portable sanitary facilities “on-site” for use by workers. Transporting workers to the nearest “public” sanitary facility will not be considered an acceptable alternative to these requirements.

The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the Owner, or on adjacent property. The cost of providing these sanitary facilities shall be included in the Contractor’s applicable pay items of work and no separate payment shall be made thereof.

TemporaryRefuse/Waste Collection

The Contractor shall provide for adequate refuse/waste collection and disposal. City Ordinance requires that all rental open-top rolloff container units or rental cubic-yard container units must be procured from one of the City’s franchised construction and demolition debris providers. For a list of the City’s current Franchised Providers, please call Public Works at 386-676-3220.

It will be the Contractor’s responsibility to make all necessary arrangements for refuse/waste collection and disposal. The cost of providing for such refuse/waste collection and disposal shall be included in the Contractor’s applicable pay items of work and no separate payment shall be made thereof.

Termination and Removal:

At the time the need for temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than the time of substantial completion, promptly remove the installation unless requested by the Engineer to retain it for a longer period. Complete and restore work which may have been delayed or affected by the installation and use of the temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces. Replace work damaged beyond acceptable restoration.

1.03 TEMPORARY CONTROLS

Noise Control:

The Contractor shall provide adequate protection against objectionable noise levels caused by the operation of construction equipment.

Dust Control:

The Contractor shall provide for adequate protection against raising objectionable dust clouds caused by moving construction equipment, high winds or any other cause.

Water Control:

The Contractor shall provide for satisfactory disposal of surplus water and shall submit a plan to the Engineer for his review prior to initiation and implementation of the plan. Prior approval shall be obtained from the proper authorities for the use of public or private lands or facilities for such disposal.

Pollution Control:

The Contractor shall provide for adequate protection against polluting any public or private lands, lakes, ponds, rivers, streams, creeks, and other such areas, by the disposal of surplus material in the form of solids, liquids, or gases or from any other cause. The Contractor shall provide for adequate refuse/waste collection and disposal as described in Part 1, paragraph 1.02 of this Section.

The Contractor shall evaluate and assess the impact of any adverse effects on the natural environment which may result from construction operations and shall operate to minimize pollution of air, ground or surface waters vegetation, and afford the neighboring community the maximum protection during and up to completion of the construction project.

The Contractor shall take sufficient precautions to prevent pollution of streams, lakes and reservoirs with fuels, oils, bitumens, calcium chloride or other harmful materials. He shall conduct and schedule his operations so as to avoid or otherwise prevent pollution of siltation of streams, lakes and reservoirs and to avoid interference with movement of migratory fish.

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

Erosion Control:

The Contractor shall not expose, by construction operations, a larger area of erosive land at any one time than the minimum necessary for efficient construction operations, and the duration of exposure of the uncompleted construction to the elements shall be as short as practicable.

Erosion control features shall be constructed concurrently with other work and at the earliest practicable time.

1.04 STORAGE FACILITIES

All products, materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturer's instructions. Fabricated products shall be stored above the

ground on blocking or skids. Products which are subject to deterioration shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any products which will come in contact with potable water shall be stored off the ground so as to prevent contamination.

Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored products to assure that they are maintained under specified conditions, and free from damage or deterioration.

After installation, Contractor shall provide substantial coverings as necessary to installed products to protect from damage from traffic and subsequent construction operations. Coverings shall be removed when no longer needed.

1.05 PRESERVATION OF PROPERTY

Preserve from damage all property along the line of the work, or which is in the vicinity of or in any wise affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Owner.

In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the Owner may, after 48 hours notice to the Contractor, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the Contractor under this Contract.

The Contractor shall be responsible for the protection of property, in the areas in the vicinity of the project; and for the protection of his equipment, supplies, materials and work, against any damage resulting from the elements, such as flooding, by rainstorm, wind damage, or other elemental cause resulting from the project configuration. The Contractor shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting from same. The Contractor shall provide adequate drainage facilities, tie-downs, or other protection, throughout the Contract period, for the protection of his, the Owner's, and other properties from such damage.

1.06 TRAFFIC REGULATION

Signs, marking barricades and procedures shall conform to the requirements of the Florida Department of Transportation Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations.

The Contractor shall maintain one-lane, two-way traffic at all times and maintain customer access to local businesses at all times throughout the course of the work.

The Contractor shall provide and maintain adequate barricades, construction signs, torches, flashers, guards and flagmen as required in pedestrian and vehicular traffic areas. Regulations of local authorities shall be complied with.

The contractor shall provide suitable crossings at street intersections and driveways, and supply such aid as may be required for pedestrians and motorists, including delivery vehicles, to safely negotiate the construction areas.

The Contractor shall carry on the work in a manner that will cause the least interruption in traffic. Closing to through travel of more than two consecutive blocks, including the cross streets intersected will not be permitted without specific authorization from the local authorities. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways and provide adequate ingress and egress to dwellings, business facilities, utilities and services. At any time the streets are required to be closed, the Contractor shall notify, in writing, law enforcement agencies, fire departments, and parties operating emergency vehicles before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times. Refer to Section 01010 of these Specifications for "Notification of Construction" and "Notification of Street Closure" requirements.

On completion of work, the Contractor shall remove all debris, excess materials, barricades and temporary work leaving walkways and road clear of obstructions.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01600 MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

Materials and equipment furnished by CONTRACTOR shall be new and shall not have been in service at any other installation unless otherwise provided. Materials and equipment shall conform to applicable specifications and standards and comply with the size, make, type and quality specified, or as specifically approved in writing by ENGINEER.

Manufactured and fabricated items shall be designed, fabricated and assembled in accordance with the best engineering and shop practices. Like parts of duplicate units shall be manufactured to standard sizes and gauges to be interchangeable.

Two or more things of the same kind shall be identical, by the same manufacturer.

Materials and equipment shall be suitable for service conditions shown or specified.

Equipment which requires auxiliary devices or equipment in order to operate properly shall have such auxiliary devices or equipment included as a part of its system.

Equipment sizes, capacities and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

Materials and equipment shall not be used for any purpose other than that for which it is designed or is specified.

Where existing materials or equipment is specifically shown or specified to be reused in the work, special care shall be used in removal, handling, storage, and reinstallation, to assure proper function in the completed work.

CONTRACTOR shall arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation.

Salvaged Materials. In the absence of special provisions to the contrary, salvaged materials, equipment or supplies are the property of OWNER and shall be cleaned and stored as directed by ENGINEER.

Manufacturer's Instructions. The installation of all work shall comply with manufacturer's written instructions. CONTRACTOR shall obtain and distribute copies of such instructions to parties involved in the installation including two copies to ENGINEER. One complete set of instructions shall be maintained at the job site during installation and until completion. All products and equipment shall be handled, installed, connected, cleaned, conditioned and adjusted in accordance with the manufacturers instructions and specified requirements. Should job

conditions or specified requirements conflict with manufacturers instructions, such conflicts shall be called to ENGINEER'S attention for resolution and revised instructions.

Equipment Guarantee. All mechanical and electrical equipment, together with devices of whatever nature and all components, which are furnished and/or installed by CONTRACTOR shall be guaranteed. The guarantee shall be against manufacturing and/or design inadequacies, materials and workmanship, improper assembly, hidden damage, failure of devices and/or components, excessive leakage or other circumstances which would cause the equipment to fail under normal design and/or specific operating conditions for a period of one year or such longer period as may be shown and/or specified from and after the date of acceptance of the equipment by OWNER. Each piece of equipment, device or component which shall fail within the above specified term shall be replaced with reasonable promptness by CONTRACTOR without cost to OWNER.

Operating Characteristics. Rotating machinery shall be designed and fabricated to provide satisfactory operation without excessive wear and without excessive maintenance during its operating life. Rotating parts shall be statically and dynamically balanced and shall operate without excessive vibration.

Lubrication System. The minimum design criteria for lubrication of moving parts of the equipment shall include one week of continuous operation during which no lubricants shall be added to the system. The system shall also be designed to receive lubricants whether in operation or shut down, and shall not leak or waste lubricants under either condition. The manufacturer's recommendations of grade and quality and a supply of the lubricants so recommended in quantities sufficient to conduct startup and testing operations shall be furnished with the equipment.

Safety Requirements. Screens, guards or cages shall be provided for all exposed, rotating or moving parts in accordance with accepted practices of applicable governmental agencies.

Nameplates. Each major component of equipment shall have the manufacturers name, catalog and/or model number, serial number and applicable performance requirements and characteristics embossed, stamped, or engraved on a stainless steel plate securely attached to the item of equipment.

Anchor Bolts. The manufacturer shall provide stainless steel anchor bolts for each piece of equipment furnished.

1.02 TRANSPORTATION AND HANDLING

Materials and equipment shall be loaded and unloaded by methods affording adequate protection against damage. Every precaution shall be taken to prevent injury to the materials or equipment during transportation and handling. Suitable power equipment will be used and the materials or equipment shall be under control at all times. Under no condition shall the materials or equipment be dropped, bumped or dragged. When a crane is used, a suitable hook or lift sling shall be used. The crane shall be so placed that all lifting is done in a vertical plane. Materials or equipment skid loaded, palletized or handled on skidways shall not be skidded or rolled against materials or equipment already unloaded.

Materials and equipment shall be delivered to the job site by means that will adequately support it and not subject it to undue stresses. Contractor shall promptly inspect the products for damage and defects and conformance with the specification. Materials and equipment damaged or injured in the process of transportation, unloading or handling will be rejected and shall be immediately removed from the site.

1.03 STORAGE AND PROTECTION

All materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Items subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturers instructions. Fabricated items shall be stored above the ground on blocking or skids. Items which are subject to deterioration shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any items which will come in contact with potable water shall be stored off the ground so as to prevent contamination.

Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored items to assure that they are maintained under specified conditions, and free from damage or deterioration.

After installation, CONTRACTOR shall provide substantial coverings as necessary to protect installed items from damage, from traffic, and subsequent construction operations. Coverings shall be removed when no longer needed.

PART 2 - MATERIALS AND EQUIPMENT

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01630
SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 REQUESTS FOR REVIEW

- A. Requests to review substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute or equivalent item of material or equipment, the Contractor shall make written application to the Engineer for acceptance, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equivalent substance to that specified and be suited to the same use and capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the work will require a change in Drawings or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Engineer in evaluating the proposed substitute. The Engineer may require the Contractor to furnish at the Contractor's expense additional data about the proposed substitute. The Engineer will be the sole judge of acceptability, and no substitute will be ordered or installed without the Engineer's prior written acceptance. The Owner may require the Contractor to furnish at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute.

1.02 SUBSTITUTION AFTER EXECUTION OF AGREEMENT

- A. After execution of the Agreement, substitution of materials or equipment supplied by manufacturers or suppliers other than those listed, will be considered only if it is demonstrated by the Contractor that:
1. the material or equipment proposed for substitution is superior in design, construction and/or efficiency to that of the listed manufacturer or supplier;
 2. the material proposed for substitution is in every way equal to that of the listed supplier, and that availability and/or delivery of listed materials within the time frame scheduled cannot be met; or
 3. the material proposed for substitution is in every way equal to that of the listed

supplier and is available at a lower cost. In the event such a substitution is allowed, the Contractor shall accept and execute a Change Order reducing the Contract Price by an amount equal to the cost differential.

1.03 EQUIVALENT MATERIALS AND EQUIPMENT

- A. Whenever materials or equipment are specified or described in the Drawings or Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier or distributor, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers or distributors may be accepted by the Engineer to determine that the material or equipment proposed is equivalent to that named.
- B. It is not the intent of the Contract Documents to function as proprietary specifications. Where a particular manufacturer make and model are cited and specifically required for interchangeability of parts and/or match existing equipment, this has been so stated in the Specifications.
- C. The standard products of manufacturers other than those specified may be considered when it is demonstrated to the ENGINEER that they are equal in quality, composition, durability, usefulness and convenience for the purpose intended. Requests for substitutions will only be considered, provided the following minimum conditions are met:
 - 1. The proposed coating system shall use an equal or greater number of separate coats to achieve the required dry film thickness.
 - 2. The proposed coating system shall use coatings of the same generic type.
 - 3. All requests for substitutions shall have the directions for application and descriptive literature which includes generic type, nonvolatile content by volume and information confirming that the substitution is equal to the specified coating system.
 - 4. The CONTRACTOR shall provide Certified Laboratory Data Sheets showing the results of complete spectrographic and durability tests performed on the proposed substitute. Tests shall be performed by a laboratory which conforms to the provisions of the American Society for Testing and Materials (ASTM E329) and which is a member of the American Council of Independent Laboratories. Costs incurred in the testing program shall be borne by the CONTRACTOR.

5. The cost of all testing and analyzing of the proposed substitute materials that may be required by the ENGINEER, shall be paid by the CONTRACTOR. If the proposed substitution requires changes in the contract work, the CONTRACTOR shall bear all such costs involved and the costs of allied trades affected by the substitution.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

01630 -3

SECTION 01670
OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Scope of Requirements:
 - 1. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract.
 - 2. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of the Specifications.
 - 3. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel:
 - 1. Trained and experienced in maintenance and operation of described products.
 - 2. Familiar with requirements of this Section.
 - 3. Skilled as a technical writer to the extent required to communicate essential data.
 - 4. Skilled as draftsman competent to prepare required drawings.

1.03 FORMAT OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by Owner's personnel.
- B. Format:
 - 1. Size: 8 1/2 inches x 11 inches
 - 2. Paper: 20 pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.

- b. Reduce larger drawings and fold to size of text pages but not larger than 14 inches x 17 inches.
- 5. Provide fly-leaf for each separate product, or operating equipment.
 - a. Provide typed description of products and major component parts of equipment.
 - b. Provide indexed tabs.
- 6. Cover: Identify each volume with typed or printed title "**OPERATING AND MAINTENANCE INSTRUCTIONS**".

List:

 - a. Title of project
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
 - 1. Commercial quality three-post binders with durable and cleanable plastic covers.
 - 2. Maximum post width: 2 inches.
 - 3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
 - 1. Contractor, name of responsible principal, address and telephone number.
 - 2. A list of each product required to be included, indexed to content of the volume.
 - 3. List, with each product, name, address and telephone number of:
 - a. Subcontractor or installer
 - b. A list of each product required to be included, indexed to content of the volume.
 - c. Identify area of responsibility of each SubContractor/Installer.

- d. Local source of supply for parts and replacement
- 4. Identify each product byproduct name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
 - 1. Include only those sheets which are pertinent to the specified product.
 - 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed
 - b. Clearly identify data applicable to installation
 - c. Delete references to inapplicable information.
- C. Drawings:
 - 1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems
 - b. Control and flow diagrams.
 - 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - 3. Do not use Project Record Documents as maintenance drawings.
- D. Written text, as required to supplement product data for the particular installation:
 - 1. Organize in consistent format under separate headings for different procedures.
 - 2. Provide logical sequence of instructions of each procedure.
- E. Copy of each warranty, bond and service contract issued.
 - 1. Provide information sheet for Owner's personnel, give:
 - a. Proper procedures in event of failure
 - b. Instances which might affect validity of warranties or bonds.

1.05 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit four copies of complete manual in final form.
- B. Content, for each unit of equipment and system, as appropriate:
 - 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 - 2. Operation procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
 - 3. Maintenance procedures:
 - a. Routine operations
 - b. Guide to "trouble-shooting"
 - c. Disassembly, repair and reassembly
 - d. Alignment, adjusting and checking.
 - 4. Servicing and lubrication required:
 - a. Complete lubrications schedule.
 - b. List of all lubricants required and acceptable products from three manufacturers for each lubricant.
 - 5. Manufacturer's printed operating and maintenance instructions.
 - 6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawing and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 8. As installed control diagrams by controls manufacturer.
 9. Each Contractor's coordination drawings.
 10. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
 11. Other data as required under pertinent sections of specifications.
- C. Content, for each electric and electronic system, as appropriate:
1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Circuit directories and panel boards.
 - a. Electrical service
 - b. Controls
 - c. Communications.
 3. As installed color coded wiring diagrams.
 4. Operating procedures:
 - a. Routine and normal operating instructions
 - b. Sequences required
 - c. Special operating instructions.
 5. Maintenance procedures:

- a. Routine operations
 - b. Guide to "trouble-shooting"
 - c. Disassembly, repair and reassembly
 - d. Adjustment and checking.
- 6. Manufacturer's printed operating and maintenance instructions.
 - 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - 8. Other data as required under pertinent sections of the Specifications.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
 - E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

1.06 SUBMITTAL SCHEDULE

- A. Submit two copies of preliminary draft of proposed formats and outlines of contents of Operation and Maintenance Manuals within 90 days after Notice to Proceed.
 - 1. Engineer will review the preliminary draft and return one copy with comments.
- B. Submit two copies of completed data in final form no later than 30 days following Engineer's review of the last shop drawing and/or other submittal specified in Section 01300. One copy will be returned with comments to be incorporated into final copies.
- C. Submit four (4) copies of approved manual in final form directly to the offices of the Owner within 30 calendar days of product shipment to the project site and preferably within 30 days after the reviewed copy is received.
- D. Provide four (4) copies of addenda to the operation and maintenance manuals as applicable and certificates as specified within 30 days after final inspection.

1.07 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to demonstration test, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.

- B. Operating and maintenance manual shall constitute the basis of instruction. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.
- C. Instructors shall be fully qualified personnel as outlined within the individual equipment specifications. If so specific training specifications are listed with the equipment, the Contractor shall provide the instruction with qualified Contractor personnel.
- D. The instructors shall provide for and prepare lessons scopes and handouts for up to five individual designated by the Owner that outline the items to be covered. Separate sessions for operation and maintenance instruction shall be provided consecutively. Handouts shall be submitted to the Owner with at least one week's notice prior to the training session.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

END OF SECTION

SECTION 01700 CONTRACTCLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

Definition:

Closeout is defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by OWNER and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.02 PREREQUISITES TO SUBSTANTIAL COMPLETION

When the CONTRACTOR considers the work to be substantially complete, he shall submit to the ENGINEER: a written notice that the work, or designated portion thereof, is substantially complete; and a list of items to be completed or corrected.

Within a reasonable time after receipt of such notice, the ENGINEER will make an inspection to determine the status of completion.

Should the ENGINEER determine that the work is not substantially complete, the ENGINEER will promptly notify the CONTRACTOR, in writing, giving the reasons. The CONTRACTOR shall remedy the deficiencies in the work and send a second written notice of substantial completion to the ENGINEER. The ENGINEER will reinspect the work.

When the ENGINEER finds that the work is substantially complete, he will prepare and deliver to the OWNER a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment. After consideration of any objections made by the OWNER as provided in Conditions of the Contract, and when the ENGINEER considers the work substantially complete, the ENGINEER will execute and deliver to the OWNER and the CONTRACTOR a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

When the CONTRACTOR considers the work complete, he shall submit written certification that the Contract Documents have been reviewed, the work has been inspected for compliance with the Contract Documents, the work has been completed in accordance with the Contract Documents, equipment and systems have been tested in the presence of the OWNER's representative and are operational, and the work is completed and ready for final inspection.

With reasonable promptness after receipt of such certification, the ENGINEER will make an inspection to verify the status of completion. Should the ENGINEER consider that the work is

incomplete or defective, he will promptly notify the CONTRACTOR, in writing, listing the incomplete or defective work. The CONTRACTOR shall take immediate steps to remedy the stated deficiencies and send a second written certification to the ENGINEER that the work is complete. The ENGINEER will reinspect the work.

Should the ENGINEER perform reinspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR, the OWNER will compensate the ENGINEER for such additional services, and the OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.03 CLOSEOUT SUBMITTALS

When the ENGINEER finds that the work is acceptable under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

The CONTRACTOR's closeout submittals shall include:

1. Evidence of compliance with requirements of governing authorities.
2. Project Record Documents.
3. Evidence of Payment and Release of Liens.
4. Certificate of Insurance for Products and Completed Operations.
5. Warranties and Bonds.

1.04 ADDITIONAL CLOSEOUT REQUIREMENTS

Project Record Documents:

The CONTRACTOR shall keep one Record copy of all specifications, drawings, addenda, modifications, shop drawings, field test records, and samples at the site in good order and annotated in red to show all changes made during the construction process. These shall be available to the ENGINEER for examination and shall be delivered to the ENGINEER for the OWNER upon completion of the work.

Documents and samples shall be stored in the CONTRACTOR's field office apart from documents used for construction. The CONTRACTOR shall provide files and racks for storage of documents, and a locked cabinet or secure storage space for storage of samples. Documents shall be maintained in a clean, dry, legible condition and in good order.

Record Documents shall not be used for construction purposes.

Each Document shall be labeled "PROJECT RECORD" in neat, large printed letters.

Information shall be recorded by the CONTRACTOR, on a daily basis, concurrently with construction progress. No work shall be concealed until required information is recorded on the CONTRACTOR's Record Drawings.

Drawings shall be legibly marked to record actual construction information on: depths of various elements of foundation in relation to finish first floor datum; horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements; location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure; field changes of dimension and detail; changes made by Field Order or by Change Order; and details not on original contract drawings.

Specifications and Addenda shall have each section legibly marked to record: manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed; and changes made by Field Order or by Change Order.

At contract closeout Record Documents shall be delivered to the ENGINEER for the OWNER. The submittal shall be accompanied with a transmittal letter in duplicate, containing:

1. Date
2. Project title and number
3. CONTRACTOR's name and address
4. Title and number of each Record Document
5. Signature of CONTRACTOR or his authorized representative

As-Built Survey Requirements:

Not Applicable.

Operating and Maintenance Data:

The CONTRACTOR shall compile product data and related information appropriate for OWNER's maintenance and operation of products furnished under the Contract.

The submittals shall include but not necessarily be limited to:

Manufacturer's specifications.

Directions and instructions relating to assembly, installation, operation and maintenance.

Parts list with catalog numbers and other data necessary for ordering replacements.

1.05 WARRANTIES AND BONDS

The CONTRACTOR shall compile and submit to the ENGINEER in duplicate, for review and transmittal to the OWNER, warranties, bonds, service and maintenance contracts as specified in the respective sections of Specifications. Submittal shall be made within ten days after Substantial Completion and prior to final request for payment.

1.06 FINAL STATEMENT OF ACCOUNTING

The CONTRACTOR shall submit a final statement of accounting to the ENGINEER. The statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum

2. Additions and deductions resulting from:
 - Previous Change Orders
 - Deductions for uncorrected work
 - Deductions for liquidated damages
 - Deductions for reinspection payments
 - Other adjustments
3. Total Contract Sum, as adjusted
4. Previous payments
5. Sum remaining due

1.07 FINAL CHANGE ORDER

The ENGINEER will prepare a final Change Order, if required, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.08 FINAL APPLICATION FOR PAYMENT

The CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01710 FINAL CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

The CONTRACTOR shall execute cleaning, during progress of the work, and at the completion of the work, as required by General Conditions.

Cleaning and disposal operations shall comply with all applicable codes, ordinances, regulations, and anti-pollution laws.

Refer to Section 01500 – Temporary Facilities And Controls for additional requirements.

PART 2 - MATERIALS

The CONTRACTOR shall:

Use only those materials which will not create hazards to health or property and which will not damage surfaces.

Use only those cleaning materials and methods recommended by manufacturer of the surfaces to be cleaned.

Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 CLEANING DURING CONSTRUCTION

The CONTRACTOR shall:

Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

Provide on-site containers for the collection of waste materials, debris and rubbish. Rental of refuse/waste containers must fully comply with the requirements of Section 01500 - Temporary Facilities And Controls.

Remove waste materials, debris and rubbish from the site at least once a week and dispose of at legal disposal areas away from the site.

Prior to final completion, CONTRACTOR shall conduct an inspection of work areas, to verify that the entire work is clean.

3.02 FINAL CLEANING

The CONTRACTOR shall:

Employ skilled workmen for final cleaning.

Remove grease, mastic, adhesives, dust, dirt, stains, and other foreign materials from sight-exposed surfaces.

Broom clean exterior paved surface; rake clean other surfaces of the grounds.

Except as otherwise indicated or requested by the ENGINEER, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction project.

Prior to final completion, CONTRACTOR shall conduct an inspection of work areas, to verify that the entire work is clean.

Where extra materials of value remaining after completion of the associated work have become the OWNER's property, dispose or store at the site, as directed by the ENGINEER.

END OF SECTION

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SECTION 01740 WARRANTIES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

All work performed under this contract shall be warranted for labor and materials for a minimum period of one year after date of completion and acceptance of the project. Specific warranties are noted in specific sections.

Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1. Refer to the General Conditions for terms of the Contractor's period for correction of the work.

Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with the requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the owner has benefited from use of the work through a portion of its anticipated useful service life.

Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
2. Where the Contract Documents require a special warranty, or similar commitment, the Owner reserves the right to refuse to accept the work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

Submit written warranties to the Engineer prior to the date certified for Substantial Completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the Engineer.

END OF SECTION

SECTION 03100
CAST IN-PLACE AND POURED CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. The work included under this section consists of furnishing all materials, forms, transportation and equipment, and performing all necessary labor to do all the plain and reinforced concrete work shown on the Drawings, or incidental to the proper execution of the work, or as herein specified.
- B. Composition: Concrete shall be composed of cement, fine aggregate, coarse aggregate, and water so proportioned and mixed as to produce a plastic workable mixture in accordance with all requirements under this section suitable to the specific conditions of placement.

1.02 SUBMITTALS

- A. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications. Concrete mix designs shall be submitted for approval prior to placement.

PART 2 MATERIALS AND EQUIPMENT

2.01 PORTLAND CEMENT

Shall comply with the standard specifications for Portland Cement, A.S.T.M. designation C-150, Type II, or Type III (high-early), where indicated on drawings.

2.02 CONCRETE AGGREGATE

Shall conform to standard specifications for concrete aggregate, A.S.T.M. Designation C-33. Maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between reinforcing bars.

- A. Fine Aggregate. Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand known as Lake Wales, Interlachen, or approved equal. The source, composition, quality and gradation of the fine aggregate shall be subject aid the approval of the Engineer. Samples of the sand shall be furnished, together with certified copies of the gradation and analysis from the recognized testing laboratory.

1. The weight of extraneous or deleterious substances shall not exceed the following percentages.

Loss by Decantation	3%
Shale	1%
Clay Lumps	1%
Coal and Lignite	1%

2. The fine aggregate shall be reasonable well graded from coarse to fine and when tested by means of laboratory sieves shall meet the following requirements in percent of total weight:

Total Retained On	Percent Retained
No. 4 Sieve	0 - 5
No. 10 Sieve	3 - 30
No. 30 Sieve	30 - 70
No. 50 Sieve	65 - 95
No. 100 Sieve	95 - 100

Deficiencies in the percentages of the fine aggregates passing the No. 50 and No. 100 Sieves may be remedied by the addition of pozzolanic or cementitious materials excepting Portland cement. Such materials must meet the approval of the Engineer.

B. Coarse Aggregate

1. Coarse aggregate shall consist of hard, tough, durable components, free from adherent coatings and vegetable matter, and shall not contain soft, friable, thin or elongated particles in quantities considered deleterious by the Engineer. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of desired strength, density, and workability. The source, composition, quality and gradation of the coarse aggregate shall be subject to the approval of the Engineers. Samples of the coarse aggregate shall be furnished together with certified copies of the gradation and analysis from a recognized testing laboratory.

2. All coarse aggregate shall be washed and shall be free from disintegrated pieces, salt, alkali, vegetable matter and adherent coatings. The total percentage of all deleterious substances shall not exceed 5 percent by weight. The substances designated shall not be presented in excess of the following amounts.

Loss by Decantation	1%
Clay Lumps or Other Soluble Materials	1/4%
Soft Fragments	5%

3. Where the cover over reinforcing is 2 inches or more, the maximum size of aggregate shall be 1 1/2 inches. Where the cover over reinforcing is less than 2 inches, the maximum size of aggregate shall be 3/4 inch. The maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars. The grading of the coarse aggregate in the concrete shall be within the following limits.

Percent Passing

Maximum Size Square Mesh Screen	97 - 100%
1/2 Maximum Size Square Mesh Screen	40 - 70% No.
4 Sieve	0 - 6%

2.03 WATER

Water shall be clean and free from oil, acids, alkalis, organic materials or other injurious substances.

2.04 REINFORCEMENT

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed bars of USA manufacture.
- B. Welded Wire Fabric: ASTM A185, gauges, spacing and dimensions as indicated.
- C. Metal Bar Supports: CRSI MSP-1, Chapter 3, Class 2, Type B, Stainless Steel Protected Bar Supports, or otherwise approved by the Engineer. Use concrete supports for reinforcement in concrete placed on grade.
- D. Tie Wire: 16 gauge minimum, black, soft annealed.
- E. Coupler Splice Devices: Cadweld tensions couplers, capable of developing the ultimate strength of the bar as manufactured by Erico Products, Incorporated, Solon, Ohio, or equal.

2.05 FORM WORK

- A. Lumber: Douglas Fir or Larch, No. 2 grade, seasoned and surfaced on four sides.
- B. Plywood: Plyform, Class 1, BB-Exterior type, mill oiled and edge sealed, with thickness not less than 3/4 inch.
- C. Medium Density Overlay (MDO) Plywood Forms: PS-1, B-B High Density Concrete Form Overlay, Class I, unoiled.

1. Butt form panels, make contact surface fully flush and seal butting holes with sponge form tape. Chamfer edges of beams and ceilings.
 2. Where MDO plywood is used to form beams, do not use MDO plywood that has been patched or damaged.
- D. Drip Forms: Varnished ponderosa pine or equally rigid non-staining plastic, 1/2 inch wide on each leg.

2.06 ADMIXTURES:

- A. Air Entraining Admixture: ASTM C260.
- B. Water Reducing and Retarding Admixture:
1. Concrete Without Superplasticizer:
 - a. Water Reducing Admixtures: ASTM C494, Type A, equal to Eucon WR-75 by the Euclid Company, Pozzolith 200 N by Master Builders, Plastocrete 161 by Sika Chemical Corporation, and containing no calcium chloride.
 - b. Water Reducing and Retarding Admixtures: ASTM C494, Type D, equal to Eucon Retarder-75 by the Euclid Company, Pozzolith 100 XR by Master Builders, Plastiment by Sika Chemical Corporation, and containing no calcium chloride.
 - c. Accelerating Admixtures: ASTM C494, Type C or E, equal to Accelguard 80 by the Euclid Company, Darex Set Accelerator by W.R. Grace, and containing no calcium chloride.

PART 3 EXECUTION

3.01 PROPORTIONING

- A. The proportions of aggregate to cement shall be such as to produce a thoroughly plastic mixture which will work readily into the corners and angles of the forms and around the reinforcement but without permitting the materials to segregate or excess free water to collect on the surface. The percentage of sand shall not be less than thirty (30) no more than fifty (50) percent of the total weight of the aggregate.

- B. The total content, including the surface water contained in the aggregate, shall not exceed 5.7 gallons per sack of cement. The slump shall not exceed four (4) inches. Air-entraining admixture shall be Darex AEA as manufactured by the Dewey and Almy Chemical Company.
- C. The amount of air entrained in the freshly mixed concrete shall not be less than three (3) percent nor more than six (6) percent. The minimum cement content in sacks per cubic yard of concrete shall not be less than six (6) sacks per cubic yard for Class "A" concrete.
- D. Concrete materials shall be accurately measured by weight. Measurement of materials for ready-mixed concrete shall conform to the "Standard Specifications for Ready-Mixed Concrete", (A.S.T.M designation C-94).
 - 1. Class "A" concrete for all structures shall have minimum compressive Strength of 4000 psi at 28 days.
 - 2. Class "B" concrete for sidewalks shall have minimum compressive strength of 3000 psi at 28 days.
 - 3. All concrete shall be Class "A" unless otherwise shown on the drawings.

3.02 MIXING AND PLACING

- A. Concrete shall be mixed conveyed and deposited in accordance with the "A.C.I. Building Code" (A.C.I.318).
- B. Prior to placing any concrete, the Contractor shall submit for the Engineer's approval a design mix, calculated by a recognized testing laboratory, and using the approved aggregates to produce a workable mix of the desired strength, together with certified copies of 7 days and 28 day tests of cylinders taken from concrete made according to the design mix. The mixes shall be designed to secure concrete having a minimum compressive strength at age 28 days.
- C. Ready-mixed concrete delivered shall be accompanied by delivery tickets showing the following.

1. Date and time leaving plant	Additives(if any)
2. Type of cement and weight	Site arrival time
3. Quantity of Water and time added	Site leaving time
- D. Concrete

1. Ready-mixed concrete shall be used. All mixing requirements specified herein shall be enforced, and the Owner's laboratory representative and the Engineer shall have free access to the mixing plant at all times.
2. Except for materials and/or procedures otherwise specified herein, ready-mixed concrete shall be mixed and delivered in accordance with the requirements of ASTM C94.
3. No water shall be added to the concrete after it leaves the plant except where part of the design water was purposely omitted at the plant, and then only as approved by the Engineer.

E. Mixer Speed

1. Neither the speed of any mixer nor the quantity of material loaded into any mixer shall exceed the recommendations of the manufacturer.
2. Excessive over-mixing, required addition of water to preserve the required consistency, shall be cause of rejection of the batch.
3. Concrete shall not remain in a transit mixer or agitator truck more than 90 minutes after the water has been introduced, and not for more than 45 minutes if any approved retarding agent is not used.
4. Minimum mixing time shall be 50 revolutions of drum at rated speed.

F. Measurement

1. Equipment necessary to determine and control the actual amounts of all materials entering the concrete shall be provided by the concrete manufacturer.
2. All materials shall be measured by weight, except that water may be measured by volume calculated at 8-1/3 pounds per gallon. One bag of cement will be considered as 94 pounds in weight.

G. Mixes

1. Mix Design: Conform to ACI318, Section 4.3. Submit data on consecutive tests and standard deviation.
2. Maximum Water-Cement Ratio:

- .37 (lbs/lb) - Concrete with superplasticizer
- .45 (lbs/lb) - Class A concrete without superplasticizer
- .55 (lbs/lb) - Class B concrete without superplasticizer
- .65 (lbs/lb) - Class C concrete without superplasticizer

3. Air Content: 5 percent plus or minus 1.5 percent (Class A and B).
4. Slump: 4 inches plus or minus 1 inch for Class A and B without superplasticizer. 7 inches plus or minus 1 inch for Class A and B with superplasticizer. 8 inches plus or minus 1 inch for tremie concrete or as specified by details.

H. Placing Concrete.

1. All concrete shall be placed in clean, damp forms that are not hot to the touch.
2. To prevent segregation, concrete shall be deposited as nearly as practicable in final position and not allowed to drop freely more than necessary and in no case more than five feet, except in an approved funnel or tremie. All concrete shall be placed during daylight unless otherwise authorized at least four hours in advance. Where the reinforcing steel above the top of the concrete being placed becomes coated with laitance or partially set-up concrete, all such concrete shall be removed from the reinforcing steel prior to placing concrete around the bars.
3. Concrete shall be packed carefully and tightly around pipe and other items to secure maximum adhesion.
4. Concrete shall be placed in layers not over 12 inches deep before compacting. Concrete shall be compacted by internal vibrating equipment supplemented by spading and hand-rodding between reinforcing steel and form to eliminate air bubbles and honeycomb. Vibrators shall not be used to move the concrete laterally inside the forms. Duration of vibration shall be limited to the time necessary to provide satisfactory consolidation without causing segregation, not less than five and more than 15 seconds per square foot of exposed top surface. The vibrator shall be constantly relocated and shall be placed in each specific spot only once for each layer. The Contractor shall take steps to assure that sufficient personnel are available to devote full time to operating vibrator, spading and rodding.

5. Wall concrete shall be placed in layers as indicated above, with the first lift preceded by a 1-inch minimum layer of 1:2-1/2 cement-sand grout, with a 6-inch to 8-inch slump, placed on existing concrete not more than 20 minutes before concrete placement. The surface of previously placed hardened concrete shall be clean and wet before grouting, or shall be treated with a bonding agent as required. Puddles of water in horizontal recessed keys shall be avoided by the use of drain recesses to outside edge of concrete. Concrete in walls and deep beams shall be placed in lifts not to exceed three layers at 12 inches each for the full length of the pour before proceeding higher. The placing of concrete shall not be delayed more than 20 minutes between layers or lifts.

3.03 CURING AND PROTECTION

A. Curing:

1. Immediately after surface defects have been repaired, apply a spraycoat of curing compound to all exposed surfaces, including slabs, walls, beams and columns in accordance with the manufacturer's recommendations. Protect exposed steel keyways and other embedded items from the curing compound. Water cure, as specified in paragraph B hereunder, all concrete surfaces that are to be exposed to wastewater, surfaces that are to be coated with a coal tar epoxy system, and concrete floors requiring a bond for special finishes.
2. Do not apply compound during periods of rainfall. Should the film become damaged from any cause within the required curing period, immediately repair the damaged portions with additional compound. Upon removal of forms, immediately coat the newly exposed surfaces to provide a curing treatment equal to that provided for the surface.
3. Curing and Sealing Compound: Use clear compound conforming to Federal Specification TT-C-800A, 30% solids content minimum, having test data from an independent laboratory indicating a maximum moisture loss of 0.030 grams per sq. cm. when applied at a coverage rate of 300 sq. ft per gallon, and equal to Super Floor Coat or Super Pliocure by The Euclid Chemical Company or Masterseal 66 by Master Builders. Furnish manufacturer's certification as required.
4. Apply specified clear curing and sealing compound to all horizontal areas so noted on the Drawings or in the Specifications. Apply immediately after final finishing. Apply this compound to non-structural construction joints of slabs on grade to act as a bond breaker prior to placement of adjacent concrete.

- B. Water Curing Method: Cure all concrete that is to be water cured by either the wet burlap method, by continuous fogging or by covering the waterproof sheet.
1. Wet Burlap Method: Cover concrete surface with a double thickness of burlap, cotton mats, or other approved materials, kept thoroughly saturated with water. Keep the forms wet until removed and upon removal, start the curing specified herein immediately. Cure the concrete for a period of 7 days for normal Portland cement or 4 days for high early strength cement. Do not submerge concrete poured in the dry until it has attained sufficient strength to adequately sustain the stress involved and do not subject it to flowing water across its surface until it has cured 4 days.
 2. Continuous Fogging: Perform continuous fogging by fogging with a nozzle which so atomizes the flow of water that a mist, and not a spray, is formed. Fog the concrete surface regularly without allowing any part of the surface to become dry. Take all necessary precautions to prevent erosion of the concrete surface by water.
 3. Covering the Waterproof Sheets: Keep the entire area to be cured continuously wet by fogging, as specified in the fogging paragraph above, for at least 18 hours and then immediately cover the waterproof curing sheet conforming to ASTM C171, waterproof paper and polyethylene film, free of holes or tears. Keep sheet fully flat, without wrinkles or air bubbles, held down tautly at all edges. Do not use this method on slabs which will be exposed to view.

3.04 PLACING REINFORCEMENT

- A. All reinforcement shall be detailed, fabricated and erected in accordance with the A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structure", (A.C.I. 315), including bar supports and spacers. At splices all reinforcing bars shall be lapped a minimum of twenty-four (24) bar diameters but not less than twelve (12) inches.
- B. The reinforcing shall be fabricated to the shapes and dimensions shown and shall be placed where indicated on the drawing. Before placing, all reinforced steel shall be thoroughly cleaned of rust, mill scale or coatings, which would reduce or destroy the bond. Reinforcing bars shall conform to the requirements of the latest editions of the A.C.I. Code and the CRSI Manuals.
- C. Wire mesh, unless otherwise shown on the drawings or specified, shall be 6" x 6" No. 10 woven or electrically welded wire fabric conforming to the requirements of ASTM Designation A185, latest revision.

- D. Space chairs and bolsters in accordance with ACI 315 and 318 using height to furnish cover over reinforcing required. Chairs with plastic feet or stainless steel shall be used in all beams and elevated slabs. Chairs for other concrete adjacent to or on the ground may be pieces of concrete block or concrete brick compressed into subgrade with the rebars bearing directly on the pointed edge of the masonry supports, or chairs set on precast concrete pads compressed into the subgrade.
- E. When placed in the forms, reinforcement shall be clean and free of all loose rust, scale, dust, dirt, paint, oil or other foreign material, and shall be accurately and securely positioned both laterally and vertically before placing concrete.
- F. The rebars shall be fastened together at every intersection or at intervals not greater than 24 bar diameters by wire ties or by some alternate method acceptable to the Engineer. In areas where large bars are closer together, the wire ties may be spaced not more than 30 bar diameter apart, rather than as specified above.

3.05 FORMS

- A. Installation and erection shall be in accordance with ACI347 and specified hereinafter.
- B. Forms shall conform to shape, lines and dimensions of numbers indicated, and shall be sufficiently tight to prevent leakage of mortar. They shall not deflect under dead load weight of construction as a liquid or of construction load. Forms shall be properly braced or tied together so as to maintain position and shape within specified tolerances. Construct forms so that they can be removed steadily without hammering or prying against the concrete. Forms for exposed concrete shall be carefully made and accurately placed to obtain correct shape and line.
- C. Forms shall be of wood, metal, or other approved materials. Metal forms shall be of a type and manufacture acceptable to the Engineer. Plywood, fiberboard, or absorptive type form linings may be used where appropriate. Sectional forms shall produce a uniform surface and shall be assembled in a modular pattern. Pours will not be scheduled until all erection and bracing is complete. Walers, ties and braces shall be required for all forms. Chamfer strips made from nominal dimensional 1" x 1" lumber cut on the diagonal shall be installed at the top of the forms on all exposed edges of walls, slabs, beams and other structures above grade.
- D. Drip edge shall be made from wood quarter round and installed where shown. Extruded plastic fillets shall be used where detailed. Circular structures shall be

formed with special care, and attention to the appearance of the finished structure. Random location of fillers, non-modular sections, and excessive deviations from true circular segments shall be cause for rejection of the forms.

- E. The Contractor shall be fully responsible for the adequacy of form work in its entirety. Forms shall support required loads and shall maintain their dimensional and surface correctness to produce members required drawings.
- F. Slots, chases, recesses or other openings as shown on the drawings or as needed for the work of any other trades shall be boxed out.
- G. Box out for all temporary openings and build forms to seal them up when and as required.
- H. After sealing and immediately before the placing of reinforcing, faces of all forms in contact with the concrete shall receive a thorough coating of the liquid form releasing agent, applied in compliance with the Manufacturer's instructions.
- I. Reused forms shall be thoroughly cleaned out of dirt, debris, concrete and foreign matter. Forms shall not be reused if they have developed defects which would affect their tightness and strength or desired surface finish. Used forms shall not be used for architectural concrete.
- J. Forms shall be removed in a manner that will prevent injury to concrete. Supporting forms or shoring shall not be removed until the members have acquired sufficient strength to support their weight and any load thereon.
- K. Removal shall be in sequence as approved by the Engineer. Unless test cylinders warrant another procedure, the forms shall not be removed from members prior to the time listed in the schedule hereinafter unless otherwise directed.
- L. Bonding To Existing Surfaces: Clean existing concrete surfaces that are to have new concrete bonded thereto of all grease, oil, dust, dirt and loose particles and coat with an epoxy bonding agent just prior to placing of the new concrete. Apply the bonding agent as recommended by the manufacturer and allow the agent to become tacky before the new concrete is placed. Do not allow the bonding agent to overlap or be spilled on the surfaces to be exposed after the work is completed.

3.06 FORM REMOVAL

- A. Maintain formwork in place for the following structural conditions until the concrete has attained the minimum percentage of indicated design compressive strength or for the period of time specified in the following table.

Note: Time periods in the table include all days except those in which the temperature falls below 40 degrees F.

3.07 CONCRETE FINISHINGS

A. Repair of Surface Defects:

1. General: Repair surface defects, including tie holes immediately after form removal. Dampen the area to be patched and an area at least 6 inches wide surrounding it to prevent absorption of water from the patching mortar. Notify the Engineer prior to commencing operations.
2. Removal of Defective Concrete: Remove all honeycombed and other defective concrete down to sound concrete. Cut edges perpendicular to the surface or slightly under cut. Sand blast surfaces to receive repair.
3. Bonding Grout: Thoroughly dampen surfaces to be patched and apply a coat of bonding grout consisting of one part cement to one part fine sand passing a No. 30 sieve and having the consistency of thick cream.
4. Placing Patching Mortar: After the bonding grout begins to lose its water sheen, apply a premixed patching mortar, thoroughly consolidating it into place and striking it off so as to leave the patch slightly higher than the surrounding surface. Leave mortar undisturbed for one hour to permit initial shrinkage and then finally finish.
5. Tie Holes: After being cleaned and thoroughly dampened, fill the tie holes solid with patching mortar.

B. Floated Finish: After concrete has been placed, consolidated, struck off and leveled, do not work the surface further until water sheen has disappeared and the surface has hardened sufficiently to permit floating. During the first floating, check the planeness of the slab with a 10 foot straightedge applied at no less than two angles. Cut down all high spots and fill all low spots to produce a surface having the required tolerance. Then refloat the slab to a uniform sandy texture.

C. Light Broomed Finish: After floating, power trowel slabs to receive a light broomed finish to produce a smooth surface, relatively free of defects. Before the surface sets, pass a soft broom drag over the surface to produce a surface uniform in texture and appearance.

D. Troweled Finish: After floating, power trowel slabs to receive a troweled finish to produce a smooth surface, relatively free of defects. Hand trowel after the surface has hardened sufficiently. When a ringing sound is produced as the trowel is moved over the surfaces, perform final troweling by hand to produce a

surface which is thoroughly consolidated, free from trowel marks, uniform in texture and appearance and plane to a tolerance of 1/8 inch of 10 feet as determined by a 10 foot straightedge placed anywhere on the slab in any direction.

- E. Hardener Finish: Where indicated to receive a troweled hardener finish, water cure slabs without application of curing and sealing agent. When slab is at least 20 days old and thoroughly dry, apply the hardener in accordance with the manufacturer's recommendations. Where dry-shake hardener or slip resistant finish is required, apply the hardener or slip-resistant product prior to complete curing and finishing, in accordance with the requirements and recommendations of the product manufacturer.
- F. Saw Cut Joints: Cut joints that are to be saw cut not sooner than 2 hours after the concrete is poured and not later than 8 hours after the pour.

3.07 TESTS

- A. Compressive strength tests shall be made by breaking standard 6-inch diameter by 12-inch high test specimens prepared, cured and broken in accordance with the American Society for Testing Materials Methods C-31 and C-39, latest revision. Four specimen test cylinders shall be taken from each pour of five (5) cubic yards or more. One additional test shall be taken from each thirty (30) cubic yards or fraction thereof in each pour in excess of thirty (30) cubic yards.
- B. Test specimens shall be taken from manhole bottom pours of less than five (5) cubic yards as directed by the Engineer. Test specimens shall be taken in the presence of the Engineer. One cylinder from each pour shall be broken at seven (7) days, the remainder at twenty-eight (28) days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.
- C. Slump test shall be made in accordance with ASTM C143, latest revision, and shall be made with each load and at time of cylinders.
- D. The Contractor shall supply all cylinder molds, slump cones, tools and labor for preparing specimen, and shall provide clean, moist sand or burlap for curing. Cylinder shall not be shipped to the testing laboratory until the third day following preparation, and shall be protected from accidental damage at all times.
- E. The test cylinders shall be tested in a recognized commercial testing laboratory at the expense of the Contractor.

3.08 EXPANSION JOINTS, CONSTRUCTION JOINTS AND WATER SPOTS

- A. Expansion Joints shall be placed as indicated on the drawings. Joint materials for surfaces exposed to water and sewage shall conform to ASTM D175, Preformed Joint Filler, non-extruding and resilient (bituminous type), thickness as shown on the drawings. Joint materials for isolation joints, slab-on-grade joints and wall joints not exposed to water and sewage shall conform to ASTM D994, preformed expansion joint filler for concrete (bituminous type), thickness as shown on the drawings.
- B. Construction Joints shall be located in accordance with a schedule of pours which shall be prepared and submitted by the Contractor. Vertical construction joints shall be held to the minimum number consistent with good standard practice.
- C. Water Stops. Material for water stops shall be 9-inch PVC multi-rib center-bulb type for expansion joints, and 1/4" x 4" and 1/8" x 4" structural steel sheets for construction joints. PVC joint material shall be as manufactured by The Burke Company, or approved equal.

END OF SECTION

03100-14

SECTION 03300 CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Work consists of the forming, mixing, placing and curing concrete for use in small structures, sidewalk, and curb replacement.

1.02 QUALITY ASSURANCE

A. Concrete may be standard design and product of commercial ready-mix or transit-mix supplier conforming to the following requirements:

<u>Class</u>	<u>Cement Content per cubic yard</u>	<u>Minimum 28-day Strength (lb. per sq. in.)</u>
Structural	6.25 bags or 600 pounds	4000
Non-Structural	5.75 bags or 560 pounds	3000

B. Job mixes of small quantities shall conform to the same requirements.

1.03 SUBMITTALS

A. Compressive strength tests, when required by the Engineer, shall be made by breaking standard 6-inch diameter by 12-inch high test specimens prepared, cured and broken in accordance with the ASTM C31 and C39. Three specimen test cylinders shall be taken from each concrete pour of three cubic yards. One additional test cylinder shall be taken for quantities up to one truck load. Test specimens shall be taken in the presence of the Engineer. One cylinder from each pour shall be broken at seven days, the remainder at twenty-eight days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.

B. Slump test shall be made in accordance with ASTM C143, and shall be made whenever directed by the Engineer.

C. Responsibility for Tests and Reports:

1. The Contractor shall supply all cylinder molds, slump cones, tools and labor for preparing specimens, and shall provide clean, moist sand or burlap for curing. Cylinders shall be shipped to the testing laboratory until the third day following preparation, and shall be protected from accidental damage at all times.

2. The test cylinders shall be tested in a recognized commercial testing laboratory.

1.04 DELIVERY AND STORAGE

A. Ready-mixed concrete delivered shall be accompanied by delivery tickets showing the following:

Date and time leaving plant
Type of cement and weight
Quantity of water and time added
Additive (if any).

B. Bulk or bagged cement or bagged concrete mix shall be stored off the ground in a sheltered area.

PART 2 - PRODUCTS

2.01 CEMENT

A. Portland cement shall conform to the latest revision of Federal and/or ASTM Specifications enumerated below:

1. For general concrete construction, ASTM C150, Type I.

2. Type II (meeting ASTM C150) cement shall be used in all areas where the concrete will be subjected to a hydrogen sulfide environment (i.e., direct contact with groundwater).

2.02 AGGREGATES

A. Fine Aggregate:

1. Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand.

2. The fine aggregate shall be reasonably well graded from coarse to fine.

B. Coarse Aggregate:

1. Coarse aggregate shall be washed and consist of hard, tough, durable components, free from adherent coatings, salt, alkali, vegetable matter, and shall not contain an excessive number of soft, friable, thin or elongated particles. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of the desired strength, density, and workability.

2. Where the cover over reinforcing is two inches or more, the maximum size of aggregate shall be 1-1/2 inches. Where the cover over reinforcing is less than two inches, the maximum size of aggregate shall be 3/4-inch. The maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars.

2.03 BAGGED CONCRETE MIX

A. For very small amounts of concrete a premixed sand, gravel and cement in 40 lb. (1/3 cu. ft.) or 80 lb. (2/3 cu. ft.) bags may be used. The Engineer must give approval for its use.

2.04 ADMIXTURES

A. The design mix may be based upon the use of such admixtures as the designer may select to improve the workability, plasticity or rate of curing of the concrete.

2.05 MIXING WATER

A. The water used in mixing concrete shall be fresh, clean and free from injurious amounts of oil, acid, alkali, or organic matter.

B. Water from any source other than a municipal water supply shall be shown by test to comply with Florida State Department of Transportation requirements for mixing water.

2.06 STEEL BAR AND WIRE FABRIC REINFORCEMENT

A. The reinforcing shall be fabricated to the proper shapes and dimensions. Before placing, all reinforcements shall be thoroughly cleaned of rust, mill scale and/or coatings.

B. Reinforcing bars shall conform to the requirements of ASTM A615, Grade 60 including hoops and stirrups.

C. Reinforcing steel shall be detailed, fabricated and placed according to the methods and standards recommended in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" of the American Concrete Institute.

D. Splices in reinforcing mats shall be staggered. Horizontal mats shall be supported on metal chairs with all sills or pads below subgrade. Spacers shall be provided for wall and column steel and shall be removed as the concrete is placed.

E. Wire fabric, unless otherwise shown or specified, shall be 6-inches by 6-inches by W1.4 x W1.4 woven or electrically welded wire fabric conforming to the requirements of ASTM A185.

PART 3 - EXECUTION

3.01 FORMS

A. Material:

1. Forms shall be of wood, metal, or other approved materials, shall be built true to line and grade, mortar-tight, adequately braced and supported, and sufficiently rigid to prevent

displacement or sagging. Metal forms shall be of a type and manufacture acceptable to the Engineer. Plywood, fiberboard, or absorptive type form linings may be used where appropriate.

2. Form work shall be constructed conforming to AC1 347 Chapter 2. Joints of sectional forms shall be located in a modular manner with as few fillers as possible. Voids in plywood and joints between form modules used for concrete exposed to view or hydraulic action shall be filled with silicone sealant and shall be tool smooth. Profile items such reglets and anchors shall be securely fastened with flush mechanical fasteners.

3. Pours shall not be scheduled until all erection and bracing of form work has been completed.

3.02 CONCRETE PLACING

A. Concrete shall not be placed until forms and reinforcing have been inspected.

B. Concrete shall be placed with the aid of mechanical vibrating equipment supplemented by hand forking or spading. Vibration shall be transmitted directly to the concrete and not through the forms. The duration of vibration at any location in the forms shall be held to the minimum necessary to produce through consolidation.

C. Concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner as to prevent segregation of the coarse aggregate.

D. Before depositing new concrete on or against concrete which has set, the existing surfaces shall be cleaned of all laitance, foreign matter and loose particles, and slushed with a neat cement grout. Grout for horizontal construction joints shall be of cement and fine aggregate in the same proportions as in the concrete to be placed, and shall be from 1/2- to 1-inch thickness.

E. The concrete shall be placed by suitable equipment as nearly as possible to its final location and without any segregation of the aggregate. Free vertical drop shall not exceed three feet.

3.03 CONCRETE CURING

A. Water for curing shall be clear and entirely free from any elements which might cause staining or discoloration.

B. Concrete shall be kept wet by covering with water, water saturated covering, or by alternate methods which will keep all surfaces continuously wet, for a period of seven days.

C. Where wood forms are left in place during curing, they shall be kept wet at all times.

3.04 WEATHER PROTECTION

A. No concrete shall be mixed or placed when the air temperature in the shade and away

from artificial heat is as low as 40 degrees F., and falling. Concrete may be mixed and placed when the air temperature in the shade and away from artificial heat is 35 degrees Fahrenheit, and rising.

B. Fresh concrete shall be protected from rain, flowing water and mechanical injury.

3.05 CONCRETE FINISHING

A. Slabs, Walks and Pavements shall be brought to a true and even finish by power or hand-floating. The surface shall be floated to a true, smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface. All walk and pavement surfaces, shall, immediately after troweling, be lightly broomed. The brooming shall be sufficient to mark the surface without appreciably disturbing the troweled finish.

END OF SECTION

SECTION 10530
PREFABRICATEDSHELTERS

PART 1 – GENERAL

1.01 SUMMARY

- A. Design, fabrication, finishing, and delivery of pre-engineered, glue laminated wood, factory- fabricated site shelter.
- B. Site work related to installation, by Contractor or Owner, including:
 - 1. Unloading and temporary storage, if any.
 - 2. Soil testing, if necessary.
 - 3. Site preparation.
 - 4. Column foundations, rebar, anchor bolts, and anchor embedment.
 - 5. Concrete slab and embedment.
 - 6. Erection
 - 7. Field touch up painting of factory finishes, if necessary.
- C. Site access for delivery vehicles shall be provided by Owner.
- D. Related Sections: Section 03300 – Cast-In-Place Concrete: Concrete footings and slabs.

1.02 DESCRIPTION

- A. Scope
 - 1. The work under this section shall include the complete fabrication, furnishing and installation of prefabricated wood shelters as indicated on the drawings and as specified herein.
 - 2. Include all supplementary parts necessary or required for a complete and satisfactory installation within the meaning and intent of the drawings. All individual components of the shelter system shall be of the manufacturer specified or approved equal.
 - 3. Design shall meet or exceed applicable building codes.

4. Pre-Engineered, pre-fabricated packages shall include laminated wood beams, laminated wood columns, T&G wood roof deck, wood fascia, and column to beam connection fasteners.
5. Pre-engineered, pre-fabricated package shall be designed as a fixed base, heavytimber construction structure. Superstructure components (columns, beams, & connection) shall be factory pre-cut and pre-drilled. Roof deck shall be delivered in specified lengths such that joints occur over beams for minimal cutting, Fascia and nailer shall be delivered in industry standard lengths and field cut by installer.
6. Field labor required to install the pre-fabricated parts. Structure is shipped knocked down. Onsite welding shall not be required or permitted.

1.03 REFERENCE STANDARDS

- A. American National Standard for Wood Products – Structural Glued Laminated Timber (ANSI A-190.1)
- B. American Institute of Timber Construction (AITC)
- C. American Plywood Association (APA)
- D. Engineered Wood Association (EWA)
- E. American Society of Testing Material (ASTM)
 1. ASTM F593 – Stainless steel bolts, hex cap screws, and stainless studs
 2. ASTM A572 - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
- F. American Institute of Steel Construction (AISC)
- G. American Welding Society (AWS)
- H. Steel Structures Painting Council (SSPC); SSPC-SP10 - Near-White

Blast Cleaning

- I. Leadership in Energy and Environmental Design (LEED)

1.04 WIND LOAD CERTIFICATION

- A. In order to secure the required building permit, the contractor shall be required to submit wind load calculations certified by a professional engineer registered in the State of Florida for the installation. Signed and sealed engineering data shall be supplied to verify the load carrying capacities of the structures. Structures shall be designed with a minimum live load of 30 psf, a minimum wind resistance of 140 mph, exposure B.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State where the Project is located.
- B. Obtain shelter packages as complete, pre-engineered (pre-cut and pre-fabricated) packages, including necessary erection accessories, fittings and fastenings from a single source of manufacturer.

1.06 SUBMITTALS

- A. Minimum 5 sets of shop drawings, showing all details of construction, including foundation sizes, reinforcement, and locations. Drawings shall be furnished on minimum 22" x 34" paper. Prints on ledger, legal or letter size paper are unacceptable.
- B. Provide the licensed professional engineer's state stamp or seal on the shop drawings.
- C. Provide the licensed professional engineer's state stamp or seal on the structural calculations.
- D. Selection Samples: For each finish product specified, color charts representing manufacturer's full range of available colors.
- E. Warranty
 - 1. Provide minimum five-year warranty against manufacturer defects.
 - 2. Provide roofing manufacturer's limited warranty.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Individually wrap factory-finished structural components in fiber reinforced paper to protect the finish during transit.
- B. Wood roof deck shall be load wrapped and banded together in bundles that do not exceed 2,000 lbs.

- C. Shipped knocked down for minimal shipping charges.
- D. Deliver products to project site in manufacturer's protective packaging.
- E. Follow shelter manufacturer's recommendations and instructions, including those printed on the shop drawings. To minimize damage during unloading, use only padded forks or non-marring slings.
- F. Prefinished materials not being immediately installed must be protected from sunlight.
- G. Store products in manufacturer's unopened packaging well off the ground and covered out of weather until ready for installation.

1.08 JOB CONDITIONS

- A. Stake out location of shelters and have reviewed by Professional prior to construction.
- B. Coordinate footing placement with paving or lawn placement.
- C. Install materials and systems in accordance with adjacent construction and uniform appearance. Coordinate construction with other trades.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Model: LW-GWWLL-0P as manufactured by RCP Shelters, Inc.
- B. Size and dimensions
 - 1. Shape: rectangle
 - 2. Dimensions: 24' x 36' (reference preliminary drawings)
 - 3. Roof Style: gable
 - 4. Roof Pitch: P:12
 - 5. Eave Height: minimum clearance at eave or beneath ornamentation shall be 7'-6"
 - 6. Quantity: 1

- C. Substitutions: Products other than specified must request in writing to Architect and receive approval, in writing, by addendum at least ten (10) days prior to the bid date. Unapproved alternates will not be allowed. See Instructions to Bidders for further instructions.

2.02 STRUCTURAL COMPONENTS

A. Steel

1. Plates: Stainless steel
2. Fasteners: Stainless steel

B. Glued Laminated Wood

1. Species: Southern Yellow Pine
2. Appearance Grade: Architectural
3. Lamination Thickness: 2" Nominal
4. Adhesive: Resorcinol
5. Stress Combination: 24F-V3
6. Preservation Treatment: CCA 0.4 pcf prior to gluing (columns only)
7. Size: Per engineered drawings

C. Structural Wood Roof Deck

1. Species: #1 grade Southern Yellow Pine, kiln dried
2. Treatment: none
3. Size: nominal 2" x 8"
4. Pattern: center matched, tongue and groove, with veed edges 1 side (EV1S)

D. Fascia

1. Species: C or Better Clear Alaskan Yellow Cedar
2. Size: nominal 2" x 6"

E. Metal Roof System: Galvalume® metal roof panels with exposed fasteners.

1. Profile: Max-Rib
2. Panel Gauge: minimum 26-gauge
3. Panel Width: 3'-0"
4. Panel Length: Precut to the length from the eave to the ridge
5. Panel Orientation: Ribs shall run with the pitch of the roof for proper drainage.
6. Trim: Matching roof trim and fasteners

7. Finish: Factory pre-finished with Kynar 500® paint system; color to be selected by Owner from standard color chart
8. Underlayment:
<https://marcoindustries.com/products/underlayment/hydrashell-max>

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that site earthwork has been performed as required for satisfactory installation.

3.02 PREPARATION

- A. Install footings and columns as specified by shelter manufacturer on approved shop drawings.

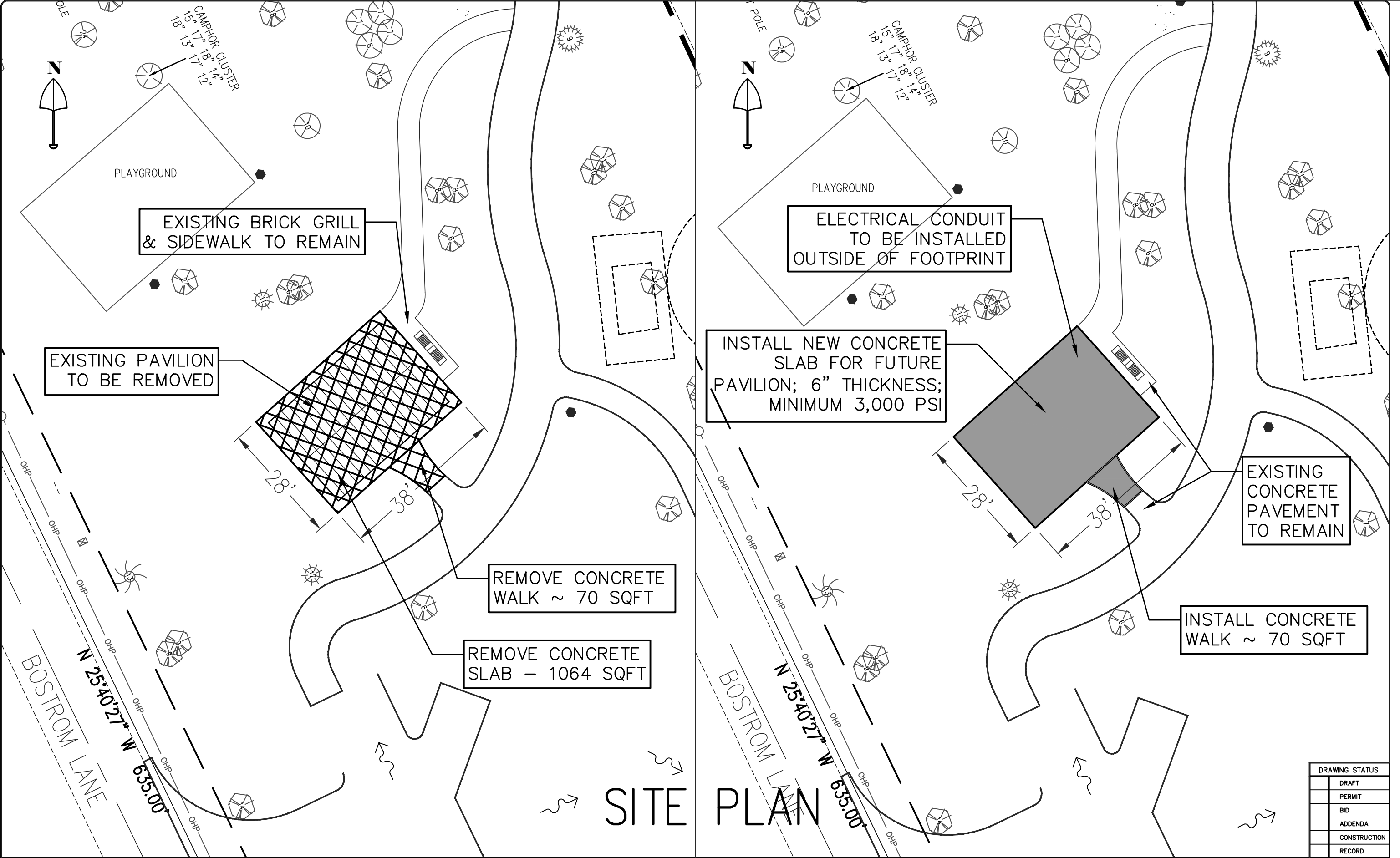
3.03 INSTALLATION

- A. Perform installation in accordance with applicable federal, State, and local building and safety codes.
- B. Structural special inspections, if required, are shall be arranged and paid for by the Contractor or Owner.
- C. Install shelter in accordance with manufacturer's approved shop drawing and good constructions practices.
- D. Install slab in accordance with shelter manufacturer's shop drawings. Slab perimeter dimensions determined by Owner.

3.04 CLEANING AND PROTECTION

- A. Clean installed work to like-new condition.
- B. Protect installed products until completion of project.
- C. Touch-up, repair, or replace damaged finishes before Substantial Completion. Touch up paint provided by manufacturer.

END OF SECTION



NO.	DATE	REVISIONS	BY

City of Ormond Beach
Engineering Division

BILL PARTINGTON, MAYOR
JOYCE SHANAHAN, CITY MANAGER
ALEX SCHUMANN, P.E. CITY ENGINEER

**SOUTH ORMOND
NEIGHBORHOOD CENTER**

PAVILION REPLACEMENT

DATE: 1/10/23	PROJECT NO.:
SCALE: 1"=20'	FILE NAME:
DRAWN BY: MC	SHEET: 1 of 1

DRAWING STATUS
DRAFT
PERMIT
BID
ADDENDA
CONSTRUCTION
RECORD

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.1
Section:	CONSENT AGENDA			
Item Category:	Consent - Disposition Item	Res./Ord. No:		
Strategic Goal:	Water Quality & Environment – Other			
Department :	Public Works - Utilities Management			
Subject:	Intent to Bid - 2022 Water Treatment Plant Improvements			
Budget Impact:	This project was originally included in the FY 2021-22 budget of Fund 409 Water and Wastewater Capital Fund (Renewal and Replacement). If the bid is awarded, a budget amendment will be required to reappropriate funding in the current year.			
Summary:	The 2022 WTP Improvements project was designed by McKim & Creed with the goal of removing and replacing existing mechanical, piping, and electrical equipment in the vicinity of the Aerator and Recarbonation structure. This request is being submitted for approval to place this project out to bid.			
Recommended Action:	Staff intends to publicly advertise this project for competitive bidding, unless otherwise directed by the City Commission.			
Staff Contact:	Bob Preis, Utilities Manager, (386) 676-3305			
Approval:				
Kelly McGuire, Finance Director		1/3/2023		
Claire Whitley, Assistant City Manager		1/31/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Bob Preis, Utilities Manager
Date: February 21, 2023
Subject: Intent to Bid - 2022 Water Treatment Plant Improvements
Commission Goal: Water Quality & Environment – Other

Introduction

This disposition item provides public notice of the City's intent to issue an invitation to bid for the 2022 Water Treatment Plant (WTP) Improvements, Bid Number 2022-15.

Background

During the spring of 2020, an independent consultant conducted a "Water Treatment Plant Condition Assessment Report" for the City of Ormond Beach. The methodology for the evaluation included assessing the physical condition and performance of the components, with consideration given to the amount of maintenance necessary to keep the system components functioning. The evaluation served as a needs assessment, identifying recommended repairs and refurbishing of equipment and systems. The report provided cost estimates and guidelines for prioritization of necessary repairs.

In November of 2020, staff from Utilities Engineering, Operations and Maintenance toured the WTP with an engineer from McKim & Creed, Inc. (McKim & Creed) to verify the recommendations included in the "WTP Assessment Report" and develop an engineering design scope of services. In an effort to mitigate costs, City staff provided the engineer with as-built plans of the existing improvements.

McKim & Creed were subsequently awarded a contract for design services by the City Commission at the January 13, 2021 meeting.

Discussion

Utilizing the WTP Assessment Report, McKim & Creed prepared plans and specifications that will rehabilitate and improve the operation of the water treatment processes at the WTP. Included in this project are plans and specifications for the rehabilitation of the following process components:

- Rehabilitation of the Aerator Structure - The aeration structure is one of the first steps for treatment of raw water in the lime softening process at the WTP. The aeration process occurring at this step is designed to reduce concentrations of hydrogen sulfide, carbon dioxide, and volatile organic compounds in the raw water supply.
- Rehabilitation of the Recarbonation Tank - The recarbonation tank is where pH adjustments are made to the water and initial disinfection occurs, allowing the lime softening process to take place.
- Modifications to the Internal Process Piping Configuration - The existing mechanical, piping, and electrical components which are responsible for transferring raw water from the aeration structure to the recarbonation tank in the treatment process are beyond their intended service life. The WTP Assessment Report, written in 2020, made specific recommendations to the City regarding which components should be replaced as part of the overall improvement project in order to minimize required maintenance activities and improve the overall quality of water produced by the City.

Included with the design plans and specifications is the Volusia County Health Department permit received by the City of Ormond Beach for the modifications proposed with this project. Completion of these improvements will reduce overall maintenance issues for plant personnel and improve compliance with state regulations.

Budget Impact

This project was originally included in the FY 2021-22 budget of Fund 409 Water and Wastewater Capital Fund (Renewal and Replacement). If the bid is awarded, a budget amendment will be required to reappropriate funding in the current year.

Citizen Impact

Maintenance of the WTP components is required in order for the City to remain in compliance with its Florida Department of Environmental Protection Operation Permit. In addition, continuous operation of the WTP is crucial to the City residents who rely on the service of the City's water utility.

Recommendation

Staff intends to publicly advertise this project for competitive bidding, unless otherwise directed by the City Commission.

Attachments:

1. 2022 WTP IMPROVEMENTS-8x11 PLANS
2. 2022 WTP Improvements Specifications

Approvals:



Kelly McGuire, Finance Director

Date: January 03, 2023



Claire Whitley, Assistant City Manager

Date: January 31, 2023



Joyce Shanahan, City Manager

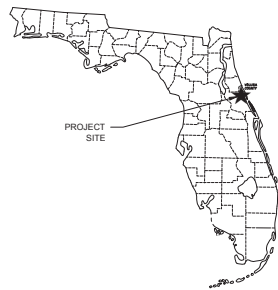
Date: February 15, 2023

2022 WATER TREATMENT PLANT IMPROVEMENTS

MCE PROJ. NO. 010260136

ISSUED FOR BIDDING

APRIL 2022 - NOT FOR CONSTRUCTION



VICINITY MAP

NOT TO SCALE

PROJECT NAME: 2022 WATER TREATMENT PLANT IMPROVEMENTS

OWNER:
CITY OF ORMOND BEACH

PROJECT ADDRESS:
298 TOMOKA AVENUE, ORMOND BEACH, FL



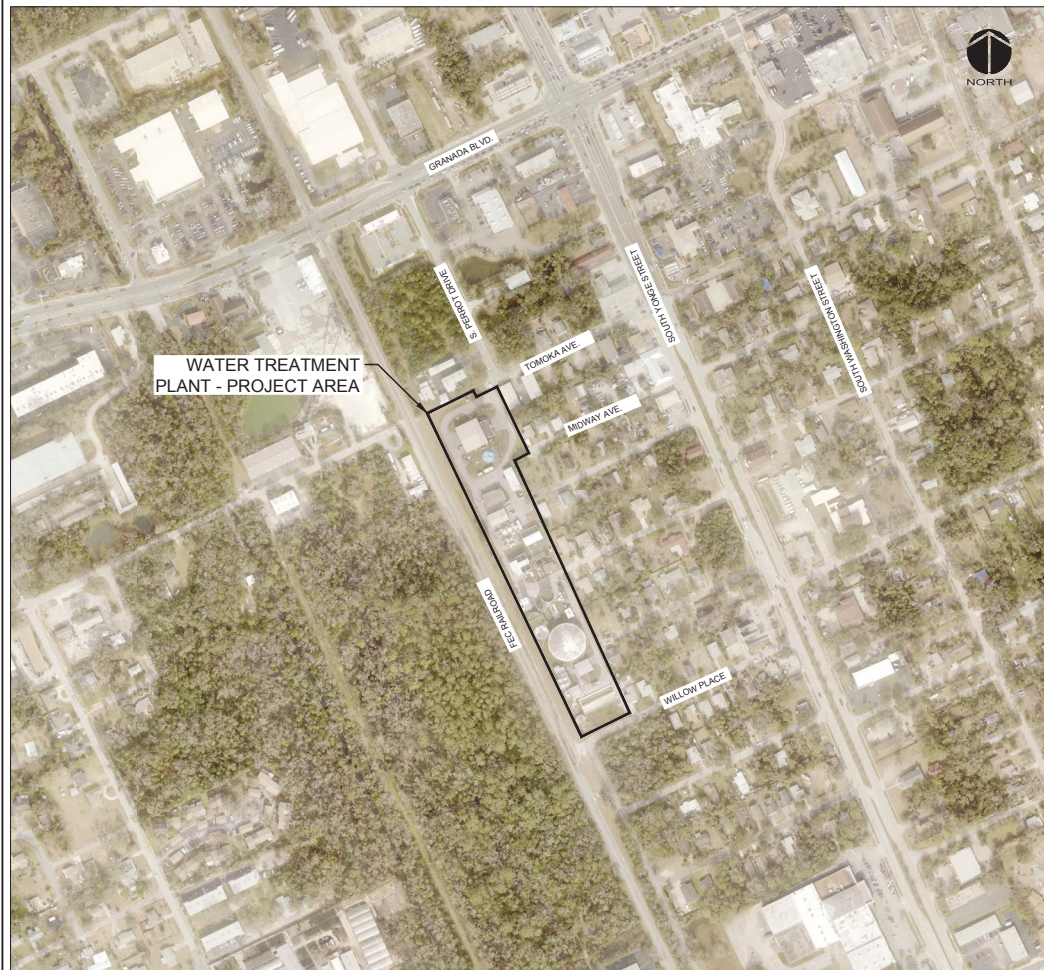
CITY COMMISSIONERS: MAYOR:
BILL PARTINGTON
DWIGHT SELBY
TROY KENT
SUSAN PERSIS
ROB LITTLETON
CITY MANAGER
JOYCE SHANAHAN



139 Executive Circle, Suite 201
Daytona Beach, FL 32114-7102
Phone: (386) 274-2828, Fax: (386) 274-1393

CA Lic. No. 29588
www.mckimcreed.com

PROJECT INFORMATION



SITE MAP

SCALE: 1" = 200'

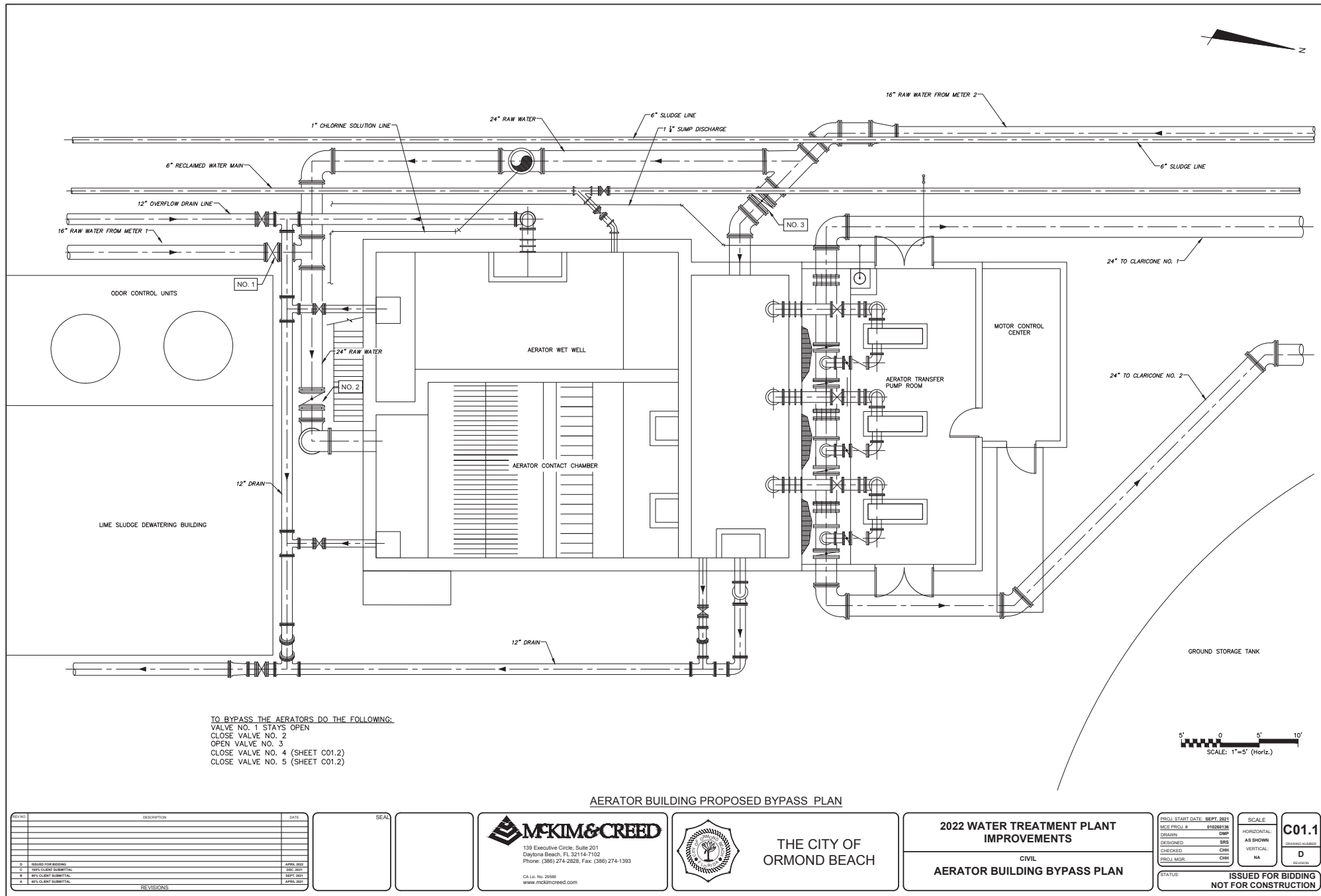
Sheet List Table

Sheet Number	Sheet Title
GENERAL	
G00.1	COVER SHEET
G00.2	SITE PLAN
CIVIL	
C01.1	AERATOR BUILDING BYPASS PLAN
C01.2	AERATOR BYPASS WEST ELEVATION
C02.1	SPLITTER BOX-DISTRIBUTION BOX - BYPASS PIPE PLAN PHASE 1
C02.2	SPLITTER BOX-DISTRIBUTION BOX - BYPASS PIPE PLAN PHASE 2
C02.3	SPLITTER BOX-DISTRIBUTION BOX - BYPASS PIPE PLAN PHASE 3
C02.4	SPLITTER BOX-DISTRIBUTION BOX - BYPASS PIPE PLAN PHASE 4
C03.1	AMMONIA YARD PIPING PLAN
C03.2	AMMONIA TANK RELOCATION AND PIPING
C03.3	AMMONIA FEED SYSTEM IMPROVEMENTS PROCESS FLOW SCHEMATIC
C03.4	AMMONIA FEED SYSTEM IMPROVEMENTS
STRUCTURAL	
S00.1	STRUCTURAL GENERAL NOTES, DESIGN LOADS, DESIGN CRITERIA & LEGEND
S00.2	DISTRIBUTION BOX
S01.1	AERATOR TRANSFER PUMP ROOM PLAN
S01.2	AERATOR TRANSFER PUMP ROOM SECTION
S01.3	AMMONIA TANK RELOCATION PLAN
MECHANICAL	
M01.1	AERATOR BUILDING PLANS
M01.2	AERATOR BUILDING SECTIONS
M01.3	AERATOR TRANSFER PUMP ROOM REMOVAL PLAN
M01.4	AERATOR TRANSFER PUMP ROOM REMOVAL SECTIONS
M01.5	AERATOR TRANSFER PUMP ROOM PROPOSED IMPROVEMENTS PLAN
M01.6	AERATOR TRANSFER PUMP ROOM PROPOSED IMPROVEMENTS SECTIONS
M02.1	SPLITTER AND DISTRIBUTION BOX REMOVAL PLAN AND SECTIONS-PHASE 1
M02.2	SPLITTER BOX PLAN, SECTION AND ELEVATION
M03.1	BELOW GRADE METER IMPROVEMENTS ADDITIVE ALTERNATE
M04.1	ABOVE GRADE METER IMPROVEMENTS ADDITIVE ALTERNATE
M05.1	RECARBONATION TANK IMPROVEMENTS
DETAILS	
D00.1	DETAILS
D00.2	DETAILS
ELECTRICAL	
E00.1	GENERAL NOTES & ABBREVIATIONS
E00.2	ELECTRICAL SYMBOLS I
E00.3	ELECTRICAL SYMBOLS II
E01.1	ELECTRICAL PROPOSED SITE PLAN
E02.1	EXISTING SINGLE LINE DIAGRAM AERATION BUILDING
E02.2	PROPOSED SINGLE LINE DIAGRAM AERATION BUILDING
E02.3	PROPOSED SINGLE LINE DIAGRAM GENERATOR BUILDING
E02.4	ELECTRICAL INTERCONNECT DIAGRAM I
E02.5	ELECTRICAL INTERCONNECT DIAGRAM II
E03.1	SCHEDULES & TABLES
E04.1	ELECTRICAL SCHEMATIC BLOWER RVSS
E04.2	ELECTRICAL SCHEMATIC PUMP VFD
E05.1	ELECTRICAL DETAILS I
E05.2	ELECTRICAL DETAILS II
E05.3	ELECTRICAL DETAILS III
E06.1	AERATION AREA ELECTRICAL PLAN
E06.2	AERATION BUILDING ELECTRICAL PLAN
E06.3	FLOW METER ELECTRICAL PLAN ADDITIVE ALTERNATE
E07.1	MOTOR OPERATED VALVE AREA ELECTRICAL PLAN
E07.2	GENERATOR ELECTRICAL ROOM PLAN
E07.3	AMMONIA TANK ELECTRICAL PLAN
INSTRUMENTATION	
I00.0	GENERAL NOTES AND SYMBOLS
I00.1	ABBREVIATIONS AND DETAILS
I01.0	COMMUNICATION NETWORK DIAGRAM
I02.0	P&ID AERATION TANKS
I02.1	P&ID AERATION PUMPS
I02.2	P&ID CLARICONE SOFTENER FLOW METERS
I02.3	P&ID RECARB AND SPLITTER BOX VALVES
I02.4	P&ID AMMONIA FEED SYSTEM

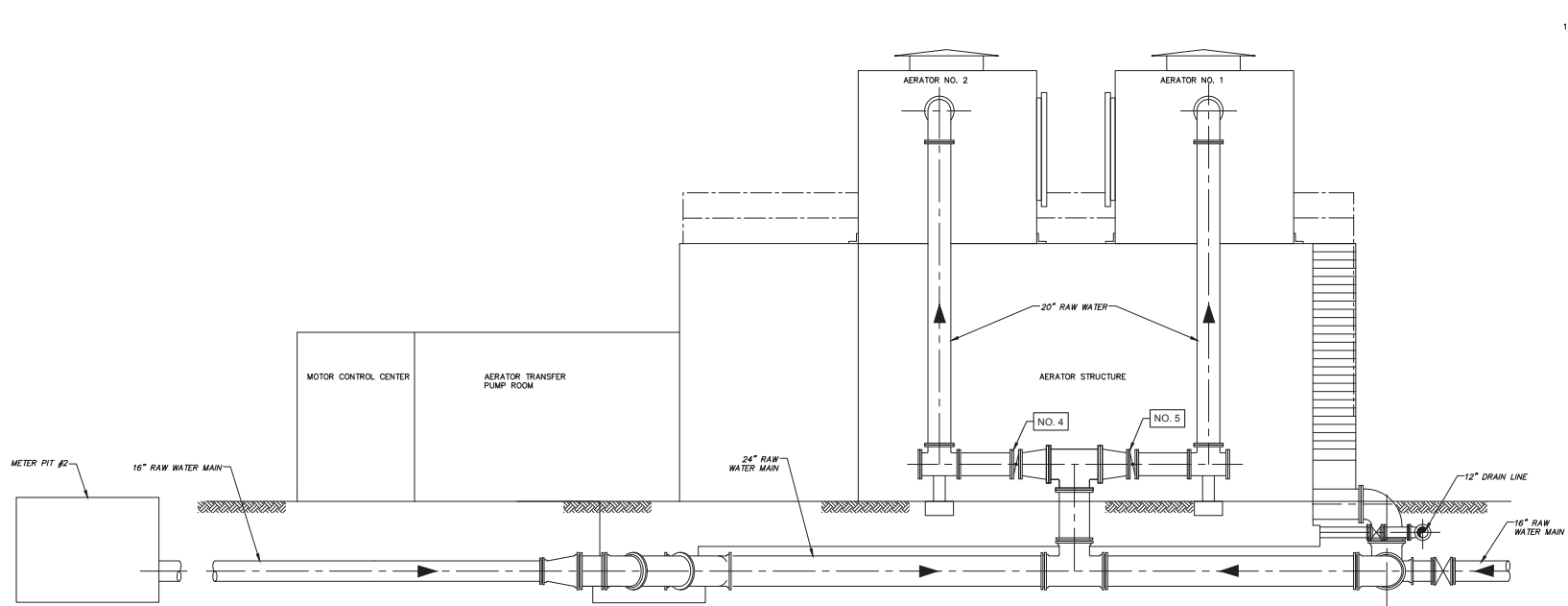
I:\010260\010260136\ENG\00-DRAWINGS\GENERAL\0001-010260136.DWG - 04/13/2022 15:40:32 DOREEN PADGETT

PROJ. NO. 010260136 2022 WATER TREATMENT PLANT IMPROVEMENTS

PROJECT START DATE: SEPT. 2021



I:\01026\0136\ENG\BO-DRAWINGS\CIVIL\C01.2 YARD PIPING PLAN AERATOR.DWG 04/13/2022 15:42:04 DOREEN PADGETT



AERATOR BUILDING - WEST ELEVATION
1/4"=1'-0"

REV NO	DESCRIPTION	DATE
D	ISSUED FOR BIDDING	APRIL 2022
C	RFP CLIENT SUBMITTAL	OCT 2021
B	RFP CLIENT SUBMITTAL	SEP 2021
A	RFP CLIENT SUBMITTAL	APRIL 2021

REVISIONS

SEAL

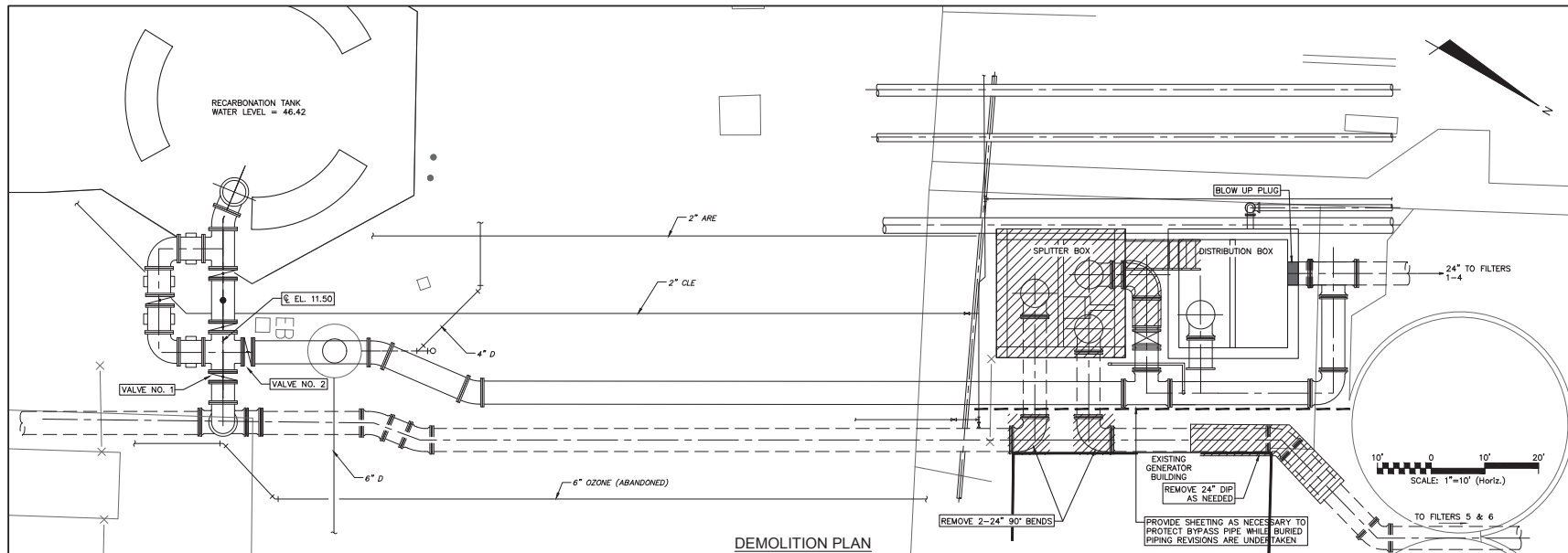


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2022 WATER TREATMENT PLANT IMPROVEMENTS

PROJ. START DATE: SEPT. 2021 MCE PROJ. # 010260136 DRAWN: DMP DESIGNED: SRS CHECKED: CHH PROJ. MGR. CHH	SCALE HORIZONTAL: AS SHOWN VERTICAL: NA	C01.2 DRAWING NUMBER D
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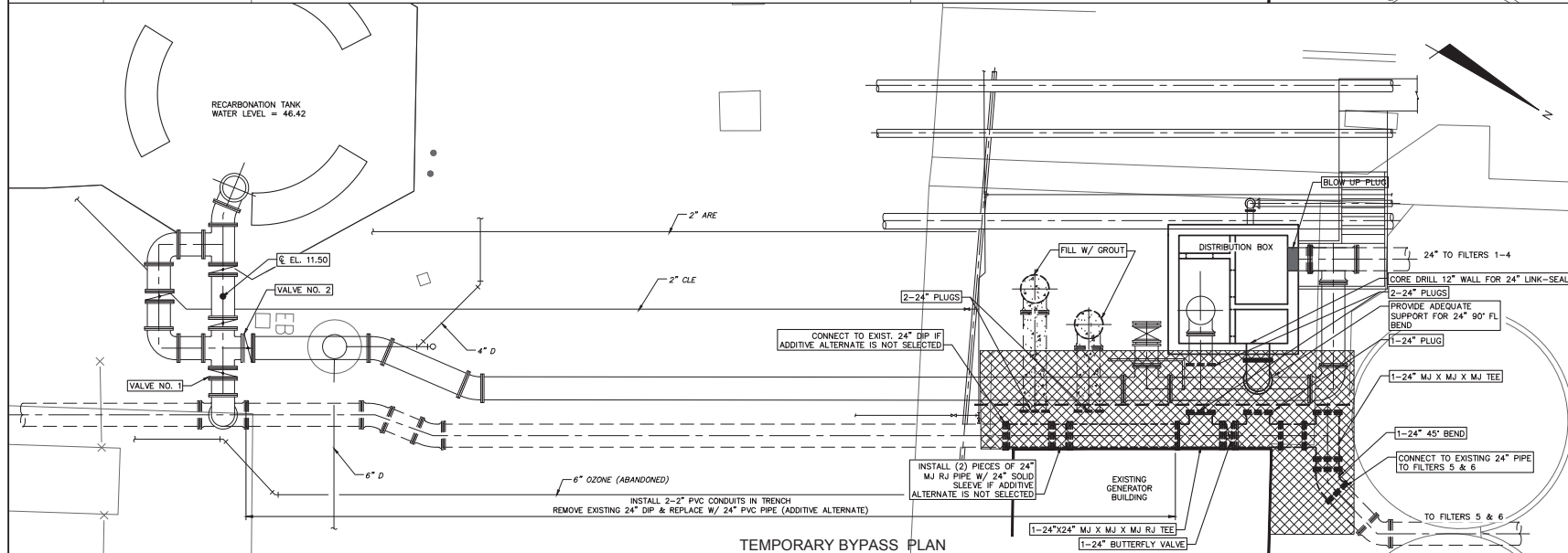


- SEQUENCE OF CONSTRUCTION PHASE 3:
1. MAKE CERTAIN VALVE NO.1 IS CLOSED. REMOVE THE 2-90° BENDS THAT ENTER AND EXIT THE SPLITTER BOX AND INSTALL 2-24" PIECES OF RESTRAINED JOINT DIP AND 1- RESTRAINED JOINT SOLID SLEEVE. ADD 2-24" PLUGS TO THE LINES IN AND OUT OF THE SPLITTER BOX. REMOVE 24" PIPE AND FITTINGS AS NEEDED FOR NEW CONSTRUCTION TO FILTERS 5&6. THIS WORK MAY BE ACCOMPLISHED WHILE THE BYPASS PIPE IS BEING USED. SWAB ALL PIPES AND FITTINGS PRIOR TO ASSEMBLY WITH A 100 PPM CHLORINE SOLUTION.
 2. DEMOLISH SPLITTER BOX, SEE DETAILS ON SHEET M02.1.
 3. WORK WITHIN THE DISTRIBUTION BOX SHALL INCLUDE REMOVAL OF THE CYPRESS PLANK BATTLES AND CONSTRUCTION OF CONCRETE WALLS AT THE LOCATION SHOWN ON THE DRAWINGS. ATTACHED TO THESE NEW WALLS SHALL BE HANDWHEEL OPERATED WEIR GATES THAT WILL ALLOW THE OPERATOR TO RAISE OR LOWER THE WATER LEVEL IN THE BOX.
 4. CORE DRILL THE EAST WALL ON THE DISTRIBUTION BOX AND INSTALL A 24" LINK-SEAL. INSTALL 24" SPOOL PIECE AND 24" 90° BEND; SUPPORT BEND AS REQUIRED.
 5. RAISE THE WALLS OF THE DISTRIBUTION BOX.
 6. IF THE ADDITIVE ALTERNATE IS SELECTED, REMOVE THE EXISTING 24" DIP AND INSTALL THE NEW 24" PVC PIPE AND 2-2" CONDUITS WITHIN THE LIMITS SHOWN ON DRAWING NO C02.3. WITH THIS OPTION NO SOLID SLEEVE WILL BE REQUIRED JOINING THE PIECES OF PIPE ADJACENT TO THE SPLITTER BOX. SWAB ALL JOINTS OF THE PVC PIPE AND FITTINGS PRIOR TO ASSEMBLY WITH A 100 PPM CHLORINE SOLUTION.
 7. INSTALL 3-24"x24" TEES, 1-24" BUTTERFLY VALVE, 1-24" 45° BEND AND 24" SPOOL PIECES. MAKE CONNECTION TO THE PIPE FEEDING FILTERS 5 & 6. PRIOR TO ASSEMBLY AND CONNECTIONS, SWAB ALL PIPE, FITTINGS AND VALVES WITH A 100 PPM CHLORINE SOLUTION.

LEGEND

REMOVE

ALL BELOW GRADE EXISTING PIPE IN SHADED AREA WILL REQUIRE DEWATERING EQUIPMENT AND SHEETING



REVISION	DESCRIPTION	DATE	SEAL
1	ISSUED FOR BIDDING	APRIL 2022	
2	100% CLIENT SUBMITTAL	SEP. 2021	
3	90% CLIENT SUBMITTAL	SEPT. 2021	
4	80% CLIENT SUBMITTAL	APRIL 2021	

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THE CITY OF
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2022 WATER TREATMENT PLANT
IMPROVEMENTS

CIVIL
SPLITTER BOX-DISTRIBUTION BOX -
BYPASS PIPE PLAN PHASE 3

PROJ. START DATE: SEPT. 2021

MCE PROJ. # 010260136

DRAWN: DWP

DESIGNED: SRS

CHECKED: CHR

PROJ. MGR: CHR

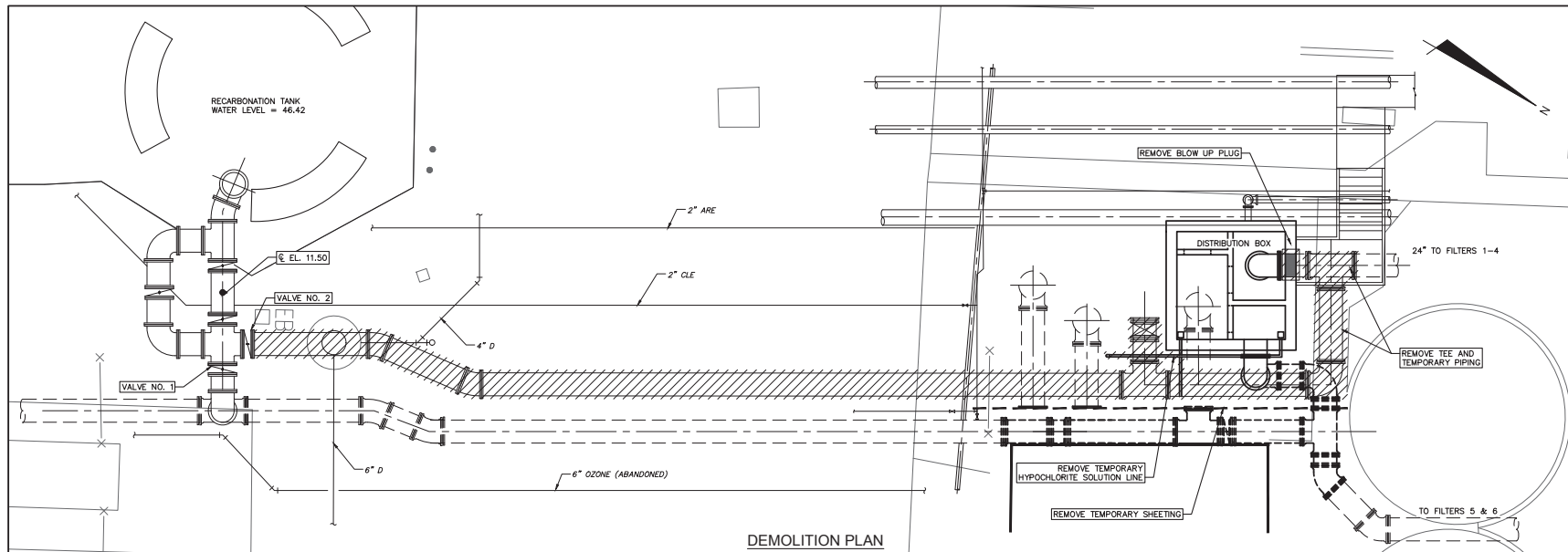
SCALE: HORIZONTAL: AS SHOWN, VERTICAL: NA

C02.3

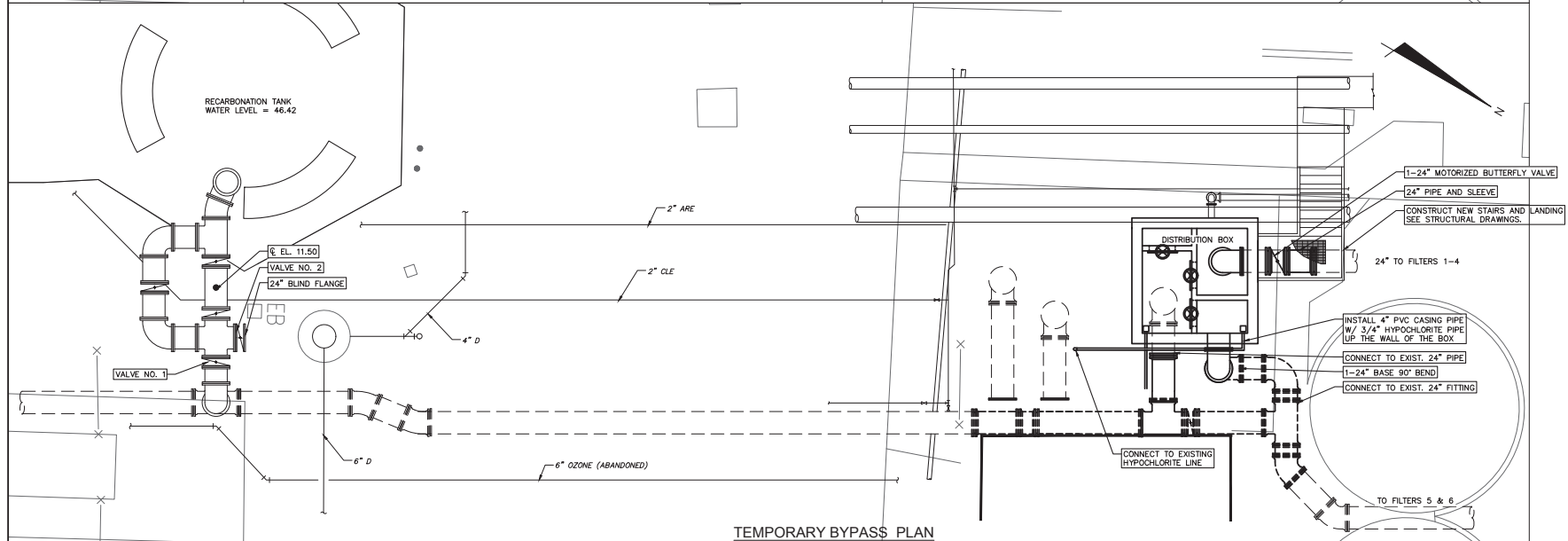
D

ISSUED FOR BIDDING
NOT FOR CONSTRUCTION

\\01026\\0136\\END\\80-DRAWINGS\\C01.1 YARD PIPING PLAN PHASE 3.DWG 04/13/2022 15:43:22 DOREEN PADGETT



- SEQUENCE OF CONSTRUCTION PHASE 4:**
1. WHEN CONCRETE WALLS, WEIR GATES AND WALL HEIGHT EXTENSION ARE COMPLETED FOR THE DISTRIBUTION BOX, CLOSE VALVE NO. 1 AND VALVE NO. 2. SHUT DOWN LINE SOFTENING SIDE OF WTP. REMOVE TEMPORARY PIPING FROM 24" TEE IN LINE TO FILTERS 1-4.
 2. INSTALL 24" SPOOL PIECES AND MAKE CONNECTION TO INLET PIPE TO DISTRIBUTION BOX. SWAB ALL PIECES PRIOR TO ASSEMBLY WITH 100 PPM CHLORINE SOLUTION.
 3. INSTALL 24" SPOOL PIECES, 24" PIPE AND 1-24" BASE 90° BEND AND MAKE CONNECTION TO 90° BEND ON EXIT PIPE FROM DISTRIBUTION BOX TO FILTERS 5 & 6. SWAB ALL PIECES PRIOR TO ASSEMBLY WITH 100 PPM CHLORINE SOLUTION.
 4. INSTALL 24" PIPE, SLEEVE AND MOTORIZED BUTTERFLY VALVE TO PIPE THAT CARRIES FLOW TO FILTERS 1-4. SWAB ALL PIECES PRIOR TO ASSEMBLY AND INSTALLATION WITH 100 PPM CHLORINE SOLUTION.
 5. OPEN VALVE NO. 1 AND REACTIVATE LINE SOFTENING SIDE OF WTP. MAKE SURE VALVE NO. 2 IS CLOSED. REMOVE TEMPORARY PIPE, FITTINGS AND INSERT VALVE FROM THE 24" TEE ADJACENT TO THE DISTRIBUTION BOX TO VALVE NO. 2.
 6. ALL WORKED DESCRIBED ABOVE SHALL BE PERFORMED BETWEEN 12 MIDNIGHT AND 6 AM.
 7. CONSTRUCT NEW STAIRS AND LANDING ON NORTH SIDE OF DISTRIBUTION BOX.



REVISED	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2022
2	100% CLIENT SUBMITTAL	SEP 2021
3	90% CLIENT SUBMITTAL	SEPT 2021
4	80% CLIENT SUBMITTAL	APRIL 2021



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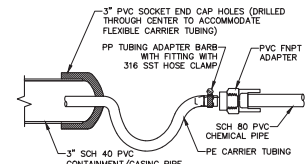
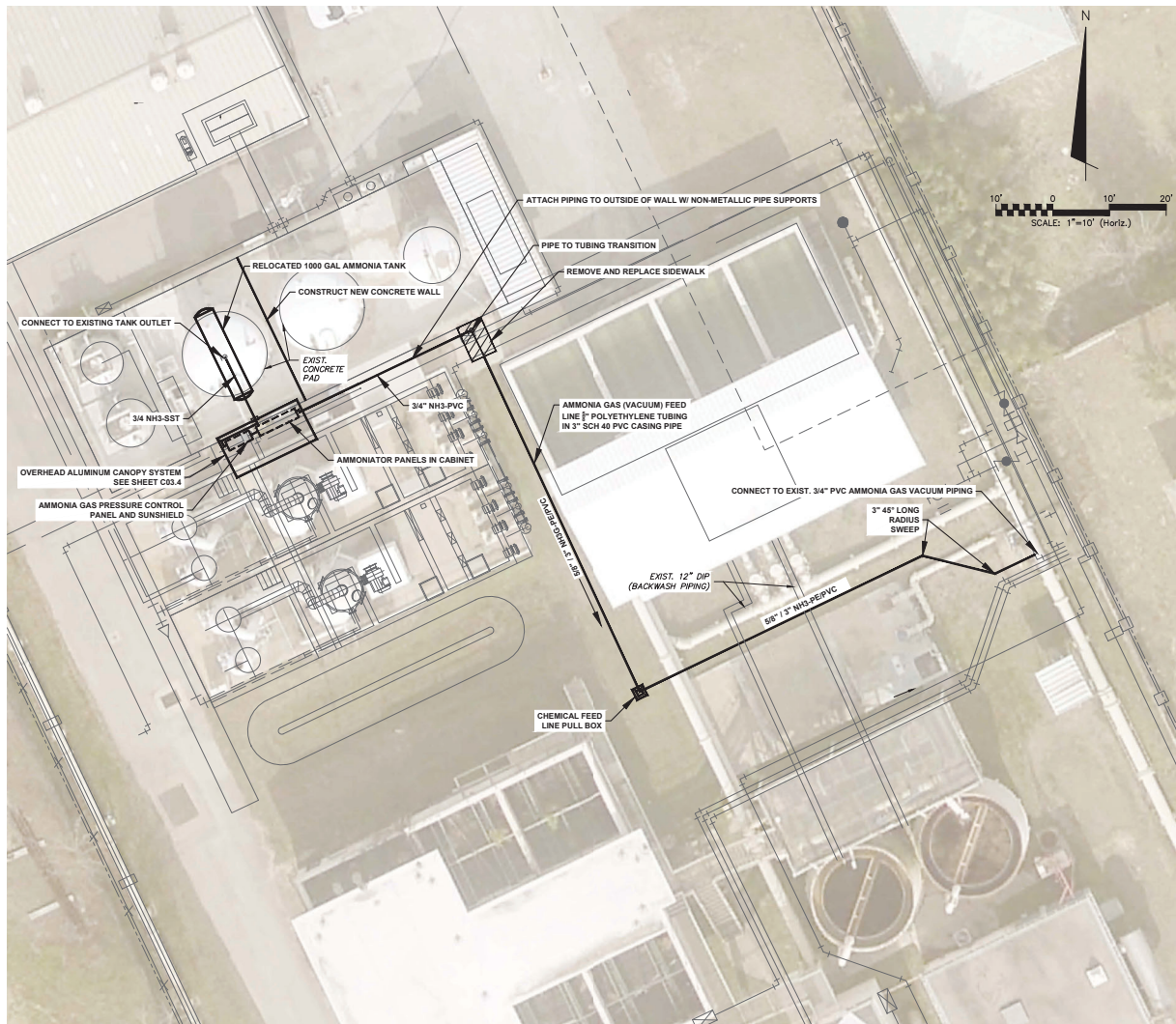
**2022 WATER TREATMENT PLANT
IMPROVEMENTS**

CIVIL
**SPLITTER BOX-DISTRIBUTION BOX -
BYPASS PIPE PLAN PHASE 4**

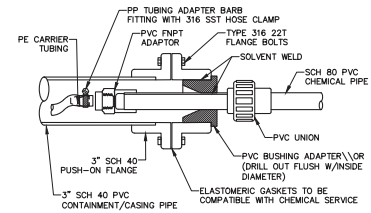
PROJ. START DATE: SEPT. 2021	SCALE:	C02.4 D SECTION
MCE PROJ. # 010289138	HORIZONTAL:	
DRAWN: DMP	AS SHOWN	
DESIGNED: SRS	VERTICAL:	
CHECKED: SRS	NA	
PROJ. MGR: CHR		

ISSUED FOR BIDDING
NOT FOR CONSTRUCTION

\\010286\\0136\\ENGR\\00-DRAWINGS\\C01.1 YARD PIPING PLAN PHASE 4.DWG 04/13/2022 15:43:43 DOREEN PADGETT

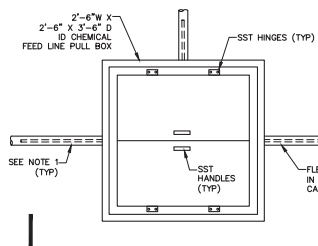


INTERIOR TRANSITIONS

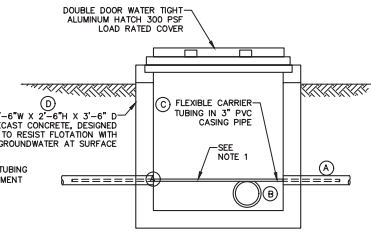


EXTERIOR TRANSITIONS

AMMONIA FEED-TUBING TO PIPING TRANSITION



PLAN



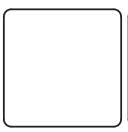
SECTION

- Ⓐ 5" DIA OPENING IN CONCRETE WALL TO ACCOMMODATE 3" DIAMETER PVC DIAMETER PVC CONTAINMENT CASING PIPE. FILL VOID USING NON-SHRINK GROUT.
- Ⓑ LOOP OR COIL TUBING USING AT LEAST 10% MORE THAN THE MINIMAL ALLOWABLE RADIUS BEND AND SUPPORT LOOP USING NON-METALLIC PIPE SUPPORTS AND PLASTIC STRAPS OR CABLE TIES. DO NOT KINK TUBING.
- Ⓒ REFER TO YARD PIPING AND PROCESS DRAWINGS TO CONFIRM SIZE OF FLEXIBLE CARRIER TUBING.
- Ⓓ DEPTH OF BOX APPROXIMATE. DEPTH SHALL ACCOMMODATE FLEXIBLE CARRIER TUBING.

NOTES:
1. FLEXIBLE CARRIER TUBING WILL ENTER AND EXIT THE PULL BOX IN A 3" PVC CONTAINMENT CASING PIPE.

CHEMICAL FEED LINE PULL BOX

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2022
2	100% CLIENT SUBMITTAL	APRIL 2022
REVISIONS		

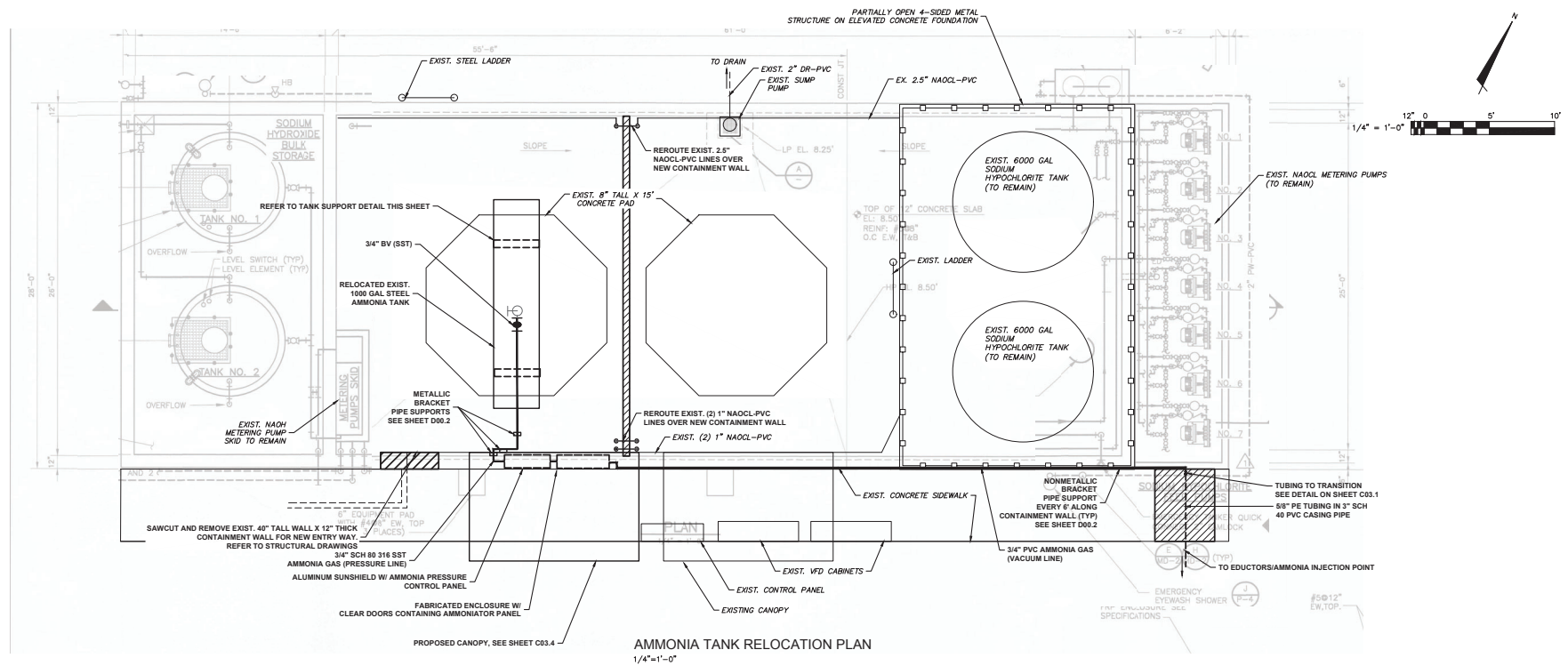


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THE CITY OF ORMOND BEACH

2022 WATER TREATMENT PLANT IMPROVEMENTS
AMMONIA YARD PIPING PLAN

PROJECT START DATE: SEPT. 2021
MCE PROJ. # 016288135
DESIGNED: SRS
CHECKED: CHR
PROJECT MGR: CHR
SCALE: HORIZONTAL AS SHOWN
VERTICAL: NA
STATUS: 100% CLIENT SUBMITTAL NOT FOR CONSTRUCTION



AMMONIA TANK DETAIL

REMOVE EXISTING ADHESIVE LABEL AND STENCIL, USING PAINT, "ANHYDROUS AMMONIA" ON BOTH SIDES OF TANK. MATCH EXISTING SIZE AND COLOR.



TANK SUPPORT DETAIL

REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	APRIL 2021

REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	APRIL 2021

REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	APRIL 2021

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THE CITY OF ORMOND BEACH

2022 WATER TREATMENT PLANT IMPROVEMENTS
AMMONIA TANK RELOCATION AND PIPING

PROJECT START DATE: SEPT. 2021
 MICE PROJ. # 010209136
 DRAWN: DWP
 DESIGNED: SRS
 CHECKED: CHR
 PROJ. MGR: CHR

SCALE: HORIZONTAL: AS SHOWN, VERTICAL: NA

C03.2
 B
 100% CLIENT SUBMITTAL NOT FOR CONSTRUCTION



NOTES:
1. ALL EXTERIOR EXPOSED PVC PIPING AND VALVES ARE TO BE PAINTED. ALL EXPOSED METALLIC PIPE AND VALVES WHICH ARE NOT STAINLESS STEEL ARE TO BE PAINTED. STAINLESS STEEL PIPING AND VALVES ARE NOT TO BE PAINTED.

REV NO	DESCRIPTION	DATE
B	ISSUED FOR BIDDING	APRIL 2003
A	10% CLIENT SUBMITTAL	APRIL 2001

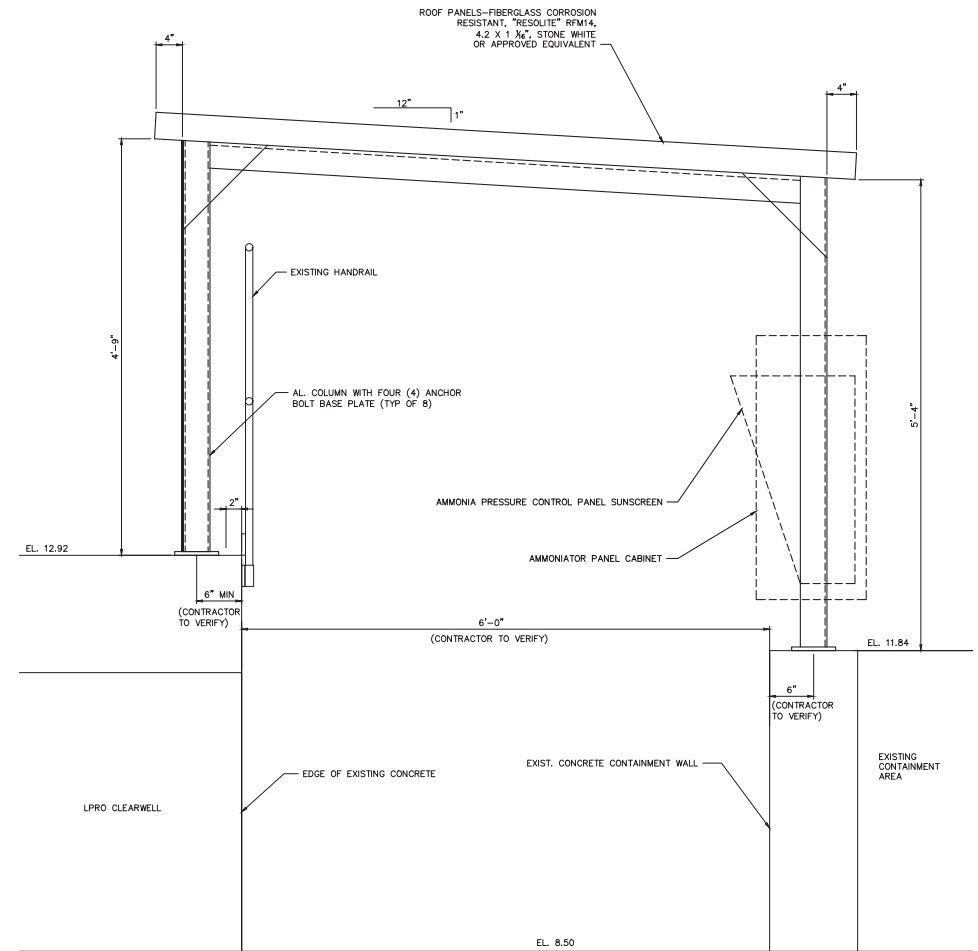
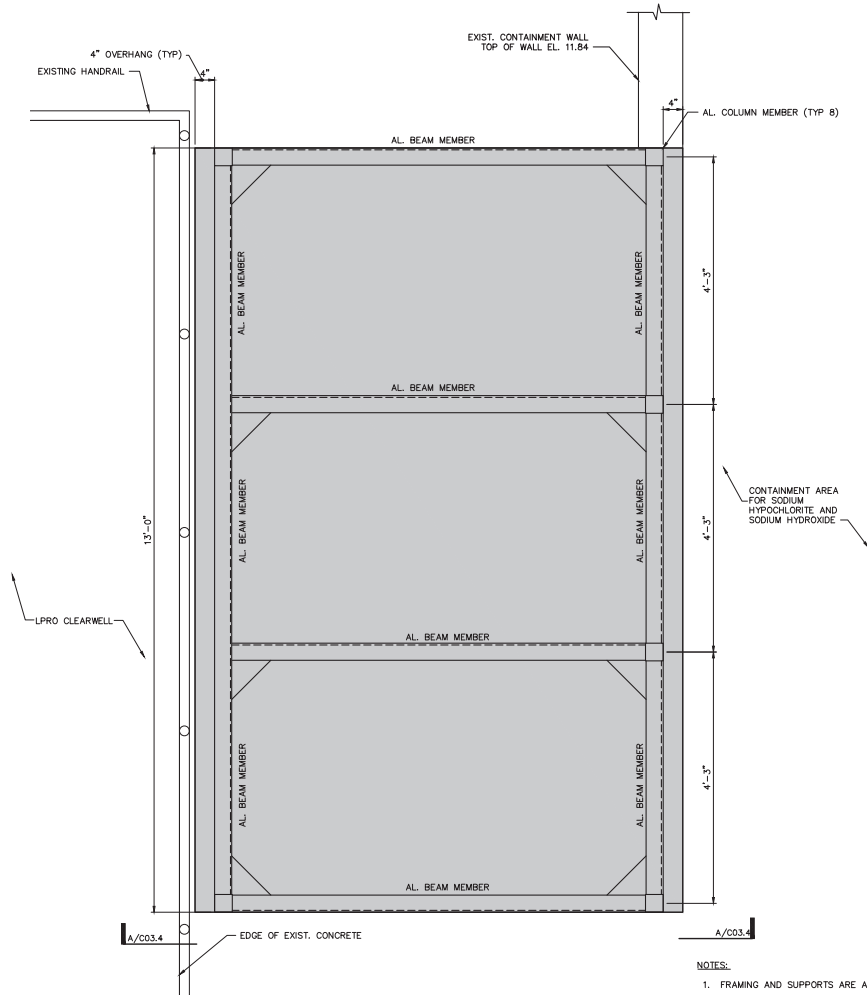
REVISIONS



**100% CLIENT SUBMITTAL
NOT FOR CONSTRUCTION**

CLIENT

	B
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REV NO	DESCRIPTION	DATE
C	DRAWN FOR BIDDING	APRIL 2021
B	90% CLIENT SUBMITTAL	FEB 2021
A	8% CLIENT SUBMITTAL	SEPT 2021

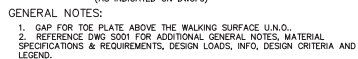
REVISIONS

SEAL

A. E. ANDERSON, R. P.E.
No. 34779



I:\01026\0136\ENG\80-DRAWINGS\STRUCTURAL\S001-SG001-010260136.DWG 04/13/2022 15:47:24 DOREEN PADGETT



4 - DETAIL - TYP. AL GUARDRAIL & POST
ASSEMBLY/CONC. CONN.'s REQ.'s
SCALE: 3/4" = 1'-0"



5 - DETAIL - TYP. AL GUARDRAIL & POST
ASSEMBLY/AL STRINGER CONN. REQ.'s
SCALE: 3/4" = 1'-0"

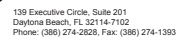


6 - DETAIL - TYP. AL ACCESS STAIR TREAD
SCALE: 1" = 1'-0"



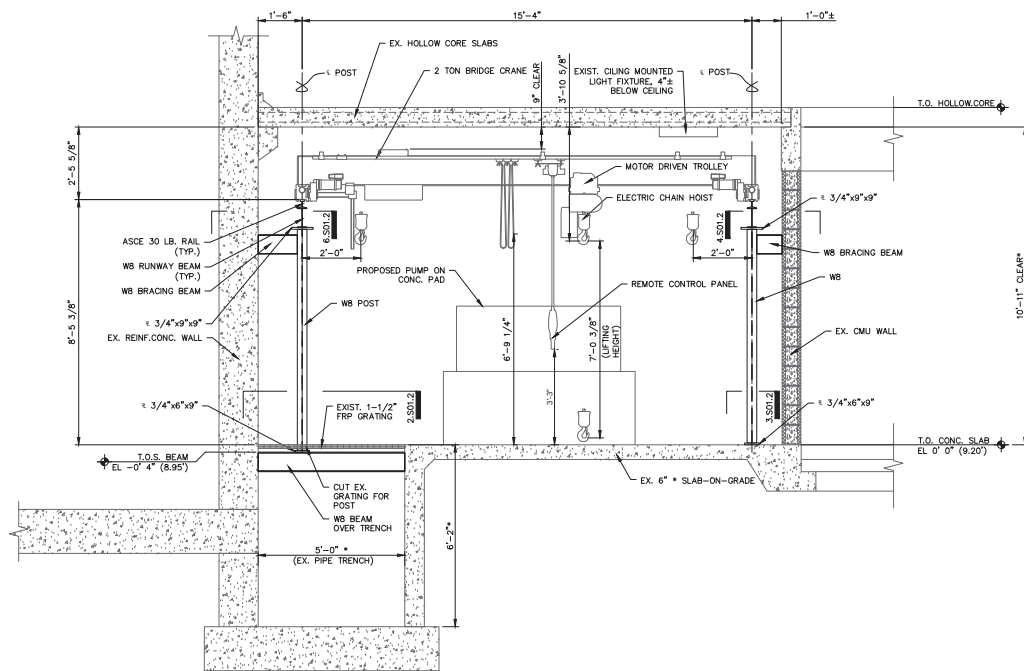
7 - DETAIL - AL POST/AL STRINGER TOP
FLG. CONN.
SCALE: 3" = 1'-0"

A. E. ANDERSON, III, P.E.
No. 34779

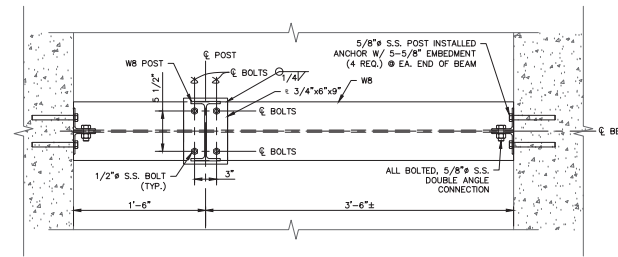


**ISSUED FOR BIDDING
NOT FOR CONSTRUCTION**

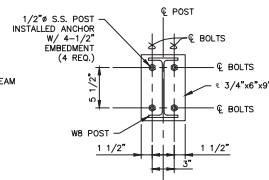
C



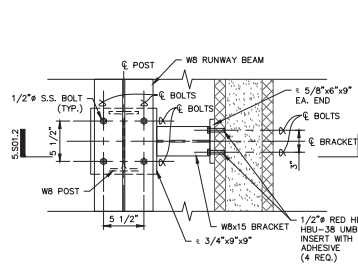
1 - SECTION - THRU AERATOR TRANSFER PUMP ROOM.
SCALE: 1/2" = 1'-0"



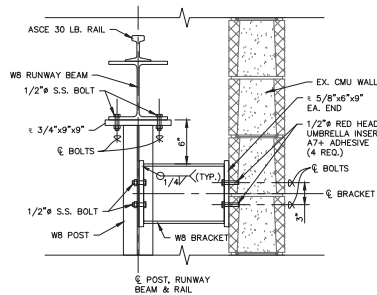
2 - DETAIL - BASE PLATE OVER PIPE TRENCH.
SCALE: 1 1/2" = 1'-0"



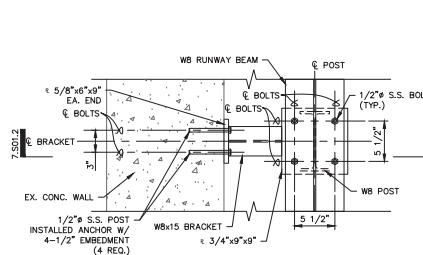
3 - DETAIL - BASE PLATE.
SCALE: 1 1/2" = 1'-0"



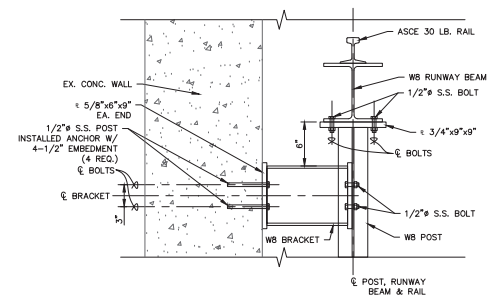
4 - DETAIL - RUNWAY BEAM CONNECTION.
SCALE: 1 1/2" = 1'-0"



5 - SECTION - CMU WALL BRACKET CONNECTION.
SCALE: 1 1/2" = 1'-0"



6 - DETAIL - RUNWAY BEAM CONNECTION.
SCALE: 1 1/2" = 1'-0"



7 - SECTION - CONC. WALL BRACKET CONNECTION.
SCALE: 1 1/2" = 1'-0"

REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

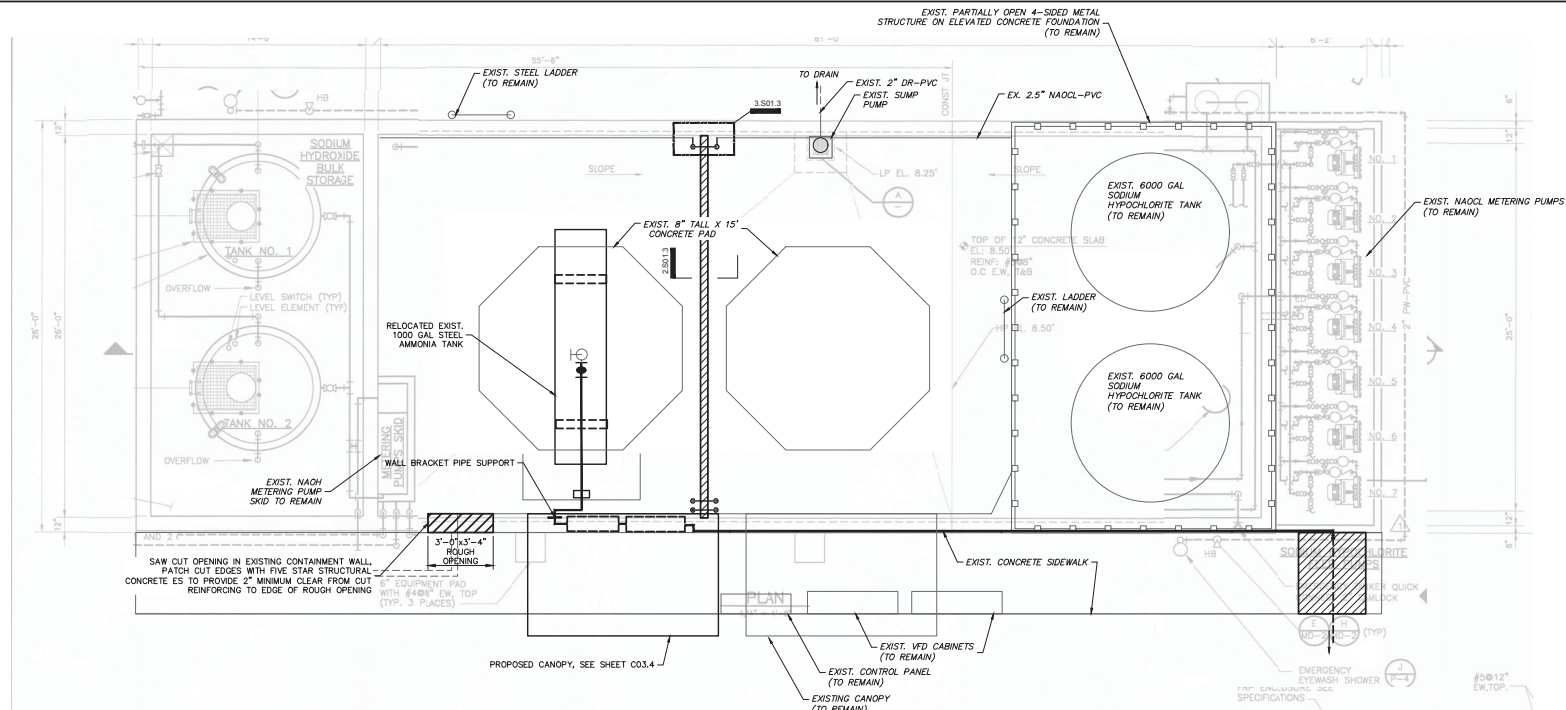
REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

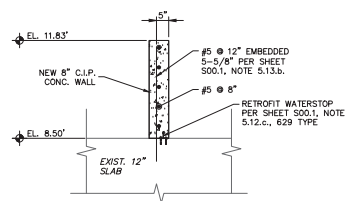
REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021

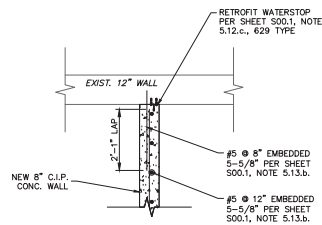
REV.	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	FEB 2021
3	REV. CLIENT SUBMITTAL	SEPT 2021
4	REV. CLIENT SUBMITTAL	APRIL 2021



1 - PLAN - AMMONIA TANK RELOCATION PLAN.
SCALE: 1/4" = 1'-0"



2 - SECTION - NEW CONTAINMENT WALL.
SCALE: 1/2" = 1'-0"



3 - DETAIL - NEW CONTAINMENT WALL.
SCALE: 1/2" = 1'-0"

REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2022
2	100% CLIENT SUBMITTAL	FEB 2022

SEAL
A. E. ANDERSON, II, P.E. No. 54779



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CA Lic. No. 3588
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THE CITY OF
ORMOND BEACH

2022 WATER TREATMENT PLANT
IMPROVEMENTS

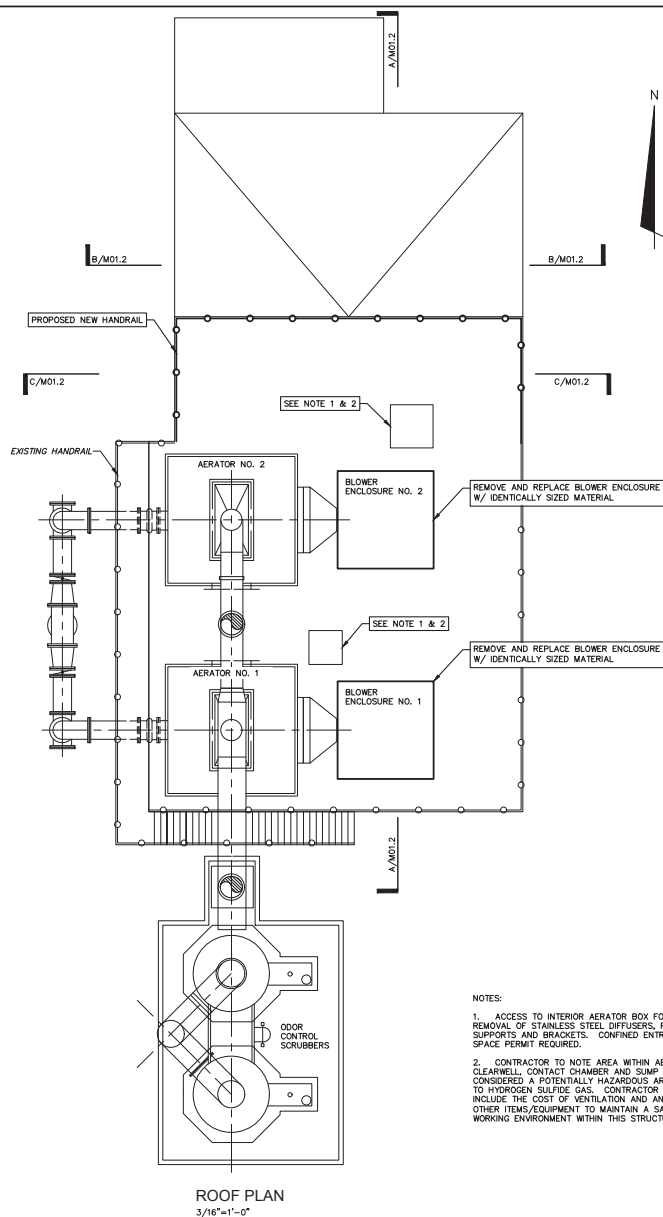
AMMONIA TANK RELOCATION PLAN

PROJECT START DATE: SEPT. 2021
DESIGNED BY: AEA
CHECKED BY: AEA
PROJECT MGR: CHR

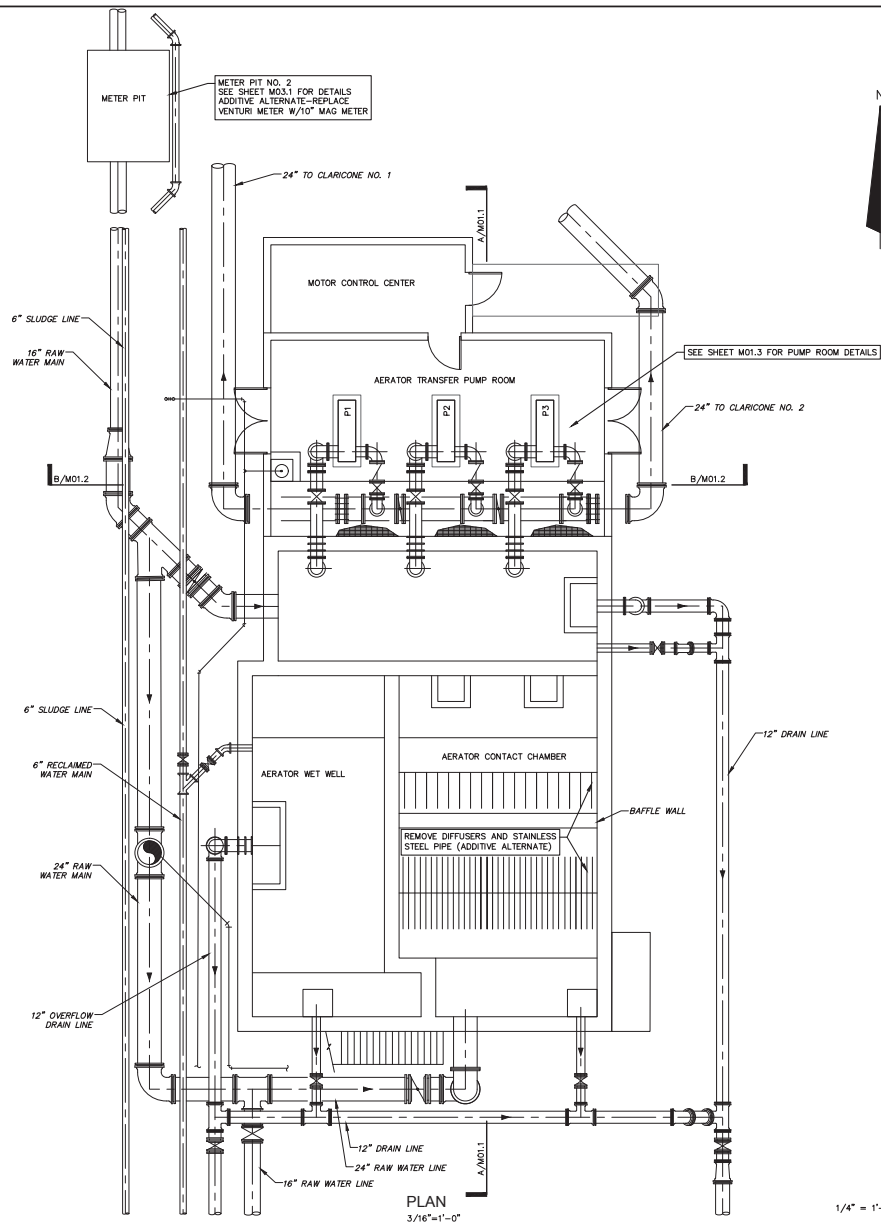
STATUS:

100% CLIENT SUBMITTAL
NOT FOR CONSTRUCTION

SCALE:	S01.3
HORIZONTAL:	AS SHOWN
VERTICAL:	AS SHOWN



- NOTES:
1. ACCESS TO INTERIOR AERATOR BOX FOR REMOVAL OF STAINLESS STEEL DIFFUSERS, PIPE, SUPPORTS AND BRACKETS. CONFINED ENTRY SPACE PERMIT REQUIRED.
 2. CONTRACTOR TO NOTE AREA WITHIN AERATOR CLEARWELL, CONTACT CHAMBER AND SUMP IS CONSIDERED A POTENTIALLY HAZARDOUS AREA DUE TO HYDROGEN SULFIDE GAS. CONTRACTOR TO INCLUDE THE COST OF VENTILATION AND ANY OTHER ITEMS/EQUIPMENT TO MAINTAIN A SAFE WORKING ENVIRONMENT WITHIN THIS STRUCTURE.



ID/NO	DESCRIPTION	DATE
D	ISSUED FOR BIDDING	APRIL 2022
C	100% CLIENT SUBMITTAL	OCT 2022
B	80% CLIENT SUBMITTAL	MAY 2021
A	60% CLIENT SUBMITTAL	APRIL 2021



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THE CITY OF
ORMOND BEACH

2022 WATER TREATMENT PLANT IMPROVEMENTS

MECHANICAL AERATOR BUILDING PLANS

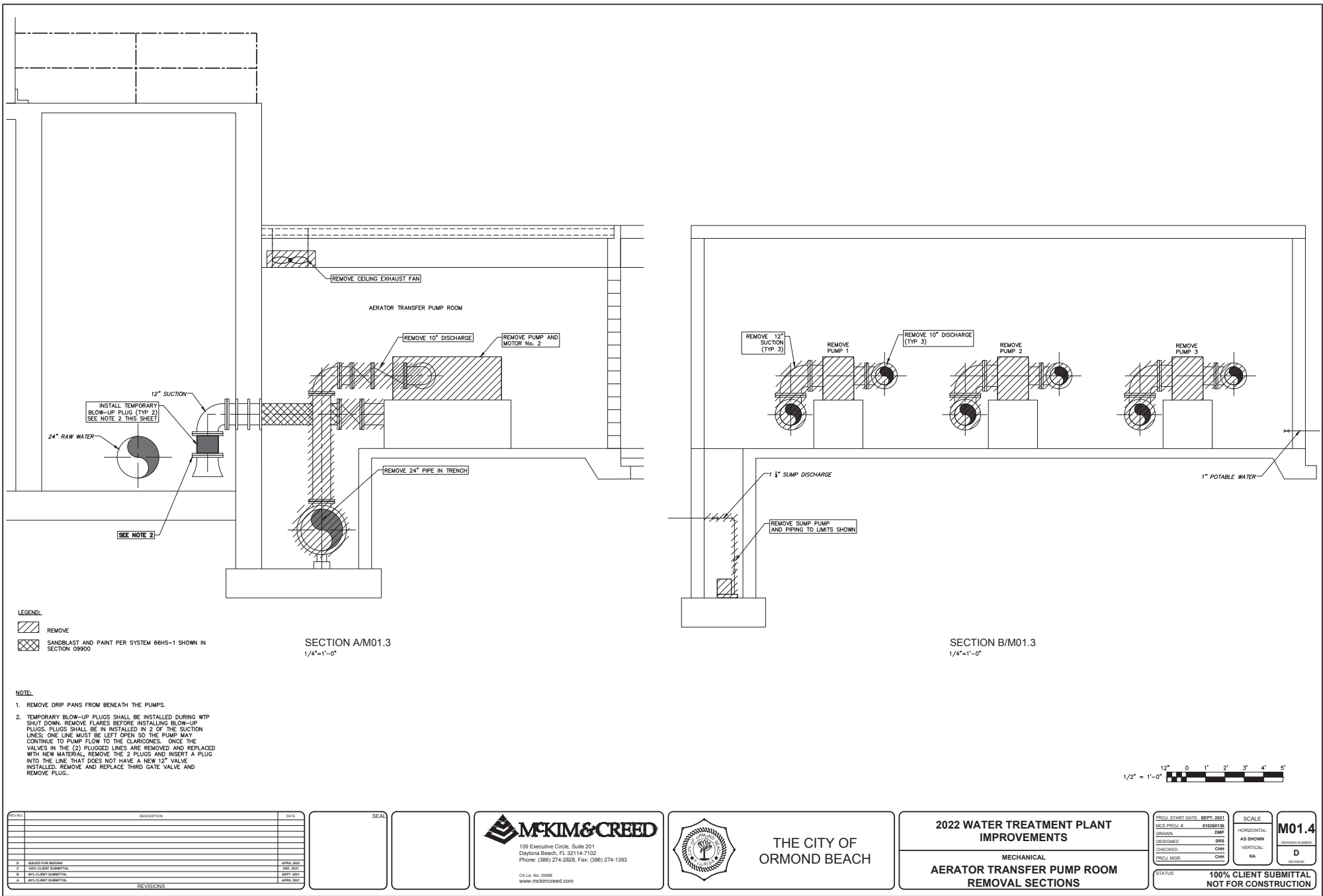
PROJ. START DATE: SEPT. 2021	SCALE	
MICE PROJ. # 010209136	HORIZONTAL:	
DRAWN DMP	AS SHOWN	
DESIGNED SR8	VERTICAL:	
CHECKED CHH	NA	
PROJ. MGR. CHH		

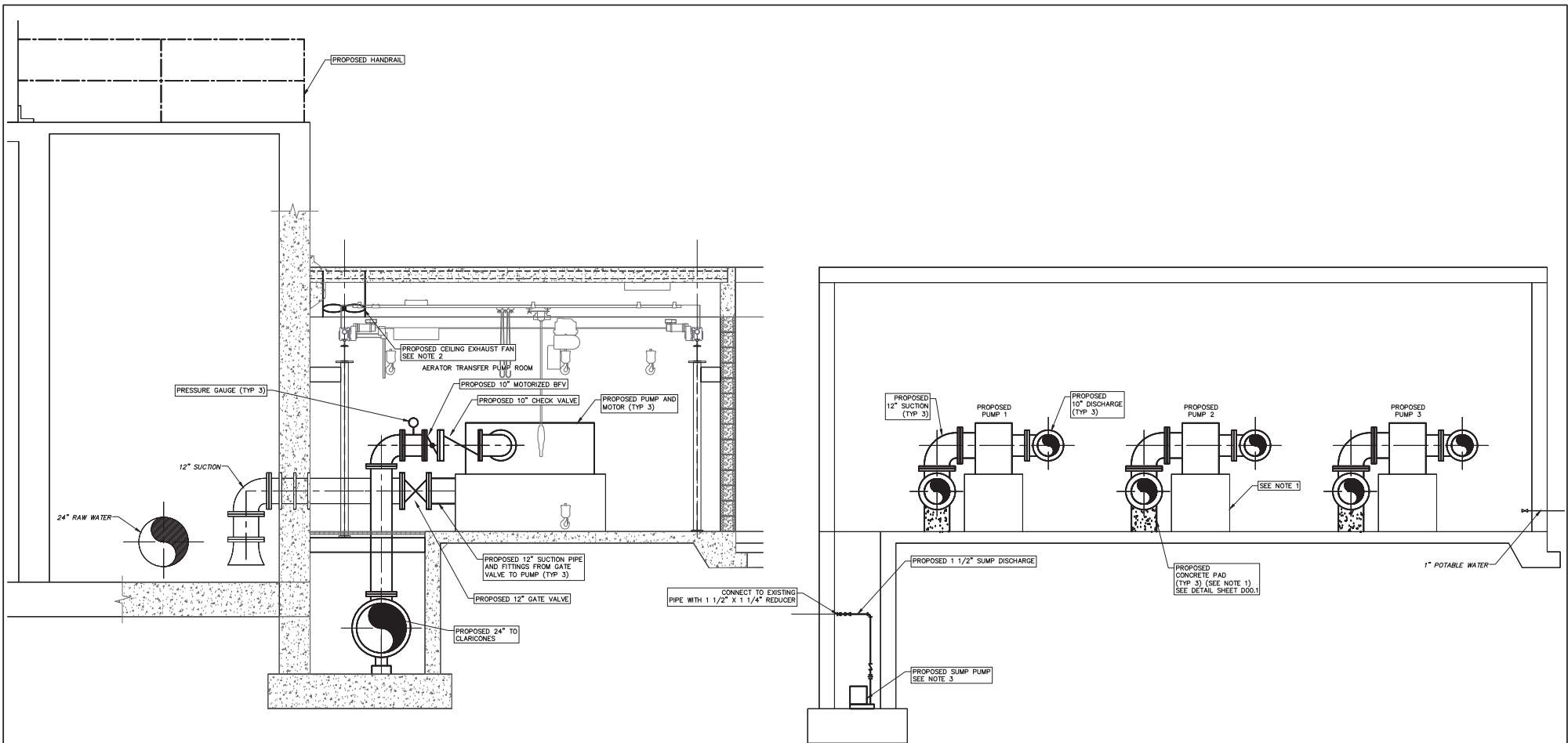
STATUS: **ISSUED FOR BIDDING**
NOT FOR CONSTRUCTION



MECHANICAL
AERATOR BUILDING SECTIONS

STATUS: **ISSUED FOR BIDDING**
NOT FOR CONSTRUCTION





SECTION A/M01.5
1/4"=1'-0"

SECTION B/M01.5
1/4"=1'-0"

NOTES:

1. PREPARE AND PAINT PUMP AND PIPE SUPPORT PADS ACCORDING TO SYSTEM 6895-4 IN SECTION 0900.
2. EXHAUST FAN SHALL PRODUCE 2300 CFM @ 0.375 STATIC PRESSURE AT 1140 RPM
3. SUMP PUMP SHALL PRODUCE 3 GPM @ 20' TDH AT 1/2 HP.



REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	SEP 2021
3	90% CLIENT SUBMITTAL	SEP 2021
4	80% CLIENT SUBMITTAL	APRIL 2021

REVISIONS

SEAL



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**2022 WATER TREATMENT PLANT
IMPROVEMENTS**

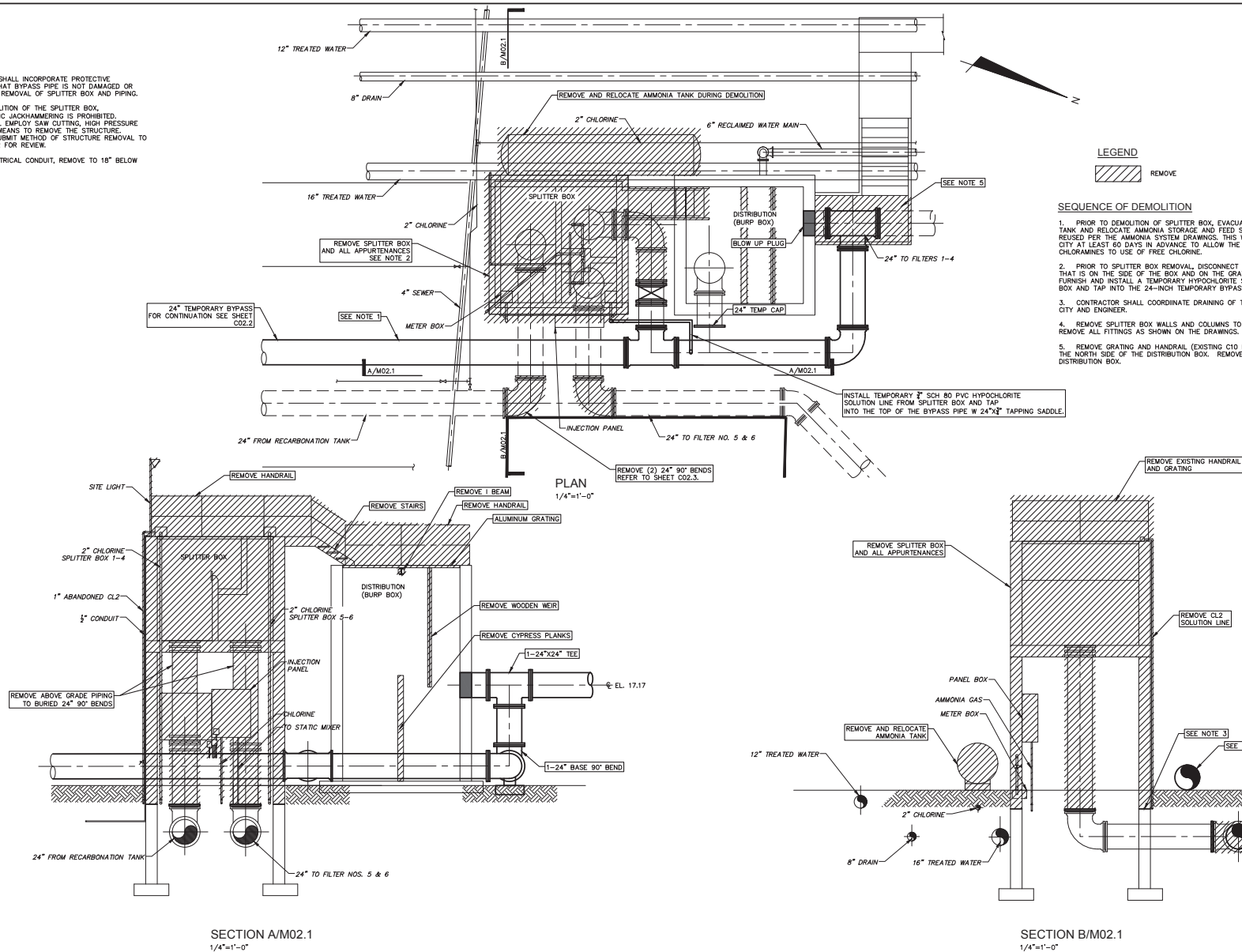
MECHANICAL
**AERATOR TRANSFER PUMP ROOM
PROPOSED IMPROVEMENTS SECTIONS**

PROJ. START DATE: SEPT. 2021	SCALE:	M01.6 D SECTION
MCE PROJ. # 010260136	HORIZONTAL:	
DESIGNED: DMP	AS SHOWN	
CHECKED: CHS	VERTICAL:	
PROJ. MGR: CHS	NA	
STATUS:	100% CLIENT SUBMITTAL NOT FOR CONSTRUCTION	

I:\01026\0136\JNG\B0-DRAWINGS\MECHANICAL\M10.3-010260136.DWG 04/13/2022 15:52:33 DOREEN PADGETT

NOTES:

1. CONTRACTOR SHALL INCORPORATE PROTECTIVE MEASURES SUCH THAT BYPASS PIPE IS NOT DAMAGED OR DISTURBED DURING REMOVAL OF SPLITTER BOX AND PIPING.
2. ON THE DEMOLITION OF THE SPLITTER BOX, PNEUMATIC/ELECTRIC JACKHAMMERING IS PROHIBITED. CONTRACTOR SHALL EMPLOY SAW CUTTING, HIGH PRESSURE WATER OR OTHER MEANS TO REMOVE THE STRUCTURE. CONTRACTOR TO SUBMIT METHOD OF STRUCTURE REMOVAL TO CITY AND ENGINEER FOR REVIEW.
3. FOR ALL ELECTRICAL CONDUIT, REMOVE TO 18" BELOW GRADE AND CAP.



REVISION	DESCRIPTION	DATE	SEAL
1	ISSUED FOR BIDDING	APRIL 2021	
2	100% CLIENT SUBMITTAL	SEP 2021	
3	90% CLIENT SUBMITTAL	SEP 2021	
4	90% CLIENT SUBMITTAL	APRIL 2021	



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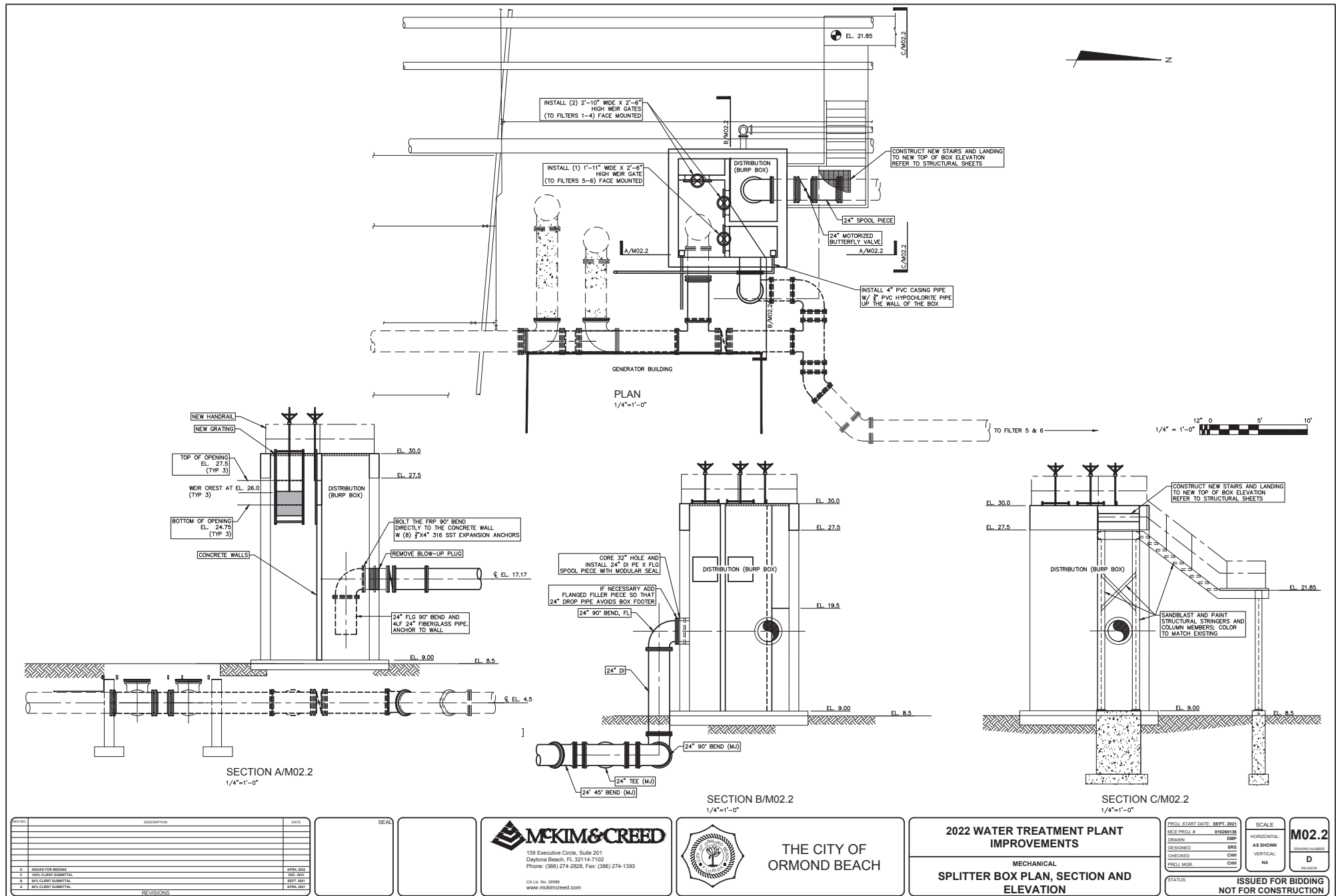
**2022 WATER TREATMENT PLANT
IMPROVEMENTS**

MECHANICAL

**SPLITTER AND DISTRIBUTION BOX
REMOVAL PLAN AND SECTIONS-PHASE 1**

PROJ. START DATE: SEPT. 2021	SCALE:	M02.1
DATE PROJ. # 010200136	HORIZONTAL:	
DRAWN: DMP	AS SHOWN	
DESIGNED: SRS	VERTICAL:	
CHECKED: CHH	NA	D
PROJ. MGR: CHH		ISSUED FOR BIDDING NOT FOR CONSTRUCTION

I:\01020\0136\ENG\B0-DRAWINGS\MECHANICAL\M02.0-010200136.DWG 04/13/2022 15:52:53 DOREEN PADGETT





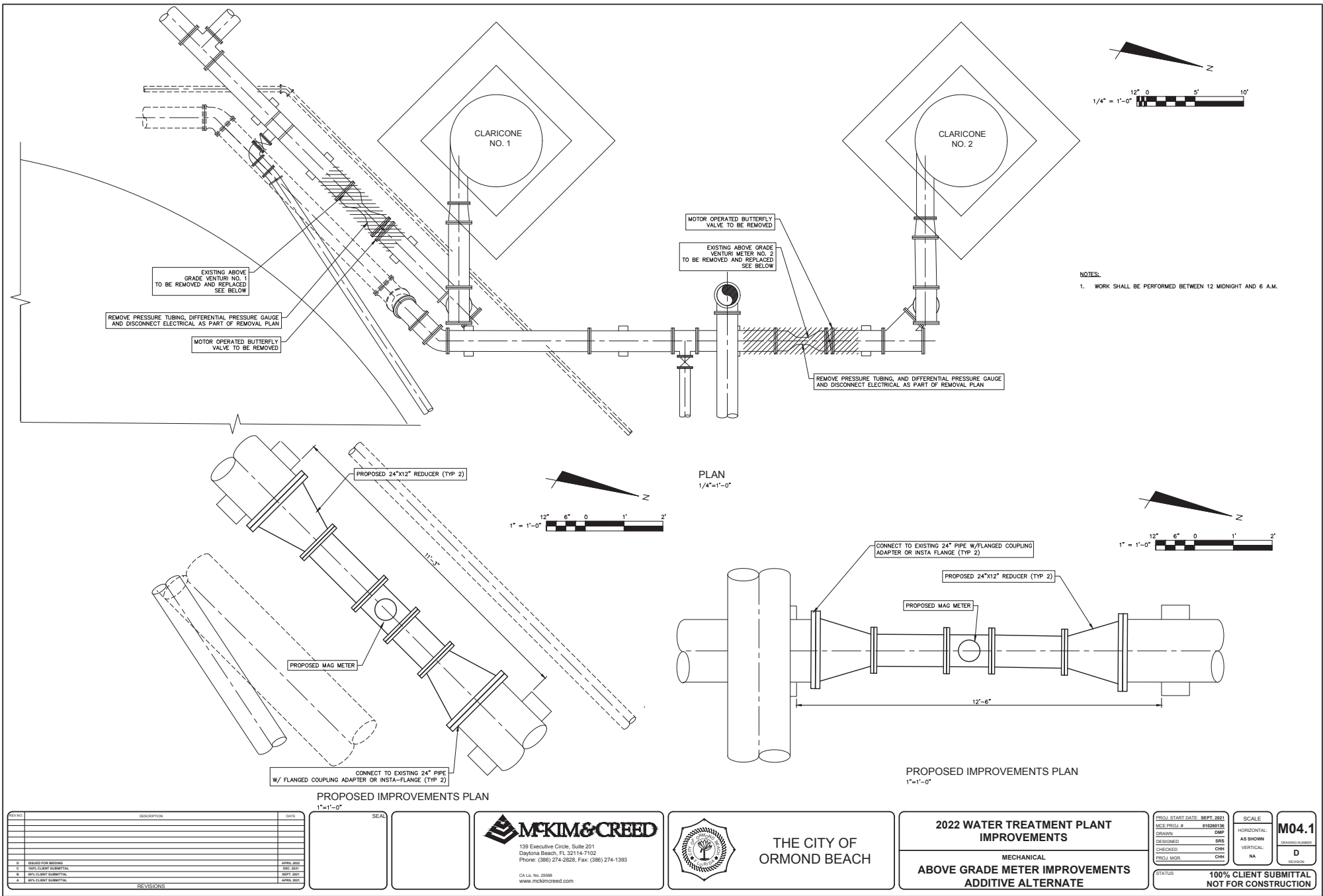
SEAL	
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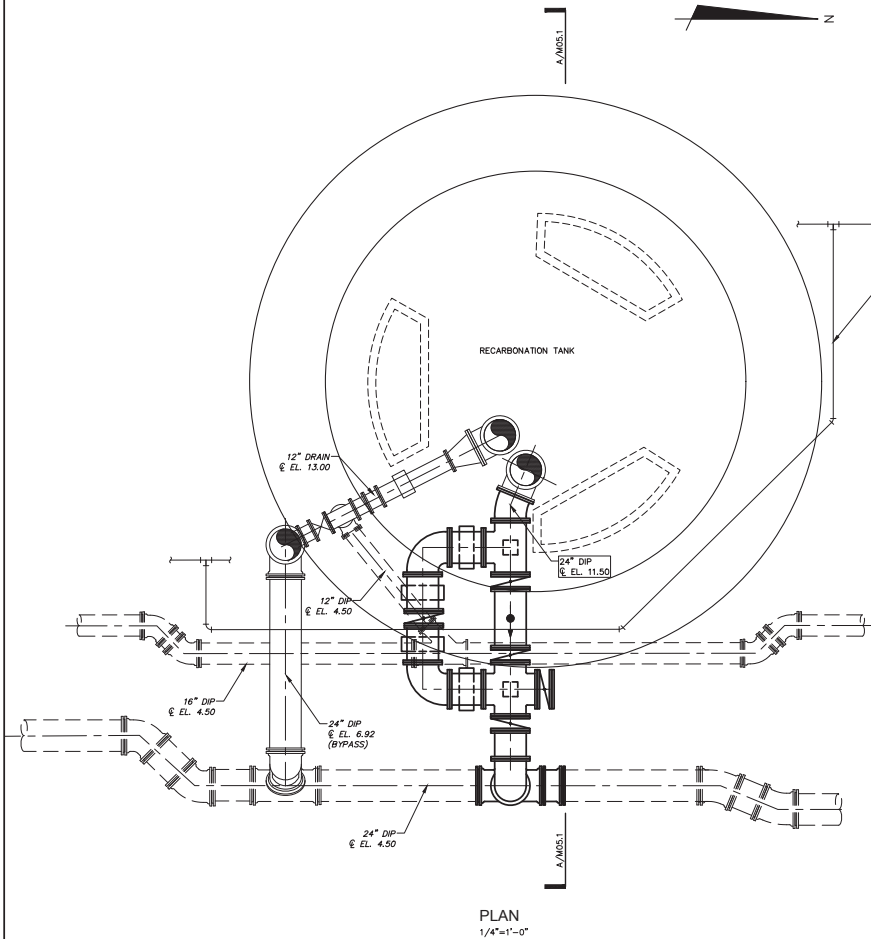
**2022 WATER TREATMENT PLANT
IMPROVEMENTS**

MECHANICAL

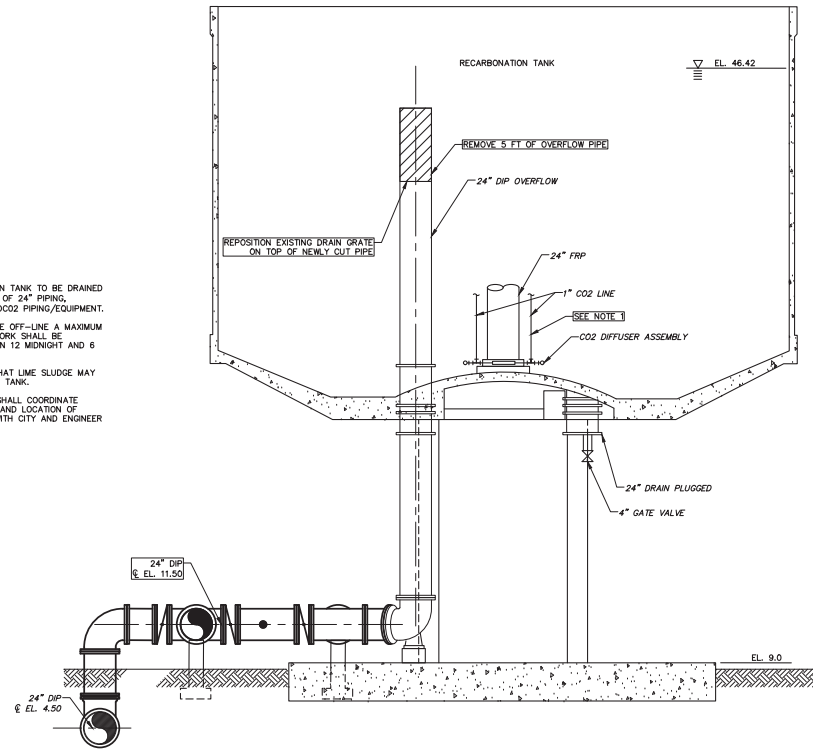
**BELOW GRADE METER IMPROVEMENTS
ADDITIVE ALTERNATE**

Page 411 of 1733





- NOTES:
1. RECARBONATION TANK TO BE DRAINED PRIOR TO REMOVAL OF 24" PIPING, OVERFLOW PIPE AND CO2 PIPING/EQUIPMENT.
 2. TANK SHALL BE OFF-LINE A MAXIMUM OF 6 HOURS. ALL WORK SHALL BE PERFORMED BETWEEN 12 MIDNIGHT AND 6 AM.
 3. IT IS NOTED THAT LINE SLUDGE MAY BE PRESENT IN THE TANK.
 4. CONTRACTOR SHALL COORDINATE DRAINING OF TANK AND LOCATION OF DISCHARGE POINT WITH CITY AND ENGINEER.



12" 0 5' 10'
1/4" = 1'-0"

REV	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	SEP 2021
3	90% CLIENT SUBMITTAL	SEPT 2021
4	80% CLIENT SUBMITTAL	APRIL 2021

REVISIONS



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THE CITY OF
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2022 WATER TREATMENT PLANT
IMPROVEMENTS

MECHANICAL
RECARBONATION TANK IMPROVEMENTS

PROJ. START DATE: SEPT. 2021	SCALE: M05.1
MCE PROJ. # 010260136	HORIZONTAL: AS SHOWN
DRAWN: SRS	VERTICAL: NA
DESIGNED: CHH	DATE: 04/14/2022
CHECKED: CHH	100% CLIENT SUBMITTAL
PROJ. MGR: CHH	NOT FOR CONSTRUCTION

I:\01026\0136\ENG\BO-DRAWINGS\MECHANICAL\M05.0-010260136.DWG 04/14/2022 14:04:49 DOREEN PADGETT

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

1. THE CITY'S PUBLIC UTILITIES DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.

2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.

3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.), REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.

4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (ASTM-D1557) IN PAVED AREAS AND UNPAVED AREAS.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 4 FEET ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY INSPECTOR.

6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.

7. WATER SERVICES (SHOWN "Y") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR); POLYETHYLENE SHALL NOT BE ALLOWED.

8. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.

9. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.

10. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED.

11. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:

A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).

B. MECHANICAL TAPPING GATE VALVE SHALL BE STAINLESS STEEL (AWWA C - 509).

C. EPOXY COATED (AWWA C - 550).

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

INDEX

W-1A

MAY 2020

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

2. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MATCH THE PLAINLY VISIBLE.

3. WATER VALVES SHALL BE COMPLETELY OWNED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF UTILITY DEPARTMENT PERSONNEL.

4. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAINS TO WHICH HYDRANTS ARE CONNECTED SHALL BE 8 INCHES MINIMUM.

5. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN INGRESS CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18-24" ABOVE GRADE.

6. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.

7. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.

8. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PVC PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.

9. WATER MAINS SHALL BE AWWA C-900 CL 150, OR D.I.P. CLASS 350 STANDARD CONCRETE LINED AWWA C-104.

10. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE HEALTH DEPARTMENT, AND THAT CERTIFIED AS-BUILT DRAWINGS (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAINTING AND ANY USE OF THE SYSTEM. SEE W-1A & W-1B FOR AS-BUILT REQUIREMENTS.

11. METALLIZED OR EQUIVALENT RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED TITNOS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT SUPPLY TRUST RESTRAINT DESIGN GUIDELINES.

12. ALL DI. BENDS, TEES, VALVES, WYE FITTINGS TO BE EPOXY COATED IN ACCORDING WITH AWWA C-550.

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

INDEX

W-1B

MAY 2020

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

23. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAINTING AND IN THE PRESENCE OF THE CITY'S INSPECTOR.

24. ALL WATER SERVICES SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.

25. ALL WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.

26. UNFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR EQUIVALENT EQUIPMENT MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE. PREPARE PIPE EACH SIDE OF PIPE JOINT, AS REQUIRED BY RESTRAINT MANUFACTURER.

27. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.

28. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.

29. ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.

30. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY'S ENGINEERING & PLANNING DEPARTMENT BEFORE FINAL INSPECTION AT COMDEVELOPMENT/BEACH.ORG.

31. PIPING FOR RAW WATER SHALL BE WHITE FOR ABOVE GROUND PIPING. BURIED PVC PIPING SHALL BE WHITE WITH LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION - RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.

32. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES

WATER SYSTEM CONSTRUCTION

INDEX

W-1C

MAY 2020

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (F.T.)

FITTING: 1/4 BEND 1/8 BEND 1/2 BEND 1/2 BEND TEE OR DEAD END

PIPE SIZE (IN.)

4" 20 18 18 18 45

6" 28 18 18 18 63

8" 36 18 18 18 81

10" 44 28 18 18 88

12" 52 36 18 18 106

14" 60 44 18 18 124

16" 68 52 18 18 142

18" 76 60 18 18 160

20" 84 68 18 18 178

24" 100 84 20 18 208

30" 120 100 20 18 248

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS: TEST PRESSURE 150 PSI; D.I.P. TYPE: SP; COVER DEPTH: 2.5 FEET; SAFETY FACTOR: 1.5; MINIMUM TYPICAL: 3.

LENGTH BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (16' MIN.) OF PIPE TO BE RESTRAINED.

VALUES IN PARENTHESES ARE FOR PIPE ENCASED IN POLYETHYLENE.

SCHEDULE OF LENGTHS OF RESTRAINED DIP (F.T.)

FITTING: 1/4 BEND 1/8 BEND 1/2 BEND 1/2 BEND TEE OR DEAD END

PIPE SIZE (IN.)

4" 20 18 18 18 45

6" 28 18 18 18 63

8" 36 18 18 18 81

10" 44 28 18 18 88

12" 52 36 18 18 106

14" 60 44 18 18 124

16" 68 52 18 18 142

18" 76 60 18 18 160

20" 84 68 18 18 178

24" 100 84 20 18 208

30" 120 100 20 18 248

TABLE APPLIES TO D.I.P. FOR THE FOLLOWING CONDITIONS: TEST PRESSURE 150 PSI; D.I.P. TYPE: SP; COVER DEPTH: 2.5 FEET; SAFETY FACTOR: 1.5; MINIMUM TYPICAL: 3.

LENGTH BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (16' MIN.) OF PIPE TO BE RESTRAINED.

VALUES IN PARENTHESES ARE FOR PIPE ENCASED IN POLYETHYLENE.

STANDARD CONSTRUCTION DETAIL

PVC AND D.I.P. RESTRAINED JOINT TABLE

INDEX

W-5

MAY 2020

STANDARD CONSTRUCTION DETAIL

WATER MAIN SEPARATION

INDEX

W-9A

MAY 2020

STANDARD CONSTRUCTION DETAIL

PAVEMENT CUT AND PATCH

INDEX

R-8

MAY 2020

PIPE SUPPORT/BACKET NON-METALLIC

PIPE SUPPORT/BACKET METALLIC

REVISION	DESCRIPTION	DATE
1	ISSUED FOR BIDDING	APRIL 2021
2	100% CLIENT SUBMITTAL	SEP. 2021
3	10% CLIENT SUBMITTAL	NOV. 2021
4	10% CLIENT SUBMITTAL	APRIL 2021



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THE CITY OF
ORMOND BEACH

2022 WATER TREATMENT PLANT
IMPROVEMENTS

DETAILS
DETAILS

PROJECT START DATE: SEPT. 2021
MICE PROJ. # 010206136
DRAWING: DWP
DESIGNED: AS SHOWN
CHECKED: CHR
PROJ. MGR: CHR

SCALE: HORIZONTAL
AS SHOWN
VERTICAL: NA

100% CLIENT SUBMITTAL
NOT FOR CONSTRUCTION

[illegible]

	LIGHTING, INSTRUMENT OR RECEPTACLE PANELBOARD
	POWER PANELBOARD
	CONTROL PANEL
	MOTOR CONTROL CENTER
	POWER MONITOR
	AMMETER
	AMMETER SWITCH
	VOLTMETER
	VOLTMETER SWITCH
	FLOAT/FLOW SWITCH
	LIMIT SWITCH
	PRESSURE SWITCH
	THERMOSTAT
	JUNCTION BOX, SIZE PER NEC
	ELECTRICAL EQUIPMENT CONNECTION
	ELECTRICAL MANHOLE / HANDLEOLE AND THE LETTERS INDICATE THE TYPE OF THE HOLE
	RAYCEWAY SYSTEM CALL-OUTS: CT - CABLE TRAY BD - BUS DUCT DB - DUCT/BANK EC - EXPOSED CONDUIT WW - WIRE WAY/ROUGH
	RAYCEWAY AND/OR CABLE ID NUMBER
	RAYCEWAY HOMERUN TO EQUIPMENT IS TAG AS SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER)
	CONDUCTOR/CABLE CALL-OUT WITHIN RAYCEWAY TO PLC-1 ØM14 #120 0.77°C
	CONCEALED RAYCEWAY(S) IN FLOOR SLAB, UNDERGROUND, ETC.
	EXISTING RAYCEWAY(S) AND/OR CABLES
	RAYCEWAY TURNED DOWN
	RAYCEWAY TURNED UP
	RAYCEWAY TERMINATED / CAPPED OFF
	RAYCEWAY REMOVED / ABANDONED
	EXISTING EQUIPMENT REMOVED
	NEW ELECTRICAL RAYCEWAY(S)
	EXISTING ELECTRICAL RAYCEWAY(S)
	NEW TELEPHONE LINE(S)
	EXISTING TELEPHONE LINE(S)
	OVERHEAD ELECTRICAL UTILITY
	OVERHEAD TELEPHONE UTILITY
	UNDERGROUND ELECTRICAL UTILITY
	UNDERGROUND TELEPHONE UTILITY
	NEW GROUNDING / BONDING
	EXISTING GROUNDING / BONDING
	NEW LIGHTNING PROTECTION CONDUCTOR

	CLASS 1/2 DIVISION III CONDUIT SEAL-OFF FITTING		TRANSFORMER, SHIELDED ISOLATION TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH THREE OR MORE SELECTOR/PUSH SWITCHES LOWER RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, CURRENT "CT" TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH TWO SELECTOR/PUSH SWITCHES LOWER RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, POTENTIAL "PT" OR "VT" TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH ONE SELECTOR/PUSH SWITCH LOWER RIGHT SYMBOL INDICATES MOUNTING LOCATION		AUTOMATIC OR MANUAL TRANSFER SWITCH, STAND-ALONE TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCATED AT FIELD DEVICE		SAFETY / DISCONNECT SWITCH TOP NUMBER DENOTES FUSE SIZE (N=NON-FUSED) BOTTOM NUMBER DENOTES FRAME SIZE RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING
	LOCATED AT MAIN CONTROL PANEL		MOTOR CONTROLLER, STAND-ALONE WITH EXTERNAL DISCONNECT UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE UPPER RIGHT NUMBERS DENOTE AMPERE AND FRAME RATINGS CENTER RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FNR FULL VOLTAGE NON-REVERSIBLE FVR FULL VOLTAGE REVERSIBLE TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDINGS RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER VFD VARIABLE FREQUENCY DRIVE
	LOCATED AT LOCAL CONTROL PANEL		MOTOR CONTROLLER, FULL-VOLTAGE MCC UNIT UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FNR FULL VOLTAGE NON-REVERSIBLE FVR FULL VOLTAGE REVERSIBLE
	MOUNTED ON DOOR		MOTOR CONTROLLER, PART-WINDING MCC UNIT UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDING
	DRAW-OUT POWER CIRCUIT BREAKER WITH PROGRAMMABLE SOLID STATE RELAY TOP DENOTES ELECTRICALLY OPERATED		MOTOR CONTROLLER, REDUCED VOLTAGE MCC UNIT UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER
	FIXED MOUNT POWER CIRCUIT BREAKER WITH ADJUSTABLE SOLID STATE RELAY		MOTOR CONTROLLER, VARIABLE FREQUENCY DRIVE, MCC UNIT UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: VFD VARIABLE FREQUENCY DRIVE
	CIRCUIT BREAKER, GENERIC FIXED-MOUNT TMTU THERMAL-MAGNETIC TRIP UNIT ETLU ELECTRONIC TRIP UNIT		LINE OR LOAD REACTOR CENTER RIGHT NUMBER DENOTES PERCENT IMPEDANCE
	CIRCUIT BREAKER, GENERIC		MOTOR PROTECTION FILTER
	CIRCUIT BREAKER, THERMAL		AC MOTOR SINGLE OR THREE PHASE AS NOTED
	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTOR		CABLE TRAY TYPE AS NOTED ON THE DRAWINGS
	CIRCUIT BREAKER, THERMAL ENCLOSED TOP NUMBER DENOTES NEMA FRAME SIZE BOTTOM NUMBER DENOTES NEMA ENCLOSURE RATING		
	FUSE, GENERIC		
	FUSE, GENERIC TOP NUMBER DENOTES TRIP BOTTOM NUMBER DENOTES VOLTAGE CLASS MIDDLE NUMBER DENOTES TYPE		
	WIRING DEVICE, POWER RECEPTACLE WITH INTEGRAL DISCONNECT / LOAD BREAK NEMA CONFIGURATION SHOWN LOWER RIGHT		
	WIRING DEVICE, POWER RECEPTACLE NEMA CONFIGURATION SHOWN LOWER RIGHT		

Symbol	Description	Symbol	Description
	MOMENTARY PUSH BUTTON NORMALLY OPENED		CONTROL RELAY, GENERIC DESIGNATIONS: CR CONTROL RELAY MX AUXILIARY RELAY TR TIMING RELAY AR ALARM RELAY RR READY RELAY
	MOMENTARY PUSH BUTTON NORMALLY CLOSED		CONTROL RELAY, LATCHING
	MUSHROOM PUSH BUTTON NORMALLY OPENED		CONTACT, NORMALLY OPENED TOP ID TAG DENOTES PARENT RELAY
	MUSHROOM PUSH BUTTON NORMALLY CLOSED		CONTACT, NORMALLY CLOSED TOP ID TAG DENOTES PARENT RELAY
	TOGGLE SWITCH NORMALLY OPENED		SOLENOID, GENERIC
	TOGGLE SWITCH NORMALLY CLOSED		HEATING ELEMENT, GENERIC
	TWO-POSITION SWITCH NORMALLY OPENED		ELAPSED TIME METER, ELECTRONIC
	THREE-POSITION BUTTON NORMALLY OPENED		HORN, ALARM
	LIMIT SWITCH NORMALLY OPENED		HORN, ALARM AUDIO AND VISUAL ANNUNCIATION
	LIMIT SWITCH NORMALLY CLOSED		TRANSFORMER, CONTROL POWER RATINGS AS NOTED ON THE DRAWINGS
	LIMIT SWITCH HELD OPENED		BATTERY OR DC POWER SOURCE
	LIMIT SWITCH HELD CLOSED		MOTOR ACTUATED VALVE M MODULATING O/C OPEN/CLOSE
	TEMPERATURE SWITCH NORMALLY OPENED		MOTOR ACTUATED VALVE MODULATING O/C OPEN/CLOSE
	TEMPERATURE SWITCH NORMALLY CLOSED		GENERIC INSTRUMENT SYMBOL FIT FLOW INDICATING TRANSMITTER MOV MOTOR OPERATED VALVE
	FLOAT SWITCH NORMALLY OPENED		INDICATION LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR
	FLOAT SWITCH NORMALLY CLOSED		INDICATION LIGHT, PUSH-TO-TEST W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR
	FLOW SWITCH NORMALLY OPENED		
	FLOW SWITCH NORMALLY CLOSED		
	PRESSURE SWITCH NORMALLY OPENED		
	PRESSURE SWITCH NORMALLY CLOSED		
	ON DELAY TIME RELAY NORMALLY OPENED TIMED CLOSED NO/C		
	ON DELAY TIME RELAY NORMALLY CLOSED TIMED OPENED NC/O		
	OFF DELAY TIME RELAY NORMALLY OPENED TIMED OPENED NO/O		
	OFF DELAY TIME RELAY NORMALLY CLOSED TIMED CLOSED NC/C		

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS. IF REQUIRED, IEC RATINGS WILL INCLUDE THE "IEC" AND "IP" PREFIX.

PROJ. START DATE: SEPT. 2021 MCE PROJ. # 010260136 DRAWN: CJA DESIGNED: LLS CHECKED: CAB PROJ. MGR: CHH	SCALE HORIZONTAL: AS SHOWN VERTICAL: N/A	E00.2 DRAWING NUMBER C REGION
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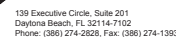
STATUS: **ISSUED FOR BIDDING**
NOT FOR CONSTRUCTION



1. EQUIPMENT LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE WITH CIVIL AND MECHANICAL PLANS FOR ALL WORK.
2. REPAIR CRACKS IN DRIVEWAYS AND OTHER TRAFFIC AREAS SHALL BE STEEL-REINFORCED CONCRETE-ENCASED DUCTBANKS. CONTRACTOR SHALL REPAIR DRIVEWAY WHEREVER IMPACT OCCURRED IN DRIVEWAY. REPAIRS TO DRIVEWAYS SHALL BE MATCHED TO EXISTING DRIVEWAY.
3. CONDUIT DUCTBANKS IN NON-TRAFFIC AREAS SHALL BE DIRECT BURIED WITH A 2" CONCRETE COVER.
4. CONTRACTOR SHALL HAND DIG UNDERGROUND DUCTBANKS WHERE NECESSARY TO AVOID EXISTING CONDUITS AND PIPING.
5. REPAIR CRACKS, SPALLS, AND REPAIR EXISTING UNDERGROUND IN SLAB AND BELOW GRADE CONDUITS WHERE ABLE. EXPOSED CONDUIT IN OUTDOOR AND CORROSIVE AREAS TO NEW OR EXISTING EQUIPMENT SHALL BE PROTECTED BY AN ADDITIONAL 2" CONCRETE COVER.
6. THE REPLACEMENT OF INFLUENT FLOW METERS AND CLARIFICOR FLOW METERS IS AN ADDITIVE ALTERNATE INCLUDING HANDED HH-42 ASSOCIATED UNDERGROUND DUCTBANKS. CONDUIT TO BE PROTECTED. EXTENDED AND RECONNECTED TO NEW EQUIPMENT AS REQUIRED TO MAINTAIN OPERATING CAPACITY.



LAUREL L. SMITH, PE
No. 91041



ELECTRICAL
ELECTRICAL PROPOSED SITE PLAN

STATUS: **ISSUED FOR BIDDING**
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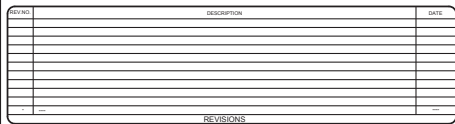
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10



STATUS: ISSUED FOR BIDDING
NOT FOR CONSTRUCTION

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LOAD TABLE		480V	KVA	XFR	-----
			KW	GEN	-----
NEW SWBD DP-7	3 Ph	400 AT	MCB	60%	
AERATION BUILDING E-ROOM	4 WIRE	600 AF	BUSS	40%	
NAME	CONT?	#DUTY	#CON	KVA	HP FLA
BLOWERS	Y	1	2	30.0	40.0
PUMPS	Y	2	3	50.0	130.0
PANEL LP-7	Y	1	1	35.0	42.0
					0.0
SUM				35.0	210.0 212.0
TOTAL CONNECTED LOAD (A)					317.0
TOTAL RUNNING LOAD				198.3	238.8

DUTY: 0.753155

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	A	B	C	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
1	20	SPARE			1	1.2			1	4.3	1.2	YARD LIGHTS	20	2
3	20	SPARE			1		0.0		1			SPARE	20	4
5					1			0.0	1					6
7					1	0.0			1					8
9					1		0.0		1					10
11					1			0.0	1					12
13	15	PUMP ROOM HOIST	5	6.0	3	1.7			3	36.1	30	TRANSFORMER #7	50	16
							11.7							
								11.7						
19					1	10.0			1					22
21					1		0.0		1					24
23					1			0.0	1					26
25					1	0.0			1					28
27					1		0.0		1					30
29					1			0.0	1					32
31					1	0.0			1					34
33					1		0.0		1					36
35					1			0.0	1					38
37					1	0.0			1					40
39					1		0.0		1					42
41					1			0.0	1					42
TOTAL KVA						12.9		11.7		SERVICE CHARACTERISTICS				
LOCATION LP7										VOLTS: 480Y/277				
LOCATION ORMOND BEACH										PHASE: 3				
BUILDING AERATION BUILDING										WIRE: 4				
NOTES: EXISTING PANEL FED FROM NEW SWITCHBOARD DP-7										22k MIN A/C SYMM, FULLY RATED ASSEMBLY				
GRAND CONNECTED TOTAL KVA								36.2		100 A MLO				
										80 A MCB				

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	A	B	C	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
1	20	AMMONIATOR	0.5	7.2	1	0.7			1	2.2	0.15	DISTRIBUTION BOX LIGHT	20	2
3	20	AMMONIA AREA RECEPT	0.36	5.2	1		0.7		1	5.2	0.36	DISTRIBUTION BOX RECEPT	20	4
5	20	PRV-300, PRESS REGULATE RECARB TANK	0.3	4.3	1			0.9	1	8.7	0.6	MOV-310, RECARB TANK	20	6
7	20	MOV-310, DIST BOX TO FILTERS 1-4	0.6	8.7	1	1.2			1	8.7	0.6	RECARB RECEPTACLE	20	8
9	20	CONTROL PANEL SP-080	0.5	7.2	1		1.0		1	7.2	0.5	AMMONIA SYSTEM HEATER	15	10
11	15	AMMONIA AREA LIGHTING	0.16	2.3	1			0.4	1	2.9	0.2	AMMONIA VACUUM SWITCHES	15	12
13	20	SPARE			1	0.0			1			SPARE	20	14
15	20	SPARE			1		0.0		1			SPARE	20	16
17	20	SPARE			1			0.0	1			SPARE	20	18
19		SPACE			1	3.0			3	42.7	8.9	PANEL LP-EB	60	20
21		SPACE			1		3.0							
23		SPACE			1			3.0						
25		SPACE			1	0.0			3			SURGE PROTECTION	30	26
27		SPACE			1		0.0							
29		SPACE			1			0.0						
TOTAL KVA						4.8		4.7		SERVICE CHARACTERISTICS				
LOCATION LP-EB2										VOLTS: 120/208				
LOCATION ORMOND BEACH										PHASE: 3				
BUILDING GENERATOR BUILDING E-ROOM										WIRE: 4				
NOTES: NEW PANEL FED FROM MCC-1 VIA EXISTING 30 KVA TRANSFORMER										22k MIN A/C SYMM, FULLY RATED ASSEMBLY				
GRAND CONNECTED TOTAL KVA								13.7		100 A MLO				
										80 A MCB				

CIRCUIT DESIGNATION: PP-7 MAIN POWER FEED

UTILITY TRANSFORMER	
MAX XFMR RATING	1000 KVA
PRIMARY VOLTS	4,160 V
SECONDARY VOLTS	480 V
IMPEDANCE FACTOR	5.75%
C VALUE	1202.8 A
MULTIPLIER	19.324

CABLE TO MAIN (MDP)	
NUMBER OF SETS	3
WIRE SIZE	600 KCML
CONDUIT TYPE	PVC
CONDUCTOR TYPE	Copper
C VALUE	28033
DIST XFMR TO MAIN	200 FT
F VALUE	0.1995
MULTIPLIER	0.8337

CABLE TO LOAD (PP-7)	
NUMBER OF SETS	2
WIRE SIZE	350 KCML
CONDUIT TYPE	PVC
CONDUCTOR TYPE	Copper
C VALUE	22737
DIST MAIN TO LOAD	75 FT
F VALUE	0.1383
MULTIPLIER	0.8066

Inc SYM RMS	23.243 A
@XFMR SECONDARY	23.24 kA
Inc MOTOR CONTRIB.	4.811 A
@XFMR SECONDARY	4.81 kA
TOTAL Inc SYM RMS	28.055 A
@XFMR SECONDARY	28.05 kA

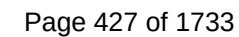
Inc SYM RMS	19.378 A
@PANEL DP-1	19.38 kA
Inc MOTOR CONTRIB.	4.811 A
@PANEL DP-1	4.81 kA
TOTAL Inc SYM RMS	24.190 A
@PANEL DP-1	24.19 kA

Inc SYM RMS	17.375 A
@NEW PANEL DP-7	17.37 kA
Inc MOTOR CONTRIB.	4.811 A
@NEW PANEL DP-7	4.81 kA
TOTAL Inc SYM RMS	22.186 A
@NEW PANEL DP-7	22.19 kA

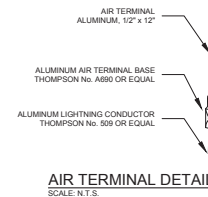
VALUES SHOWN ABOVE ARE BASED ON ANTICIPATED WORST CASE UTILITY SCENARIO.

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	A	B	C	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
1	20	LIGHTS	0.4	5.8	1	0.6			1	2.9	0.2	FIT-10 CHLORINE VAC	20	2
3	20	LIGHTS	0.4	5.8	1		0.6		1	2.9	0.2	PLC CONTROL PANEL	20	4
5	20	ROOF LIGHTS	0.4	5.8	1			1.2	1	11.5	0.8	FIT-20	20	6
7	20	EF-3	0.5	7.2	1	0.7			1	2.9	0.2	SPARE	30	8
9	40	OZONE DESTRUCT			1		0.0		2					10
11	20	SUMP PUMP - AERATOR	0.5	7.2	1			0.5	1			SPARE	20	14
13	20	SUMP PUMP - AER. PUMP ROOM	0.5	7.2	1				1			MOV-130	15	16
15	20	UT-100	0.2	2.9	1		0.8		1	8.7	0.6	MOV-140	15	18
17	20	AERATOR LIGHT	0.2	2.9	1			0.8	1	8.7	0.6	MOV-150	15	20
19	20	FIT 210	0.2	2.9	1	0.8			1	8.7	0.6	SPARE	15	22
21	20	FIT 220	0.2	2.9	1		0.2		1					24
23					1			0.0	1					26
25					1	0.0			1					28
27					1		0.0		1	0.0	0	EMERGENCY BACKUP	20	30
29	20	AHU	1.2	10.0	2		0.6	0.6	1			SPARE	20	32
33	40	CU COND	2.5	20.8	2	0.6		1.3	2			SPARE	20	34
37	80	MAIN			3	0.0		1.3	1					36
							0.0		1					38
								0.0	1					40
									1					42
TOTAL KVA						3.2		2.9		SERVICE CHARACTERISTICS				
LOCATION LP7A										VOLTS: 120/208				
LOCATION ORMOND BEACH										PHASE: 3				
BUILDING AERATION BUILDING										WIRE: 4				
NOTES: EXISTING PANEL FED FROM PANEL LP7										22k MIN A/C SYMM, FULLY RATED ASSEMBLY				
GRAND CONNECTED TOTAL KVA								10.4		100 A MLO				
										80 A MCB				

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	RECEPT GENERATOR ROOM	0.36	5.2	1	1.0			1	8.7	0.6	LIGHTS GENERATOR ROOM	20	2
3	20	RECEPT ELECTRICAL ROOM	0.36	5.2	1		0.6		1	2.9	0.2	GENERATOR BATTERY CHARGER	20	4
5	20	LIGHTS ELECTRICAL ROOM	0.4	5.8	1			0.9	1	7.2	0.5	EXHAUST FAN GENERATOR ROOM	20	6
7	30	OUTSIDE A/C (CU)	1	8.3	2	1.0			1	7.2	0.5	GENERATOR SPACE HEATER	20	8
							0.5		1	0.0	0	MCC-1 ELR RELAYS	20	10
11	20	TRANSFER PUMP CONTROL	0.5	7.2	1			0.5	1	0.0	0	MCC-2 ELR RELAYS	20	12
13	20	AMMONIATOR SPARE	0	0.0	1	0.5			2	8.3	1	INSIDE A/C (AHU)	40	14
15	20	RTU 47-E	0.5	7.2	1		1.0							
17	20	PANEL DS&6	0.5	7.2	1			0.7	1	2.9	0.2	DAVE'S UPS/ LOSS OF HEAD XFMR	20	18
19	20	FLUORIDE BUILDING	0.36	5.2	1	0.6			1	2.9	0.2	DAY TANK	20	20
21	20	PANEL C TURBIDITY	0.2	2.9	1		0.7		1	7.2	0.5	ELECTRIC GATE	20	22
23	20	FLUORIDE ROOM	0.2	2.9	1			0.4	1	2.9	0.2	VEEDER ROOT DIESEL FUEL PANEL	20	24
25	20	AMMONIA SPARE	0	0.0	1	0.0			1	0.0	0	TEMP MOTOR	20	26
27	20	SITE LIGHTS, GFIS	0.5	7.2	1		0.5		1	0.0	0	FLUORIDE PUMP	20	28
29	20	FLUORIDE PUMP	0.2	1.7	2			0.1	1	0.0	0	TEMP MOTOR	20	30
TOTAL KVA						3.0	3.3	2.6	SERVICE CHARACTERISTICS					
GRAND CONNECTED TOTAL KVA							8.9		VOLTS: 120/208					
									PHASE: 3					
									WIRE: 4					
									60 _____ A MLO					
									_____ A MCB					
PANEL LP-EB														
LOCATION ORMOND BEACH														
BUILDING GENERATOR BUILDING E-ROOM														
NOTES: EXISTING PANEL FED FROM NEW														
PANELBOARD LP-EBQ (PREV. MCC-1)														
2X MIN A/C SYMM. FULLY RATED ASSEMBLY														







1. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS FOR THE CONCRETE ANCHOR BASE IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA BUILDING CODE.
2. DESIGN SUBMITTAL SHALL BE FROM A CURRENTLY LICENSED STRUCTURAL ENGINEER BY THE STATE OF FLORIDA.
3. PROVIDE ANCHORS, HARDWARE, SUPPORTS, ETC., AS NEEDED TO SECURE LIGHT-POLE FIXTURE.



LETTER	DESCRIPTION	LAMPS	REMARKS	SYMBOL
A	LED OUTDOOR POLE MOUNTED AREA LIGHT. EPA 1.2sqft, DK BRONZE FINISH, TYPE 3 DISTRIBUTION PHOTOCELL CONTROL. PROVIDE POLE AND BASE PER DETAIL THIS SHEET, 150MPH ULTIMATE DESIGN WIND SPEED.	60 LED L90/>80,000HRS. 137WATTS, 700ma, 4000K	LITHONIA LIGHTING MOD. KAOT LED OR APPROVED EQUAL.	
B	4' PENDANT SUSPENDED OR SURFACE MOUNTED LED LUMINAIRE, SUITABLE FOR WET, DAMP AND/OR COLD LOCATIONS. ONE-PIECE FIBERGLASS HOUSING, GASKETED, FROSTED SPREAD DISTRIBUTION LENS.	LED L80/80,000HRS, 6000LM, 39W, 5000K	LITHONIA LIGHTING MOD. FSM LED OR APPROVED EQUAL.	

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13/16"x1-5/8" SST STRUT CHANNEL WITH END CAPS (TYP.)

SS CDX4 88 (TYP.)

5/8" SS PLATE (10"x8") WITH 3/8"x6" 316 SST EXPANSION BOLTS (TYP.)

DSCN #8

CJB #8

SEE NOTE 1

#2 AWG BARE CU TO GROUND GRID

SEE NOTE 1

DP-7

RVSS B2

RVSS B1

VFD P3

VFD P2

VFD P1

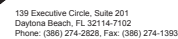
4" CONCRETE EQUIPMENT PAD

#1 AWG BARE CU TO GROUND GRID

AERATION ELECTRICAL ROOM EQUIPMENT MOUNTING DETAILS
SCALE: 1"=1'-0"

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LAUREL L. SMITH, PE
No. 91041

ELECTRICAL
ELECTRICAL DETAILS III

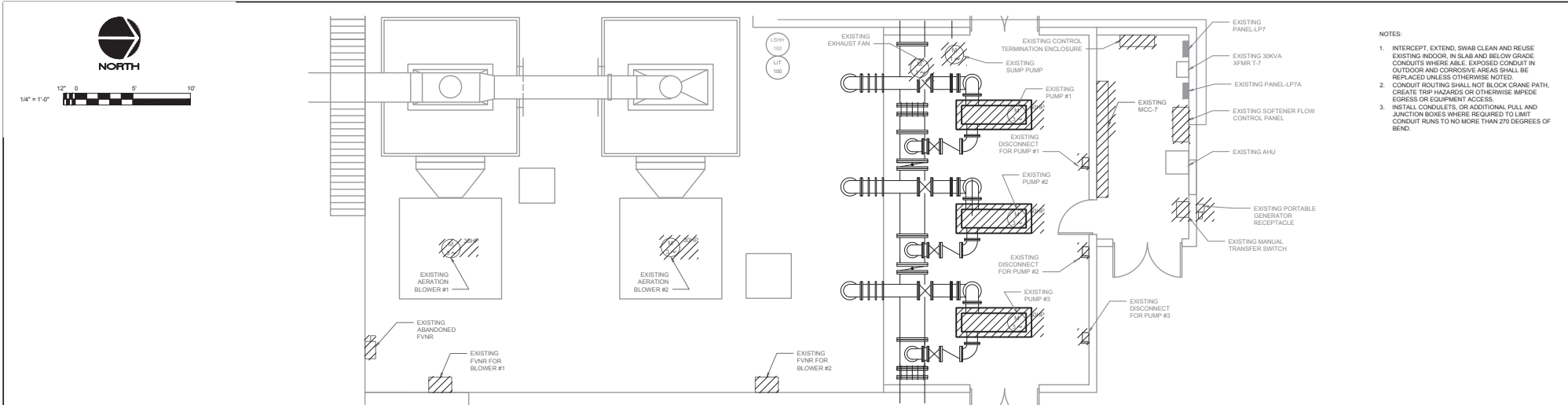
PROJ. START DATE:	SEPT. 2021
MCE PROJ. #	010260136
DRAWN	AAL
DESIGNED	LLS
CHECKED	CAB
PROJ. MGR.	CHH

SCALE
HORIZONTAL:
AS SHOWN
VERTICAL:
AS SHOWN

A

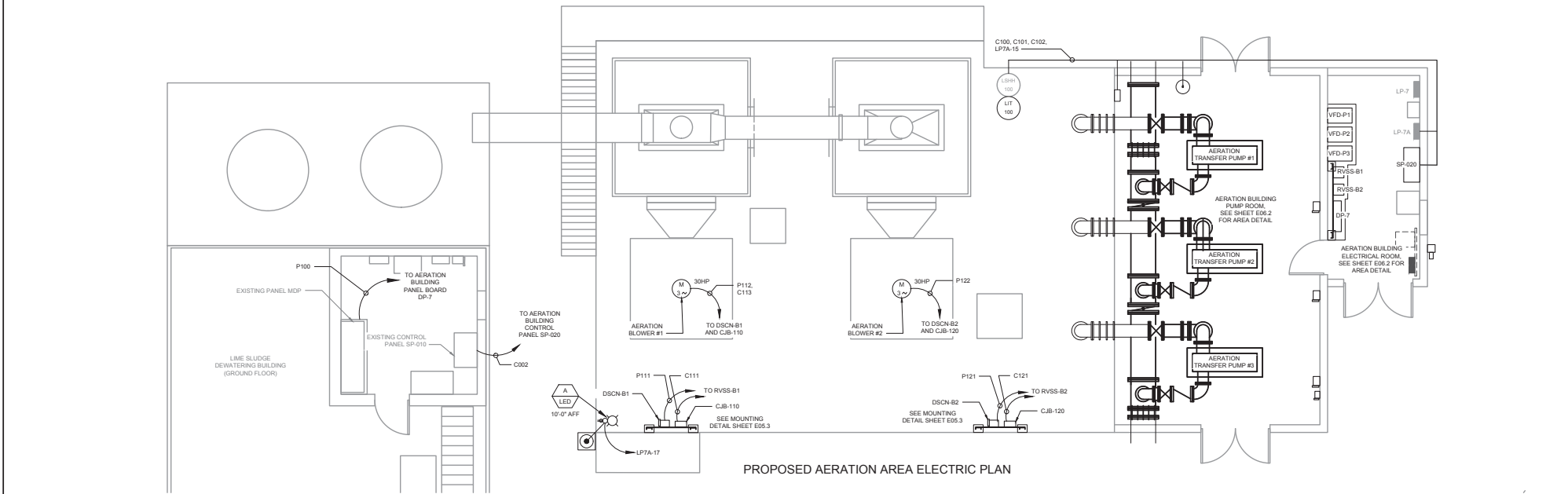
STATUS: **ISSUED FOR BIDDING**
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EXISTING AERATION AREA ELECTRICAL DEMO PLAN

- NOTES:
1. INTERCEPT, EXTEND, SWAB CLEAN AND REUSE EXISTING INDOOR, IN SLAB AND BELOW GRADE CONDUITS WHERE ABLE. EXPOSED CONDUIT IN OUTDOOR AND CORROSIVE AREAS SHALL BE REPLACED UNLESS OTHERWISE NOTED.
 2. CONDUIT ROUTING SHALL NOT BLOCK CRANE PATH, CREATE TRIP HAZARDS OR OTHERWISE IMPED EGRESS OR EQUIPMENT ACCESS.
 3. INSTALL CONDUITS, OR ADDITIONAL PULL AND JUNCTION BOXES WHERE REQUIRED TO LIMIT CONDUIT RUNS TO NO MORE THAN 270 DEGREES OF BEND.



PROPOSED AERATION AREA ELECTRIC PLAN

REV	DESCRIPTION	DATE

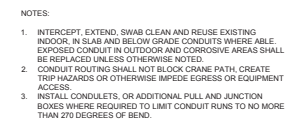
LAUREL L. SMITH, PE
No. 91041

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www.mckimcreed.com

THE CITY OF ORMOND BEACH

2022 WATER TREATMENT PLANT IMPROVEMENTS
ELECTRICAL
AERATION AREA ELECTRICAL PLAN

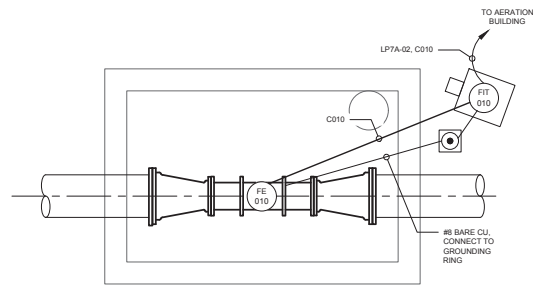
PROJ. START DATE: SEPT. 2021
MCE PROJ. # 01026136
DRAWN: AAL
DESIGNED: LLS
CHECKED: CAB
PROJ. MGR: CHH
SCALE: HORIZONTAL: AS SHOWN, VERTICAL: NA
E06.1
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ISSUED FOR BIDDING
NOT FOR CONSTRUCTION

[illegible]

LAUREL L. SMITH, PE
No. 91041

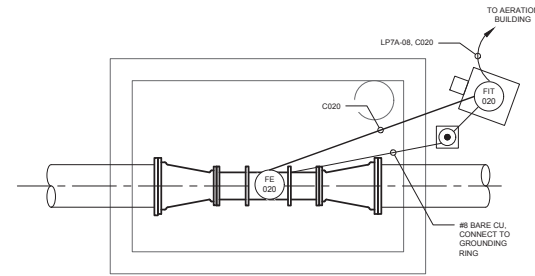


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12" 0 1' 2' 3' 4' 5'

1/2" = 1'-0"



12" 0 1' 2' 3' 4'

1/2" = 1'-0"

-
- The diagram illustrates the piping and electrical systems for two Claricone Softeners. Claricone Softener No. 1 is shown on the left, and Claricone Softener No. 2 is on the right. Both softeners are represented by large circles within diamond-shaped outlines. The piping system includes various valves, fittings, and electrical components. Key components and labels include:
- Claricone Softener No. 1:** A large circle within a diamond shape.
 - Claricone Softener No. 2:** A large circle within a diamond shape.
 - Piping:** Solid lines represent the main piping, with dashed lines indicating alternative or auxiliary connections.
 - Valves:** Indicated by symbols on the piping, including a check valve and a valve with a handwheel.
 - Electrical Components:**
 - FE 210:** A fitting or electrical connection point for Softener No. 1.
 - FE 220:** A fitting or electrical connection point for Softener No. 2.
 - FTT 210:** A fitting or electrical connection point for Softener No. 1.
 - FTT 220:** A fitting or electrical connection point for Softener No. 2.
 - C210:** A cable or conduit connection for Softener No. 1.
 - C220:** A cable or conduit connection for Softener No. 2.
 - LP7A-19, C210:** A cable or conduit connection for Softener No. 1, leading to the Aeration Building.
 - LP7A-21, C220:** A cable or conduit connection for Softener No. 2, leading to the Aeration Building.
 - Grounding:** Labels indicate "#8 BARE CU. CONNECT TO GROUNDING RING" for both softeners, showing the electrical grounding path.
 - Aeration Building:** Indicated by dashed lines and arrows, showing the direction of flow or connection to the building.

LAUREL L. SMITH, PE
No. 91041

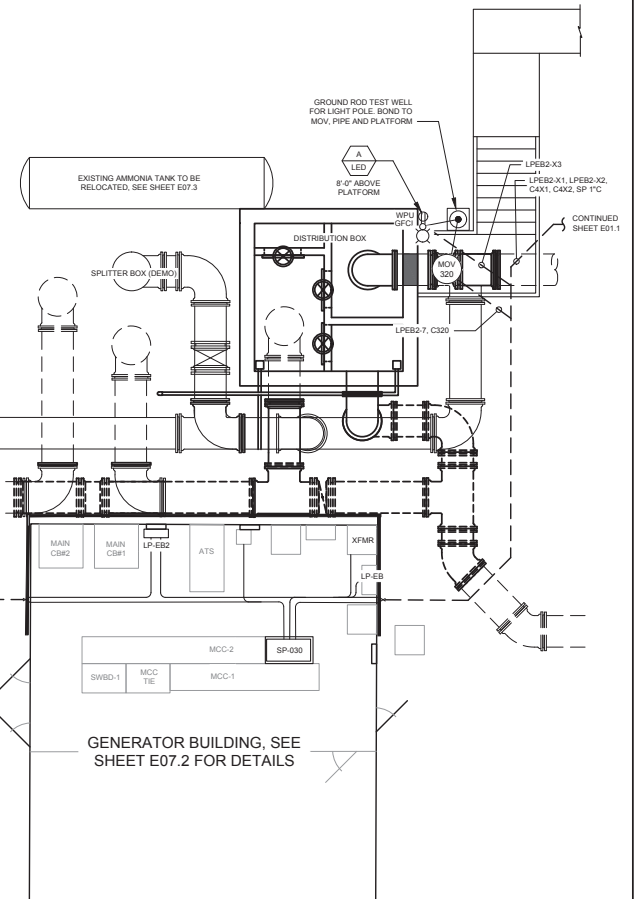


**2022 WATER TREATMENT PLANT
IMPROVEMENTS**

ELECTRICAL

**FLOW METER ELECTRICAL PLAN ADDITIVE
ALTERNATE**

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LAUREL L. SMITH, PE
No. 91041



139 Executive Circle, Suite 201
Daytona Beach, FL 32114-7102
Phone: (386) 274-2828, Fax: (386) 274-1393

CA Lic. No. 29588
www.mckimcreed.com



THE CITY OF
ORMOND BEACH

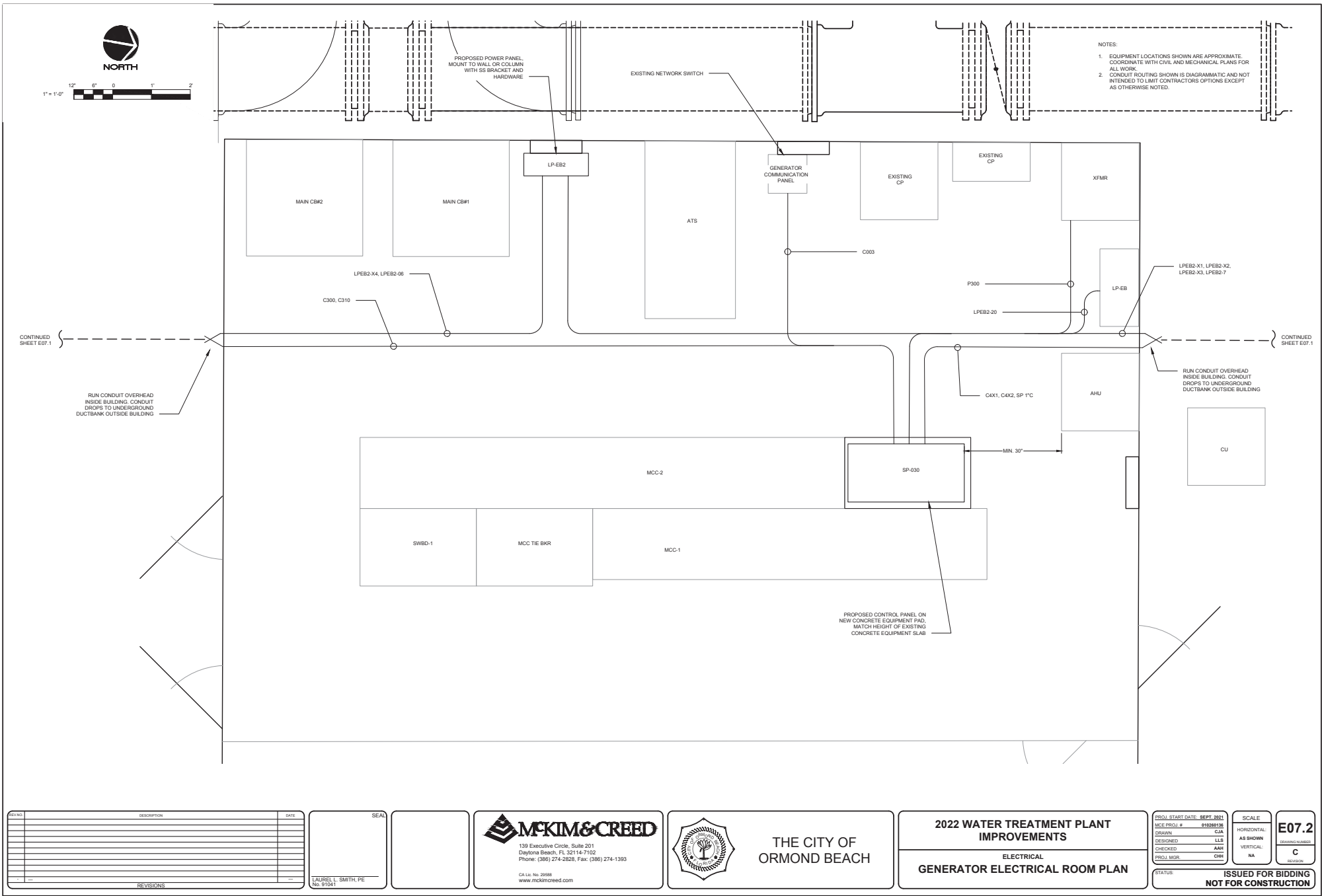
2022 WATER TREATMENT PLANT IMPROVEMENTS

ELECTRICAL
MOTOR OPERATED VALVE AREA
ELECTRICAL PLAN

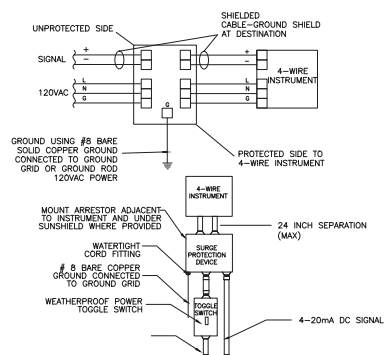
PROJ. START DATE: SEPT. 2021	SCALE	E07.1 DRAWING NUMBER C SECTION
MCE PROJ. # 010260136	HORIZONTAL:	
DRAWN AAL	AS SHOWN	
DESIGNED LLS	VERTICAL:	
CHECKED CAB	NA	
PROJ. MGR. CHH		

STATUS: **ISSUED FOR BIDDING
NOT FOR CONSTRUCTION**

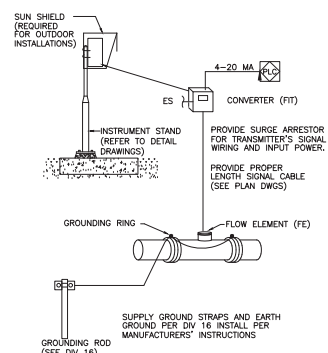
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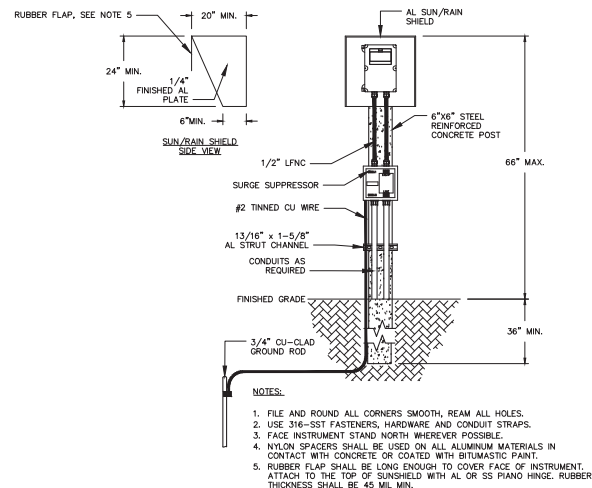
FIRST LETTER			SUCCEEDING-LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	Analysis		Alarm		
B	Burner, Combustion		Programmer		
C	Conductivity (Electrical)			Control	Closed
D	Density or Specific Gravity	Differential			
E	Voltage		Sensor (Primary Element)	Education	
F	Flow Rate	Ratio (Fraction)			
G	Gaging		Glass, Viewing Device		
H	Hand				High
I	Current (Electrical)		Indicate		
J	Power	Scan			
K	Time, Time Schedule			Control Station	
L	Level		Light (Pilot)		Low
M	Motor				Middle, Intermediate
N	Vibration				
O	Operation	Offset	Orifice, Restriction		Open
P	Pressure, Vacuum		Point (Test) Connection		
Q	Quantity, Event	Integrate, Totalize	Integrate		
R	Radiation		Record, Print	Regulate	
S	Speed, Frequency	Safety		Switch	
T	Temperature			Transmit	
U	Multivariable	Trend	Multifunction	Multifunction	Multifunction
V	Viscosity	Vacuum		Valve, Damper, Louwer, Gate	
W	Weight, Force, Torque		Well		
X	Unclassified		Unclassified	Unclassified	Unclassified
Y				Relay, Compute, Convert	
Z	Position			Final Control Element	Drive, Actuator, Unclassified Final Control Element



4-WIRE INSTRUMENT SURGE ARRESTOR INSTALLATION



TYPICAL MAGNETIC FLOWMETER INSTALLATION



INSTRUMENT STAND - CONCRETE POST DETAIL

[illegible]

LAUREL L. SMITH, PE
No. 91041



MCKIM & CREED
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Daytona Beach, FL 32114-7102
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THE CITY OF
ORMOND BEACH

2022 WATER TREATMENT PLANT IMPROVEMENTS

ABBREVIATIONS AND DETAILS

PROJ. START DATE:	SEPT. 2021
MCE PROJ. #	010280136
DRAWN	AAL
DESIGNED	LLS
CHECKED	CAB
PROJ. MGR.	CHH

STATUS

SCALE

HORIZONTAL

AS SHOWN

VERTICAL

NA

SUED F

100.1

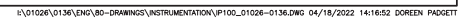
DRAWING NUMBER

C

REVISION

R BIDDING

**ISSUED FOR BIDDING
NOT FOR CONSTRUCTION**



2022 WATER TREATMENT PLANT IMPROVEMENTS

BID NO. 2022-15



CITY OF ORMOND BEACH

PREPARED BY:

McKim & Creed, Inc.
139 Executive Circle, Suite 201
Daytona Beach, FL 32114

M&C Project No. 010260136

ISSUED FOR BID

**2022 WATER TREATMENT
PLANT IMPROVEMENTS
Ormond Beach, Florida
Bid No. 2022-15**

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**2022 WATER TREATMENT
PLANT IMPROVEMENTS
Ormond Beach, Florida**

ISSUED FOR BID

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**2022 WATER TREATMENT
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ISSUED FOR BID

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**2022 WATER TREATMENT
PLANT IMPROVEMENTS
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ISSUED FOR BID

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**2022 WATER TREATMENT
PLANT IMPROVEMENTS
Ormond Beach, Florida**

ISSUED FOR BID

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**SECTION 00005
CERTIFICATIONS PAGE**

ENGINEER CERTIFICATION

PROJECT NUMBER: Bid No. 2022-15

We hereby certify that the Project Manual stated herein meets all applicable provisions of Section 471 of Florida Statutes and Chapters 61G15-18 to 37 of Florida Administrative Code. We also certify that we are registered professional engineers in the State of Florida, in good standing, and that we have the necessary knowledge and experience that enables us to make this certification statement. Finally, we certify that the Drawings submitted with this Project Manual include all necessary notes and details to allow the Contractor to build the **2022 WATER TREATMENT PLANT IMPROVEMENTS**, to these engineering specifications and that the City Building Inspector can verify the construction.

Civil Engineer Divisions _____ Professional Engineer's Seal: _____ _____ Signature <u>Charles H. Hill, P.E., BCEE #81509</u> (print name) Date: _____ Address: <u>McKim & Creed, Inc.</u> <u>139 Executive Circle, Suite 201</u> <u>Daytona Beach, FL 32137</u> Phone Number: <u>386-274-2828</u>	Electrical Engineer Divisions _____ Professional Engineer's Seal: _____ _____ Signature <u>Laurel Smith, P.E. #91041</u> (print name) Date: _____ Address: <u>McKim & Creed, Inc.</u> <u>1365 Hamlet Avenue</u> <u>Clearwater, FL 33756-3331</u> Phone Number: <u>727-442-7196</u>
Structural Engineer Divisions _____ Professional Engineer's Seal: _____ _____ Signature <u>A. Emmett Anderson III, PE #34779</u> (print name) Date: _____ Address: <u>McKim & Creed, Inc.</u> <u>9432 Baymeadows Road, Suite 230</u> <u>Jacksonville, FL 32256</u> Phone Number: <u>904-587-0134</u>	

END OF SECTION

SECTION 00030
ADVERTISEMENT FOR BIDS

Sealed bids for furnishing all labor, materials and equipment necessary for constructing the **2022 WATER TREATMENT PLANT IMPROVEMENTS, Bid No. 2022-15** for the City of Ormond Beach, Florida, will be received at the Office of the Purchasing Coordinator, City Hall, Ormond Beach, Florida, until 3:00 pm on March 30, 2023 at which time bids will be opened and publicly read aloud in the Training Room located in the breezeway between City Hall and the Public Library. Bids received after the above time and date will be returned unopened.

BASE BID: The work consists of providing a special coating to the walls and ceiling of the aerator box wet well; remove and replace blower fans, motors, enclosures, electrical panels; remove and replace aerator transfer pumps, motors, valving and piping; incorporate bridge crane in aerator transfer pump room; remove and replace the VFD's, MCC's and all electrical equipment in the MCC room adjacent to the transfer pump room; remove a section of the overflow pipe in the recarbonation tank; construct temporary bypass piping of splitter box and distribution box; remove splitter box, revise piping and rehabilitate the distribution box; relocate the existing anhydrous ammonia tank and provide new piping and valving; provide other associated and/or incidental work as shown on the plans and described within the technical specification to provide a complete and operational installation.

The work is shown on the Drawings and specified in the Project Manual. The project Drawings, Specifications and related Bidding documents are available on-line at **www.demandstar.com**, or by calling DemandStar at (206) 940-0305. If you have difficulty obtaining these documents, please contact the City's purchasing office at (386) 676-3223.

A **pre-bid conference** to discuss the details and requirements of the contract will be held on March 15th, 2023, at 10:00 am, in the Training Room at City Hall. All prospective bidders are strongly encouraged to attend. The deadline for submitting questions is March 23rd, 2023, at 5:00pm.

END OF SECTION

Revised 2/14/20

ADVERTISEMENT FOR BIDS

00030 - 1
ISSUED FOR BID

2022 WATER TREATMENT PLANT IMPROVEMENTS

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SECTION 00100 INSTRUCTION TO BIDDERS

00101. Defined Terms

Terms used in these Instructions to Bidders are defined in the General Conditions of the Construction Contract and have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest, qualified, responsible Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

The OWNER for this project is:

The City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174

The ENGINEER for this project is:

McKim & Creed, Inc.
139 Executive Circle, Suite 201
Daytona Beach, FL 32114

00102. Copies of Bidding Documents

2.1 The City uses the services of DemandStar (www.demandstar.com) to advertise/distribute its bids and RFP's via the internet.

2.2 Complete sets of the Bidding Documents may be obtained from the issuing office designated in the Advertisement for Bids.

2.3 Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.4 OWNER and ENGINEER in making copies of Bidding Documents available, on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

00102.1 COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

(a) Keep and maintain public records required by the City to perform the contracted service.

(b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.

(c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.

(d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.

(e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174 (386) 676-3331
CITYCLERK@ORMONDBEACH.ORG**

Ref: Fla. Stat. §119.0701(2016)

00102.2 Public Records/Non-Confidentiality of Bids

The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this bid solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119, F.S., the Public Records Act. Information and materials received by the City of Ormond Beach in connection with responsive bids

shall be deemed to be public records subject to public inspection upon award, recommendation of award, or 30 days after bid opening, whichever occurs first.

00103. Qualifications of Bidders

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within seven days after the OWNER's request, written evidence of his ability to perform the work, such as financial data, previous experience, and evidence of authority to conduct business in the jurisdiction where the Project is located. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

00104. Public Entity Crimes:

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Proposal on a contract to provide any goods or services to a public entity, may not submit a Proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit Proposals on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

4.1 Discrimination Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

00105. Examination of Contract Documents and Site

5.1 Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.

5.2 Reference is made to the Supplementary Conditions for the identification of those reports of investigations and tests for subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by ENGINEER in preparing the Drawings and Specifications. OWNER will make such reports available for inspection to any Bidder or copies may be obtained from the ENGINEER by the Bidder at reproduction cost. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract

Documents. Before submitting his Bid each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

5.3 On request OWNER will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid. Bidders making such investigations shall return site to original condition and shall pay for any damages resulting therefrom.

5.4 The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Supplementary Conditions, General Requirements, or Drawings.

5.5 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 4 and that the Contract Documents are sufficient in Scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

00106. Clarification/Correction of Proposal

The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

00107. Interpretations

All questions about the meaning or intent of the Contract Documents shall be submitted in writing to the Purchasing Coordinator via email to Rob.Hart@ormondbeach.org. Replies will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

00108. Minority Policies

The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

00109. Bid Security

9.1 Bids shall be accompanied by a Bid Security. The Security shall be made payable to OWNER, in the amount of five percent (5%) of the total bid, and in the form of a certified or cashier's check or a Bid Bond issued by a Surety meeting the requirements of paragraph 5.1 of the General Conditions. The Bid Security shall be irrevocable after the time and date set for the opening of bids, and for a period of ninety (90) days thereafter.

9.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within fifteen (15) days of the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the seventh day after the "effective date of the Agreement" or the first day after the expiration of the period that Bids are specified to remain open in the Advertisement for Bids. Bid Security of other Bidders will be returned within seven (7) days of the Bid opening.

00110. Contract Time

The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Bid Form and will be included in the Agreement.

00111. Liquidated Damages

Provisions for liquidated damages, if any, are set forth in the Bid Form and Agreement.

00112. Subcontractors

12.1 If the Supplementary Conditions, Bid Form and/or Specifications require the identity of certain subcontractors to be submitted to the OWNER with the bid, the bidder will list in his bid all subcontractors proposed for those portions of the work for which such identification is so required. When requested, an experience statement, pertinent information as to similar projects satisfactorily completed and other evidence of qualifications for each listed subcontractor shall be submitted within seven (7) days after the bid. If the OWNER after due investigation has reasonable objection to any proposed subcontractor, OWNER may before giving the Notice of Award request the apparent low bidder to submit an acceptable substitute without an increase in his bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor so listed and to whom OWNER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER.

12.2 In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to OWNER those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with OWNER's written consent.

00113. Material and Equipment List (Manufacturers)

If the Supplementary Conditions, Bid Form and/or Specifications require the identity of certain material and equipment manufacturers be submitted to the OWNER with the bid, the bidder will list in his bid all material and equipment manufacturers proposed for those portions of the work for which such identification is so required. Such list shall be supplemented by product descriptions for each listed material and equipment item. Supplemental information will be submitted with the bid

unless it has been prefiled with the ENGINEER. In this latter case, the bid shall state that the information has been prefiled. Equipment manufacturers/suppliers must agree to OWNER'S terms of purchase. In no event will OWNER accept terms of sale that limit OWNER'S ability to reasonably recover in the event of equipment failure/defect such as, but not limited to; mandatory arbitration clauses, venue of court proceedings and applicable law outside of Volusia County, Florida, or damage limitations that preclude recovery for failed or defective equipment that would be less than full compensation for OWNER's loss. If the OWNER after due investigation has reasonable objection to any proposed material or equipment item, OWNER may before giving the Notice of Award request the apparent low bidder to submit an acceptable substitute without an increase in his bid price. If the apparent Successful Bidder declines to make any such substitution, the contract may not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any material or equipment manufacturer so listed and to whom OWNER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER. This acceptance of a material or equipment manufacturer does not relieve the CONTRACTOR from the responsibility of submitting shop drawings in accordance with Section 01300 before incorporating said material and/or equipment into the Work.

00114. Material and Equipment Substitutions

Excluding items called for in the bidders Equipment and Subcontractors List in the Bid, Section 00300, whenever it is indicated on the Drawings or specified in the Specifications that a substitute or "or equivalent" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the "effective date of the Agreement". The procedure for submittal of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Section 01630 - Substitutions and Product Options.

00115. Bid Form

15.1 Bids shall be submitted on standard forms which are furnished in this Project Manual.

15.2 Bid Forms must be completed in ink or by typewriter. All blank spaces must be filled. Where indicated on the Bid Form, the Bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence.

15.3 The estimate of the various quantities of work applicable to unit price items as shown on the Bid Form is approximate and is intended solely to provide the basis of comparison upon which the award of contract is made. Final payment will be made on the basis of the actual completed quantities of each item.

15.4 Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

15.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

15.6 Bids by a Joint Venture must be executed by all individuals, Partners, or Corporations interested in the Joint Venture in the same manner that bids by these separate entities are required to be executed.

15.7 All names must be typed or printed below the signature.

15.8 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

15.9 The address to which communications regarding the Bid are to be directed must be shown.

15.10 Only one bid from any individual, firm, partnership or corporation under the same or different names, will be considered. Should it appear to the OWNER that any Bidder is interested in more than one bid, all bids in which such Bidder is interested will be rejected.

00116. Submission of Bids

Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be included in an opaque sealed envelope, marked with the Bid Number, Project Title, and Bidder's Name and Address, accompanied by the Bid Security and other required documents. Include one (1) original bid form and (1) electronic file (thumb/flash drive or CD). If the Bid is sent through the mail or other delivery system, the sealed Bid shall be sent in a separate envelope with the notation "BID ENCLOSED" as well as the Bid Number, Project Title, and Bid Opening Date clearly displayed on the shipping envelope/package.

Submit bids to:

City of Ormond Beach
Purchasing Coordinator
22 South Beach Street
Ormond Beach, FL 32174

00117. Modification and Withdrawal of Bids

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

00118. Opening of Bids

Bids will be opened publicly and read aloud and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

00119. Bids to Remain Open

All Bids shall remain open for ninety (90) days after the day of the Bid opening, but OWNER may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

00120. Award of Contract

20.1 OWNER reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated product of quantities and unit prices and the correct product thereof will be resolved in favor of the correct product. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

20.2 In evaluating Bids, OWNER shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid forms. It is OWNER's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form but OWNER may accept them in any order or combination.

20.3 OWNER may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items or material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by OWNER.

20.4 Irregular bids may be rejected. Irregular bids are defined as those containing serious omissions, unauthorized alternative bids, incomplete bids or unbalanced bids. Failure to provide all of the information required to accompany the bid will be considered to be a serious omission.

20.5 OWNER may conduct such investigations as he deems necessary to assist in the evaluation of any Bid.

20.6 OWNER reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to OWNER's satisfaction.

20.7 If the contract is to be awarded it will be awarded to the lowest responsible Bidder whose evaluation by OWNER indicates that the award will be in the best interests of the Project. The low bid will be based on the total cost of the Base Bid and, when applicable, any Additive or Deductive Alternates that are to be included in the Contract, as decided by the OWNER.

20.8 If the contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within the number of days after the day of the Bid opening specified in the Advertisement for Bids to remain open.

00121. Performance and Other Bonds

Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER's requirements as to performance and other Bonds. When the Successful Bidder delivers the executed Agreement to OWNER it shall be accompanied by the required Contract Security.

00122. Signing of Agreement

When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by at least five (5) unsigned counterparts of the Agreement and all other Contract Documents. Within ten (10) days thereafter CONTRACTOR shall sign all and deliver at least five (5) counterparts of the Agreement to OWNER with other Contract Documents attached. Within ten (10) days thereafter OWNER will deliver fully signed counterparts to CONTRACTOR.

00123. Special Requirements

23.1 Financing. Funds will be available for payment of estimate draws as they become due.

23.2 Prohibited Interests. No official of the OWNER who is authorized in such capacity, and on behalf of the OWNER to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project shall become directly or indirectly interested, personally, in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the OWNER who is authorized in such capacity and on behalf of the OWNER to exercise legislative, executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally, in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

23.3 Performance of Work by CONTRACTOR:

Contract Assignment. The successful Bidder (or Bidders) will be required to perform the work as a prime contractor.

The CONTRACTOR shall not sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of his right, title or interest therein, without written consent of the OWNER.

END OF INSTRUCTION TO BIDDERS

**SECTION 00300
BID**

CONTRACTORS NAME _____ LICENSE NO. _____

PROJECT IDENTIFICATION: 2022 WATER TREATMENT PLANT IMPROVEMENTS

CONTRACT IDENTIFICATION AND NUMBER: Bid No. 2022-15

THIS BID IS SUBMITTED TO:

(Name and Address of Owner)

City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to complete all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

2. BIDDER certifies that he has investigated the requirements to do business in the jurisdiction where the project is located, and that he is either qualified to do business or will obtain such prequalification prior to award of the contract.

3. BIDDER accepts all of the terms and conditions of the Instructions to Bidders (Section 00100) including, without limitation, those dealing with the disposition of Bid Security, Public Entity Crimes, and Minority Policies. This Bid will remain open for 90 days after the day of Bid opening. BIDDER will sign the Agreement and submit the Contract security and other documents required by the Contract Documents within ten (10) days after the date of OWNER'S Notice of Award.

4. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

(a) BIDDER has examined copies of all the Contract Documents and of the following addenda:

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____
_____	_____

(receipt of all of which is hereby acknowledged) and also copies of the Advertisement to Bid and the Instructions to Bidders;

(b) BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.

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2022 WATER TREATMENT PLANT IMPROVEMENTS
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(c) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER; and

5. BIDDER will complete the Work for the following price(s):

BID SCHEDULE

BASE BID				
ITEM NO.	DESCRIPTION	QTY	UNIT	AMOUNT
1	Mobilization and Demobilization (Max 5% of Bid)	1	LS	
2	Survey & Layout	1	LS	
3	Bacteriological Clearance	1	LS	
4	Erosion and Sedimentation Control	1	LS	
5	Submit Certified "As-Built" Drawings	1	LS	
6	Permit Fees & Allowances	1	LS	\$100,000.00
7	Coordination with City for Bypass of Aerator Structure	1	LS	
8	Work within Recarbonation Tank	1	LS	
9	Construct Temporary Bypass Piping Around Splitter Box and Distribution Box	1	LS	
Aerator Structure				
10	Construct New Handrail	1	LS	
11	Rehabilitate Interior of Aerator Box Wet Well	1	LS	
12	Remove & Replace Aerator Blower Fans, Motors and Enclosures	1	LS	
13	Remove & Replace Aerator Transfer Pumps, Motors, Valves and Piping	1	LS	
14	Furnish & Install Bridge Crane in Aerator Transfer Pump Room	1	LS	
15	Paint Aerator Transfer Pump Room	1	LS	

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BID (Cont'd.)
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ITEM NO.	DESCRIPTION	QTY	UNIT	AMOUNT
BASE BID (cont'd)				
Aerator Structure (cont'd)				
16	Remove & Replace VFD's, MCC's and all Electrical Equipment in Room for MCC #7.	1	LS	
Splitter/Distribution Box				
17	Remove Splitter Box & Rehabilitate Distribution Box	1	LS	
18	Relocate Ammonia Tank	1	LS	
19	Install new Electrical, Instrumentation and Control Equipment for Generator Building	1	LS	
ADDITIVE ALTERNATES				
20	Remove Stainless Steel Diffusers, Pipe and Supports from within Aerator Structure	1	LS	
21	Remove Two (2) Venturi Meters in 24-inch Pipe to Claricones and Replace with Two (2) 10-inch Mag Meters	1	LS	
22	Remove Two (2) Venturi Meters in 16-inch Raw Water Main and Replace with Two (2) 10-inch Mag Meters	1	LS	
23	Furnish & Install Sanded Epoxy Floor in Aerator Transfer Pump Room	1	LS	
24	Remove & Replace Buried 24-inch DIP between Recarbonation Tank and Distribution Box with 24-inch PVC Pipe	1	LS	
25	Furnish & Install Fiber Optic Cable/Conduit from Aeration Building Control Panel to the HSPS Control Panel	1	LS	

TOTAL BASE BID (Item Nos. 1-19) \$ _____
 (Figures)

(Words)
TOTAL ADDITIVE ALTERNATE BID (Item Nos. 20-25) \$ _____
 (Figures)

(Words)
TOTAL BID (BASE BID & ADDITIVE ALTERNATES) \$ _____
 (Figures)

(Words)

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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BIDDER acknowledges that the quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

BIDDER agrees that the Work will be substantially completed within **300** calendar days after the date when the Contract Time commences to run, and completed within **330** calendar days after the date when the Contract Time commences to run.

BIDDER recognizes that time is of the essence to complete this Project and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The BIDDER also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER has determined and BIDDER agrees to accept that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **FIVE HUNDRED DOLLARS AND 00/100 (\$500.00)** for each calendar day that expires after the time specified above for substantial completion until the Work is substantially complete. After substantial completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified above for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining work. In the event the CONTRACTOR is terminated or abandons the work prior to the scheduled date for final completion, the CONTRACTOR may be liable for both liquidated damages attributable to delay and for excess completion costs.

6. The following documents are attached to and made a condition of this Bid:

- (a) Required Bid Security in the form of
 - (1) a certified check drawn in favor of the City of Ormond Beach in the amount of 5 percent of the total bid; or
 - (2) a Bid Bond in the amount of 5 percent of the total bid.
- (b) Equipment, Material, and Subcontractors List
- (c) All information required by the Trench Safety Act (Part VI, Chapter 553, Florida Statutes).
- (d) Drug Free Workplace Certificate
- (e) Conflict, Non-Conflict of Interest, Litigation Statement
- (f) Local Vendor Preference
- (g) Verification of Employment Status Using E-Verify System

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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7. Communications to the BIDDER concerning this Bid shall be addressed to:

Mailing Address: _____
Street Address: _____
City, State, Zip Code: _____
Email: _____
Telephone No.: _____ Fax No.: _____

8. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract DOCUMENTS have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 20 ____.

If BIDDER is:

An Individual

By _____
(Individual's Name - Signature)

(Individual's Name - Typed or Printed) (SEAL)

doing business as _____

Business address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
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If BIDDER is:

A Partnership

By _____ (SEAL)
(Firm Name)

(General Partner - Signature)

(General Partner - Typed or Printed)

Business Address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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If BIDDER is:

A Corporation

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Name of Person Authorized to Sign - Signature)

(Name of Person Authorized to Sign - Typed or Printed)

(Title)

(Corporate Seal)

Attest _____

Business address: _____

Phone No.: _____

Fax No.: _____

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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If BIDDER is:

A Joint Venture

By _____
(Name - Signature)

(Name - Typed or Printed)

Address: _____

Phone No.: _____

Fax No.: _____

By _____
(Name - Signature)

(Name - Typed or Printed)

Address: _____

Phone No.: _____

Fax No.: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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EQUIPMENT AND SUBCONTRACTORS LIST

List the names of the manufacturers whose product is proposed for use. No more than one manufacturer's name shall be inserted for each item of material and/or equipment listed. Failure to list materials and equipment manufacturer may result in the Bid being rejected as incomplete and nonresponsive. If any Subcontractors are proposed to be used for any portions of the Work, the names, addresses, phone numbers and work classifications of each such Subcontractor must be listed. The failure to list all Subcontractors proposed for the work may result in the Bid being rejected as incomplete and nonresponsive. If more than one manufacturer or subcontractor is listed, selection will be made by the OWNER. If none is listed, those listed as the "Basis for Design" will be used.

MATERIALS AND EQUIPMENT:

<u>Section</u>	<u>Item</u>	<u>Manufacturer</u>
02616	Ductile Iron Pipe	
02616	Ductile Iron Fittings	
02623	PVC Pipe	
11215	Horizontal Split-Case Centrifugal Pump	
14301	Bridge Crane & Hoist	
15101	Gate Valves	
15103	Butterfly Valves	
15106	Pressure Sustaining/Electronic Metering & Flow Control Valve	Cla-Val
15110	Check Valves	
15155	Magnetic Flow Meter	

Subcontractors:

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

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Subcontractors:

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

Work Classification: _____

Name: _____

Address: _____

Phone Number: _____ Fax Number: _____

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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TRENCH SAFETY STANDARDS

If this project includes trench excavation in excess of five (5) feet in depth, the following trench safety standards will be in effect during the period of construction of the project:

The Occupational Safety and Health Administration's excavation safety standards, 29 C.F.R.s. 1926.650 Subpart P, and any regulation promulgated there under are hereby incorporated as the standard for this project.

The Bidder hereby certifies that the Contractor performing the trench excavation will comply with the applicable trench safety standards.

The Bidder further certifies that the cost (which is included in his unit cost) of compliance with applicable trench safety standards is:

	<u>Estimated Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Estimated Price</u>
<u>ITEM</u>				
1. Trench Excavation	_____	L.F.	_____	_____
2. Sheet piling/Shoring	_____	S.F.	_____	_____

Name (signature) Date

Name (typed or printed)

Title

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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DRUG-FREE WORKPLACE CERTIFICATION

Identical Or “Tie” Bids: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more proposals which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business’s policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.
- 3) Give each employee that engages in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
- 4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.
- 5) Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee’s community, by any employee who is so convicted.
- 6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

Name (signature)

Date

Name (typed or printed)

Title

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT

1.

- [] To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- [] The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

2.

- [] The undersigned firm has had no litigation on any project in the last five (5) years.
- [] The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

TITLE

DATE

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
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LOCAL VENDOR PREFERENCE

The following is taken from the Code of Ordinances, City of Ormond Beach, Chapter 2, Financial Matters, Division 3, Purchasing, Article IX, Section 2-304:

Except where otherwise provided by federal or state law or other funding source restrictions, purchases of goods and services under the Purchasing Code shall give preference to local businesses as follows:

- (a) Under a competitive bid solicitation, the City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded.
- (b) A *local business* shall mean a vendor that has a valid occupational license issued by the City of Ormond Beach at least one year prior to bid opening, with a physical business address located within the municipal boundaries of the City of Ormond Beach from which the vendor operates or performs business on a day-to-day basis that is a substantial component of the goods or services being offered and has provided a Local Vendor Affidavit of Eligibility at the time the bid is submitted.
- (c) A *Local Vendor Affidavit of Eligibility* shall accompany the bid submittal to be considered valid and shall include, but not be limited to, the following information:
 - (1) A physical business and location address;
 - (2) A copy of current City of Ormond Beach Local Business Tax Receipt (occupational license) to verify the business location;
 - (3) Proof of payment of business tax and real property tax due to the City of Ormond Beach;
 - (4) A copy of the firm's most recent annual corporation report to the Florida Division of Corporations;
 - (5) Any additional information necessary to verify local status.
- (d) *Exemptions:* Goods or services provided under a cooperative purchasing agreement, contracts for professional services subject to Consultants' Competitive Negotiation Act, purchases or contracts funded in whole or part by a governmental entity that does not allow local preferences, purchases made under another agency's agreements or contracts (piggybacking), purchases under emergency or sole source situations and procurements subject to formal proposals including but not limited to request for proposals (RFP) or continuing contract, and request for quotes (RFQ) versus straight competitive bids.
- (e) This section shall not be deemed to require the granting of a local preference, and nothing herein prohibits the award of a contract to a non-local vendor where such award is in the public interest.

BID (Cont'd.)
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LOCAL VENDOR AFFIDAVIT OF ELIGIBILITY

I certify that my company meets all of the following qualifications to be eligible for the local vendor preference:

- a. My company has a physical business address located within the municipal boundaries of the City of Ormond Beach which is used to perform business on a day-to-day basis.
- b. My company holds any business (occupational) or contractor license required by the City of Ormond Beach at least one year prior to bid opening.
- c. Payment of business tax and real property tax due to the City of Ormond Beach is current
- d. My company is in compliance with annual reporting to the Florida Division of Corporations

Company Name: _____

Address: _____

Business or Contractor License Number: _____

Phone Number: _____ Fax Number: _____

Owner's Name: _____ Signature: _____

Sworn to before me this _____ day of _____

Notary Public for the State of _____ My Commission Expires _____

Notary Public Signature: _____

Printed Name: _____

To be approved as a local bidder and receive bid preference on an eligible local project, this affidavit of eligibility, a copy of your local business or contractor license, copy of business tax/real property tax and a copy of the firm's most recent annual corporation report must be submitted with your bonafide BID package. Bid preference is provided at the City's sole discretion.

VENDOR DO NOT COMPLETE BELOW

To be verified and completed by an authorized representative of the City of Ormond Beach's Purchasing Department:

Vendor Certified by: _____ Date: _____

BID (Cont'd.)
2022 WATER TREATMENT PLANT IMPROVEMENTS
ORMOND BEACH, FLORIDA

VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

1. Undersigned firm warrants it **IS** currently registered with the U.S. Department of Homeland Security's E-Verify system, **and** is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
2. Undersigned firm warrants it **has not** had any contracts terminated as a result of violations of Sections 448.09 or 448.095, *Florida Statutes*, that prohibit it from contracting with a public agency.
3. Undersigned firm warrants that if it enters into an agreement with a subcontractor, an express provision shall be included in all of its subcontracts requiring subcontractors, who perform work or provide services pursuant to the contract, to use the E-Verify system to verify employment eligibility of all new employees hired by the subcontractor during the contract term.
4. Undersigned firm understands that any subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and the contractor understands it shall maintain any such affidavits for the duration of the contract, and the contract with the subcontractor must be immediately terminated if the City has a good faith belief that the subcontractor knowingly violated Section 448.09 (1), *Florida Statutes*.
5. Undersigned firm understands that in the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and the contractor may not be awarded a public contract for a period of at least one (1) year after the date of termination. The contractor may be held liable for any additional costs incurred by the City as a result of termination of the contract.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

TITLE

DATE

END OF BID

**SECTION 00410
BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we _____

(hereinafter called *Principal*) and

(hereinafter called the *Surety*) a corporation chartered and existing under the Laws of the State _____ of with its principal offices in the County of _____ and authorized to do business in the State of Florida, in the full and just sum of _____ Dollars (\$ _____) good and lawful money of the United States of America, to be paid upon demand of the _____, Florida, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, and assigns, jointly and severally and firmly by these presents,

WHEREAS, the Principal is about to submit, or has submitted to the City of Ormond Beach, Florida, a bid for work to be done on the **2022 WATER TREATMENT PLANT IMPROVEMENTS (Bid No. 2022-15)** in, and for the City and

WHEREAS, the Principal desires to file this bond in accordance with law, in lieu of a certified or cashier's check otherwise required to accompany this Bid.

NOW, THEREFORE: the conditions of this obligation are such that if the Bid be accepted the Principal shall within ten (10) days after the receipt of notification of the acceptance thereof execute a contract in accordance with the Bid and upon the terms, conditions and unit or lump sum prices set forth therein, in the form and manner required by the Owner, and execute a sufficient and satisfactory Contract Bond payable to the Owner, in an amount not less than the total contract price, as indicated by the approximate quantities shown in the Bid, in form and with security satisfactory to the said City, then this obligation to be void; otherwise to be and remain in full force and virtue in law; and the Surety shall upon the failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid City upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day _____, 20 ____.

(Principal)

By: _____

ATTEST:

(Surety)

By: _____

(SEAL)

END OF SECTION

BID BOND

**00410-1
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

**SECTION 00500
FORM OF AGREEMENT**

THIS AGREEMENT is by and between City of Ormond Beach, a Municipal Corporation in the State of Florida (hereinafter called OWNER) and

(hereinafter called CONTRACTOR)

The bid for this contract was approved by the City Commission on _____, 2022.

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

BASE BID: The work consists of providing a special coating to the walls and ceiling of the aerator box wet well; remove and replace blower fans, motors, enclosures, electrical panels; remove and replace aerator transfer pumps, motors, valving and piping; incorporate bridge crane in aerator transfer pump room; remove and replace the VFD's, MCC's and all electrical equipment in the MCC room adjacent to the transfer pump room; remove a section of the overflow pipe in the recarbonation tank; construct temporary bypass piping of splitter box and distribution box; remove splitter box, revise piping and rehabilitate the distribution box; relocate the existing anhydrous ammonia tank and provide new piping and valving; provide other associated and/or incidental work as shown on the plans and described within the technical specification to provide a complete and operational installation.

The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

**2022 WATER TREATMENT PLANT IMPROVEMENTS
BID No. 2022-15**

Article 2. ENGINEER

The Project has been designed by McKim & Creed, Inc., 139 Executive Circle, Suite 201, Daytona Beach, FL 32114 who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed within **300** calendar days after the date when the Contract Time commences to run as provided in paragraph 2.3 of the General Conditions,

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FORM OF AGREEMENT

**00500 - 1
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

and completed and ready for final payment in accordance with paragraph 14.10 of the General Conditions within **330** calendar days after the date when the Contract Time commences to run.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **FIVE HUNDRED AND 00/100 Dollars (\$500.00)** for each calendar day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 3.1 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining work. In the event the Contractor is terminated or abandons the Work prior to the scheduled date for final completion, the Contractor may be liable for both liquidated damages attributable to delay and for excess completion costs.

Article 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work, in accordance with the Contract Documents, an amount in current funds equal to the lump sum TOTAL BID of \$ _____, as listed in the Bid Form. Payment shall be for the actual completed work, as specified in the Measurement and Payment section of the project Manual and in accordance with Article 14 of the General Conditions.

Article 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or about the 15th day of each month during construction as provided below, provided Applications for Payment are timely delivered pursuant to Article 14.1 of the General Conditions. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in paragraph 14.1 of the General Conditions.

5.1.1 When applicable, all progress payments shall be in an amount equal to:

Ninety-Five percent (95%) of the Work completed.

Ninety-Five percent (95%) of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case the aggregate of payments previously made and less such amounts as ENGINEER shall determine in accordance with paragraph 14.4 of the General Conditions.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.10 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.10.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

6.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

6.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 6.2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

6.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof and consists of the following:

- 7.1 This Agreement (pages 1 to 6, inclusive).
- 7.2 Exhibits to this Agreement (pages ____ to ____ , inclusive).
- 7.3 Performance and other Bonds, identified as exhibits 00610 and 00615 and consisting of 4 pages.
- 7.4 Notice of Award.
- 7.5 General Conditions (pages 1 to 36 , inclusive).
- 7.6 Supplementary Conditions (pages 1 to 8 , inclusive).
- 7.7 Specifications bearing the title:

2022 WATER TREATMENT PLANT IMPROVEMENTS

and consisting of 16 divisions, as listed in table of contents thereof.

- 7.8 Drawings, consisting of sheets numbered **G00.1 thru G00.2; C01.1 thru C03.4; S00.1 thru S01.3; M01.1 thru M05.1; D00.1 thru D00.2; E00.1 thru E07.3; I00.0 thru I02.4;** inclusive and bearing the following general title:

2022 WATER TREATMENT PLANT IMPROVEMENTS

- 7.9 Addenda numbers ____ to ____ , inclusive.
- 7.10 CONTRACTOR'S Bid (pages 1 to 16 , inclusive) marked exhibit ____ (Attach Bid Form only in special circumstances).
- 7.11 Documentation submitted by CONTRACTOR prior to Notice of Award (pages ____ to ____ , inclusive).
- 7.12 Any Modification, including Change Orders, duly delivered after execution of Agreement.

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be altered, amended or repealed by a Modification (as defined in Section 1 of the General Conditions).

Article 8. MISCELLANEOUS

- 8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement. One counterpart each has been delivered to OWNER and CONTRACTOR, and to ENGINEER as applicable. All portions of the Contract Documents have been signed by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2022.

OWNER City of Ormond Beach

CONTRACTOR _____

By _____

Bill Partington
Mayor

By _____

(Title)

[CITY SEAL]

[SEAL]

Attest _____

Joyce A. Shanahan
City Manager

Attest _____

(Title)

Address for giving notices:

City of Ormond Beach

PO Box 277

Ormond Beach, FL 32175-0277

Address for giving notices:

License No. _____

Registered Agent for service process:

(Name)

(Title)

END OF AGREEMENT

Revised 2-2-21

FORM OF AGREEMENT

**00500 - 6
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

**SECTION 00610
PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a(n) _____, hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

_____ Dollars, (\$ _____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with OWNER, dated ____ day of _____, 20____, for the construction of:

2022 WATER TREATMENT PLANT IMPROVEMENTS
Bid No. 2022-15

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one-year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

Revised 9/11/15

PERFORMANCE BOND

**00610-1
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be
(number)
deemed an original, this _____ day of _____, 20_____.

ATTEST:

Principal

By _____ (s)

(Principal) Secretary

(SEAL)

(Witness to Principal)

(Address)

(Address)

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

Witness to Surety

Attorney-In-Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND. All BONDS signed by an agent must be accompanied by a certified copy of the authority to act.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

Revised 9/11/15

PERFORMANCE BOND

**00610-2
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

**SECTION 00615
PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a(n) _____, hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

_____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with OWNER, dated ____ day of _____, 20____, for the construction of:

**2022 WATER TREATMENT PLANT IMPROVEMENTS
Bid No. 2022-15**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be
(number)
deemed an original, this _____ day of _____, 20_____.

ATTEST:

Principal

(Principal) Secretary

By _____ (s)

(SEAL)

(Witness to Principal)

(Address)

(Address)

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

Witness to Surety

Attorney-In-Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND. All BONDS signed by an agent must be accompanied by a certified copy of the authority to act.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

Revised 9/11/15

PAYMENT BOND

**00615-2
ISSUED FOR BID**

OPINION OF ATTORNEY

This is to certify that I have examined the attached Contract Documents, and that I am of the opinion that such documents conform to the Laws of the State of Florida, and that the execution of the Contract is in due and proper form, and that the foregoing agreements constitute valid and binding obligations on such parties.

Attorney for Owner

This the _____ day of _____, _____

END OF SECTION

SECTION 00700
GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

1.01. Addenda - Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents of the Contract Documents.

1.02. Agreement - The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.03. Application for Payment - The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payment and which is to include such supporting documentation as required by the Contract Documents.

1.04. Approve - The word approve is defined to mean review of the material, equipment or methods for general compliance with the design concepts and with the information given in the Contract Documents. It does not imply a responsibility on the part of the ENGINEER to verify in every detail conformance with the Drawings and Specifications.

1.05. Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.06. Bonds - Bid, Performance and Payment Bonds and other instruments of security.

1.07. Change Order - A written order to CONTRACTOR signed by OWNER authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after the effective date of the Agreement.

1.08. Contract - The Agreement.

1.09. Contract Documents - The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, Notice of Award, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, any other exhibits identified in the Agreement, together with all Modifications issued after the execution of the Agreement.

1.10. Contract Price - The Contract Price constitutes the total compensation (subject to authorized adjustments) payable by OWNER to CONTRACTOR for performing the Work.

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**GENERAL CONDITIONS OF
THE CONSTRUCTION CONTRACT**

**00700-1
ISSUED FOR BID**

- 1.11. Contract Time - The number of days (computed as provided in paragraph 16.2) or the date stated in the Agreement for the completion of the Work.
- 1.12. CONTRACTOR - The person, firm or corporation with whom OWNER has entered into the Agreement.
- 1.13. Day - A calendar day of twenty-four hours measured from midnight to the next midnight.
- 1.14. Defective - Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment.
- 1.15. Drawings - The drawings, which will be identified in the Agreement, which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.
- 1.16. Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
- 1.17. ENGINEER - The City Engineer of the City of Ormond Beach, Florida, or the designee of such Engineer.
- 1.18. Engineering Order - A written request issued by ENGINEER to CONTRACTOR requesting a cost for certain modifications to the Work. An Engineering Order is not an authorization to perform the modifications.
- 1.19. Field Order - A written order issued by ENGINEER which clarifies or interprets the Contract Documents or orders minor changes in the Work in accordance with paragraph 10.2, but which does not involve a change in the Contract Price or the Contract Time.
- 1.20. Furnish - The words "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install complete in place and ready for service".
- 1.21. General Requirements - Sections of Division 1 of the Specifications.
- 1.22. Inspection - The term "Inspection" and the act of inspecting as used in these Contract Documents is defined to mean examination of construction to ensure that it conforms to the design concept expressed in the Drawings and Specifications. These terms shall not be construed to mean supervision, superintending and/or overseeing.
- 1.23. Modification - (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may only be issued after the

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**GENERAL CONDITIONS OF
THE CONSTRUCTION CONTRACT**

**00700-2
ISSUED FOR BID**

effective date of the Agreement and must be in writing to be effective.

1.24. Notice of Award - The written notice by OWNER to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.25. Notice to Proceed - A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform his obligation under the Contract Documents.

1.26. OWNER - The City of Ormond Beach, Florida.

1.27. Product - Materials, systems, and equipment provided by the CONTRACTOR.

1.28. Project - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.29. Project Manual - The term "Project Manual" includes Bidding Requirements, Conditions of the Contract, Specifications, and Drawings.

1.30. Project Representative - The authorized representative of ENGINEER who is assigned to the site or any part thereof.

1.31. Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by CONTRACTOR, a Subcontractor, manufacturer, fabricator, supplier or distributor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a manufacturer, fabricator, supplier or distributor and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

1.32. Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

1.33. Subcontractor - An individual, firm or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.34. Substantial Completion - The point reached when the Work (or a specified part thereof), in the opinion of ENGINEER as evidenced by his final certificate of Substantial Completion, is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it was intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.10. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

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**GENERAL CONDITIONS OF
THE CONSTRUCTION CONTRACT**

**00700-3
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

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1.35. Surety - Any person, firm or corporation which is bound with CONTRACTOR and which engages to be responsible for CONTRACTOR and his acceptable performance of the Work by a Performance or Payment Bond, or by a Public Construction Bond.

1.36. Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

ARTICLE 2 - PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. OWNER shall furnish to CONTRACTOR, at OWNER's expense, up to three copies of the Contract Documents. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Time; Notice to Proceed:

2.3. The Contract Time will commence on the day indicated in the Notice to Proceed.

Starting the Project:

2.4. CONTRACTOR shall start to perform the work on the date when the Contract Time commences to run, but no work shall be done at the site prior to the date on which the Contract Time commences to run, and no work shall be done at the site before the Payment and Performance Bond is executed, delivered to the OWNER, and recorded in the public records of Volusia County, Florida.

Before Starting Construction:

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover; however, CONTRACTOR shall not be liable to OWNER for failure to report any conflict, error or discrepancy in the Drawings or Specifications, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof. No verbal agreement or conversation with any officer, agent or employee of OWNER, either before or after the execution of this Contract, shall

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**GENERAL CONDITIONS OF
THE CONSTRUCTION CONTRACT**

**00700-4
ISSUED FOR BID**

2022 WATER TREATMENT PLANT IMPROVEMENTS

affect or modify any of the terms or obligations herein contained.

2.6. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.3, 5.4, 5.6 and 5.7.

2.7. CONTRACTOR shall not allow any on-site Subcontractor to commence work on his subcontract until insurance required of the Subcontractor has been obtained and approved by the CONTRACTOR. Failure to obtain this insurance will be the sole responsibility of the CONTRACTOR.

ARTICLE 3 - CONTRACT DOCUMENTS; INTENT AND REUSE

3.1. The Contract Documents comprise the entire Agreement between OWNER and CONTRACTOR concerning the Work. They may be altered only by a Modification.

3.2. The Contract Documents are complementary; a requirement contained in one is applicable to all. If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, he shall report it to ENGINEER in writing at once and before proceeding with the Work affected thereby; however, CONTRACTOR shall not be liable to OWNER for failure to report any conflict, error or discrepancy in the Specifications or Drawings unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof. The various Contract Documents shall be given precedence, in case of conflict, error or discrepancy, as follows: Modifications, Agreement, Addenda, Supplementary Conditions, General Conditions, Drawings and Specifications. In a series of Modifications or Addenda the latest will govern.

3.3. It is the intent of the Specifications and Drawings to describe a complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended results shall be supplied whether or not it is specifically called for. When words which have well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual or code in effect at the time of opening of Bids (or, on the effective date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their agents or employees from those set forth in the Contract Documents. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided for in paragraph 9.2.

3.4. The Contract Documents will be governed by the law of the State of Florida, and venue for any action brought thereunder shall lie solely and exclusively in the Circuit Court in and for Volusia County, Florida.

Reuse of Documents:

3.5. Neither CONTRACTOR nor any Subcontractor, manufacturer, fabricator, supplier or distributor shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

**ARTICLE 4 - AVAILABILITY OF LANDS; PHYSICAL CONDITIONS;
REFERENCE POINTS**

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands or easements entitles him to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Physical Conditions - Investigations and Reports:

4.2. Reference is made to the Supplementary Conditions for identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by ENGINEER in preparation of the Drawings and Specifications. Such reports are not guaranteed as to accuracy or completeness and are not part of the Contract Documents.

Unforeseen Physical Conditions:

4.3. CONTRACTOR shall promptly, after becoming aware of and before further disturbing conditions affected thereby or performing any work in connection therewith, notify ENGINEER in writing of any subsurface or latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the Contract Documents. CONTRACTOR, upon discovering and notifying OWNER of such subsurface or latent conditions, shall not perform work in the affected area until authorized to do so by OWNER. ENGINEER will promptly review those conditions and determine if further investigation or tests are necessary. If so determined by the ENGINEER, OWNER shall promptly obtain the necessary additional investigations and tests and furnish copies to CONTRACTOR. If ENGINEER finds that the results

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of such investigations or tests indicate that there are subsurface or latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by CONTRACTOR, a Change Order authorizing CONTRACTOR to perform the additional work may be issued incorporating the necessary revisions.

Reference Points:

4.4. OWNER shall provide engineering surveys for construction to establish reference points which in his judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for replacement or relocation of such reference points by professionally qualified personnel.

ARTICLE 5 - BONDS AND INSURANCE

Performance and Other Bonds:

5.1. CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. The City will record the bonds in the public records at the CONTRACTOR's expense. These Bonds shall remain in effect at least until one (1) year after the date of final payment, except as otherwise provided by law. All bonds shall be deemed to contain all of the Conditions of Section 255.05, Florida Statutes, even if such language is not directly contained within the bond. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by the bidding documents or Supplementary Conditions and be executed by such Sureties as (i) are licensed to conduct business in the State of Florida, and (ii) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the Surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of clauses (i) and (ii) of paragraph 5.1, CONTRACTOR shall within five (5) days after notice thereof, substitute another Bond and Surety, both of which shall meet the requirements of clauses (i) and (ii) of paragraph 5.1.

CONTRACTOR's Liability Insurance:

5.3. CONTRACTOR and on-site Subcontractors shall purchase and maintain such Commercial General Liability and other insurance as will provide protection from claims set forth

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below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether such performance is by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable;

5.3.1. Claims under workers' compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees.

5.3.4. Claims for damages insured by personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason.

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

5.3.6. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph 5.3 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the **Supplementary Conditions**, or required by law, whichever is greater. The Commercial General Liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed or renewal refused until at least **sixty** (60) days prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be fifteen (15) days) has been given to OWNER. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with paragraph 13.12. In addition, CONTRACTOR shall maintain such completed operations insurance for at least two years after final payment and furnish OWNER with evidence of continuation of such insurance at final payment and one year thereafter.

Contractual Liability Insurance:

5.4. The Commercial General Liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.15 and 6.16. The OWNER shall be named as "Additionally Insured" under the CONTRACTOR's Commercial General Liability insurance policy.

Owner's Liability Insurance:

5.5. OWNER may, at its option, purchase and maintain its own liability insurance and, at its option, may purchase and maintain such insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

Property Insurance:

5.6. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by law). This insurance shall include the interests of OWNER, CONTRACTOR, and Subcontractors in the Work, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in the Application for Payment. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.6 and 5.7 shall contain provisions that the coverage afforded will not be canceled or materially changed until at least **sixty** (60) days prior written notice has been given to OWNER.

5.7. CONTRACTOR shall purchase and maintain such boiler and machinery insurance as may be required by the Supplementary Conditions or by law. This insurance shall include the interests of OWNER, CONTRACTOR and Subcontractors in the Work.

5.8. OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR or Subcontractors in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. If CONTRACTOR wishes property insurance coverage within the limits of such amounts, CONTRACTOR may purchase and maintain it at his own expense.

5.9. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policy, OWNER shall, if possible, include such insurance, and the cost thereof shall be charged to CONTRACTOR by appropriate Change Order. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

Waiver of Rights:

5.10. OWNER and CONTRACTOR waive all rights against each other and the Subcontractors and their agents and employees and separate contractors (if any) and their subcontractors' agents and employees, for damages caused by fire or other perils to the extent

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covered by insurance provided under paragraphs 5.6 and 5.7, inclusive, or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by OWNER as trustee. OWNER shall require similar written waivers from each separate contractor, and CONTRACTOR shall require similar written waivers from each Subcontractor (in accordance with paragraph 6.8 as applicable); each such waiver will be in favor of all other parties enumerated in this paragraph 5.10.

Receipt and Application of Proceeds:

5.11. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 shall be adjusted with CONTRACTOR and made payable to CONTRACTOR as trustee for the insured, as their interests may appear, subject to the requirements of paragraph 5.12. CONTRACTOR shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order.

5.12. CONTRACTOR as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to CONTRACTOR's exercise of this power. If such objection be made, CONTRACTOR as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, CONTRACTOR as trustee shall upon the occurrence of an insured loss, give bond for the proper performance of his duties.

Acceptance of Bonds and Insurance:

5.13. If OWNER has any objection to the coverage afforded by or other provisions of the Bonds or Insurance required to be purchased and maintained by CONTRACTOR in accordance with Article 5 on the basis of non-conformance with the Contract Documents, OWNER shall so notify CONTRACTOR in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.6. CONTRACTOR shall provide to OWNER such additional information in respect of insurance provided as OWNER may reasonably request. If CONTRACTOR does not purchase or maintain all of the Bonds and Insurance required of CONTRACTOR by the Contract Documents, CONTRACTOR shall notify OWNER in writing of such failure to purchase prior to the start of the Work, or such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, OWNER may elect to obtain equivalent Bonds or Insurance to protect OWNER's interests at the expense of CONTRACTOR, and a Change Order shall be issued to adjust the Contract Price accordingly.

Partial Utilization - Property Insurance:

5.14. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.7; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing

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effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies that the property insurance shall not be canceled or lapse on account of any such partial use of occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

6.1. CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

Materials and Equipment:

6.3. All materials and equipment installed in the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment.

Equipment manufacturers/suppliers must agree to OWNER'S terms of purchase. In no event will OWNER accept terms of sale that limit OWNER'S ability to reasonably recover in the event of equipment failure/defect such as, but not limited to; mandatory arbitration clauses, venue of court proceedings and applicable law outside of Volusia County, Florida, or damage limitations that preclude recovery for failed or defective equipment that would be less than full compensation for OWNER's loss.

6.4. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

Concerning Subcontractors:

6.5. CONTRACTOR shall not employ any Subcontractor or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, to which OWNER may have any reasonable objection. CONTRACTOR shall submit with his Bid in writing the names, mailing addresses, and work classifications of all

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Subcontractors proposed for the Work. The failure to list all Subcontractors proposed for the Work may result in the Bid being rejected as incomplete and nonresponsive. A Subcontractor or other person or organization identified in writing to OWNER by CONTRACTOR prior to the Notice of Award and not objected to in writing by OWNER prior to the Notice of Award will be deemed acceptable to OWNER. Acceptance of any Subcontractor, other person or organization of OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. If OWNER after due investigation has reasonable objection to any Subcontractor, other person or organization proposed by CONTRACTOR after the Notice of Award because the qualifications and experience of the Subcontractor, other person or organization indicate that he cannot perform or provide work, materials or equipment which will perform the specified functions, CONTRACTOR shall submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution, and an appropriate Change Order may be issued. CONTRACTOR shall not be required to employ any Subcontractor, other person or organization to which CONTRACTOR has any reasonable objection. Whether objections are reasonable shall be determined as specified in paragraph 9.8.

6.6. CONTRACTOR shall be fully responsible for all acts and omissions of his Subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that CONTRACTOR is responsible for the acts and omissions of persons directly employed by CONTRACTOR. Nothing in the Contract Documents shall create any contractual relationship between OWNER and any Subcontractor or other person or organization having a direct contact with CONTRACTOR, nor shall it create any obligation on the part of OWNER to pay or to see to the payment of any moneys due any Subcontractor or other person or organization, except as may otherwise be required by law. OWNER may furnish to any Subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR on account of specific Work done.

6.7. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or delineating the Work to be performed by any specific trade.

6.8. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and contains waiver provisions as required by paragraph 5.10. CONTRACTOR shall pay each Subcontractor an appropriate share of any insurance proceeds received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.6 through 5.8.

6.9. Neither the OWNER nor the ENGINEER will undertake to settle any differences between CONTRACTOR and his Subcontractors or between Subcontractors.

Patent Fees and Royalties:

6.10. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall **indemnify** and **hold harmless** OWNER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights. OWNER will promptly notify CONTRACTOR of any such allegation of infringement of such rights.

Safety and Protection:

6.11. Precaution shall be exercised at all times by the CONTRACTOR for the protection of all persons, including employees, and property. The CONTRACTOR shall comply with all laws, regulations or ordinances related to safety and health, shall make special effort to detect hazardous conditions, and shall take prompt action where loss control/safety measures are reasonably expected. The OWNER may order work to be stopped if conditions exist that present on immediate danger to persons or property. The CONTRACTOR acknowledges that such stoppage will not shift responsibility for any damages from the CONTRACTOR to the OWNER.

6.12. CONTRACTOR be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.12.1. All employees on the Work and other persons who may be affected thereby.

6.12.2. All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

6.12.3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to in

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paragraph 6.12.2 or 6.12.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR. CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.12 that the Work is acceptable.

6.13. CONTRACTOR shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

Emergencies:

6.14. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give OWNER prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

Indemnification/Hold Harmless:

6.15 The parties recognize that the CONTRACTOR is an independent contractor. The CONTRACTOR agrees to assume liability for and indemnify, hold harmless, and defend the CITY, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the CONTRACTOR, its agents, officers, contractors, subcontractors, employees, or anyone else utilized by the CONTRACTOR in the performance of this Agreement. The CONTRACTOR's liability hereunder shall include all attorney's fees and costs incurred by the CITY in the enforcement of this indemnification provision. This includes claims made by the employees of the CONTRACTOR against the CITY and the CONTRACTOR hereby waives its entitlement, if any, to immunity under Section 440.11, Florida Statutes. Such obligations contained in this provision shall survive termination of this Agreement and shall not be limited by the amount of any insurance required to be obtained or maintained under this Agreement.

In the event of any claim arising out of the paragraph above, the CITY will elect, in its sole discretion, that either:

- 1) The CONTRACTOR assume control of the defense of any claim asserted by a third party against the CITY and, in connection with such defense, shall appoint lead counsel, in each case at the CONTRACTOR's expense. The CITY shall have the right, at its option, to participate in the defense of any third party claim, without relieving CONTRACTOR of any of its obligations hereunder. If the CONTRACTOR assumes control of the defense of any third party claim in accordance with this paragraph, the

CONTRACTOR shall obtain the prior written consent of the CITY before entering into any settlement of such claim. If the CONTRACTOR assumes control of the defense and the CONTRACTOR has failed or is failing to prosecute or defend vigorously the third party claim, the CITY may assume the control of the defense as provided by sub (2); or

- 2) The CITY will assume control of the defense of any third party claim, but CONTRACTOR shall pay the fees of counsel retained by the CITY and all expenses, including experts' fees.

Each party shall cooperate, and cause its agents to cooperate, in the defense or prosecution of any third party claim and shall furnish or cause to be furnished such records and information, and attend such conferences, discovery proceedings, hearings, trials, or appeals, as may be reasonably requested in connection therewith. It is further the specific intent and agreement of said parties that all the Contract Documents on this Project are hereby amended to include the foregoing indemnification. CONTRACTOR expressly agrees that it will not claim, and waives any claim, that this indemnification violates Section 725.06, Florida Statutes or is unenforceable pursuant to Section 725.06, Florida Statutes.

Nothing contained in the foregoing indemnification shall be construed as a waiver of any immunity or limitation of liability the CITY may have under the doctrine of sovereign immunity or Section 768.28, Florida Statutes.

Precaution shall be exercised at all times by the CONTRACTOR for the protection of all persons, including employees and property. The CONTRACTOR shall comply with all applicable laws, regulation and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action with loss control/safety measures as are reasonably necessary. The CITY may order work to be stopped if conditions exist that present an immediate danger to persons or property. The CONTRACTOR acknowledges that such work stoppage will not shift responsibility for any damages from the CONTRACTOR to the CITY.

Payment on Behalf of OWNER:

6.16. The CONTRACTOR agrees to pay on behalf of the OWNER, and to pay the cost of the OWNER's legal defense, as may be selected by the OWNER, for all claims described in 6.15 Indemnification/Hold Harmless. Such payment on behalf of the OWNER shall be in addition to any and all other legal remedies available to the OWNER and shall not be considered to be the OWNER's exclusive remedy.

ARTICLE 7 - WORK BY OTHERS

7.1. OWNER may perform additional work related to the Project by itself, or have additional work performed by utility service companies, or let other direct contracts therefor which shall contain General Conditions similar to these. CONTRACTOR shall afford the utility service companies and the other contractors who are parties to such direct contracts (or OWNER, if

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OWNER is performing the additional work with OWNER's employees) reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate his Work with theirs.

7.2. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor or utility service company (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any patent or apparent defects or deficiencies in such work that render it unsuitable for such proper execution and results. CONTRACTOR's failure so to report shall constitute an acceptance of the work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

7.3. If the performance of additional work by other contractors or utility service companies or OWNER was not noted in the Contract Documents, written notice thereof shall be given to CONTRACTOR prior to starting any such additional work. If CONTRACTOR believes that the performance of such additional work by OWNER or others involves additional expense to CONTRACTOR or requires an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

7.4. Should any other contractor having, or who shall hereafter have, a contract with OWNER for the performance of work upon the site of the Work to be performed hereunder sustain any damage through any act or omission of CONTRACTOR hereunder or through any act or omission of any Sub-contractor of CONTRACTOR, CONTRACTOR agrees to reimburse such other contractor for all such damages and to indemnify, defend and hold OWNER harmless from all such claims.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.1. OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.3 and 14.10.

8.3. OWNER's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting performance of the Work which have been relied upon by ENGINEER in preparing the Drawings and Specifications.

8.4. OWNER's responsibilities with respect to the purchase and maintenance of liability insurance are set forth in paragraph 5.5.

8.5. In connection with OWNER's rights to request changes in the Work in accordance with

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Article 10, OWNER (especially in certain instances as provided in paragraph 10.4) may execute Change Orders.

8.6. OWNER's responsibility with respect to certain inspections, tests and approvals is set forth in paragraph 13.4.

8.7. The provisions relative to the OWNER's right to stop Work or suspend Work are set forth in paragraphs 6.11, 13.10 and 15.1.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.1. ENGINEER will be OWNER's representative during the construction period. The authority of ENGINEER shall, under no circumstances, relieve CONTRACTOR from CONTRACTOR's responsibilities to perform the Work in accordance with this Contract.

Clarifications and Interpretations:

9.2. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

Rejecting Defective Work:

9.3. ENGINEER will have authority to disapprove or reject WORK which is defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Change Orders and Payments:

9.4. In connection with ENGINEER's responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.5. In connection with ENGINEER's responsibilities as to Applications for Payment, etc., see Article 14.

Project Representation:

9.6. ENGINEER may designate a Project Representative to assist ENGINEER in inspecting the performance of the Work. The duties, responsibilities and limitations of authority of any such Project Representative and assistants will be as provided in paragraphs 9.6.1 through 9.6.3.

9.6.1. General: Project Representative is ENGINEER's Agent. He shall have the authority to

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do anything which the ENGINEER could do. His dealings in matters pertaining to the on-site work will in general be only with OWNER, ENGINEER and CONTRACTOR. His dealings with subcontractors will only be through or with the full knowledge of CONTRACTOR or his superintendent.

9.6.2. Duties and Responsibilities: Project Representative shall:

9.6.2.1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions, schedule of values and other schedules prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.

9.6.2.2. Conferences: Attend preconstruction conferences.

9.6.2.3. Liaison: Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent, and assist him in understanding the intent of the Contract Documents. Assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.

9.6.2.4. Shop Drawings and Samples: Receive and record date of receipt of Shop Drawings and samples which have been furnished by CONTRACTOR. Review the Shop Drawings for conformance with the information given in the Contract Documents. Provide office review and approval of Shop Drawings (as that term is defined in Article 1) and samples, the results of tests and inspections and other data which any contractor is required to submit, but only for conformance with the design concept of the project and compliance with the information given in the Contract Documents; determine the acceptability of substitute materials and equipment proposed by CONTRACTOR(S); and receive and review (for general content as required by the Specifications) maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection which are to be assembled by CONTRACTOR(S) in accordance with the Contract Documents.

9.6.2.5. Review of Work, Rejection of Defective Work, Inspections and Tests: Conduct on-site inspections of the Work in progress to assist ENGINEER in determining that the Project is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents. Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspections, tests or approvals required to be made; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing or inspection. Verify that tests, equipment and systems start-ups and operating and maintenance instructions are conducted as required by the Contract Documents and in the presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report appropriate details relative to the test procedures and start-ups.

9.6.2.6. Modifications: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report them to ENGINEER with recommendations. Prepare change orders as required; he may, as OWNER's representative, require special inspection or

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testing of the work; he shall act as interpreter of the requirements of the Contract Documents, judge of the performance thereunder by the parties thereto, and transmitter of clarification and interpretation of the Contract Documents. Process contract change orders to reflect final measured contract quantities and to reflect changes in the contract Drawings and Specifications.

9.6.2.7. Payment Requisitions: Based on his on-site observations and on his review of CONTRACTOR(S) applications for payment and the accompanying data and schedules, determine the amounts owed the CONTRACTOR(S). The ENGINEER will then approve in writing payments to CONTRACTOR(S) in such amounts; such approvals of payment will constitute a presentation to OWNER, based on such observations and review, that the Work has progressed to the point indicated and that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning Project upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, and to any qualifications stated in his approval).

9.6.2.8. Guarantees, Certificates, Maintenance and Operation Manuals: During the course of the Work verify that guarantees, certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this data to ENGINEER for his review prior to final acceptance of the Project.

9.6.2.9. Completion: Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring correction. Conduct final inspection in the company of CONTRACTOR and prepare a final list of items to be corrected. Verify that all items on final list have been corrected and make recommendations to ENGINEER concerning acceptance.

9.6.3. Limitations of Authority: The Project Representative; shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent; shall not expedite Work for CONTRACTOR; shall not advise on or issue directions as to safety precautions and programs in connection with the Work; and shall not assist CONTRACTOR in maintaining up-to-date copies of Record Drawings.

Decisions on Disagreements:

9.7. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the Work shall be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter shall be delivered by the claimant to ENGINEER and the other party to the Agreement within fifteen days of the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data. Failure to give the required notice constitutes a waiver of the claim.

9.8. The rendering of a decision by ENGINEER pursuant to paragraph 9.7 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.13) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or at law in respect of any such claim, dispute or other matter. If the Owner agrees to pay all or part of a claim for which notice was not timely made, such agreement shall not be deemed a waiver of the right to enforce notice requirements in connection with any other claim.

Limitations on ENGINEER's Responsibilities:

9.9. Neither ENGINEER's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the Work.

9.10. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed" or terms of like effect or import are used, or the adjective "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used, to describe requirements, decision, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that ENGINEER shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of paragraphs 9.11 or 9.12.

9.11. ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

9.12. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractors, or of the agents or employees of any CONTRACTOR or Subcontractor, or of any other persons at the site or otherwise performing any of the Work.

ARTICLE 10 - CHANGES IN THE WORK

10.1. Without invalidating the Agreement, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, CONTRACTOR shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 11 or Article 12 on the basis of a claim made by either party.

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10.2. ENGINEER may authorize minor changes in the Work not involving an adjustment in the Contract Price of the Contract Time, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and shall be binding on OWNER, and also on CONTRACTOR who shall perform the change promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

10.3. Additional Work performed without authorization of a Change Order will not entitle CONTRACTOR to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in paragraph 6.14 and except as provided in paragraphs 10.2 and 13.9.

10.4. OWNER may execute appropriate Change Orders covering changes in the Work which are required by OWNER, or required because of unforeseen physical conditions or emergencies, or because of uncovering Work found not to be defective or as provided in paragraph 11.9, or because of any other claim of CONTRACTOR for a change in the Contract Time or the Contract Price which is recommended by ENGINEER.

10.5. If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be CONTRACTOR's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. CONTRACTOR shall furnish proof of such adjustment to OWNER.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable by OWNER to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered to ENGINEER within fifteen days of the occurrence of the event giving rise to the claim. Notice of the amount of the claim with supporting data shall be delivered within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain accurate cost data.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.9).

11.3.2. By mutual acceptance of a lump sum.

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11.3.3. On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a Contractor's Fee for overhead and profit (determined as provided in paragraph 11.6).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon in advance by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis for their time spent on the Work. Payroll cost shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment shall accrue to OWNER and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including, but not limited to, engineers, architects, testing laboratories, surveyors, lawyers and accountants) employed for services specifically related to the Work. Any such special consultants covered by the Consultants' Competitive Negotiations Act (Section 287.055, Florida Statutes), shall be selected in accordance with such Act.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

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11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workmen, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by any government authority.

11.4.5.5. Deposits lost for causes other than CONTRACTOR's negligence, royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the execution of the Work, provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's Fee. If, however, any such loss or damage requires construction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in his principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in subparagraph 11.4.1. - all of which are to be considered administrative costs covered by the Contractor's Fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for additional Bonds and insurance required because of changes in the Work).

11.5.5. Costs, including damages, due to the negligence of intentional acts of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

Contractor's Fee:

11.6. The Contractor's Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. A mutually acceptable fixed fee; or if none can be agreed upon,

11.6.2. A fee based on the following percentages of the various portions of the Cost of the Work;

11.6.2.1. For costs incurred under paragraphs 11.4.1. and 11.4.2., the Contractor's Fee shall be ten percent,

11.6.2.2. For costs incurred under paragraph 11.4.3., the Contractor's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall be ten percent, and

11.6.2.3. No fee shall be payable on the basis of costs itemized under paragraphs 11.4.4., 11.4.5. and 11.5.

11.7. The amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in costs, will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any.

Adjustment of Unit Prices:

11.8. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4. and 11.5., CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.9. Where the quantity of Work with respect to any item that is covered by a unit price differs materially and significantly from the quantity of such Work indicated in the Contract Documents, an appropriate Change Order may be issued on recommendation of ENGINEER to adjust the unit price.

ARTICLE 12 - CHANGE OF THE CONTRACT TIME

12.1. The Contract Time may only be changed by a written Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to ENGINEER within fifteen days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by ENGINEER if OWNER and CONTRACTOR cannot otherwise agree. Any change in the Contract Time resulting from any such claim shall be incorporated in a written Change Order.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefor as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional Work as contemplated by Article 7, or fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The CONTRACTOR shall not be entitled to any claim for damages on account of hindrances or delays from any cause whatsoever, but if occasioned by an act of God, or by any act or omission on the part of the Owner, such act, hindrance or delay may entitle the CONTRACTOR to an extension of time in which to complete the work which shall be determined by the ENGINEER, provided that the CONTRACTOR will give notice in writing of the cause of such act, hindrance or delay within ten (10) days after its occurrence.

ARTICLE 13 - WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee:

13.1. CONTRACTOR warrants and guarantees to OWNER that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to CONTRACTOR. All defective Work, whether or not in place, may be rejected,

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corrected or accepted as provided in this Article 13.

Access to Work:

13.2. ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection and testing. CONTRACTOR shall provide proper and safe conditions for such access.

Tests and Inspections:

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If any law, ordinance, rule, regulation, code, or order of any public body having jurisdiction requires any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefor, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval. CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's acceptance of a manufacturer, fabricator, supplier, or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all other inspections, tests and approvals required by the Contract Documents shall be paid by OWNER (unless otherwise specified).

13.5. All inspections, tests or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR.

13.6. If any Work that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover such Work and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by ENGINEER, nor inspections, tests or approvals by others shall relieve CONTRACTOR from his obligations to perform the Work in accordance with the Contract Documents, and in all events in no less than a workmanlike manner.

Uncovering Work:

13.8. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by

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ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, CONTRACTOR shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefor as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

Correction or Removal of Defective Work:

13.11. If required by ENGINEER, CONTRACTOR shall promptly, without cost to OWNER and as specified by ENGINEER, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with nondefective Work.

One Year Correction Period:

13.12. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with nondefective Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by CONTRACTOR.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of defective Work, OWNER prefers to accept it, OWNER may do so. In such case, if acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after such recommendation, an appropriate amount shall be paid

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by CONTRACTOR to OWNER.

OWNER May Correct Defective Work:

13.14. If CONTRACTOR fails, within a reasonable time after written notice of ENGINEER to proceed, to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11., or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising his rights under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise his rights under this paragraph. All direct and indirect costs of OWNER in exercising such rights shall be charged against CONTRACTOR in an amount verified by ENGINEER, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

Application for Progress Payment:

14.1. At least ten days before each progress payment falls due (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents and also as ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by such data, satisfactory to OWNER, as will establish OWNER's title to the material and equipment and protect OWNER's interest therein, including applicable insurance. Each subsequent Application for Payment shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied to discharge in full all of CONTRACTOR's obligations reflected in prior Applications for Payment. The amount of retainage with respect to progress payments will be as stipulated in the Form of Agreement, Article 5.

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CONTRACTOR's Warranty of Title:

14.2. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter in these General Conditions referred to as "Liens").

Review of Applications for Progress Payment:

14.3. ENGINEER will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. OWNER shall, within ten days of presentation to him of the ENGINEER's recommendation of payment, pay CONTRACTOR the amount recommended.

14.4. ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to OWNER. He may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.4.1. The Work is defective, or completed Work has been damaged requiring correction or replacement;

14.4.2. Written claims have been made against OWNER or Liens have been filed in connection with the Work;

14.4.3. The Contract Price has been reduced because of Modifications;

14.4.4. OWNER has been required to correct defective Work or complete the Work in accordance with paragraph 13.14;

14.4.5. Of CONTRACTOR's unsatisfactory prosecution of the Work in accordance with the Contract Documents, including failure to clean up;

14.4.6. Of liquidated damages payable by CONTRACTOR; or

14.4.7. CONTRACTOR's failure to make payment to Subcontractors, or for labor, materials or equipment.

Substantial Completion:

14.5. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall, in writing to ENGINEER, certify that the entire Work is substantially complete and request that ENGINEER issue a certificate of Substantial Completion. Within a

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reasonable time thereafter, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving his reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare a certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a list of items to be completed or corrected before final payment.

14.6. OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the list.

Partial Utilization:

14.7. Use by OWNER of completed portions of the Work may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.7.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any part of the Work which OWNER believes to be substantially complete and which may be so used without significant interference with construction of the other parts of the Work. If CONTRACTOR agrees, CONTRACTOR will certify to ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time thereafter CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify CONTRACTOR in writing giving his reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, ENGINEER will execute and deliver to CONTRACTOR a certificate to that effect, fixing the date of Substantial Completion as to that part of the Work, attaching thereto a list of items to be completed or corrected before final payment. OWNER shall have the right to exclude CONTRACTOR from any part of the Work which ENGINEER has so certified to be substantially complete, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the list.

14.7.2. In lieu of the issuance of a certificate of Substantial Completion as to part of the Work, OWNER may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately usable; provided that prior to any such takeover, OWNER and CONTRACTOR have agreed as to the division of responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

14.7.3. No occupancy of part of the Work or taking over of operations of a facility will be accomplished prior to compliance with the requirements of paragraph 5.14 with regard to property insurance.

Final Inspection:

14.8. Upon written notice from CONTRACTOR that the work is complete, ENGINEER will make a final inspection with CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

Final Application for Payment:

14.9. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents - all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.13), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and such other data and schedules as ENGINEER may reasonably require, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor, manufacturer, fabricator, supplier or distributor fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

Final Payment and Acceptance:

14.10. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR has fulfilled all of his obligations under the Contract Documents, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing his recommendation of payment and present the Application for payment. Thereupon ENGINEER will give written notice to CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.13. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, OWNER shall, within thirty days after receipt thereof pay CONTRACTOR the amount recommended by ENGINEER.

14.11. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final

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Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the Surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

CONTRACTOR's Continuing Obligation:

14.12. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.10, nor any correction of defective Work by OWNER shall constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents.

Waiver of Claims:

14.13. The making and acceptance of final payment shall constitute:

14.13.1. A waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled or unfilled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.8 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it shall not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.13.2. A waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled or unfilled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1. OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and Surety which shall fix the date on which Work shall be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension of work at OWNER's request if he makes a claim therefor as provided in Articles 11 and 12.

Owner May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. If CONTRACTOR is adjudged a bankrupt or insolvent;

15.2.2. If CONTRACTOR makes a general assignment for the benefit of creditors;

15.2.3. If a trustee or receiver is appointed for CONTRACTOR or for any of CONTRACTOR's property;

15.2.4. If CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws;

15.2.5. If CONTRACTOR repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment;

15.2.6. If CONTRACTOR repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment;

15.2.7. If CONTRACTOR violates any laws, ordinances, rules, regulations or orders of any public body having jurisdiction;

15.2.8. If CONTRACTOR disregards the authority of ENGINEER; or

15.2.9. If CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.

OWNER may after giving CONTRACTOR and his Surety seven (7) days' written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and demand the Surety to finish the Work by whatever methods he may deem expedient but subject to the approval of OWNER. The Surety shall use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may require. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR and the Surety shall be jointly and severally liable to pay the difference to OWNER. Such costs incurred by OWNER shall be incorporated in a Change Order, but in finishing the Work OWNER shall not be required to accept the lowest figure for the Work to be performed by the Surety.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination shall not affect any rights of OWNER against CONTRACTOR or the Surety then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven (7) days' written notice to CONTRACTOR and Surety, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed, any expense sustained plus reasonable termination expenses.

CONTRACTOR May Stop Work or Terminate:

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety (90) days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty (30) days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, the CONTRACTOR may, upon seven (7) days' written notice to OWNER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven (7) days' notice to OWNER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of his obligations to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

ARTICLE 16 - MISCELLANEOUS

Giving Notice:

16.1. Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time:

16.2. When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

General:

16.3. The duties and obligations imposed by these General Conditions and the rights and

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remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.15, 13.1, 13.11, 13.14, 14.2, and 15.2, and all of the rights and remedies available to OWNER thereunder, shall be in addition to, and not in limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by law or contractor, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents shall survive final payment and termination or completion of this Agreement.

Liquidated Damages:

16.4. OWNER and CONTRACTOR recognize that time is of the essence to complete this Project and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in Agreement, plus any extensions thereof allowed in accordance with Article 12. They also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER the amount stated in the Contract for each day that expires after the time specified in the Contract for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in the Contract or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER an amount equal to all actual expenses incurred by the OWNER as a direct result of the CONTRACTOR'S negligence, refusal, or failure to so complete the remaining Work. In the event the CONTRACTOR is terminated or abandons the Work prior to the scheduled date for final completion, the CONTRACTOR may be liable for both liquidated damages attributable to delay and for excess completion costs.

Reports of Investigations and Tests of Subsurface and Latent Physical Conditions:

16.5. Reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the work which have been relied upon by ENGINEER in preparing the Drawings and Specifications are as listed in the Supplementary Conditions. OWNER will make such reports available for inspection to any Bidder or copies may be obtained from the ENGINEER by the Bidder at reproduction cost. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents.

Performance of Work by CONTRACTOR:

16.6. Contract Assignment. The successful bidder (or bidders) will be required to perform the work as a prime contractor. CONTRACTOR shall not sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of his right, title, or interest therein. CONTRACTOR shall perform on the site and with his own organization work equivalent to not less than fifty (50%) percent of the total dollar value of the work to be performed under this

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contract except that work designated in the Supplementary Conditions as specialty work may be performed by subcontractors and the cost of any such specialty work so performed by subcontracts may be deducted from the total contract amount before computing the amount of work required to be performed by CONTRACTOR with his own organization.

Limitation of Remedy and Liability:

16.7 Contractor and Owner expressly waive any claim for consequential damages against the other including but not limited to, a waiver of claims for diminished bonding capacity, loss of financing, loss of business reputation, lost profits on other projects or other lost opportunity damage claims.

Contractor expressly agrees that any claim (tort, contract, claim in equity, or otherwise) by Contractor for damages against Owner shall not exceed the total amount of the contract price, less any amounts actually paid to the Contractor by the Owner (or by an insurer of the Owner).

All liability of the City allegedly resulting from, arising out of or connected with this Agreement, or from the performance or breach thereof, shall terminate three years from the termination of this Agreement.

Waiver of Right to Jury Trial:

16.8 THE PARTIES HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY RIGHT WHICH ANY PARTY MAY HAVE TO TRIAL BY JURY IN RESPECT OF ANY PROCEEDING, LITIGATION OR COUNTERCLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. IF THE SUBJECT MATTER OF ANY LAWSUIT IS ONE IN WHICH THE WAIVER OF JURY TRIAL IS PROHIBITED, NO PARTY TO THIS AGREEMENT SHALL PRESENT AS A NON-COMPULSORY COUNTERCLAIM IN ANY SUCH LAWSUIT ANY CLAIM BASED ON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. FURTHERMORE, NO PARTY TO THIS AGREEMENT SHALL SEEK TO CONSOLIDATE ANY SUCH ACTION IN WHICH A JURY TRIAL CANNOT BE WAIVED.

END OF SECTION

**SECTION 00800
SUPPLEMENTARY CONDITIONS**

The following supplements modify, change, delete from, or add to the General Conditions of the Construction Contract (Section 00700). Where any article of the General Conditions is modified or any paragraph, subparagraph or clause thereof is modified or deleted by these supplements, the unaltered provisions of that article, paragraph, subparagraph or clause shall remain in effect.

ARTICLE 16 - MISCELLANEOUS

Section 16.5 – Reports of Investigations and Test of Subsurface and Latent Physical Conditions

Add the following subparagraph:

- 16.5.1 The list of reports of investigations and tests of subsurface and latent physical conditions as referred to in General Conditions Section 16.5 are as follows:

None

Add the following:

16.7 Minimum Requirements for the provision and maintenance of Payment and Performance Bonds, and Contractor's Insurance

In accordance with Resolution 2021-144 as it presently exists or may hereafter change, or applicable state, federal or local law, whichever is stricter, the following minimum requirements have been established:

A. Payment and Performance Bonds

1. Except as otherwise provided herein, the Contractor shall, prior to beginning performance, deliver to the City, and the City shall record in the public records of Volusia County, Florida, the Contractor's Payment and Performance Bond in an amount equal to the full amount of the Contract.
2.
 - (a) Payment and Performance Bonds shall not be required for any contract except those which are for the construction of a public building, for the prosecution and completion of a public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time) or for repairs upon a public building or public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time).
 - (b) With respect to those Contracts for which Payment and Performance Bonds are otherwise required:

- i. Unless the City Manager, or designee, determines such Bond to be necessary to protect the interests of the City, no Contractor shall be required to provide a Payment and Performance Bond for any Contract which is for \$25,000.00 or less.
 - ii. Upon the request of the contractor, good cause shown by the Contractor, and a determination that the public health, safety and welfare will be sufficiently protected, the City Commission may exempt the contractor from the requirement of providing a Payment and Performance Bond for any Contract which is for more than \$25,000.00 but is less than \$200,000.00.
- 3. The Payment and Performance Bond shall list the Contractor as Principal and be issued by a surety insurer authorized to do business in Florida as a surety and listed as an acceptable surety in the Federal Register.
- 4. The Payment and Performance Bond shall be executed pursuant to Section 255.05, **Florida Statutes**, and be in a form substantially similar to the form set forth in Section 255.05(3), **Florida Statutes**.
- 5. The Payment and Performance Bond shall specifically provide coverage for delay damages due to a default by the Contractor.
- 6. The Payment and Performance Bond shall not make the Contract part of the Bond agreement.
- 7. In lieu of the Payment and Performance Bond, the Contractor may file with the Finance Director of the City, in an amount equal to the full amount of the Contract, cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in Part II, Chapter 625, **Florida Statutes**.
- 8. In the event the surety on any Payment and Performance Bond furnished by the Contractor is declared bankrupt or becomes insolvent, or its right to do business in the State of Florida is terminated, the Contractor shall, within five (5) working days thereafter, substitute another Payment and Performance Bond and surety acceptable to the City.
- 9. The Contractor is totally and solely responsible for keeping its surety informed as to the Base Contract Price as bid, significant changes in the Project Scope, and the overall progress and completion of the Project for the entire life of the Contract.
- 10. The payment and performance bond requirements stated herein above shall not be applicable to service-related contracts unless otherwise determined by the City Manager in order to protect the health, safety and welfare of the general public.

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include at a minimum, the following, or substantially similar, provisions:

1. Hold Harmless and Indemnity

The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the Contractor in the performance of this Contract. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this provision.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph.

Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary.

The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences.

Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith, temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a) Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident

\$100,000 Each Employee Bodily Injury by Disease

\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

- (b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):
- a. Premises, Operations, Products and Completed Operations
 - b. Owners' & Contractors' Protective
 - c. Products & Completed Operation
 - d. Explosion, Collapse & Underground Conditions
 - e. Blanket Contractual Liability
 - f. Personal Injury Liability
 - g. Broad Form Property Damage Endorsement, including Completed Operations
 - h. Independent Contractors
 - i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
 - j. Pollution Liability (if applicable)
 - k. Asbestos Abatement (if applicable)
 - l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence

\$2 Million General Aggregate

\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract.

ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million	Combined Single Limit for Bodily Injury and Property Damage
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- (d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

- (e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

- (f) Professional Liability, Malpractice and/or Errors and Omissions
(N/A for construction contracts)

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either

by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service-related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.
2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such

insuring company is required to have a minimum financial rating of (A-), in the latest edition of “Best’s Key Rating Guide”, published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.

2. For Workers’ Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carrier; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.
4. The City shall be named an Additional Insured on General Liability including products and completed operations and Automobile Liability policies of insurance and certificates thereof.

END OF SECTION

LIEN WAIVER

The undersigned does hereby certify that through _____, 20____, the undersigned has performed labor and/or furnished materials for the construction of the _____ located at _____ owned by _____, at a price of \$_____, and in consideration of the payment to the undersigned of such sum, the receipt of which is hereby acknowledged, the undersigned does hereby release and waive all liens and claims to liens which the undersigned may have as a result of the performance of such labor and/or the furnishing of such materials, and that the undersigned has paid in full for all materials purchased by the undersigned in connection with such project and for all labor furnished by the undersigned in connection with such project. The undersigned further certifies that the last date on which the undersigned furnished such labor and/or materials was _____, 20_____.

CONTRACTOR

By _____

DATE: _____

TITLE: _____

THE STATE OF _____

COUNTY OF _____

Before me, the undersigned authority, on this day personally appeared _____, the _____ of _____, a corporation, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and as the act and deed of said corporation, and in capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this _____ day of _____, 20_____.

Notary Public in and for
said County and State

SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Work Covered by Contract Documents:

Work under this Contract is described as: **2022 WATER TREATMENT PLANT
IMPROVEMENTS
BID NO. 2022-15**

Base Bid: The work consists of providing a special coating to the walls and ceiling of the aerator box wet well; remove and replace blower fans, motors, enclosures, electrical panels; remove and replace aerator transfer pumps, motors, valving and piping; incorporate bridge crane in aerator transfer pump room; remove and replace the VFD's, MCC's and all electrical equipment in the MCC room adjacent to the transfer pump room; remove a section of the overflow pipe in the recarbonation tank; construct temporary bypass piping of splitter box and distribution box; remove splitter box, revise piping and rehabilitate the distribution box; relocate the existing anhydrous ammonia tank and provide new piping and valving; provide other associated and/or incidental work as shown on the plans and described within the technical specification to provide a complete and operational installation.

The Specification Divisions and Drawings are an integrated part of the Contract Documents and as such will not stand alone if used independently as individual Sections, Divisions or Drawings sheets.

The Specifications and Drawings establish minimum standards of quality for this project. They do not purport to cover all details entering into the design and construction of materials or equipment.

The CONTRACTOR is advised that the equipment arrangements as shown on the drawings may vary with different manufacturers and the CONTRACTOR is responsible at no cost to the OWNER for making the changes necessary to accommodate the specific equipment installed.

Omission of a specific item or component part of a system obviously necessary for the proper functioning of the system shall not relieve the CONTRACTOR of the responsibility of furnishing the item as part of the work at no additional cost to the OWNER.

Contracts:

Construct work under a single, lump sum price contract.

1.02 QUALITY ASSURANCE

Laws and Regulations:

The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the work. If the CONTRACTOR observes that the Specifications or

Drawings are at variance therewith, the CONTRACTOR shall give the ENGINEER prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the CONTRACTOR performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules and regulations, and without such notice to ENGINEER, the CONTRACTOR shall bear all costs arising therefrom; however, it shall not be the CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such laws, ordinances, rules and regulations.

1.03 JOB CONDITIONS

Taxes:

The CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the law of the place of the project.

Permits and Business Tax Receipts:

The CONTRACTOR shall obtain and pay for all construction permits and business tax receipts. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and business tax receipts. The CONTRACTOR shall provide OWNER with copies of all permits prior to commencing work.

The CONTRACTOR shall pay all charges of utility service companies for connections to the work, and the OWNER shall pay all charges of such companies for capital costs related thereto.

It shall be the responsibility of the CONTRACTOR to verify the existence of all necessary permits and business tax receipts prior to the start of work. The OWNER will obtain permits involving interagency agreements, i.e., State Highway Crossing Permits, Railroad Crossing Permits, and similar permits.

Fees for building permits and impact fees are the responsibility of CONTRACTOR.

The CONTRACTOR and each Subcontractor must be Registered with Volusia County or with the City of Ormond Beach. Requirements for registering a business are as follows:

STATE CERTIFIED CONTRACTORS

1. Register with Volusia County Contractor Licensing (386-248-8158)

OR

2. Provide City with:
 - Copy of local business tax receipt (where your business is located)
 - Copy of State License (if applicable)
 - Certificate of Insurance

For additional information regarding registration, permits or business tax receipts, please call:
(386) 676-3233

Labor, Materials and Equipment:

The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the work and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the work or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without the OWNER's written consent given after prior written notice to the ENGINEER.

Unless otherwise shown, the CONTRACTOR shall furnish all materials, equipment, labor transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the work.

The CONTRACTOR shall be responsible for all materials furnished by him and shall replace at his own expense all such material found to be defective in manufacture or damaged in handling. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

Contractor Use of Premises:

The CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The CONTRACTOR shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the ENGINEER with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for material storage.

The CONTRACTOR shall conduct his work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures or work of any kind, including permanent reference markers or property corner markers, or the interruption of utility service, shall be repaired or restored promptly at no additional expense to the OWNER.

The CONTRACTOR shall preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the ENGINEER. The CONTRACTOR will be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass by equipment. The CONTRACTOR will be liable for, or will be required to replace or restore at no additional expense to the OWNER, all vegetation not protected or preserved as required herein that may be destroyed or damaged.

The CONTRACTOR will not be required to move or remove any utilities except as specifically required by the Drawings and Specifications.

During the progress of the work, the CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from work. At the completion of the work, the CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the OWNER. The CONTRACTOR shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

The CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the CONTRACTOR subject any part of the work or adjacent property to stresses or pressures that will endanger it.

Subsurface Reports:

[None]

Notification of Construction:

The CONTRACTOR shall notify, in writing, all residents and businesses adjacent to the project work area of pending construction no later than 48 hours prior to commencement of actual construction. Copies of the written Notice shall be provided to the ENGINEER for approval of wording prior to public distribution.

Notification of Street Closure:

The CONTRACTOR is required to obtain permission from the City Engineer prior to initiating street closures.

In the event a street closure is required, the CONTRACTOR shall notify, in writing, all emergency services and agencies, residents and businesses directly effected by any partial or full street closure caused by the construction no later than 48 hours prior to actual closure.

Below is a list of the agencies that are required to be notified in the event of a street closure:

<u>Agency:</u>	<u>Contact phone number:</u>
EVAC Ambulance Service	(386) 252-4911
Ormond Beach City Hall	(386) 677-0311
Ormond Beach Fire Dept. Administration	(386) 676-3255
Ormond Beach Police Dept. Dispatch	(386) 676-3508
Ormond Beach Public Works Department	(386) 676-3220
Ormond Beach Postmaster (US Postal Service)	(386) 676-0693
Volusia County School Board - Transportation	(386) 258-4677
Volusia County VOTRAN	(386) 756-7496

If a **County** or **State Road** is to be closed, add the following agencies to the list:

Volusia County Department of Public Works	(386) 239-6535
Volusia County Emergency Management	(386) 254-1500

Volusia County Fire Services
Florida Highway Patrol Dispatch

(386) 254-4657
(407) 737-2200

If the closure will last longer than 5 days, the CONTRACTOR shall also notify the general public of such closures by placing an advertisement in the "Area" section of the local newspaper no later than 48 hours prior to the closure. The advertisement shall include information describing the extent of the closure (i.e. between which streets; detour routes, etc.), the date the closure will begin, and estimated date the road will be reopened. Provide a copy of the proposed notification, for approval by the ENGINEER, before placing the advertisement.

The CONTRACTOR shall maintain full compliance with the traffic regulations found in Paragraph 1.06, Section 01500 of this Contract.

Contractor's Hours of Operation:

Except in the event of an emergency, no work shall be done between the hours of 7:00 P.M. and 7:00 A.M., or on Saturdays and Sundays. If the proper and efficient execution of the work requires operations during the night or on week-ends, the written permission of the ENGINEER shall be obtained prior to starting such items of the work.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

This section defines the method which will be used to determine the quantities of work performed or materials supplied, and establishes the basis upon which payment will be made.

1.02 ESTIMATED QUANTITIES

Where quantities are shown, they are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. OWNER or ENGINEER do not assume any responsibility for the final quantities, nor shall CONTRACTOR claim misunderstanding because of such estimate of quantities. Final payment will be made only for the satisfactorily completed quantity of each item.

1.03 MEASUREMENT STANDARDS

All work completed under the Contract shall be measured according to United States Standard Methods.

1.04 METHOD OF MEASUREMENT

Measurement of Length:

Unless otherwise specified for the particular items involved, all measurements of distance for items to be paid for on the basis of length shall be taken horizontally or vertically.

Measurement of Area:

In the measurement of items paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the actual dimensions measured along the surface of the completed work within the neat lines shown or designated. At intersections, the measurement used for length of side area will be measured from the outside edge of the width allowed along the main trench.

1.05 PAYMENT

Lump Sum Items:

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum item within the limits of work shown or specified.

Unit Price Items:

Where payment for items is shown to be paid for on a unit price basis, separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work, shall be considered to be included in the scope of the appropriate listed work items.

1.06 COSTS INCLUDED IN PAYMENT ITEMS

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work.

1. Clearing and grubbing, including disposal of material, unless otherwise noted.
2. Trench and roadway excavation, including necessary pavement removal, rock and cemented coquina excavation and disposal, excavation and removal of unsuitable soils, except as otherwise noted and removal of vegetative surfaces.
3. Dewatering equipment (rental and installation) and disposal of surplus water.
4. Structural fill, backfill, and grading.
5. Replacement of unpaved roadways, grass and shrubbery plots, unless otherwise noted.
6. Cleanup.
7. Foundation and borrow materials, except as hereinafter specified.
8. Testing and placing system in operation.
9. Any material and equipment required to be installed and utilized for tests.
10. Pipe, structures, pavement replacement, restoration and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
11. Maintaining existing quality of service during construction.
12. Appurtenant work as required for a complete and operable system.
13. Furnishing adequate sanitary facilities for workers.
14. Supporting of existing utilities during construction.
15. Concrete encasement.
16. Shoring, sheeting and work site safety.
17. Field offices.
18. Franchise utility coordination.
19. Job signs.
20. Bonds and insurance.
21. Power.
22. Rental and installation of dewatering equipment.
23. Sanitary and potable water supplies.
24. Temporary removal and replacement of fences, walls, irrigation systems, mailboxes, etc., unless otherwise shown.

1.07 APPLICATIONS FOR PAYMENT

Applications for payment shall be prepared by the CONTRACTOR and submitted to the ENGINEER in accordance with the schedule established by the Conditions of the Contract and the Agreement. The Applications for Payment shall be submitted in the number and form established by the ENGINEER at the Preconstruction Conference. The form shall be completely filled out and executed by an authorized representative of the CONTRACTOR. Supporting data such as schedules of stored materials shall be attached to each copy of the application.

1.08 CHANGE ORDER PROCEDURE

As defined in the General Conditions, a Change Order is a written order to the CONTRACTOR signed by the OWNER authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time which is issued after the execution of the Agreement.

The following procedure shall be used in processing Change Orders:

For Additions to the Work:

The OWNER shall issue a written order to the CONTRACTOR directing him to accomplish the additional work. The CONTRACTOR shall review the order and if he feels that the additional work

entitles him to additional payment or additional time, he may submit a claim as prescribed in the Conditions of the Contract.

For Deletions from the Work:

The OWNER shall issue a written order to the CONTRACTOR directing him to make the change. If the OWNER feels that the Contract price should be reduced as a result of the change, the OWNER shall make a claim for the reduction as provided in the Conditions of the Contract.

Cost of the changes in the work shall be determined in accordance with the requirements spelled out in the Conditions of the Contract. Modifications to incorporate the changes in cost will be made as the amount of any change is determined.

PART 2 – PRODUCTS

(Not Applicable)

PART 3 – EXECUTION

3.01 BID ITEMS

BASE BID

Bid Item No. 1 – Mobilization/Demobilization

Definition. Mobilization shall be the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, pre-construction video, sanitary and other facilities, as required by the Contract Documents and applicable laws and regulations. The costs of bonds, required insurance, permits and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall also be included in this item. Demobilization shall be the work of removing temporary facilities from the site.

Payment. Partial payments for this item will be made in accordance with the following schedule:

<u>Percent of Original Contract Amount Earned</u>	<u>Allowable Percent of the Lump Sum Price for the Item</u>
Contract Approval	25
10	50
25	75
50	90
100	100

These payments will be subject to the standard retainage provided in the agreement. Payment of the retainage will be made after completion of the work and demobilization.

Bid Item No. 2– Survey and Layout

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary for the establishment of any temporary or permanent control during the extent of the project. Should any existing permanent control be disturbed during construction, the CONTRACTOR shall direct its licensed surveyor to replace the control at no additional cost to the OWNER.

Bid Item No. 3– Bacteriological Clearance

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to obtain disinfection bacteriological clearance of the aerator box, recarbonation tank, distribution box, all piping, all fittings and all valves that are a part of this project. Pay item includes any additional valves and sample ports necessary for testing and obtaining clearance. Such clearance shall follow the criteria found within Section 02650 of these Specifications. Sample locations shall be those listed in the Volusia County Health Department construction permit.

Bid Item No. 4 – Erosion and Sedimentation Control

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to provide the required erosion and sedimentation control called out in the specifications and as shown on the detail Drawings of this set.

Bid Item No. 5 – Submit Certified “As-Built” Drawings

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to submit the “as-built” Drawings, certified by a registered land surveyor or professional engineer. The CONTRACTOR’s attention is directed to Section 01720, Paragraph 1.05, which addresses the requirements for maintaining up-to-date “as-built” Drawings. Final payment will be withheld until an acceptable set of “As-Built” drawings are delivered to the OWNER.

Bid Item No. 6 – Permit Fees and Allowances

Payment. An allowance has been established to reimburse costs associated with the building permit fees, inspections and related expenses. This will be paid at actual cost. Allowance can also be used to fund Owner-approved items at actual cost plus 10%. Allowance shall only be used based upon prior written approval from the Owner and Engineer. Any funds remaining in this Bid Item after the contract is completed will remain with the Owner.

Bid Item No. 7 –Coordination with City for Bypass of Aerator Structure

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary for the Contractor to coordinate with the City of Ormond Beach to close certain valves and to leave certain valves open so that flow bypasses the aerator structure clearwell. Flow will continue to the sump area used as the feed for the suction lines of the aerator transfer pumps. Refer to Drawing C01.1 and C01.2 which details which valves are to be closed and which remain open.

Bid Item No. 8 – Work within Recarbonation Tank

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to lower the 24-inch (24”) DIP effluent overflow pipe in the tank by five feet (5’); remove all carbon dioxide small diameter piping and accessories. Work within this tank shall be performed after the new 24-inch pressure sustaining valve has been installed.

Bid Item No. 9 – Construct Temporary Bypass Piping Around Splitter and Distribution Box

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to construct the bypass piping as shown on Drawing Sheets CO2.1 through CO2.4 and included within Phases 1 -4.

Included in this lump sum pay item are all the pipe, fittings and valves shown to be removed adjacent to the recarbonation tank and the splitter box and distribution box. Also included is the proposed 24-inch pressure-sustaining valve with control panel, 24" insert valve, two (2) 24" motorized butterfly valves, five (5) 24" manual butterfly valves, five (5) 24" × 24" tees, one (1) 24" cross, three (3) 24" 22½° bends, one (1) 24" 45° bend, six (6) 24" 90° bends; 24" DIP from the recarbonation tank to the distribution box; five (5) 24" connections, additional concrete pipe support and temporary supports under the pipe traversing the driveway, underground conduit ductbanks, electrical handholes, wire and cable. The temporary piping shall be removed once the splitter box has been removed, modifications are made to the distribution box and piping modifications are completed. The work to remove and replace with new material the pipe, valves and fittings under the recarbonation tank shall be accomplished in six (6) hours.

Bid Item No. 10 – Construct New Handrail

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install 45 linear feet of aluminum handrail, according to the Detail Drawings and Specification Section 05520.

Bid Item No. 11 – Rehabilitate Interior of Aerator Box

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to coat the walls and ceiling with an interior coating specified in Section 09900 and Section 09901. Also included shall be the cost to provide ventilation with all necessary equipment/materials in order to produce a safe working environment within a potentially hazardous environment containing hydrogen sulfide gas.

Bid Item No. 12 – Remove and Replace Aerator Blower Fans, Motors and Enclosures

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove and replace the existing aerator blower fans, motors and enclosures. Included in this lump sum pay item shall be the cost to remove and replace the blower motors, fans, enclosures, support stands, aeration basin level instrumentation, aeration basin light pole, and associated wiring and conduit.

This bid item shall also include the cost to remove the existing motor control panels and replace with local disconnect safety switches and terminal/ junction boxes. Materials and labor for the installation of new Aerator Blower Soft Starters shall be included in Bid Item No. 16.

The fiberglass duct between the blower enclosure and aerator box containing the trays shall remain in place.

Bid Item No. 13 – Remove and Replace Aerator Transfer Pumps, Motors, Valves and Piping

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the existing transfer pumps and motors, disconnect switches, instrumentation, terminal/ junction boxes, wiring and conduit, motor stands, drip pans, small diameter drain piping, ARV's, gate valves, check valves, butterfly valves, fittings and piping shown to be removed. New material shall include all new piping (except as shown), fittings, cushioned check valves, motorized butterfly valves, gate valves, pumps, motors,

disconnect switches, instrumentation, terminal/ junction boxes, conduit and wire, drip pans, small diameter drain piping, ARV's, pressure gauges and all other new material required for a complete and operable system.

Also included in this lump sum pay item is the cost to remove and replace the sump pump and piping; remove and replace the ceiling exhaust fan; add concrete pipe supports (3) under the 12" 90° bends. Also included shall be the cost to remove the suction flares, install temporary blow-up plugs in the pump suction lines, remove the plugs and install the suction flares after the work is complete.

Bid Item No. 14 – Furnish and Install Bridge Crane in Aerator Transfer Pump Room

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials, and equipment necessary to furnish and install a bridge crane system in the aerator transfer pump room. Included in the lump sum cost shall be the bridge crane mechanism, including the bridge end trucks, bumpers, trolley, pendant, motors, internal control systems, lifting hoist, conduit, wire and all other parts required for a complete system. Also included in the cost shall be runway beams, rails, support posts, beams spanning the pipe trench, base plates, modify the existing grating to accept the new columns; anchor bolts and any and all other components required for a complete and operable system.

Bid Item No. 15 – Paint Aerator Transfer Pump Room

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to paint the interior of the aerator transfer pump room. Included in this pay item shall be the cost to prep and paint the walls, ceiling, piping, valves, fittings, pumps, motors, pump bases, base plates, support posts, runway beams and all components of the bridge crane. Piping not removed will receive a different painting system than new pipe. Painting shall follow the criteria in Specification Section 09900 and Section 09901.

Also included in this pay item shall be the cost to pressure wash the existing grating. The flooring shall consist of an epoxy coating system which will be included as an Additive Alternate Bid Item.

Bid Item No. 16 – Remove & Replace VFD's, MCC's and Other Electrical, Instrumentation and Control Equipment in Room for MCC #7

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove Motor Control Center MCC-7 and associated Instrument and Relay Panels; and replace with new switchboard SWBD-7, variable frequency drives for Aerator Transfer Pumps, reduced-voltage soft starters for Aeration Blowers, new Allen Bradley PLC Control Panel SP-020, concrete equipment pads, underground ductbank for fiber optic cable to HSPS, SCADA modifications, conduit, cable & wire, and other ancillary devices for a complete and fully functional Aeration equipment system, as shown or as required per Contract Drawings and Specification Divisions 13 and 16.

Also included in this pay item shall be the cost for all plant, material, equipment and labor as required to maintain power to and local control of existing equipment, as shown or as indicated in Contract Drawings and specifications for maintenance of operations during construction.

Bid Item No. 17 – Remove Splitter Box and Rehabilitate Distribution Box

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the splitter box and rehabilitate the distribution box. Included in this lump sum cost is the complete removal of the splitter box, including 24" and small diameter piping, concrete, handrails, light pole, instrumentation, wire and

conduit, grating, and stairway from the distribution box. In addition, cost for this bid item shall include work on, adjacent to and within the distribution box, including removal and installation of grating, handrails, landing, and stairway to the distribution box, raising of the box walls, coring of the east wall for 24" pipe, removal of cedar plank boards, construct interior concrete walls; install manual weir gates (3); hypochlorite solution piping, grouting of 24" pipe beneath the splitter box, and any required special coating applied to the interior of the distribution box.

Items pertaining to the removal of the splitter box and rehabilitation of the distribution box shall be included in this bid item. Any large diameter piping shown in the phases shall be included in Bid Item No. 9. Any means and methods to protect the temporary piping shall be included in this Pay Item. All items required for a complete and functioning system shall be included in this Pay Item. Contractor shall be prohibited from using pneumatic/electric jackhammering methods for the box removal.

Bid Item No. 18 – Relocate Ammonia Tank

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to relocate the existing anhydrous ammonia tank to its new location within the existing containment area adjacent to the sodium hydroxide metering pumps. Included in this Pay Item shall be the cost to evacuate any existing gas within the tank; install a new concrete containment wall; rerouting of existing piping; remove a 3-foot portion of the existing containment wall; furnish and install an ammonia pressure control panel and a fabricated ammoniator panel; new canopy over the panels; all new piping; gauges and valves shown on Sheet C03.3; new piping from the containment area to the existing injection point at the static mixer; sandblast and paint the tank support legs; new labels for the tank; all required lighting, receptacle, raceway, underground ductbanks, electrical handhole, and power/control wiring to connect the Ammonia system to the Generator building equipment; and all other work shown on the Drawings and included in the Specifications.

Bid Item No. 19 – Install new Electrical, Instrumentation and Control Equipment for Generator Building

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary for the rewiring of existing panel LP-EB, plus the installation, conduit and wiring for new panel LP-EB2 and new Allen Bradley PLC Control Panel SP-030. Included in this pay item shall be the cost for all concrete equipment pads, conduit, power and control wire, network cable, SCADA modifications, and other ancillary devices for a complete and fully functional system, as shown or as required per contract drawings and Specification Divisions 13 and 16.

ADDITIVE ALTERNATES

Bid Item No. 20 – Remove Stainless Steel Diffusers, Pipe and Supports from within the Aerator Structure

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the existing stainless steel diffusers, pipe, supports, brackets and any other ozone related material within the aerator concrete wet well structure.

Bid Item No. 21 – Remove Two (2) Venturi Meters in 24-inch Pipe to Claricones and Replace with Two (2) 12-inch Magnetic Flow Meters

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all

plant, labor, materials and equipment necessary to remove the existing Venturi meters and install new magnetic flow meters in the same location.

Included in this lump sum pay item is the cost for the two (2) reducers to existing piping and all required raceway, underground conduit ductbanks, and power/ control wiring to connect each mag meter to the WTP SCADA system.

Bid Item No. 22 – Remove Two (2) Venturi Meters in 16-inch Raw Water Main and Replace with Two (2) 10-inch Magnetic Flow Meters

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the existing Venturi meters and install new magnetic flow meters in the same location.

Included in this lump sum pay item is the cost for the two (2) reducers to existing piping and all required raceway, underground conduit ductbanks, and power/ control wiring to connect each mag meter to the WTP SCADA system.

Bid Item No. 23 – Furnish & Install Sanded Epoxy Floor in Aerator Transfer Pump Room

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install a sanded epoxy floor within the aerator transfer pump room. Materials and installation shall follow the System 290-1 found within Section 09900 of the Project Manual.

Bid Item No. 24 – Remove & Replace Buried 24-inch DIP between Recarbonation Tank and Distribution Box with 24-inch PVC Pipe

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to excavate and remove the 24" DIP and replace it with 24" PVC pipe. Included in this pay item shall be the cost of fittings, restraint, pressure testing, chlorination, bacteriological testing, connections, pavement removal and replacement and sodding.

Bid Item No. 25 – Furnish and Install Fiber Optic Cable/Conduit from Aeration Building Control Panel to the HSPS Control Panel.

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install conduit and fiber optic cable from the Aeration PLC control panel (SP-020) to the HSPS control panel (RIO 1-2).

END OF SECTION

SECTION 01027 – APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.01 FORMAT AND DATA REQUIRED

- A. Coordinate the Schedule of Values and Applications for Payment with the CONTRACTOR'S Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the CONTRACTOR'S Construction Schedule.
- C. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - 1. CONTRACTOR'S Construction Schedule.
 - 2. Application for Payment forms, including Continuation Sheets.
 - 3. List of subcontractors.
 - 4. List of products.
 - 5. List of principal suppliers and fabricators.
 - 6. Schedule of submittals.
- D. Submit the Schedule of Values at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.
- E. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
- F. Include the following Project identification:
 - 1. Project name and location.
 - 2. Name of ENGINEER.
 - 3. Project number.
 - 4. CONTRACTOR'S name and address.
 - 5. Date of submittal.
- G. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - 1. Related Specification Section or Division.
 - 2. Description of Work.
 - 3. Name of subcontractor.
 - 4. Change Orders (numbers) that affect value.
 - 5. Dollar value.
 - 6. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
- H. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
- I. Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives change the Contract Sum.

- J. Applications for Payment shall be consistent with previous applications and payments as certified by the ENGINEER and paid for by the OWNER.
- K. Payment Application Times: Payment dates are indicated in the Agreement. The period covered by each application is the period indicated in the Agreement.
- L. Payment Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- M. Application Preparation: Complete every entry, including notarization and execution by a person authorized to sign on behalf of the CONTRACTOR. The ENGINEER will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- N. Transmittal: Submit 3 executed original copies of each Application for Payment to the ENGINEER within 24 hours. One copy shall be complete, including waivers of lien and similar attachments.
 - 1. Transmit each copy with a transmittal listing attachments and recording appropriate information related to the application.
- O. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of lien from every entity who may file a lien arising out of the Contract and related to the Work covered by the previous payment.

1.02 INITIAL APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. List of principal suppliers and fabricators.
 - 3. Schedule of Values.
 - 4. CONTRACTOR'S Construction Schedule (preliminary if not final).
 - 5. Submittal Schedule (preliminary if not final).
 - 6. List of CONTRACTOR'S staff assignments.
 - 7. Copies of building permits.
 - 8. Copies of licenses from governing authorities.
 - 9. Certificates of insurance and insurance policies.
 - 10. Performance and payment bonds.

1.03 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the OWNER requires substantiating data, CONTRACTOR shall submit suitable information, with a cover letter identifying:
 - 1. Project.
 - 2. Application number and date.
 - 3. Detailed list of enclosures.
 - 4. For stored products:
 - a. Item number and identification as shown on application.

- b. Description of specific material.
- B. Submit one (1) copy of data and cover letter for each copy of application.
- C. Submit requisite number of photographs with each application.
- D. List the name and address of all Subcontractors and Suppliers who have performed work or provided supplies or material for each application.
- E. Submit certified payroll sheets for CONTRACTOR'S forces and all Subcontractors for the month preceding the submitted application.
- F. Submit revised monthly progress schedules with each month's Application for Payment, including cash flow projections.
- G. The CONTRACTOR is to maintain an updated set of drawings to be used as record drawings in accordance with the Contract Documents. AS A PREREQUISITE FOR PAYMENT OF MONTHLY PROGRESS PAYMENTS, THE CONTRACTOR IS TO EXHIBIT THE UPDATED RECORD DRAWINGS FOR REVIEW BY THE OWNER.

1.04 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION

- A. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment. This application shall reflect Certificates of Partial Substantial Completion issued previously for OWNER occupancy of designated portions of the Work.
- B. Administrative actions and submittals that shall precede or coincide with this application include the following:
 - 1. Occupancy permits.
 - 2. Warranties and maintenance agreements.
 - 3. Test/adjust/balance records.
 - 4. Maintenance instructions.
 - 5. Meter readings.
 - 6. Changeover information related to OWNER'S occupancy.
 - 7. Final cleaning.
 - 8. Application for reduction of retainage and consent of surety.

1.05 FINAL PAYMENT APPLICATION

- A. Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
 - 1. Completion of Project closeout requirements and submittals including As-Built Survey.
 - 2. Completion of items specified for completion after Substantial Completion.
 - 3. Transmittal of Project construction records to the OWNER.
 - 4. Certified property survey.
 - 5. Proof that taxes, fees, and similar obligations were paid.
 - 6. Removal of temporary facilities and services.
 - 7. Change of door locks to OWNER'S access.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

APPLICATIONS FOR PAYMENT

**01027 - 3
ISSUED FOR BID**

SECTION 01040 – COORDINATION

PART 1 – GENERAL

1.01 PROJECT COORDINATION

- A. The CONTRACTOR shall provide for the complete coordination of the construction efforts. This shall include, but not necessarily be limited to, coordination of the following:
1. The work of subcontractors.
 2. The flow of material and equipment from suppliers.
 3. The effort of equipment manufacturers during test and checkout.
 4. Interrelated work with public utilities companies.
 5. The interrelated work with the OWNER where tie-ins to existing facilities are required.
 6. The effort of independent testing agencies.

1.02 CUTTING AND PATCHING

- A. The CONTRACTOR shall do all cutting, fitting and patching of his work that may be required to make its several parts come together and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01045 – CUTTING AND PATCHING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
 - 1. Make the several parts fit properly.
 - 2. Uncover Work to provide for installation, inspection, or both, or ill -timed work.
 - 3. Rework existing items to provide for new construction.

1.02 QUALITY ASSURANCE

- A. Perform all cutting and patching in strict accordance with pertinent requirements of these Specifications and, in the event no such requirements are determined, in conformance with the ENGINEER'S written direction.

1.03 SUBMITTALS

- A. Request for ENGINEER'S Consent
 - 1. Prior to cutting any item which affects structural safety, submit written request to the ENGINEER for permission to proceed with cutting.
 - 2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, so notify the ENGINEER and secure his written permission prior to proceeding.
- B. Notice to the ENGINEER
 - 1. Submit written notice to the ENGINEER designating time the Work will be uncovered to provide for the ENGINEER'S observation.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials used in the replacement of existing work and the construction of work in conjunction with cutting and patching shall be new unless prior approval from the ENGINEER has been obtained to re-use existing materials.

2.02 FABRICATION

- A. The materials and methods used in the fabrication of items required under this section shall comply with the individual sections of this specification that have to do with new construction.

PART 3 – EXECUTION

3.01 CONDITIONS

- A. Examination: Examine existing conditions, including elements subject to movement or damage during cutting, excavating, backfilling, and patching. After uncovering the Work, inspect conditions affecting installation of the new Work.

B. Discrepancies:

1. If uncovered conditions are not as anticipated, immediately notify the ENGINEER and secure needed directions.
2. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide all required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work, and personal protective clothing and/or equipment of CONTRACTOR'S workers.

3.03 PERFORMANCE

- A. Perform all required excavating and backfilling as required under pertinent Sections of these Specifications. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and will provide proper surfaces to receive installation or repair and new work. Perform fitting and adjustment of products to provide finished installation complying with the specified tolerances and finishes.

END OF SECTION

SECTION 01050 – FIELD ENGINEERING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Provide field engineering service for project as indicated on Drawings and specified in this Section.

1.02 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Florida Registered Engineer or Land Surveyor.

1.03 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points are designated on Drawings. All elevations are referred to NGVD 1988. Establish all vertical and horizontal controls required for construction.
- B. Locate and protect control points prior to starting site work, and preserve permanent reference points during construction.
 - 1. Make no changes or relocations of such points without prior written notice to ENGINEER.
 - 2. Report to ENGINEER when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to replace control points which may be lost or destroyed. Establish replacements based on original survey control.
 - 4. ENGINEER will identify existing control points and properly line corner stakes indicated on Drawings, as required.

1.04 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two (2) permanent bench marks on the project site, all referenced to data established by survey control points. Record locations, with horizontal and vertical data, on Project Record Documents.
- B. Establish lines and levels, locate and lay out, by instrument and similar appropriate means.
 - 1. Site improvements.
 - 2. Building foundation, column locations, floor levels and roof levels.
 - 3. Controlling lines and levels required for mechanical and electrical trades.
- C. Verify layouts by same methods from time to time.

1.05 RECORDS

- A. Maintain a complete, accurate log of control and survey work as it progresses.
- B. On completion of foundations and major site improvements, prepare a certified survey showing finished dimensions, locations, angles and elevations of construction.

1.06 SUBMITTALS

- A. Submit name and address of surveyor or professional engineer to ENGINEER.
- B. On request of ENGINEER, submit documentation to verify accuracy of field survey work.
- C. Submit certificate signed and sealed by a State of Florida Registered Engineer or Land Surveyor certifying that elevations and locations of improvements are in conformance with Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01065 – PERMITS AND FEES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Obtain and pay for all permits and licenses including, but not limited to, all construction and Right-of-Way utilization permits.
- B. Permits by CONTRACTOR: CONTRACTOR will apply for and OWNER will pay for the following permits:
 - City of Ormond Beach Building Permit and/or Driveway Permit (if applicable)
- C. Permits by CONTRACTOR: CONTRACTOR will apply for and CONTRACTOR will pay for the following permits:
 - St. Johns River Water Management District Dewatering Permit (if applicable)
- D. Permits by OWNER: The OWNER has applied and paid for the following permits:
 - Volusia County Health Department
- E. Copies of the permits obtained by the OWNER are attached as an Appendix or will be distributed at the Pre-Construction Conference.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01070 – CODES, REFERENCES AND ABBREVIATIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Referenced standards and abbreviations.

1.02 REFERENCED STANDARDS

- A. Any reference to published specifications or standards of any organization or association shall comply with the requirements of the specification or standard which is current on the date of Advertisement for Bids. In case of a conflict between the referenced specifications or standards, the one having the more stringent requirements shall govern.
- B. In case of conflict between the referenced specifications or standards and the Contract Documents, the Contract Documents shall govern.

1.03 ABBREVIATIONS

The following are definitions of abbreviations used within the Project Manual:

AA	Aluminum Association, Inc.
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMA	Acoustical Materials Association
AMCA	Air Movement and Control Association, Inc.
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWMA	Aluminum Window Manufacturer's Association
AWPA	American Wood Preserves Association

AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society, Inc.
AWWA	American Water Works Association
CPSC	U.S. Consumer Product Safety Commission
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards and National Bureau of Standards
FBC	Florida Building Code
FM	Factory Mutual Research Corp.
FS	Federal Specifications
FS	Florida Statutes
GA	Gypsum Association
HI	Hydraulic Institute
IEEE	Institute of Electrical and Electronic Engineers
NAAMM	National Association of Architectural Metal Manufacturers
NBFU	National Board of Fire Underwriters
NCMA	National Concrete Masonry Association
NECA	National Electrical Contractors' Association
NEMA	National Electrical Manufacturers' Association
NFiPA	National Fire Protection Association
NFoPA	National Forest Products Association
NSF	National Sanitation Foundation
PCA	Portland Cement Association
PCI	Precast Prestressed Concrete Institute
PS	Product Standards National Institute of Standards and Technology
SDI	Steel Door Institute

SJI	Steel Joist Institute
SMACCNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
SSPC	Structural Steel Painting Council
UL	Underwriters Laboratories, Inc.

1.04 CODES AND GOVERNMENTAL DEPARTMENTS

CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FAC	Florida Administrative Code
NEC	National Electric Code (Published by NFIPA)
OSHA	Occupational Safety and Health Act

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01100 – SPECIAL PROJECT PROCEDURES

PART 1 – GENERAL

1.01 PUBLIC NUISANCE

- A. The CONTRACTOR shall not create a public nuisance including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.
- B. Sound levels measured by the OWNER shall not exceed 50 dBA from 7:00 P.M. to 7:00 A.M. or 60 dBA from 7:00 A.M. to 7:00 P.M. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at the equipment shall not exceed 85 dBA at any time. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the OWNER for excessive noise shall not relieve the CONTRACTOR of the other portions of this Specification including, but not limited to, completion dates and bid amounts.
- C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.02 SUSPENSION OF WORK

- A. During inclement weather, all work which might be damaged or rendered inferior by such weather conditions shall be suspended. The orders and decisions of the OWNER as to suspensions shall be final and binding. During suspension of the work from any cause, the work shall be suitably covered and protected so as to preserve it from injury by the weather or otherwise; and, if the OWNER shall so direct, rubbish and surplus materials shall be removed.

1.03 SPECIAL REQUIREMENTS

- A. The following requirements shall govern:
 - 1. No additional payment will be made for pumping or other difficulties encountered due to water.
 - 2. The CONTRACTOR shall, prior to interrupting a utility service (water, sewer, etc.) for the purpose of making cut-ins to the existing lines or for any other purposes, contact the OWNER and make arrangements for the interruption which will be satisfactory to the OWNER.
 - 3. All equipment delivered to the job site shall be properly protected from dirt, dust, dampness, water and any other condition detrimental to the life of the equipment from the date of delivery to the time that control of the equipment is assumed by the OWNER. If any equipment is delivered to the job site before any building thereon is enclosed, it shall be housed in a temporary, structurally rigid, watertight enclosure.
 - 4. Certain information regarding the reputed presence, size, character and location of existing underground structures, pipes and conduits has been shown on the Contract Drawings. There is no certainty of the accuracy of this information, and the location of underground structures shown may be inaccurate and other obstructions than those shown may be encountered. The CONTRACTOR hereby distinctly agrees that the OWNER is not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as a part of the Contract; and that consideration for equitable

compensation will be made for conditions materially different from those shown on the Drawings, as determined by the OWNER.

1.04 JURISDICTIONAL DISPUTES

- A. It shall be the responsibility of the CONTRACTOR to pay all costs that may be required to perform any of the work shown on the Drawings or specified herein in order to avoid any work stoppages due to jurisdictional disputes. The basis for subletting work in question, if any, shall conform to precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, dated June, 1973, including any amendments thereto.

1.05 PUMPING

- A. The CONTRACTOR, with his own equipment, shall do all pumping necessary to prevent flotation of any part of the structures during construction operations.
- B. The CONTRACTOR shall, for the duration of the Contract and with his own equipment, pump out water which may seep or leak into the structures. Operating areas shall be kept dry at all times. The extent of pumping required in non-operating areas shall be determined by the ENGINEER.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01200 – PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Project meetings shall be scheduled as needed throughout the progress of the work. The ENGINEER or the CONTRACTOR shall be responsible for scheduling the meetings, preparing the agenda, distributing written notice of each meeting not less than four days in advance of the meeting date, making physical arrangements for the meeting, presiding at the meeting, recording the minutes (including all significant proceedings and decisions), and reproducing and distributing copies of the minutes to all participants and all parties affected by decisions made.
- B. Representatives attending the meetings shall be qualified and authorized to act on behalf of the entity that they represent.

1.02 PRE-CONSTRUCTION CONFERENCE

- A. A pre-construction conference will be held prior to beginning any work under the Contract. ENGINEER will schedule the conference in consultation with OWNER and CONTRACTOR.
- B. CONTRACTOR shall be ready to submit his anticipated progress schedule, a preliminary schedule of shop drawing submissions, and a preliminary schedule of values of work.
- C. The pre-construction conference will be attended by representatives of OWNER, ENGINEER, utility companies who will be affected by the work, County and State personnel, and such of CONTRACTOR'S subcontractors as he wishes to attend.

1.03 PROGRESS MEETINGS

- A. Regular progress meetings shall be held during the construction period. At these meetings the CONTRACTOR shall submit any updated progress schedules, advise OWNER and ENGINEER of any anticipated delays or problems in the progress of the work, and discuss any problems or events which affect the progress.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01310 – ADMINISTRATIVE REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Meetings, construction progress documentation, submittals, record documents.

1.02 PRECONSTRUCTION CONFERENCE

- A. The OWNER will schedule a preconstruction conference prior to beginning the Work to review shop drawing procedures, submittal requirements, and construction administration requirements (project coordination and communication). The CONTRACTOR shall bring to the preconstruction conference the proposed construction schedule, a preliminary schedule of shop drawing submissions, and a preliminary schedule of values of work. All will be reviewed with the OWNER during the meeting.

1.03 PROGRESS MEETINGS

- A. The frequency of progress meetings shall be determined during the preconstruction conference. As a minimum, progress meetings shall be held once per month during construction.
- B. The CONTRACTOR and OWNER shall attend the progress meetings.

1.04 PROGRESS SCHEDULES AND REPORTS

- A. Within 10 days after the effective date of the Agreement, the CONTRACTOR shall submit to the ENGINEER for review and acceptance, an estimated progress schedule indicating the starting and completion dates of the various stages of the work, a preliminary schedule of shop drawing submissions, and a preliminary schedule of value of the work. Include sub-schedules of related activities which are essential to its progress.
- B. Revised schedules shall be submitted periodically as changes become apparent.
- C. Unless other format or use of a network analysis system is required, schedules shall be prepared in the form of a horizontal bar chart. A separate horizontal bar shall be provided for each trade or operation. The first work day of each week shall be identified on the horizontal time scale. Scale and spacing will be such as to allow space for notations and revisions.
- D. Schedules shall show the complete sequence of construction by activity with dates for the beginning and completion of each major element of construction. Projected percentage of completion for each item as of the first day of each month shall be shown.
- E. Progress Reports: The CONTRACTOR shall prepare and submit a monthly progress report. The report shall indicate the progress at the date of submission of each activity shown on his progress schedule. It shall show changes occurring since previous submissions, activities modified since previous submissions, and revised projections of progress and completion. The submittal shall include a narrative report to define: problem areas, anticipated delays, and the impact on the schedule, and corrective action recommended and its effect.

1.05 SCHEDULE OF VALUES

- A. At least 10 days prior to submitting the first Application for a progress payment, the CONTRACTOR shall submit to the ENGINEER a schedule of values of the work. This schedule shall be satisfactory in form and substance to the ENGINEER. The schedule of values shall include quantities and unit prices aggregating the contract price, and shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction. Upon acceptance of the schedule of values by the ENGINEER, it shall be incorporated into the form of Application for Payment discussed and agreed upon at the preconstruction conference.
- B. Where estimated quantities and unit prices are shown in the Bid Form as the basis of payment, the quantities shown in the Bid Form are approximate and are given only as a basis of calculation upon which the award of the contract is to be made. The OWNER or ENGINEER do not assume any responsibility that the final quantities will remain in accordance with estimated quantities, nor shall the CONTRACTOR claim misunderstanding or deception because of such estimate of quantities. Final payment will be made on the basis of the actual completed quantities of each item.

1.06 DEFINITIONS

- A. Shop Drawings: Shop drawings are original drawings, prepared by the CONTRACTOR, a subcontractor, supplier, or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting, or erection details. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Contract Drawings.
- B. Product Data: Product data are manufacturer's standard schematic drawings and manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Catalog sheets, brochures, etc., shall be clearly marked to identify pertinent materials, products, or models.
- C. Samples: Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which work is to be evaluated.
- D. Miscellaneous Submittals: Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standard, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.07 SUBMITTAL REQUIREMENTS

- A. Prior to submission, thoroughly check shop drawings, product data, and samples for completeness and for compliance with the Contract Documents. Verify all field measurements, quantities, dimensions, specified performance criteria, fabrication, shipping, handling, storage, assembly, installation, and safety requirements.
- B. Coordinate the submittals with the requirements for other related work.
- C. Notify the ENGINEER, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Document. The CONTRACTOR'S responsibility for

deviations in submittals from the requirements of the Contract Documents is not relieved by the ENGINEER'S review of submittals, unless the ENGINEER gives written acceptance of specific deviations.

- D. Submit at least six (6) copies of each shop drawing and product data. The specific number of copies required of all submittals will be determined during the preconstruction meeting. Submit the number of samples indicated in the individual Specification Sections.
- E. Where a specific product manufacturer and model number is listed in individual specification sections and is proposed by the CONTRACTOR to be used, full submittal of product data is not required. In this case, submit in letter format the name of the product, manufacturer, model number, specification section, and name of project. Certify the identified product is proposed to be used in the project.
- F. Shop drawings, product data, and samples shall be accompanied by a letter of transmittal referring to the name of the project and to the specification page number and/or Drawing number for identification of each item. Submittals for each type of work shall be numbered consecutively, and the numbering system shall be retained throughout all revisions.
- G. Submittals shall bear the CONTRACTOR'S stamp of approval certifying that they have been checked and indicate appropriate specification section and/or drawing location. Submittals without the CONTRACTOR'S initialed or signed certification stamp and submittals which, in the ENGINEER'S opinion, are incomplete, contain numerous errors or have not been properly checked, will be returned unchecked by the ENGINEER for resubmission.
- H. Begin no work which requires submittals until return of submittals with ENGINEER stamp and initials or signature indicating the submittal has been approved.
- I. Systems to be submitted in the shop drawing submittal shall include but not necessarily be limited to:
 - 1. Each item of equipment and/or materials listed in the project equipment and material schedules.
 - 2. Special casings.
- J. In addition to the above, the manufacturer shall submit through the CONTRACTOR copies of the results of the tests performed by an independent laboratory that demonstrate compliance with the reference specification for:
 - 1. Ductile iron pipe
 - 2. Casing pipe
 - 3. PVC pipe
 - 4. Asphaltic materials

1.08 ENGINEER'S REVIEW OF SUBMITTALS

- A. ENGINEER'S review and approval of submittals will not extend to means, methods, techniques, sequences, procedures of construction, or to safety precautions.
- B. The review and approval of a separate item will not indicate approval of the assembly in which the item functions. ENGINEER'S review and approval of submittals shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract

Documents.

- C. The ENGINEER will review submittals with reasonable promptness. The ENGINEER'S review of submittals shall not be construed as a complete check and shall not relieve the CONTRACTOR from responsibility for complete compliance with the Contract requirements.
- D. No corrections, changes, or deviations indicated on submittals reviewed by the ENGINEER shall be considered as a change order.
- E. Where review of submittals is required by the Owner of other agencies, the ENGINEER will forward the appropriate submittal(s) to these parties after ENGINEER review. Once review of all parties is complete, the submittal(s) will be returned to the CONTRACTOR reflecting the review of all parties.
- F. If the submittal is not satisfactory, one copy of the submitted item will be retained by the ENGINEER and all other copies returned to the CONTRACTOR for appropriate action.
- G. In the event a third submittal is required, due to previous submittals of incomplete or incorrect data or not in compliance with the Contract Documents, the CONTRACTOR will be charged one-half of the cost incurred by the ENGINEER for the review of the third submittal. The CONTRACTOR shall bear the total cost incurred by the ENGINEER for all subsequent reviews. The ENGINEER costs charged to the CONTRACTOR will be at the cost plus rate generally charged by the ENGINEER and will be deducted by the OWNER from payments due to the CONTRACTOR.
- H. Distribution of copies of acceptable submittals will be as mutually determined by the CONTRACTOR, OWNER, and ENGINEER on an individual item basis during or following the preconstruction conference.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01390 - COLOR VIDEO-AUDIO PRE-CONSTRUCTION RECORD

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Prior to commencing the Work, the CONTRACTOR shall have a continuous color audio-video digital recording taken (1) along the entire length of the Project or (2) within the confines of a treatment plant, to serve as a record of pre-construction conditions.

1.02 APPROVAL

- A. No construction shall begin prior to review and approval of the audio-video DVD recording covering the Project by the OWNER. The OWNER shall have the authority to reject all or any portion of the audio-video DVD recordings not conforming to specifications and order that it be redone at no additional charge.
- B. The CONTRACTOR shall reschedule unacceptable coverage within five (5) days after being notified. The OWNER shall designate those areas, if any, to be omitted from or added to the audio-video coverage.
- C. The DVD recordings shall not be made more than thirty (30) days prior to construction in any area. All DVD's and written records shall become property of the OWNER.

1.03 PROFESSIONAL VIDEOGRAPHERS

- A. The CONTRACTOR shall engage the services of a professional videographer. The color audio-video recording shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction color audio-video documentation.
- B. The videographer shall furnish to the OWNER, a list of all equipment to be used for the audio-video recording, i.e., manufacturer's name, model number, specifications and other pertinent information.
- C. The videographer shall furnish the OWNER with additional information including the names and addresses of two references that the videographer has performed color audio-video recordings for projects of a similar nature within the last twelve (12) months.

1.04 PHOTOGRAPHS OF LINE WORK

- A. The CONTRACTOR shall make provision at his expense for photographs to be taken just prior to construction and for unusual conditions during construction. The photographs shall show pertinent physical features along the line of construction prior to start of construction. Two 4-inch x 6-inch prints of all pictures shall be furnished to the OWNER's representative.

PART 2 – PRODUCTS

2.01 COLOR PRINTS

- A. Paper:

1. Double Weight
2. Finish: Smooth Surface, Glossy
3. Size: 8-inch x 10-inch

B. Identify Each Print on Back, Listing:

1. Name of Project
2. Orientation of View
3. Date and Time of Exposure
4. Name and Address of Photographer

2.02 DVD's

- A. Audio-video DVD's shall be new. The DVD used for the recordings shall be professional quality 12 cm color DVD media that conforms to either DVD-R or DVD+R recording standards using high quality DVD video and audio bitrates. Reprocessed disks will not be acceptable. The recorded DVD's shall be compatible for playback with any standard DVD-R or DVD+R player.

PART 3 – EXECUTION

3.01 TECHNIQUE

- A. Factual Presentation
- B. Correct Exposure and Focus
1. High resolution and sharpness.
 2. Maximum depth of field.
 3. Minimum distortion

3.02 DELIVERY OF PRINTS

- A. Deliver prints to ENGINEER to accompany each Application for Payment.

3.03 EQUIPMENT

- A. All equipment, accessories, materials, and labor to perform this service shall be furnished by the CONTRACTOR or professional videographer.
- B. The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the Project as well as those more subjective requirements of high quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, or any other form of picture imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion.
- C. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be more than ten feet (10'). In some instances, audio-video recording coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the OWNER.

- D. The color video camera used in the recording system shall record the color signal with a minimum horizontal resolution of 350 lines, a luminance signal to noise ratio of 45 dB, and a minimum illumination requirement of 25-foot candles.

3.04 RECORDED INFORMATION - AUDIO

- A. Each DVD shall begin with the current date, project name and be followed by the general location, i.e., viewing side and direction of progress. The audio tract shall consist of an original live recording. The recording shall contain the narrative commentary of the videographer, recorded simultaneously with its fixed elevation video record of the zone of influence of construction.
- B. The OWNER reserves the right to supplement the audio portion of the recording as deemed necessary. A representative of the OWNER shall be selected to provide such narrative.

3.05 RECORDED INFORMATION - VIDEO

- A. All video recordings shall, by electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording.
- B. All DVD's and their storage cases shall be identified by DVD index number, project title, and general project location. Each DVD shall have a log of that recording's contents displayed on the storage case of each DVD. The log shall describe the various segments of coverage contained on that DVD in terms of the names of streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers and the date.

3.06 LIGHTING

- A. All recordings shall be done during times of good visibility. No recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.

3.07 SPEED OF TRAVEL

- A. The rate of speed in the general direction of travel of the vehicle used during taping shall not exceed 440 feet per minute (5 mph). Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

3.08 AREA OF COVERAGE

- A. Recordings shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, buildings, vaults, concrete pads, fences, signs, and headwalls within the area covered.

END OF SECTION

SECTION 01400 – QUALITY CONTROL

PART 1 – GENERAL

1.01 TESTING LABORATORY SERVICES

- A. Arrangements for testing laboratory services will be made by CONTRACTOR. Payment for testing to show compliance with specified requirements will be paid for by CONTRACTOR. The cost of retesting when materials and workmanship fail to meet specified requirements will be deducted from monies due CONTRACTOR.

1.02 LABORATORY STANDARDS

- A. Testing laboratories shall conform to the applicable requirements of ASTM E329-77, STANDARD RECOMMENDED PRACTICE FOR INSPECTION AND TESTING AGENCIES FOR CONCRETE, STEEL AND BITUMINOUS MATERIALS AS USED IN CONSTRUCTION, LATEST EDITION, and shall be inspected and approved by the ELF/FC&PA Joint Technical Committee, Inc., or by an equivalent recognized national authority.
- B. Agents of testing laboratories performing field sampling and field testing of concrete shall be certified by the American Concrete Institute as Concrete Field Testing Technicians Grade 1 or by an equivalent recognized national authority for an equivalent level of competence, or shall be licensed Professional Engineers.

1.03 ACCESS FOR INSPECTION

- A. OWNER, ENGINEER and their authorized representatives shall be permitted free access and every reasonable facility for the inspection of all Work, materials and equipment. OWNER and his authorized representatives shall also be permitted to inspect payrolls, invoices for materials and equipment. OWNER and his authorized representatives shall also be permitted to inspect payrolls, invoices for materials and equipment and other relevant data and records.
- B. Authorized representatives of Federal, State or local agencies shall be permitted access to inspect for compliance with applicable laws, regulations and permit requirements.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. This Section specifies the minimum requirements for temporary facilities, utilities to be brought to the site, and control required to enable the construction of the project to progress adequately. The providing of adequate facilities at every stage of performing the work is the CONTRACTOR'S sole responsibility, and is not limited by the requirements of this Section.
- B. Except as otherwise indicated, the CONTRACTOR may, at his option, provide stand-alone utility plants to provide needed services, in lieu of connected services from available public utilities, provided such stand-alone plant facilities comply with governing regulations. Prior to availability of temporary utility services, provide trucked-in/trucked-out containerized or unitized services for start-up of construction operations at the site.
- C. Except as otherwise indicated, the costs of providing and using temporary utility services are included in the Contract Sum.
- D. The CONTRACTOR shall not use the facilities of the OWNER without permission.

1.02 TEMPORARY FACILITIES

- A. The types of utility services required for general temporary use at the project site include the following (other specific services may be required for specific construction methods or operations):
 - 1. Water Service (potable for certain uses)
 - 2. Sanitary
 - 3. Storm Sewer or Open Drainage/Run-off Control
- B. Temporary Water: The CONTRACTOR shall make all necessary application and arrangements, and pay all fees and charges for water necessary for the proper completion of the project up to the time of final acceptance. The CONTRACTOR shall provide and pay for any temporary piping and connections.
- C. Temporary Sanitary Facilities: The CONTRACTOR shall provide adequate sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved.
- D. The CONTRACTOR shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the OWNER, or on adjacent property.
- E. Termination and Removal: At the time the need for temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than the time of substantial completion, promptly remove the installation unless requested by the ENGINEER to retain it for a longer period. Complete and restore work which may have been delayed or affected by the installation

and use of the temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces. Replace work damaged beyond acceptable restoration.

1.03 TEMPORARY CONTROLS

- A. Noise Control: The CONTRACTOR shall provide adequate protection against objectionable noise levels caused by the operation of construction equipment.
- B. Dust Control: The CONTRACTOR shall provide for adequate protection against raising objectionable dust clouds caused by moving construction equipment, high winds or any other cause.
- C. Water Control: The CONTRACTOR shall provide for satisfactory disposal of surplus water and shall submit a plan to the ENGINEER for his review prior to initiation and implementation of the plan. Prior approval shall be obtained from the proper authorities for the use of public or private lands or facilities for such disposal. CONTRACTOR shall be responsible for obtaining and complying with the requirements of any dewatering or consumptive use permits required by regulatory authorities.
- D. Pollution Control:
 - 1. The CONTRACTOR shall provide for adequate protection against polluting any public or private lands, lakes, ponds, rivers, streams, creeks, and other such areas, by the disposal of material in the form of solids, liquids, or gases.
 - 2. The CONTRACTOR shall evaluate and assess the impact of any adverse effects on the natural environment which may result from construction operations and shall operate to minimize pollution of air, ground or surface waters vegetation, and afford the neighboring community the maximum protection during and up to completion of the construction project.
 - 3. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.
 - 4. The CONTRACTOR shall follow all laws governing the use and disposal of toxic materials.
- E. Erosion Control
 - 1. The CONTRACTOR shall not expose, by construction operations, a larger area of erosive land at any one time than the minimum necessary for efficient construction operations, and the duration of exposure of the uncompleted construction to the elements shall be as short as practicable.
 - 2. Erosion control features shall be constructed concurrently with other work and at the earliest practicable time.

1.04 STORAGE FACILITIES

- A. All products, materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturer's instructions. Fabricated products shall be stored above the ground on blocking or skids. Products which are subject to deterioration shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored

in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any products which will come in contact with potable water shall be stored off the ground so as to prevent contamination.

- B. Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored products to assure that they are maintained under specified conditions, and free from damage or deterioration.
- C. After installation, CONTRACTOR shall provide substantial coverings as necessary to installed products to protect from damage from traffic and subsequent construction operations. Coverings shall be removed when no longer needed.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01568 – EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

- A. In addition to the requirements of Division 1 and Section 02200:
 - 1. All erosion, sedimentation and water pollution control features shall be in place or relocated as necessary prior to the start of any clearing, grading or construction. CONTRACTOR shall be responsible for the installation and maintenance of all temporary erosion control features.
 - 2. Location of the control features shall be as required to facilitate drainage and control erosion and sedimentation within and adjacent to the site.
 - 3. Control features are defined as, but not limited to, swales, berms, silt fences, silt barriers and temporary fences.

1.02 QUALITY ASSURANCE

- A. The provisions for prevention, control and abatement of erosion, sedimentation and water pollution shall be as stated in the FDOT Standard Specifications for Road and Bridge Construction, Section 104, latest edition, and as required by the St. John's River Water Management District.

1.03 SUBMITTALS

- A. Procedures shall be in accordance with General Conditions.
- B. Product data: Manufacturers' literature, application instructions and samples.
- C. List of materials and their characteristics for other erosion control items.

1.04 START OF WORK

- A. Do not start work until erosion control measures are in place.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Silt Barriers
 - 1. Two (2) types of silt barriers shall be installed in accordance with the plans: silt barriers installed on the ground, and floating silt barriers.
 - 2. Silt barriers (filter fabric) shall be synthetic and contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of zero degree Fahrenheit (0°F) to one hundred twenty degrees Fahrenheit (120°F). Hay bales shall not be used for silt barriers, unless specifically approved by the OWNER.
 - 3. Filter fabric shall be a pervious sheet of propylene, nylon or polyester and shall be certified by the manufacturer or supplier to conform to the following specifications:

Filter efficiency (Test VTM-51):	75%
Minimum tensile strength at 20% elongation (Test ASTM-D-1682):	120 lbs.
Tear strength (Test ASTM D2263):	50 lbs.

4. CONTRACTOR shall submit further filter fabric specifications and installation configuration prior to start of construction.
5. Silt barriers shall be maintained in place until substantial completion of the Project.
6. Filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid use of joints. When joints are necessary filter fabric shall be spliced together only at a support post, with a six-inch (6") overlap, and securely sealed.
7. The following items shall be installed and maintained in accordance with the applicable sections of the FDOT Standard Specifications:
 - a. Temporary silt fences and staked silt barriers
 - b. Floating silt barrier

B. Temporary Fence

1. Brightly colored fence as manufactured by Mirafi, product Mirasafe, or approved equal.
2. Material shall be four feet (4') high, attached to six feet (6') metal posts at twelve feet (12') centers. Posts shall be driven eighteen inches (18") into ground.

C. Filter Fabric for Placement Beneath Rip-Rap

1. Filter Fabric should be Mirafi 600X or approved equal.

D. Rip-Rap

1. Rubble type rip-rap consisting of broken stone meeting the requirements of Section 530-3.3 of the FDOT Standard Specifications for Road and Bridge Construction, Latest Edition.

PART 3 – EXECUTION

3.01 GENERAL

- A. Temporary erosion control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, artificial coverings, berms, baled hay or straw, floating silt barriers, staked silt barriers, and staked silt fences. Design details for some of these items may be found in the Water Quality Section of the applicable edition of the FDOT Roadway and Traffic Design Standards. All of these items shall be constructed in accordance with applicable sections of the FDOT Standard Specifications.
- B. Incorporate permanent erosion control features into the project at the earliest practical time. Correct conditions, using temporary measures, which develop during construction to control erosion prior to the time it is practical to construct permanent control features.

- C. Construct temporary and permanent erosion and sediment control measures and maintain them to prevent the pollution of adjacent water ways in conformance with the laws, rules and regulations of Federal, State and local agencies.
- D. Copies of approved permits will be provided to the CONTRACTOR for his review and use. CONTRACTOR shall be required to comply with all General and Special Conditions noted within the permit by the particular permitting agency. The CONTRACTOR shall maintain copies of these permits on the job site at all times.

3.02 INSTALLATION

- A. The following items shall be installed and in accordance with the FDOT Standard Specifications. The procedures are only generally described herein.
 - 1. Temporary Grassing: This work shall consist of furnishing and placing grass seed.
 - 2. Temporary Sod: This work shall consist of furnishing and placing sod.
 - 3. Temporary Mulching: This work shall consist of furnishing and applying a two-inch to four-inch thick blanket of straw or hay mulch and then mixing or forcing the mulch into the top two inches of the soil in order to temporarily control erosion. Only decayed straw or hay, which can readily be cut into the soil, shall be used. Other measures for temporary erosion control such as hydro-mulching, chemical adhesive soils stabilizers, etc., may be substituted for mulching with straw or hay with the approval of the City. When permanent grassing operations begin, temporary mulch materials shall be plowed under in conjunction with preparation of the ground.
 - 4. Sandbagging: This work shall consist of furnishing and placing sandbags in configurations, so as to control erosion and siltation.
 - 5. Slope Drains: This work shall consist of constructing slope drains, utilizing pipe, fiber mats, rubble, cement concrete, asphaltic concrete, plastic sheeting, or other acceptable materials, in accordance with the details shown in FDOT's Roadway and Traffic Design Standards or as suitable to adequately perform the intended function.
 - 6. Sediment Basins: Sediment basins shall be constructed in accordance with the details shown in FDOT's Roadway and Traffic Design Standards or as suitable to adequately perform the intended function. Sediment basins shall be cleaned out as necessary.
 - 7. Artificial Coverings: This work shall consist of furnishing and applying fiber mats, netting, plastic sheeting, or other approved covering to the earth surfaces.
 - 8. Berms: This work shall consist of construction of temporary earth berms to divert the flow of water from an erodible surface.
 - a. This work shall consist of construction of baled hay or straw dams or earth berms to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in FDOT's Roadway and Traffic Design Standards.
 - b. The berm dam shall be placed so as to effectively control silt dispersion under conditions present on this project. Alternate solutions and usage of materials may be used if approved.
 - 9. Filter Fabric for placement beneath rip-rap:
 - a. Unroll filter fabric adequately longitudinally with the swale.
 - b. Install anchoring pins in the fabric to protect the material from wind uplift.

- c. Toe filter fabric into soil a minimum of twelve inches (12") at the top and bottom of the slope.

10. Rubble Rip-Rap:

- a. Rip-rap should be placed carefully to not damage or displace the filter fabric. Filter fabric which rips or becomes displaced during rip-rap placement should be repaired. The placement of the rip-rap should proceed from the bottom up to the top of the slope. At no time should the rip-rap be dumped onto the fabric from the tip of the slope and allowed to roll down the surface of the fabric.
- b. Placement of rip-rap shall be in accordance with Section 530-3 of the FDOT Standard Specifications for Road and Bridge Construction, latest edition.
- c. Minimum thickness of rip-rap layer is two feet (2').

3.03 SILT BARRIERS

- A. Silt barriers shall be installed and maintained at the locations shown on the Drawings. The CONTRACTOR is required to prevent the possibility of silting onto any adjacent parcel.
- B. Silt barrier shall be of the staked type and stakes shall be installed as indicated in the Drawings.
- C. The height of the silt barrier fabric shall be a minimum of forty-two inches (42").
- D. The stakes shall be two inch (2") x four inch (4") wood, five feet (5') long and shall be spaced a maximum of ten feet (10) apart at the barrier location and driven securely into the ground.
- E. A trench shall be excavated approximately four inches (4") wide by four (4") deep along the line of stakes. The filter fabric shall be tied or stapled to the wooden stakes and eight inches (8") of fabric shall be extended into the trench. The staples shall be heavy duty wire and at least one-half inch (1/2") long. The trench shall then be backfilled and the soil compacted over the filter fabric.

3.04 FLOATING SILT BARRIERS

- A. Floating silt barriers shall be located as shown on the Drawing and shall be in place prior to the start of any construction or grading.
- B. Floating silt barriers shall meet or exceed the Florida Department of Transportation Roadway and Traffic Design Standards, Index No. 102, Floating Silt Barrier. CONTRACTOR shall submit fabric filter material specifications and installation configuration for approval prior to the start of construction.

3.05 TEMPORARY FENCE

- A. Furnish, install and maintain on wetland lines, buffer lines, tree save lines and otherwise as shown on Drawings. Attach silt barrier to the temporary fence.
- B. Follow manufacturer's installation recommendations.

3.06 MAINTENANCE

- A. Silt barriers and temporary fences shall be inspected immediately after each rainfall and at least once a day during periods of prolonged rainfall. Any repairs shall be made immediately.
- B. Should the fabric on a silt barrier or temporary fence decompose or become ineffective, the installation shall be repaired or replaced immediately at no additional cost to the OWNER. If the CONTRACTOR fails to repair or replace the items as above, the OWNER shall have the right to stop work without additional cost to the OWNER in accordance with Article 15 of the General Conditions until such time as the repair or replacement has been made.
- C. Sediment deposits shall be removed after each storm event. The CONTRACTOR will repair and restore the installations to a working and effective condition to the satisfaction of the OWNER.
- D. At the completion of all work, the silt barriers and the temporary fences will be removed unless otherwise directed by the OWNER.
- E. Any sediment deposits in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade and prepared for seeding or sodding.

3.07 CONTROL OF CONTRACTOR'S OPERATIONS WHICH MAY RESULT IN WATER POLLUTION

- A. Take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs, wetlands and other sensitive areas with silt, sediment, fuels, oils, bitumens, calcium chloride, or other harmful materials. Conduct and schedule operations so as to avoid or otherwise minimize pollution or siltation of such streams, etc. and to avoid interference with movement of migratory fish. Do not pump the residue from dust collectors or washers into any water body.
- B. Construction operations in rivers, streams, lakes, tidal waters, reservoirs, canals, and other impoundments shall be restricted to those areas where it is necessary to perform filling or excavation to accomplish the work shown in the Contract Documents and to those areas which must be entered to construct temporary or permanent structures. As soon as conditions permit, promptly clear rivers, streams, and impoundments of all obstructions placed therein or caused by construction operations.
- C. Except as necessary for construction, do not deposit excavated material in rivers, streams, canals, or impoundments, or in a position close enough thereto, to be washed away by high water or run-off.
- D. Where pumps are used to remove highly turbid waters from enclosed construction areas such as cofferdams or forms, treat the water prior to discharge into State or other waters. Pump the water into grassed swales, appropriately vegetated areas, or sediment basins, or confine it by an appropriate enclosure such as siltation curtains when other methods are not considered appropriate. Do not contaminate State or other waters.
- E. Do not disturb lands or waters outside the limits of construction, unless approved in advance and in writing by the OWNER. No operations within non-permitted wetlands or upland buffers are allowed.

3.08 PROTECTION DURING SUSPENSION OF CONTRACT TIME

- A. In the event that it is necessary that the construction operations be suspended for any appreciable length of time, shape the top of the earthwork in such a manner as to permit run-off of rainwater and construct earth berms along the top edges of embankments to intercept run-off water. Provide temporary slope drains to carry run-off from cuts and embankments which are located in the vicinity of rivers, streams, canals, lakes and impoundments. Should such preventative measures fail, immediately take such other action as necessary to effectively prevent erosion and siltation.

END OF SECTION

SECTION 01600 – MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Material and equipment incorporated into the Work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the OWNER.
 - 3. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Two (2) or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service and conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- B. Related Requirements Described Elsewhere:
 - 1. Conditions of the Contract.
 - 2. Summary of Work: Section 01010
 - 3. Special Project Procedures: Section 01100

1.02 APPROVAL OF MATERIALS

- A. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the CONTRACTOR shall be subject to the inspection and approval of the OWNER. No material shall be delivered to the work without prior approval of the OWNER.
- B. Within thirty (30) days after the Effective Date of the Agreement, the CONTRACTOR shall submit to the OWNER, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable the OWNER to identify the particular product to form an opinion as to conformity to the specifications. If Asbestos is contained in any item, the CONTRACTOR shall include a notification of this fact. This notification must include the type and percent of asbestos content. All data shall comply with Paragraph 1.06 of this Section.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be

furnished by the CONTRACTOR. If the OWNER requires, either prior to beginning or during the progress of the work, the CONTRACTOR shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed and shipped as directed at the CONTRACTOR'S expense. Except as otherwise noted, the CONTRACTOR will make arrangements for and pay for the tests.

- D. The CONTRACTOR shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the CONTRACTOR'S failure to submit samples or data promptly shall not be used as a basis of claim against the OWNER.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes and surfaces, the CONTRACTOR shall provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.03 MANUFACTURER'S INSTRUCTION FOR INSTALLATION

- A. When Contract Documents require the installation of work shall comply with manufacturer's printed instruction, obtain and distribute copies of such instruction to parties involved in the installation, including five copies to the OWNER.
- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instruction and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instruction, consult with OWNER for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.05 SPECIAL TOOLS

- A. Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. The CONTRACTOR shall preserve and deliver to the OWNER these tools and instruction in good order no later than upon completion of the Contract.

1.06 STORAGE AND HANDLING OF EQUIPMENT ON SITE

- A. If there is a long period allowed for construction, special attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed:
 - 1. Equipment shall not be shipped until approved by the OWNER. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the OWNER. Equipment shipped to the site shall be stored in accordance with Paragraph 1.05, herein.
 - 2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the OWNER, until such time as the equipment is to be installed.
 - 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
 - 4. Manufacturer's storage instructions shall be carefully studied by the CONTRACTOR and reviewed with the OWNER. These instructions shall be carefully followed and a written record of this kept by the CONTRACTOR.
 - 5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the CONTRACTOR shall start the equipment, does not deteriorate from lack of use.
 - 6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than ninety (90) days, shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no extra cost to the OWNER.
 - 7. Prior to acceptance of the equipment, the CONTRACTOR shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certification by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the CONTRACTOR'S expense.

1.07 WARRANTY

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740: Warranties. The manufacturer's warranty period shall be concurrent with the CONTRACTOR'S for one (1) year after the time of completion and acceptance.

1.08 SPARE PARTS

- A. Spare parts for certain equipment provided have been specified in the pertinent sections of the Specifications. The CONTRACTOR shall collect and store all spare parts so required in an area to be designated by the OWNER. In addition, the CONTRACTOR shall furnish to the OWNER an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01640 – SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 – GENERAL

1.01 REQUESTS FOR REVIEW

- A. Requests to review substitute items of material and equipment will not be accepted by the ENGINEER from anyone other than the CONTRACTOR. If the CONTRACTOR wishes to furnish or use a substitute or equivalent items of material or equipment, the CONTRACTOR shall make written application to the ENGINEER for acceptance, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equivalent substance to that specified and be suited to the same use and capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the work will require a change in Drawings or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the ENGINEER in evaluating the proposed substitute. The ENGINEER may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute. The ENGINEER will be the sole judge of acceptability, and no substitute will be ordered or installed without the ENGINEER'S prior written acceptance. The OWNER may require the CONTRACTOR to furnish at the Contractor's expense, a special performance guarantee of other surety with respect to any substitute.

1.02 PRODUCT SELECTION

- A. Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, new at the time of installation.
- B. To the fullest extent possible, provide products of the same kind from a single source.
- C. Compatibility among product options is required. Where more than one choice is available as options during product selection, select an option that is compatible with other products and materials already selected.
- D. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
- E. Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- F. Where Contract Documents are at variance with specific manufacturer's details and installation procedures, contact the ENGINEER for resolution prior to start of work.
- G. For products specified by naming a number of products and manufacturers with "or equal", select any of the products and manufacturers listed, or propose a substitution. If the CONTRACTOR wishes to propose a substitution, the CONTRACTOR must submit a request for product substitution for approval by the ENGINEER and OWNER.
- H. For products specified naming only one product and manufacturer, or a number of products

and manufacturers without the “or equal” allowance, no substitutes are allowed.

- I. For products specified by reference standards only, the CONTRACTOR may provide any product complying with the specified standard.
- J. For products specified by performance and descriptive methods, without naming manufacturer's products, the CONTRACTOR may provide the products of any manufacturer complying with the Contract Documents, subject to the review of the product data and concurrence by the ENGINEER as specified within.

1.03 SUBSTITUTION AFTER EXECUTION OF AGREEMENT

- A. After execution of the Agreement, substitution of materials or equipment from Suppliers other than those listed or included in the Agreement will be considered only if it is demonstrated by CONTRACTOR that:
 - 1. The material or equipment proposed for substitution is superior in design, construction and/or efficiency to that of the listed manufacturer or supplier;
 - 2. The material proposed for substitution is in every way equal to that of the listed supplier, and that availability and/or delivery of listed materials within the time frame scheduled cannot be met;
 - 3. A specified product is no longer available.
 - 4. The product cannot be delivered by the manufacturer in a timely manner.
 - 5. The product is found to be incompatible with other specified products.
 - 6. The material proposed for substitution is in every way equal to that of the listed supplier and is available at a lower cost. In the event such a substitution is allowed, CONTRACTOR shall accept and execute a Change Order reducing the Contract Price by an amount equal to the cost differential.

1.04 ENGINEER'S CHARGES

- A. The ENGINEER will record time required by the ENGINEER and the ENGINEER'S consultants in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Drawings or Specifications occasioned by the substitution. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER and the ENGINEER'S consultants for evaluating any proposed substitute.

1.05 EQUIPMENT REQUIRING VARIATION IN SPACE

- A. It is intended that the CONTRACTOR shall furnish equipment which may be installed and shall operate properly in the structures as shown. Should the CONTRACTOR select alternate equipment resulting in an alteration to, addition to, enlargement of, or any other changes from the lines, dimensions, and grades shown, the CONTRACTOR shall make such changes or alterations as are required and no additional payment will be made by the OWNER for changes in structures occasioned by the selection of alternate equipment. All such variations shall be subject to review and acceptance by ENGINEER.
- B. Equipment requiring supplemental services in addition to those shown or specified in order to fulfill the operating objectives and including additional mechanisms, operating steps and/or controls as compared with specified equipment will not be acceptable.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SUBSTITUTIONS AND PRODUCT OPTIONS

**01640 - 2
ISSUED FOR BID**

SECTION 01660 – SYSTEMS TESTING, ADJUSTING AND BALANCING

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The CONTRACTOR shall be responsible for the testing, adjusting and balancing of all systems prior to placing them in service.
- B. The operation, testing, adjustment and balancing shall be as required to prove that the equipment is left in proper condition for satisfactory operation under the conditions specified.

1.02 TESTING PRIOR TO SHIPMENT

Where individual sections require certain items of equipment to be tested prior to shipment from the manufacturer's plant, these items shall be operated to the extent necessary to generate certified performance data over the entire operating range of the equipment. The testing shall be conducted on the units which will be shipped to and installed at the construction site.

1.03 SERVICES OF MANUFACTURER'S REPRESENTATIVE

- A. The CONTRACTOR shall arrange for a qualified service representative from each company manufacturing or supplying certain equipment, as listed on the Drawings, or in the Specifications, to perform the duties described.
- B. After installation of the listed equipment has been completed and the equipment is presumably ready for operation, but before it is operated by others, the representative shall inspect, operate, test, adjust and balance the equipment. The inspection shall include, but shall not be limited to, the following points as applicable:
 - 1. Soundness (without cracked or otherwise damaged parts).
 - 2. Completeness in all details, as specified.
 - 3. Correctness of setting, alignment, and relative arrangement of various parts.
 - 4. Adequacy and correctness of packing, sealing and lubricants.
- C. On completion of his work, the manufacturer's or supplier's representative shall submit in triplicate to the ENGINEER a complete signed report of the result of his inspection, operation, adjustments, and tests. The report shall include detailed descriptions of the points inspected, tests and adjustments made, quantitative results obtained if such are specified, and suggestions for precautions to be taken to ensure proper maintenance. The report also shall include a certificate that the equipment conforms to the requirements of the Contract and is ready for permanent operation and that nothing in the installation will render the manufacturer's warranty null and void.
- D. After the ENGINEER has reviewed the reports from the manufacturer's representatives, the CONTRACTOR shall make arrangements to have the manufacturer's representatives present when the field acceptance tests are made.
- E. The manufacturer's representative shall remain on the job to instruct the OWNER'S personnel in proper operation and maintenance and shall remain until the equipment is operating in a satisfactory manner.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.01 PRESSURE AND LEAKAGE TESTS

Tests shall be conducted in the presence of and to the satisfaction of the ENGINEER and of authorities having jurisdiction over the work. Not less than three days notice shall be given prior to start of tests. A visual check shall be made of the gravity sewers for alignment and for leakage.

3.02 GRAVITY SEWERS

- A. The final inspection of gravity sewer systems shall include visual inspection and testing for infiltration and exfiltration.
- B. The visual inspection shall include examination of manholes and lamping of the sewer lines. All visible leaks shall be corrected.
- C. If, in the opinion of the ENGINEER, infiltration is excessive it shall be measured using a weir or other suitable device. Wherever the leakage into the pipe is found to exceed 50 gallons per day per inch diameter per mile of sewer between successive manholes, that section of sewer shall be reworked or relaid as required until the leakage is brought below this amount.

3.03 ENGINEER'S RIGHT TO RETESTING

- A. Should the CONTRACTOR refuse or neglect to make any tests necessary to demonstrate the integrity of the completed system, the ENGINEER may retain the services of an outside consultant to make all such tests and their resulting adjustments and balance.
- B. The costs for such tests shall be deducted from amounts owing to the CONTRACTOR and shall not be borne by the OWNER.

END OF SECTION

SECTION – 01700 CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Comply with requirement stated in Conditions of the Contract and in specifications for administrative procedures in closing out the Work.
- B. Related Requirements Described Elsewhere:
 - 1. Conditions of the Contract, Fiscal provisions, legal submittals and additional administrative requirements.
 - 2. Project Record Documents: Section 01720.
 - 3. Warranties: Section 01740.

1.02 SUBSTANTIAL COMPLETION

- A. When CONTRACTOR considers the Work as substantially complete, the CONTRACTOR shall submit to the OWNER:
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the OWNER shall make an inspection to determine the status of completion.
- C. Should the OWNER determine that the Work is not substantially complete:
 - 1. The OWNER shall promptly notify the CONTRACTOR in writing, giving the reasons thereof.
 - 2. CONTRACTOR shall remedy the deficiencies in the Work and send a second written notice of substantial completion to the OWNER.
 - 3. The OWNER shall re-inspect the Work.
- D. When the OWNER finds that the Work is substantially complete, the CONTRACTOR shall:
 - 1. Prepare and deliver to OWNER a tentative Certificate of Substantial Completion on form provided herein, with a tentative list of items to be completed or corrected before final payment.

1.03 FINAL INSPECTION

- A. When CONTRACTOR considers the Work is complete, it shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the OWNER and are operational.
 - 5. Work is completed and ready for final inspection.

- B. The OWNER shall make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should the OWNER consider that the Work is incomplete or defective:
 - 1. The OWNER shall promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.
 - 2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the OWNER that the Work is complete.
 - 3. The OWNER shall re-inspect the Work.

1.04 REINSPECTION FEES

- A. Should the OWNER perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:
 - 1. The OWNER shall compensate the Engineer / Architect / Consultants, etc., for such additional services.
 - 2. The OWNER shall deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project Record Documents: To requirements of Section 01720.
- B. Warranties: To requirements of Section 01740.
- C. Evidence of Payment and Release of Liens: To requirements of the General Conditions and Supplementary Conditions.
- D. Certificate of Insurance for Products and Completed Operations.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the OWNER.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous change orders or written amendment
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work
 - e. Penalties and bonuses
 - f. Deductions for liquidated damages
 - g. Deductions for re-inspection payments
 - h. Other adjustments
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.

- C. The OWNER shall prepare a Final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01710 – FINAL CLEANING

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The CONTRACTOR shall execute cleaning, during progress of the work, and at the completion of the work, as required by General Conditions.
- B. Cleaning and disposal operations shall comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.01 DURING CONSTRUCTION

- A. The CONTRACTOR shall:
 - 1. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
 - 2. Provide on-site containers for the collection of waste materials, debris and rubbish.
 - 3. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 FINAL CLEANING

- A. The CONTRACTOR shall:
 - 1. Employ skilled workmen for final cleaning.
 - 2. Broom clean exterior paved surface; rake clean other surfaces of the grounds.
 - 3. Clean windows with an approved cleaner; clean all exposed equipment with cleaners that are approved for the material they are cleaning.
 - 4. Prior to final completion, or OWNER occupancy, CONTRACTOR shall conduct an inspection of sight-exposed exterior surfaces, and all work areas, to verify that the entire work is clean.

END OF SECTION

SECTION 01720 – PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Maintain at the site for the OWNER one (1) record copy at a minimum:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications of the Contract
 - 5. Field Orders or written instructions
 - 6. Approved Shop Drawings, Working Drawings and Samples
 - 7. Field Test records
 - 8. Construction photographs
 - 9. Change Requests
 - 10. CONTRACTOR'S Daily Reports
 - 11. Written Interpretations and Clarifications

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR'S field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format with section numbers as provided herein.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the OWNER.
- E. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the currently updated "Record Documents" for review by the OWNER.
- F. CONTRACTOR shall submit on a daily basis two (2) copies of the preceding day's daily report to the OWNER.

1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the OWNER.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in two inch (2") high printed letters.
- B. Keep record documents current at the end of work each day marking any changes and inserting change orders and directives into the documents.

- C. Do not permanently conceal any work until required information has been recorded. This includes markups and any "as-built" survey as required by these specifications.
- D. Record Contract Drawings: Legibly mark drawings to record actual construction with the following information verified by a registered Florida Land Surveyor.
 - 1. Depths of various elements of foundation in relation to survey datum.
 - 2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Revision Order, Directive, and other modifications.
 - 6. Details not shown on the original Contract Drawings.
 - 7. Installation of power and control wiring with point-to-point wiring identification.
- E. Record Specifications and Addenda: Legibly mark-up each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Revision Order, Directive, and other modifications.
 - 3. Other matters not originally specified.
- F. Shop Drawings and Samples: Legibly annotate to record changes made after approval.

1.05 "AS-BUILT" DRAWINGS

- A. The CONTRACTOR shall engage the services of a professional land surveyor registered in the State of Florida prior to any construction activities. The surveyor shall be named in the list of subcontractors.
- B. The surveyor must comply with all requirements of Chapter 21 HH-6.05 of the Florida Administrative Code.
- C. The surveyor shall use the locational requirements of the State of Florida.
- D. The surveyor shall provide on-site survey while construction is in progress and at such other times as required to fulfill all professional obligations and as listed below.
 - 1. Elevations and state plane coordinates shall be identified for the ends of all conduits or pipelines installed or used for construction, ends of all duct bank stubouts, and all direct buried cable splice locations.
 - 2. Elevations and coordinates shall be identified along the center line of pipelines, direct buried cable, buried conduit or duct bank by no fewer than one elevation shot per one hundred (100) linear feet and at any change of direction vertical or horizontal of underground utility length. Slopes shall be identified.
 - 3. All elevation shots shall be referenced to "top-of-pipe" (T.O.P.), "top-of-concrete-duct-bank" (T.O.D.B.), "bottom-of-concrete-duct-bank" (B.O.D.B.), "top-of-conduit" (T.O.C.) or "top-of-electric-cable" (T.O.E.), as appropriate for the project.
 - 4. Manhole rings, slabs on grade, valve box rims, equipment pads, surface body water levels and other project construction features shall be recorded by elevation and state plane coordinates as "As-Built".
 - 5. For directionally drilled crossings and other "trenchless technology" installations,

- provide continuous plots of utility plan and profile derived from actual telemetry data used during the installation.
6. All existing structures, utilities, and features revealed during the course of construction shall be accurately located and dimensioned. Movement of such utilities or structures required by project installation shall be recorded as "As-Built". This requirement shall apply whether the existing structure, utility or feature was shown on the original contract drawings or not.
- E. At the conclusion of the work, the CONTRACTOR shall provide the OWNER three (3) approved, certified "As-Builts" and one (1) "As-Built" Survey Drawing file in AutoCAD format (latest release) on a compact disk(s). The AutoCAD drawing files shall comply with the following standards:
1. The compact disk(s) shall be formatted for AutoCAD type DWG files or self-extracting compressed data file to a DWG format.
 2. The drawing format shall not contain any "X-REFS" (cross references) to other files.
 3. The drawing format shall contain only AutoCAD Standard Font Files and Acad.mnu type menu references only.
 4. Text from different layers shall not overlap. Colors and line types shall be "BY-LAYER". Only AutoCAD standard fonts and line types shall be used.
 5. All coordinate and elevation numbers shall be limited to three (3) decimal places.
 6. Text height shall be entered such that when the drawing is plotted to scale, the actual text height is no less than one-eighth inch (1/8"). The plotting scale for the drawings shall be the same scale as the construction drawings.
 7. Drawings shall be plotted on twenty-four inch (24") x thirty-six inch (36") sheets. The areas on each sheet shall match the areas shown on the construction drawings.

1.06 SUBMITTALS

- A. The CONTRACTOR shall deliver the following documentation, drawing(s), data, and disk(s) to the OWNER no later than two (2) weeks after the declared date of Substantial Completion.
1. Two (2) sets of contract drawings marked in red to reflect the final "As-Built" conditions.
 2. Two (2) sets of signed and sealed plots of the "As-Built" drawings(s) provided by the surveyor together with one (1) compact disk(s) of the "As-Built" survey drawing file(s).
 3. One (1) set of Specifications with Addenda marked in red to reflect the final "As-Built" conditions.
- B. Such other documents as shall be required by the regulations of the State of Florida shall be supplied in accordance with the provisions of law.
- C. Accompany submittal with transmittal letter, in duplicate, containing:
1. Date, Project title and number.
 2. CONTRACTOR'S name and address.
 3. Title and number of each record document.
 4. Certification that each document as submitted is complete and accurate, and contains signature of CONTRACTOR, or its authorized representative.

- D. Failure to deliver any of the above items shall be considered justification for assessing additional retainage.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01730 - OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Scope of Requirements:

1. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract.
2. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of the Specifications.
3. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:

1. Trained and experienced in maintenance and operation of described products.
2. Familiar with requirements of this Section.
3. Skilled as a technical writer to the extent required to communicate essential data.
4. Skilled as draftsman competent to prepare required drawings.

1.03 FORMAT OF SUBMITTALS

A. Prepare data in form of an instructional manual for use by Owner's personnel.

B. Format:

1. Size: 8 1/2 inches x 11 inches
2. Paper: 20 pound minimum, white, for typed pages.
3. Text: Manufacturer's printed data, or neatly typewritten.
4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Reduce larger drawings and fold to size of text pages but not larger than 14 inches x 17 inches.
5. Provide fly-leaf for each separate product, or operating equipment.
 - a. Provide typed description of products and major component parts of equipment.
 - b. Provide indexed tabs.
6. Cover: Identify each volume with typed or printed title **"OPERATING AND MAINTENANCE INSTRUCTIONS"**.
7. List:
 - a. Title of project
 - b. Identity of separate structure as applicable.

- c. Identity of general subject matter covered in the manual.

C. Binders:

- 1. Commercial quality three-post binders with durable and cleanable plastic covers.
- 2. Maximum post width: 2 inches.
- 3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF MANUAL

A. Neatly typewritten table of contents for each volume, arranged in systematic order.

- 1. Contractor, name of responsible principal, address and telephone number.
- 2. A list of each product required to be included, indexed to content of the volume.
- 3. List, with each product, name, address and telephone number of:
 - a. Subcontractor or installer
 - b. A list of each product required to be included, indexed to content of the volume.
 - c. Identify area of responsibility of each SubContractor/Installer.
 - d. Local source of supply for parts and replacement
- 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data:

- 1. Include only those sheets which are pertinent to the specified product.
- 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed
 - b. Clearly identify data applicable to installation
 - c. Delete references to inapplicable information.

C. Drawings:

- 1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems
 - b. Control and flow diagrams.
- 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
- 3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation:

- 1. Organize in consistent format under separate headings for different procedures.
- 2. Provide logical sequence of instructions of each procedure.

E. Copy of each warranty, bond and service contract issued.

1. Provide information sheet for Owner's personnel, give:
 - a. Proper procedures in event of failure
 - b. Instances which might affect validity of warranties or bonds.

1.05 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit four copies of complete manual in final form.

B. Content, for each unit of equipment and system, as appropriate:

1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
2. Operation procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
3. Maintenance procedures:
 - a. Routine operations
 - b. Guide to "trouble-shooting"
 - c. Disassembly, repair and reassembly
 - d. Alignment, adjusting and checking.
4. Servicing and lubrication required:
 - a. Complete lubrications schedule.
 - b. List of all lubricants required and acceptable products from three manufacturers for each lubricant.
5. Manufacturer's printed operating and maintenance instructions.
6. Description of sequence of operation by control manufacturer.
7. Original manufacturer's parts list, illustrations, assembly drawing and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.

- b. Items recommended to be stocked as spare parts.
 - 8. As installed control diagrams by controls manufacturer.
 - 9. Each Contractor's coordination drawings.
 - 10. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
 - 11. Other data as required under pertinent sections of specifications.
- C. Content, for each electric and electronic system, as appropriate:
 - 1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 - 2. Circuit directories and panel boards.
 - a. Electrical service
 - b. Controls
 - c. Communications.
 - 3. As installed color coded wiring diagrams.
 - 4. Operating procedures:
 - a. Routine and normal operating instructions
 - b. Sequences required
 - c. Special operating instructions.
 - 5. Maintenance procedures:
 - a. Routine operations
 - b. Guide to "trouble-shooting"
 - c. Disassembly, repair and reassembly
 - d. Adjustment and checking.
 - 6. Manufacturer's printed operating and maintenance instructions.
 - 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - 8. Other data as required under pertinent sections of the Specifications.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

1.06 SUBMITTAL SCHEDULE

- A. Submit two copies of preliminary draft of proposed formats and outlines of contents of Operation and Maintenance Manuals within 90 days after Notice to Proceed.
 - 1. Engineer will review the preliminary draft and return one copy with comments.
- B. Submit two copies of completed data in final form no later than 30 days following Engineer's review of the last shop drawing and/or other submittal specified in Section 01300. One copy will be returned with comments to be incorporated into final copies.
- C. Submit four (4) copies of approved manual in final form directly to the offices of the Owner within 30 calendar days of product shipment to the project site and preferably within 30 days after the reviewed copy is received.
- D. Provide four (4) copies of addenda to the operation and maintenance manuals as applicable and certificates as specified within 30 days after final inspection.

1.07 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to demonstration test, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.
- C. Instructors shall be fully qualified personnel as outlined within the individual equipment specifications. If so specific training specifications are listed with the equipment, the Contractor shall provide the instruction with qualified Contractor personnel.
- D. The instructors shall provide for and prepare lessons scopes and handouts for up to five individual designated by the Owner that outline the items to be covered. Separate sessions for operation and maintenance instruction shall be provided consecutively. Handouts shall be submitted to the Owner with at least one week's notice prior to the training session.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01740 – WARRANTIES

PART 1 – GENERAL

- A. All work performed under this contract shall be warranted for labor and materials for a minimum period of one year after date of Substantial Completion. Specific warranties are noted in specific Sections.
- B. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the OWNER.
- C. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the OWNER.
- D. Refer to the General Conditions for terms of the CONTRACTOR'S period for correction of the Work.
- E. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.
- F. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- G. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- H. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
- I. OWNER'S Recourse: Expressed warranties made to the OWNER are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the OWNER can enforce such other duties, obligations, rights, or remedies.
- J. Rejection of Warranties:
 - 1. The OWNER reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 2. Where the Contract Documents require a special warranty, or similar commitment, the OWNER reserves the right to refuse to accept the Work, until

the CONTRACTOR presents evidence that entities required to countersign such commitments are willing to do so.

K. Written Warranties

1. Submit written warranties to the ENGINEER prior to the date certified for Substantial Completion. If the ENGINEER'S Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the ENGINEER.
2. When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the ENGINEER within 15 days of completion of that designated portion of the Work.
3. When the Contract Documents require the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the OWNER, through the ENGINEER, for approval prior to final execution.
4. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
5. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
6. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
7. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the CONTRACTOR.
8. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 02200 – EARTHWORK

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes digging of excavations for structures, piping and roadways; backfilling around structures and piping; shaping and contouring the ground surface to conform to established grades and elevations; compacting of earth or rock materials to specified densities; bracing, sheeting and shoring; dewatering; removal of surplus excavated materials; and related work as shown on the Drawings and as specified.

1.02 DEFINITIONS

- A. Excavation
1. Removal of earth and rock to form cavities for the construction of foundations and structures and to form trenches for the installation of piping or conduits.
 2. Cavity formed by the removal of earth and rock.
- B. Earth: Unconsolidated material in the crust of the earth derived by weathering and erosion. Earth includes:
1. Materials of both inorganic and organic origin;
 2. Boulders less than 1/3 cubic yard in volume, gravel, sand, silt, and clay;
 3. Materials which can be excavated with a backhoe, trenching machine, drag line, clam shell, bulldozer, highlift, or similar excavating equipment without the use of explosives, rock rippers, rock hammers, or jack hammers.
- C. Rock: A natural aggregate of mineral particles connected by strong and permanent cohesive forces. Rock includes:
1. Limestone, sandstone, dolomite, granite, marble, and lava;
 2. Boulders 1/3 cubic yard or more in volume;
 3. Materials which cannot be excavated by equipment which is used to remove earth overburden without the use of explosives, rock rippers, rock hammers, or jack hammers.
- D. Undercutting: Excavation of rock and unsuitable earth below the bottom of a foundation, structure, pipe or conduit to be constructed or installed.
- E. Subgrade. Undisturbed bottom of an excavation.
- F. Bedding. Earth placed in trench to support pipe and conduit.
- G. Backfill and Fill
1. Earth placed around structures from the bottom of an excavation to finished grade, or to the subbase of pavement.
 2. Earth placed in a trench from the top of bedding to finished grade, or to subbase of pavement.
- H. Topsoil: Earth containing sufficient organic materials to support the growth of grass.

1.03 JOB CONDITIONS

- A. Carefully maintain bench marks, monuments and other reference points, and if disturbed or destroyed, replace as directed.
- B. Should the CONTRACTOR encounter unusual subsurface and/or latent conditions at the site, he shall immediately give notice to the ENGINEER of such conditions before they are disturbed. The ENGINEER will promptly investigate the conditions and he will at once make such changes in the Drawings and/or Specifications as he may find necessary. Any increase or decrease in cost resulting from such changes will be adjusted in the manner provided in the General Conditions.

1.04 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation and landfilling work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Service: The OWNER will retain a Soils Engineer to perform soil testing and inspection service for quality control testing of earthwork operations. Tests revealing satisfactory results will be paid for by the OWNER. The cost of tests revealing unsatisfactory results will be deducted from monies due the CONTRACTOR.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Earth for Fill and Backfill: Earth used for fill or backfill shall be of such gradation and moisture content that it will compact to the specified density and remain stable.
- B. Pipe Cover Material: Pipe cover material shall consist of durable particles ranging in size from fine to coarse (No. 200 to 1-inch) in size, in a substantially uniform combination. Unwashed bank run sand and crushed bank-run gravel will be considered generally acceptable. Bedding material may be used for cover material.
- C. Special Backfill: Special backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines

- D. Suitable Backfill: Suitable backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures

Group Symbols	Typical Name
ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

- E. Unsuitable Materials: Materials which are unsuitable for backfill include stones greater than 6 inches in their largest dimension, pavement, rubbish, debris, wood, metal, plastic, and the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity
PT	Peat, muck, and other highly organic soils

PART 3 – EXECUTION

3.01 PROTECTION OF EXISTING FACILITIES

- A. Support and protect all poles, fences, utility pipes, wire, conduits, buildings and structures.
- B. Proceed with caution during excavation so the exact location of underground utilities and structures, both known and unknown, may be determined. CONTRACTOR shall be responsible for the repair of utilities and structures when broken or otherwise damaged.
- C. Wherever water, or other pipes or conduits cross the excavation, the CONTRACTOR shall support said pipes and conduits without damage to them and without interrupting this Contract. The manner of supporting such pipes, or similar items, shall be subject to the approval of the ENGINEER.
- D. When utility lines that have to be removed or relocated are encountered within the areas of operations, the CONTRACTOR shall notify the ENGINEER in ample time for the necessary measure to be taken to prevent interruption of the service.
- E. The CONTRACTOR shall so conduct the work that no equipment, material, or debris will be placed or allowed to fall upon private property in the vicinity of the work, unless he shall have first obtained the property owner's written consent to do so and shall have shown said written consent to the OWNER.
- F. All excavated material shall be piled in a manner that will not obstruct driveways. Hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, or other utility controls shall be left unobstructed and accessible until the work is completed. Drainageways shall be kept clear or other satisfactory provisions made for drainage.
- G. Natural watercourses shall not be obstructed, except where specifically permitted for the construction of outfall and subaqueous crossings.

3.02 CLEARING

- A. Before excavating, clear and remove logs, stumps, brush, vegetation, rubbish, and other perishable matter from the project site.
- B. Do not remove or damage trees that do not interfere with the finished work. Completely remove trees required to be removed, including stumps and roots. Replace trees removed unnecessarily. Properly treat damaged trees which can be saved.

3.03 STRIPPING AND STOCKPILING TOPSOIL

- A. Strip topsoil and vegetation from the areas to be excavated. Clean topsoil may be stockpiled for reuse.

3.04 EXCAVATING

- A. Make excavations to elevations and dimensions necessary to permit bracing, sheeting, erection of forms, inspection of foundation, and installation of piping or conduits. Excavate trenches to the required alignment, depth and width. Excavate trenches in advance of pipe and conduit installation only as far as necessary to provide proper alignment and grade. Plan trenching operations to cause a minimum of danger to adjacent property and a minimum of inconvenience to the public.
- B. The width of trenches at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and to allow the backfill to be placed and compacted as specified. Maximum trench width shall be such that design loadings on pipe will not be exceeded. Trenches shall be of such extra width, when required, to permit the placement of supports, sheeting, bracing, and appurtenances.
- C. Depth of trenches shall be such as to allow installation of pipelines at the grades or elevations shown.
- D. Trees, boulders, and other surface encumbrances, located so as to create a hazard to anyone involved in the excavation work or who is in the vicinity of the work at anytime during operations, shall be removed or made safe before excavating is begun.
- E. CONTRACTOR shall be responsible for the determination of the angle of repose of the soil in which the excavating is to be done. Excavate all slopes to at least the angle of repose except for areas where solid rock allows for line drilling or presplitting.
- F. Sides, slopes, and faces of all excavations shall meet accepted engineering requirements by scaling, benching, barricading, rock bolting, wire meshing, or other equally effective means. Give special attention to slopes which may be adversely affected by weather or moisture content.
- G. Flatten the excavation sides when an excavation has water conditions, silty materials, loose boulders, and areas where erosion and slide planes appear.
- H. Shore or otherwise support sides of excavations in hard or compact soil when the excavation is more than five feet in depth. In lieu of shoring, the sides of the excavation above the five-foot level may be sloped to preclude collapse, but shall not be steeper than a one-foot rise to each 1/2-foot horizontal.
- I. Use diversion ditches, dikes, or other suitable means to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the

excavation. Do not allow water to accumulate in an excavation. If possible, the grade should be away from the excavation.

- J. Excavations shall be inspected by a competent CONTRACTOR'S representative after every rainstorm or other hazard-increasing occurrence, and the protection against slides and cave-ins shall be increased if necessary.
- K. Do not store excavated or other material nearer than four feet from the edge of any excavation. Store and retain materials as to prevent materials from falling or sliding back into the excavation. Install substantial stop log or barricades when mobile equipment is utilized or allowed adjacent to excavations.

3.05 SHEETING

- A. The CONTRACTOR has the option of sheeting excavations.
- B. Supporting systems, such as piling, cribbing, shoring, and bracing shall be designed by a qualified CONTRACTOR'S representative and meet accepted engineering requirements. When tie rods are used to restrain the top of sheeting or other retaining systems, securely anchor the tie rods well back of the angle of repose. When tight sheeting or sheet piling is used, assume full loading due to groundwater table, unless prevented by weep holes or drains or other means. Provide additional stringers, ties, and bracing to allow for any necessary temporary removal of individual supports.
- C. Materials used for sheeting, sheet piling, cribbing, bracing, shoring and underpinning shall be in good, serviceable condition. Timbers shall be sound, free from large or loose knots, and of proper dimensions.
- D. Take special precautions in sloping or shoring the sides of excavations adjacent to a previously backfilled excavation or a fill, particularly when the separation is less than the depth of the excavation. Pay particular attention to joints and seams of material comprising a face and to the slope of such seams and joints.
- E. If it is necessary to place or operate power shovels, derricks, trucks, materials, or other heavy objects on a level above or near an excavation, sheet-pile, shore, and brace the side of the excavation as necessary to resist the extra pressure due to such superimposed loads.
- F. If the stability of adjoining buildings or walls is endangered by excavations, provide shoring, bracing, or underpinning as necessary to ensure the safety of adjoining buildings or walls. Such shoring, bracing or underpinning shall be inspected daily or more often, as conditions warrant, by a competent CONTRACTOR'S representative and the protection effectively maintained.
- G. The CONTRACTOR shall be held responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining, or removing of the same. This includes damage to trees, sidewalks, and other property on the project site as well as on the private grounds.
- H. Drive sheeting ahead of excavation. Do not remove sheeting until the excavation backfill has reached within two feet of the top of the excavation, except that the lower course of sheeting may be removed from a double sheeted excavation. When sheeting is drawn, completely fill all cavities remaining in or adjoining the excavation. When sheeting is left in place, completely fill all cavities behind such sheeting.

3.06 ROCK REMOVAL

- A. Rock, boulders or other hard, lumpy or unyielding materials encountered in trench bottoms shall be removed to a depth at least 6 inches below the bottom and on each side of any pipes to be installed. All rock and other hard foundation material under structures shall be freed of all loose material, cleaned, and cut to a firm surface; either level, stepped vertically and horizontally or serrated, as may be directed. All seams shall be cleaned out and filled with concrete or mortar.
- B. Blasting of rock or other hard to remove materials will not be permitted on this project.

3.07 SUBGRADES

- A. Do not construct foundations, footings, slabs, or piping on loose soil, mud, or other unstable or unsuitable soil.
- B. Fill excess cuts under foundations, footings, and slabs with concrete.
- C. Fill excess cuts under piping with compacted bedding as specified in this Section.

3.08 BACKFILLING FOUNDATION AND STRUCTURE EXCAVATIONS

- A. Remove debris and other unstable or unsuitable materials from excavations before backfilling is started.
- B. Backfill excavations in areas to be paved with Special Backfill: Place Special Backfill in 12-inch lifts. Compact each lift of backfill to not less than 98% of the maximum dry density as determined in accordance with AASHTO T-180. Compaction shall be by hand tamping or approved mechanical tamping devices, or in larger excavations by approved rollers. Do not compact backfill by puddling, unless permitted by the ENGINEER.
- C. Backfill excavations not requiring Special Backfill with Suitable Material:
 - 1. Place backfill and fill materials in lifts no greater than 12 inches in loose depth. Place backfill and fill materials in lifts no greater than four inches in loose depth where hand tampers are used. Backfill and fill shall be within 2% of optimum moisture content. For soils containing less than 5% material passing a No. 200 sieve, moisture content may be increased to within 3% of optimum. Compact backfill and fill to not less than 95% of the maximum dry density. Tests for determination of maximum dry density shall meet the requirements of AASHTO T-180. Use compaction equipment which is suited to the soil being compacted.
 - 2. If suitable, use stored excavated material for backfill and fill. Provide additional material, if required, to complete backfill and fill. Additional backfill and fill material shall be provided at no additional cost to the OWNER.
- D. Do not use the following materials for backfill:
 - 1. Unsuitable materials;
 - 2. Materials which are too wet or too dry to be compacted to the densities specified in this Section.
- E. Place the backfill and fill in a manner which will not overload foundations or structures. Place backfill and fill evenly on all sides of foundations and structures. Do not use equipment that will overload foundations or structures during filling or backfilling.

- F. Do all cutting, filling, and grading necessary to bring the entire area around foundations and outside of structures to the following subgrade levels:
 - 1. To the underside of the respective surfacing for walks and pavement;
 - 2. To finished grade for lawns and planted areas within the project site.

3.09 BACKFILLING PIPING TRENCHES

- A. Do not backfill trenches and excavations until all utilities have been inspected by the OWNER'S representative and until all underground utilities and piping systems are installed in accordance with the requirements of the specifications and the Drawings.
- B. Remove debris and other unsuitable materials from excavations before backfilling is started.
- C. Place and tamp bedding and backfilling in a manner which will not damage pipe coating, wrapping, or encasement.
- D. Bedding procedures shall be as specified in the particular Section for the applicable pipe material.
- E. If bedding does not cover the pipe, place pipe cover material from the top of bedding to 12 inches over the pipe. Compact pipe cover material to the density required to allow backfill over the pipe cover material to be compacted to the density specified.
- F. Do not use the following materials for backfilling:
 - 1. Unsuitable Materials;
 - 2. Materials which are too wet or too dry to be compacted to the densities specified in this Section.
- G. If suitable, use stored excavated material for backfill and fill. Provide additional material, if required, to complete backfill and fill. Additional backfill and fill material shall be provided at no additional cost to the OWNER.
- H. Backfill excavations in areas to be paved with Special Backfill.
 - 1. Place Special Backfill in 12-inch lifts. Compact each lift of backfill to not less than 98% of the maximum dry density as determined in accordance with AASHTO T-180, Method A. Compaction shall be by hand tamping or approved mechanical tamping devices, or in larger excavations by approved rollers. Backfill and fill materials shall be within 2% of optimum moisture content. Do not compact backfill by puddling, unless permitted by the ENGINEER.
- I. Backfill trenches not requiring Special Backfill with Suitable Material.
 - 1. Place backfill and fill materials in lifts no greater than 12 inches in loose depth and compact to produce an adequate foundation for seeding. The top 4 inches of backfill shall not contain stones or other objects larger than 1 inch in maximum dimension. Mound backfill above finish grade to allow for settlement. Fill and restore any settlement of the backfill. Grade area to be restored to finish grade after settlement of backfill and immediately before restoration of vegetated areas.

3.10 FINISH GRADING

- A. Shape the surface of all earthwork to conform to the lines, grades, contours and cross-sections shown on the drawings. Hand dressing may be required in certain areas or in confined areas where equipment operation is restricted.
- B. In final shaping of the surface of the earthwork a tolerance of 0.1 foot above or below the plan elevation will be allowed with the following exceptions:
 - 1. Earthwork shall be shaped to slope away from all buildings and structures.
 - 2. Earthwork shall be shaped to match adjacent pavement, curb, sidewalks, and similar appurtenances.
 - 3. Ditch bottoms and swales shall be shaped so that no water will be impounded except in areas designated for impoundment.

3.11 CLEANUP AND MAINTENANCE

- A. Cleanup the job site as grading is completed. Remove excess earth, rock, bedding, materials, and backfill materials. Remove unused piping materials, structure components, and appurtenances. Restore items moved, damaged, or destroyed during construction.
- B. Maintain the job site until the work has been completed and accepted. Fill excavations which settle when settlement is visible. Restore items damaged by construction or improper restorations. Keep dust conditions to a minimum.

3.12 STORAGE AND REMOVAL OF EXCAVATED MATERIAL

- A. Suitable excavated material required for filling and backfilling operations may be stockpiled on the job site.
- B. Remove unsuitable materials from the job site as unsuitable materials are excavated. Remove surplus suitable materials from the job site as excavations are backfilled.
- C. Excavated suitable surplus materials shall remain the OWNER'S property and shall be stockpiled at the location(s) designated by the OWNER.

END OF SECTION

02220 – SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Work necessary to demolish, remove and dispose of the equipment, materials, piping and appurtenances as shown or specified.
2. Demolition includes salvaging of designated piping and equipment, backfilling of trenches, craters, holes and pits resulting from demolition work, and filling of below ground voids.
3. Limits of demolition are indicated on the Drawings.

1.02 SUBMITTALS

- A.** Submittals shall be as specified in the General Conditions.
- B.** Develop demolition procedures and submit for review by ENGINEER before demolition is started. Use demolition procedures which provide for safe conduct of work, protection of property which is to remain undisturbed, including protection of property to be removed and delivered to OWNER.

1.03 QUALITY ASSURANCE

- A.** Accomplish all demolition work without injury to any persons or damage to adjacent structures or property. Conduct all demolition in full compliance with municipal, county, state and federal laws and ordinances. Comply with requirements of Occupational Safety & Health Administration (OSHA).
- B.** Comply with all municipal, county, state and federal laws, ordinances and regulations regarding disposal of rubble, scrap metal and refuse.

1.04 EXISTING CONDITIONS

- A.** General: Visit site and determine, to extent necessary to properly plan and execute work of this Section, nature and condition of items to be removed and extent of work required before submitting Bid.
- B.** Disconnection of Utilities: Disconnect utilities at points indicated on Drawings or as specified. Where such disconnection will interrupt utility services to area not included in Contract, make arrangements for such interruption with ENGINEER at least 72 hours in advance of interruption.

PART 2 – PRODUCTS

2.01 TEMPORARY MATERIALS

- A.** Provide temporary fencing, barricades, and other items complying with Section 01500: Temporary Facilities and Controls.

2.02 REPAIR AND REPLACEMENT MATERIALS

- A.** Use materials for repair or replacement of existing work to remain identical or equal to

materials used in existing work when new.

2.03 OWNER RETAINED EQUIPMENT

- A. OWNER will retain title to designated equipment.

PART 3 – EXECUTION

3.01 STRUCTURES AND BUILDINGS

- A. Remove all parts of existing structures and buildings to be demolished which interfere with new work.
- B. Completely remove structures which are to be totally demolished.
- C. When structures and buildings are to be partially demolished, make break between part removed and part remaining as indicated on the Drawings.
- D. Completely remove concrete bases for tanks, poles, towers and similar structures to be demolished.

3.02 EQUIPMENT

- A. Completely remove equipment designated to be removed. Carefully remove, without damage, all equipment designated to be retained by OWNER.

3.03 PIPING AND UTILITIES

- A. Completely remove piping, conduit and wiring in structures and buildings to be demolished. Completely remove piping, conduit and wiring in parts to be demolished of structures and in buildings to be partially demolished. Completely remove other piping, conduit and wiring designed to be removed.
- B. Underground piping, conduit and wiring to be abandoned which do not interfere with new work may be left in place, unless otherwise shown on the Drawings. Plug and seal cut ends of underground piping and conduit to be abandoned. Do not leave abandoned branches of piping and wiring "live". Isolate abandoned piping branches by closing branch valve at main or by disconnecting branch at main. Plug, cap and seal active branch at isolating valve or point of disconnection. Disconnect abandoned wiring branches at distribution panel(s) and remove from the panel(s).
- C. Properly disconnect, seal and plug utility services to completely demolished structures and buildings. Properly disconnect, seal and plug utility lines within partially demolished structures and buildings.

3.04 PAVEMENT, SIDEWALKS, CURBS AND GUTTERS

- A. Completely remove pavement, sidewalks, curbs and gutters designed to be removed.

3.05 OPENINGS

- A. Plug all openings in walls, floors and ceilings resulting from removal of existing equipment, piping and conduit. Plug openings in concrete with pipe plugs, blind flanges, caps, or expansive grout. Plug openings in metal building walls with sheet metal bent to conform to shape of metal building walls and of a thickness

not less than existing metal building walls. Plug openings in a manner that will result in a structurally suitable seal and a neat and presentable appearance.

3.06 DISPOSAL

- A. Move equipment, piping and materials designated to be retained by OWNER to location designated by OWNER.
- B. Remove all equipment, piping and materials not specifically designated to be retained by OWNER from site as CONTRACTOR'S property.
- C. Do not allow debris and rubbish to accumulate on site. Remove debris and rubbish from site.

3.07 FILLING

- A. Backfill excavations, trenches, craters, holes and pits resulting from demolition and below ground, abandoned remains of partially demolished structures.
- B. Backfill as specified in Section 02315: Excavating, Backfilling and Compacting.

3.08 CLEAN UP

- A. Following demolition, clean up areas where other work is to be done as specified in Section(s) applicable to work to be done.
- B. Following demolition, clean up areas where no other work is to be done under this Contract.
- C. Remove all debris and rubbish temporary facilities and equipment. Level surface irregularities to eliminate depressions. Leave work in a neat and presentable condition.

3.09 PROTECTION

- A. Protect existing work. Repair work damaged to match existing work. Repair damaged work with workers specifically qualified in trade(s) involved.

END OF SECTION

SECTION 02240 – DEWATERING (DURING CONSTRUCTION)

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The work to be performed under this Section shall include the design and installation of a temporary wellpoint system to dewater subsurface waters so that the installation of utilities may proceed with a dry trench. The system shall remain in place until completion of construction.
- B. Related Work Described Elsewhere:
 - 1. Earthwork: Section 02200

1.02 QUALITY ASSURANCE

- A. Qualifications: The temporary dewatering system shall be designed by a firm who regularly engages in the design of dewatering systems and who is fully experienced, reputable and qualified in the design of such dewatering systems. The firm shall have a successful record of operation for a minimum of five (5) years prior to bid date.
- B. In lieu of experience, the dewatering firm shall provide a performance and warranty bond for 1.5 times the total installed cost of the temporary dewatering system. This bond shall be executed prior to award and/or contract execution.
- C. Standards: The dewatering of any excavation areas and the disposal of water during construction shall be in strict accordance with all local and state government rules and regulations.

1.03 SUBMITTALS

- A. Materials and Shop Drawings: Shop drawings required to establish compliance with the specifications shall be submitted in accordance with the provisions of Section 01310: Administrative Requirements.

1.04 CRITERIA

- A. The wellpoint system shall be developed to the point that is capable of dewatering such that pipe can be laid and compacted satisfactorily as shown on the Drawings. Each wellpoint system shall be capable of dewatering and maintaining groundwater levels at the respective structures.

PART 2 – PRODUCTS

2.01 GENERAL

- A. The equipment specified herein shall be standard wellpoint dewatering equipment of proven ability as designed and manufactured by firms having experience in the design and production of such equipment. The equipment furnished shall be designed, constructed and installed in accordance with the best practices and methods.
- B. The use of wrapped underdrains or “socks” for dewatering shall not be allowed unless approval is obtained by the OWNER.

- C. The CONTRACTOR shall be required to monitor the performance of the dewatering system during the progress of the work and require such modifications as may be required to assure that the systems will perform satisfactorily. Dewatering system shall be designed in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils and to preserve the integrity of adjacent structures.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Dewatering: The CONTRACTOR shall install a temporary wellpoint dewatering system for the removal of subsurface water encountered during construction of the proposed structures and/or piping.

3.02 PROTECTION AND SITE CLEAN-UP

- A. At all times during the progress of the Work the CONTRACTOR shall use all reasonable precautions to prevent either tampering with the wellpoints or the entrance of foreign material.
- B. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the CONTRACTOR shall obtain the Owner/Engineer's approval of wet trench.
- C. Immediately upon completion of the wellpoint system, the CONTRACTOR shall remove all of his equipment, materials, and supplies from the site of the work, remove all surplus materials and debris, fill in all holes or excavations, and grade the site to elevations of the surface levels which existed before work started. The site shall be thoroughly cleaned and approved by the Owner/Engineer.

3.03 DISPOSAL

- A. Water pumped from the trench or other excavation shall be disposed of in storm sewers having adequate capacity, canals or suitable disposal pits.
- B. CONTRACTOR is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the operation.
- C. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the CONTRACTOR'S plan for trench disposal is approved in writing by the Owner/Engineer. The CONTRACTOR'S plan shall include temporary culverts, barricades and other protective measures to prevent damage to property or injury to any person or persons.
- D. No flooding of streets, roadways, driveways or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential type mufflers. Where practical and feasible, electrical "drops" should be used in lieu of portable generators.

END OF SECTION

SECTION 02500 – PAVING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section provides paving requirements (by reference) and base and curbing requirements for the roadway resurfacing project.
- B. Related Work Specified Elsewhere:
 - 1. Section 02580 - Roadway and Pavement Marking

1.02 QUALITY ASSURANCE

- A. CONTRACTOR shall be responsible for employing an independent testing laboratory to prepare required design mixes and to monitor his quality control procedures. CONTRACTOR shall be responsible for all asphalt plant testing.
- B. CONTRACTOR shall provide a certificate that all materials and workmanship provided by him conform to Contract Requirements.
- C. OWNER will retain an independent testing laboratory to field verify quality of materials used in paving work.
- D. Where the “Standard Specifications” require that materials be from a source approved by the Department of Transportation, CONTRACTOR may provide proof of such source approval or he may employ an independent testing laboratory to perform necessary sampling and testing and to certify that all source meets requirements for Department approval.

1.03 REFERENCE STANDARDS

- A. The “Standard Specifications” referred to in this Section are the Florida Department of Transportation, Standard Specifications for Road and Bridge Construction. The most current edition shall be used unless a specific edition is referred to. Those paragraphs in the “Standard Specifications” referring to Measurement and Payment are not applicable to work under this contract.
- B. References to AASHTO shall mean the American Association of State Highway and Transportation Officials.

1.04 SUBMITTALS

- A. Submit Certificate of Compliance with specified requirements in duplicate for OWNER's and ENGINEER's file.
- B. Design mixes, complete with back-up data, shall be submitted before paving begins in quadruplicate for use by OWNER, ENGINEER, Quality Control Laboratory and field inspector.

1.05 JOB CONDITIONS

A. Alignment and Elevations:

1. Establish and maintain alignment and elevations as shown or specified.

B. Weather Limitations:

1. Conform to weather limitations specified for each component of the paving system.

PART 2 – PRODUCTS

2.01 STABILIZED SUBGRADE

- A. Materials for use in constructing the stabilized subgrade shall conform to the requirements of Section 914 of the “Standard Specifications”.

2.02 MATERIALS FOR CRUSHED CONCRETE BASE COURSE

- A. The minimum percentage of carbonate of calcium and magnesium in the crushed concrete material shall be 60. The maximum percentage of water-sensitive clay mineral shall be 3. Determination shall be at the option of the ENGINEER.
- B. Crushed concrete material shall not contain cherty or other extremely hard pieces, or lumps, balls, or pockets of sand or clay size material in sufficient quantity as to be deleterious to the proper bonding, finishing, or strength of the crushed concrete base.

2.03 MATERIALS FOR LIMEROCK BASE COURSE

- A. Limerock materials for the construction of base courses shall conform to the requirements of Section 230 of the “Standard Specifications”.

2.04 MATERIALS FOR ASPHALTIC CONCRETE MIXTURES

- A. Materials for use in asphaltic concrete mixtures shall conform to the requirements listed in “Standard Specifications”, as further clarified in Section TP of the project specifications.
- B. The use of recycled asphaltic concrete will not be allowed for any purpose without written permission of the ENGINEER.
- C. CONTRACTOR shall employ an independent testing laboratory to test materials and prepare a design mix for the type of mix to be used on the project and to monitor plant asphalt production for quality control, as specified by OWNER.
- D. The asphaltic concrete manufacturing plant, used for the asphaltic concrete mixture, shall be a maximum of fifty (50) miles from the project site.

2.05 MATERIALS FOR PRIME AND TACK COATS FOR BASE COURSES

- A. Materials used for prime and tack coats shall conform to the requirements of Section 300 of the “Standard Specifications”, latest Edition.

2.06 CONCRETE CURB AND CURB AND GUTTER

- A. Concrete for use in concrete curb and curb and gutter shall be non-structural concrete conforming to the requirements of Section 520 of the "Standard Specifications", latest Edition.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine areas where pavements are to be constructed. Ensure that clearing and grubbing has been satisfactorily completed. Verify that subgrade has been constructed to proper elevations and that fill in embankment has been properly compacted.

3.02 STABILIZED SUBGRADE

- A. The stabilized subgrade shall be constructed in accordance with the requirements of Section 160 of the "Standard Specifications".
- B. At least 3-inches (loose measurement) of a suitable commercial or local stabilizing material, as described in the "Standard Specifications", Section 914, shall be mixed into the subgrade for stabilization in accordance with the "Standard Specifications", Section 160. The Limerock Bearing Ratio (LBR) shall be 40. Density tests will be paid for by the OWNER except that all retests required due to failure to meet specifications shall be paid for by the CONTRACTOR.
- C. After the subgrade has been prepared, it shall be kept free from ruts, depressions and any damage resulting from the hauling or handling of tools and equipment.

3.03 CRUSHED CONCRETE BASE COURSE

- A. Samples of base course material shall be supplied by the CONTRACTOR at his expense, and all materials shall be approved by the ENGINEER prior to use in the work. Additional samples of base course materials shall be furnished during construction as required by the ENGINEER.
- B. The material shall be transported to the point where it is to be used, over material previously placed, and dumped on the end of the preceding spread. No hauling shall be done over the subgrade.
- C. At least 97% (by weight) of the material shall pass a 3 1/2-inch sieve and the material shall be graded uniformly down to dust. The fine materials shall consist entirely of dust or fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.
- D. The base shall be bladed and shaped to conform to the typical sections shown on the Drawings. The base shall then be compacted by rolling with a combination of steel wheel and rubber tired rollers until an average density of 98% of the maximum density obtainable under AASHTO Method T-180 is reached. The base shall have an average LBR of not less than 100. The LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

3.04 LIMEROCK BASE COURSE

- A. Limerock base course shall be constructed in accordance with the requirements of and to the tolerances shown in Section 230 of the "Standard Specifications".

3.05 ASPHALTIC CONCRETE PAVING

- A. Asphaltic concrete mixtures for use in leveling and surface courses shall be prepared, placed, compacted and finished in compliance with Section TP of these Specifications.

3.06 PRIME AND TACK COATS

- A. Equipment for application, preparation of surfaces, weather limitations, methods and rates of application shall conform to the requirements of Section 300 of the "Standard Specifications", latest Edition.

3.07 CONCRETE CURB AND CURB AND GUTTER

- A. Concrete curb and curb and gutter shall be constructed in compliance with the requirements of Section 520 of the "Standard Specifications", latest Edition.

END OF SECTION

SECTION 02616 – DUCTILE IRON PIPE AND FITTINGS FOR PRESSURE SERVICE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Provide and install ductile iron pipe of the sizes and in the locations shown on the Drawings and as specified herein.
- B. Related Work Described Elsewhere:
 - 1. Earthwork: Section 02200.
 - 2. Mechanical - General Requirements: Section 02600.
 - 3. Pressure Testing of Piping: Section 02661.

1.02 QUALITY ASSURANCE

- A. Standards (as applicable):
 - 1. Cement mortar lining for water: ANSI 21.4.
 - 2. Rubber gasket joints: ANSI 21.11.
 - 3. Ductile iron pipe thickness: ANSI A 21.50.
 - 4. Ductile iron pipe centrifugally cast in metal or sand lined molds: ANSI A 21.51.
 - 5. D.I. pipe flanges and fittings: ANSI B 16.1.
 - 6. Threaded flanges: DIPRA standard.
 - 7. Cast and ductile iron fittings: ANSI A 21.10.
 - 8. Ceramic epoxy lining: ASTM E96-93, ASTM B117-85, ASTM G95-87, ASTM D714-87.
- B. Qualifications: All ductile iron pipe and ductile iron fittings shall be furnished by manufacturers who are fully experienced, reputable, and qualified in the manufacture of the materials to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.
- C. Manufacturer: Pipe shall be as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, McWane Cast Iron Pipe Company or equal.

1.03 SUBMITTALS

- A. Shop Drawings, including layouts within, and under buildings and structures shall be submitted to the Project Manager for approval in accordance with Section 01310: Administrative Requirements. Shop Drawings shall be prepared by the pipe manufacturer.
- B. Tabulated layout schedule including:
 - 1. Order of installation and closures.
 - 2. Pipe top elevation and station at each change of grade and alignment.
 - 3. Elements of curves and bends, both in horizontal and vertical alignment, including elements of the resultant true angular deflections in cases of combined curvature.
 - 4. The limits of each reach of pipe thickness class and of restrained joints.
 - 5. The limits of each reach of concrete encasement or encasement in casing.
 - 6. Locations of closures for length adjustment and for construction convenience.
 - 7. Locations of manholes and other points of access for placement of mortar lining at field joints and removal of test bulkheads.

- 8. Locations of valves and other mechanical equipment.
 - 9. Methods and locations of supports.
 - C. Details of special elbows and fittings.
 - D. Calculations and/or test data demonstrating that the proposed restrained joint arrangement can transmit the required forces.
 - E. Copy of the manufacturer's quality control check of pipe material and production.
 - F. Provide an affidavit of compliance with AWWA standards referenced in this specification.
- 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
- A. All pipe shall be shipped and stored at the jobsite with wood lagging between pipes such that pipes do not make contact with one another.
 - B. Exercise extra care when handling cement lined pipe because damage to the lining will render it unfit for use.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Pipe: Ductile Iron Pipe conforming to ANSI A21.51 and AWWA C-151 for buried pipe, ANSI B16.1/AWWA C153 for compact fittings and ANSI 21.15 and AWWA C-115 for flanged pipe.
 - 1. Unless otherwise shown on the Drawings, the minimum thickness of ductile iron pipe shall be:
 - a. For buried pipe 12" and less: Pressure Class 350.
 - b. For buried pipe 14" and greater: Pressure Class 250.
 - c. For pipe with flanges (all above grade or exposed piping): Class 53.
 - 2. Pipe for use with sleeve type couplings shall have plain ends (without bells or beads) cast or machined at right angles to the axis.
 - 3. Pipe for use with split type couplings shall have ends with cast or machined shoulders or grooves that meet the requirements of the coupling manufacturer.
 - 4. Pipe shall be supplied in lengths not in excess of 20 feet having rubber-ring type push-on joints, standard mechanical joints or restrained joints where required for underground piping and flanged joint piping for all above grade piping as shown on the Drawings.
 - 5. Coatings and Linings
 - a. Exterior of pipe and fittings:
 - (1) Buried pipe and fittings: factory applied bituminous coating or coal tar varnish or asphalt base paint, one-mil thick in accordance with AWWA C-151.
 - (2) Exposed pipe and fittings: factory applied coating of an universal rust-inhibitive primer 2.0 mils dry thickness in accordance with AWWA C-115.
 - b. Interior of pipe and fittings (unless indicated otherwise on Drawings):

- (1) Potable water and reuse water: cement lining in accordance with ANSI A21.4 and AWWA C-104.
- B. Fittings: All ductile iron pipe fittings for process piping shall be cast iron or ductile iron with a minimum pressure rating as follows:
 1. All fittings shall be Class 125 (ANSI B16.1) unless otherwise specifically noted. Determine the pressure rating of the fittings based on the test pressures as shown in Section 02661: Pressure Testing of Piping, as follows:
 - a. Cast iron fittings:
 - (1) 3 to 12 inch up to 200 psi.
 - (2) Greater than 12-inch up to 150 psi.
 - (3) Coatings and linings for fittings shall be the same as for pipe material for each type of service.
 - b. Ductile iron fittings: For pressure ratings greater than shown for cast iron fittings, use ductile iron fittings of the pressure class rating required, i.e., 250 or 350 pressure rating.
 2. Grooved-end fittings shall conform to AWWA C110 and ANSI B16.1 with grooved ends conforming to AWWA C606, radius cut rigid joints. Fitting material shall conform to ASTM A 48, Class 30, or ASTM A 126, Class B.
- C. Joints (as shown on the Drawings and/or as specified):
 1. General: Joints in "runs" of above grade piping or piping located in vaults and structures shall be rigid radius grooved end or flanged. Joints in "runs" of buried piping shall be of the push-on or mechanical-joint type per AWWA C111 or factory restrained joints, except where flanged or grooved end couplings joints are required to connect to valves, meters, and other equipment.
 2. Grooved-End Couplings:
 - a. Grooved-end couplings shall be malleable iron, ASTM A 47 (Grade 32510), or ductile iron, ASTM A 536 (Grade 65-45-12).
 - b. Bolts: ASTM A 183, 110,000 psi tensile strength.
 - c. Gaskets: Halogenated butyl rubber or EPDM for water service and Buna-N for sewage service, conforming to ASTM D 2000.
 - d. Couplings: AWWA C606 for rigid radius ductile-iron pipe. Couplings shall be Victaulic Style 31, Gustin-Bacon No. 500, or equal.
 - e. Grooved-end adapter flanges for piping having an operating pressure of 150 psi and less shall be Victaulic Style 341, or equal. Flange dimensions shall conform to ANSI B16.1 Class 125.
 3. Flanges:
 - a. Flanges shall be Class 125 per ANSI B16.1 unless otherwise specifically noted. Determine the pressure rating of the fittings based on the test pressures shown in Section 02661: Pressure Testing of Piping.

- b. Gaskets: Fullface, 1/8 inch thick, cloth-inserted rubber: Johns-Manville No. 109, John Crane Co. Style 777, American Toru Seal or equal. Gaskets shall be suitable for a water pressure of 350 psi at a temperature of 180 degrees Fahrenheit (°F).
 - c. Bolts and Nuts for Flanges
 - (1) Bolts and nuts for flanges, flanges in open vaults and structures, and flanges located outdoors above ground shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8 for bolts, and ASTM A 194, Grade 8 for nuts. Bolts and nuts greater than or equal to 1 inch shall be carbon steel, ASTM A 307, Grade B, with cadmium plating, ASTM A 165, Type NS.
 - d. Provide specially drilled flanges when required for connection to existing piping or special equipment.
 - e. Flanges shall be long-hub type screwed tightly on pipe by machine at the foundry prior to facing and drilling. Flange faces shall be coated with a rust inhibitor immediately after facing and drilling. Field assembled screwed on flanges are prohibited.
4. Push-on and Mechanical Joint (ANSI A21.11):
- a. The plain ends of push-on pipe shall be factory machined to a true circle and chamfered to facilitate fitting the gasket.
 - b. Provide gaskets manufactured from a composition material suitable for exposure to the liquid to be contained within the pipe.
 - c. Each joint shall be complete with rubber gasket, cast iron gland and all required bolts and nuts.
5. Restrained Joints:
- a. Acceptable methods of thrust restraint are restrained "lock type" joints manufactured by the pipe manufacturer or restraint mechanisms utilizing a multiple wedge design (Megalug, or equal). Set screws will not be allowed.
 - b. Pipe joints shall be restrained type as accepted by the Owner/Engineer and equal to American Flex-Ring or Lok-Ring by American Cast Iron Pipe Company. Restrained joints that require field welding or requiring set screws will not be acceptable.
 - c. Pipe joints shall be restrained each side of the fitting for a continuous distance in accordance with DIPRA "Thrust Restraint Design for Ductile Iron Pipe". Distance restrained shall be based on sand-silt soil type, 3.0 feet of cover and Type 2 laying condition.
 - d. Bolts and nuts for restrained joints shall be Corten, low alloy, high strength steel.

2.02 PIPING ACCESSORIES

A. Outlets:

1. For outlets larger than 2 inches, provide a tee with a flanged outlet.
2. Provide outlets 2 inches and smaller by tapping and attaching a service clamp. Service clamps shall be as specified herein.

B. Polyethylene Encasement:

1. Polyethylene encasement shall be installed on all ductile iron pipe and fittings within the areas indicated on the Drawings or as directed by the Owner/Engineer. The bags shall be color coded and in accordance with AWWA C105.

PART 3 – EXECUTION

3.01 INSPECTION AND TESTING

A. All pipe shall be inspected and tested at the foundry.

B. The OWNER shall have the right to have any or all piping, fittings or special castings inspected and tested by an independent testing agency at the foundry or elsewhere. Such inspection and testing will be at the OWNER'S expense.

C. Mark as rejected and immediately remove from the job site, all pipe lengths showing a crack, damaged lining, or receiving a severe blow that may cause an incipient fracture, even though no such fractures can be seen.

D. Removal of cracked portions:

1. Any pipe showing a distinct crack, but no incipient fracture beyond the limits of the visible crack, may be cut off and the sound portion installed. Cut the pipe at least 12 inches from the visible limits of the crack. Cutting of pipe shall be done by skilled workmen, and in such a manner as to not damage the pipe. Every cut shall be square and smooth, with no damage to the pipe lining. Cut surfaces, shall be recoated as specified for the pipe.

E. Carefully inspect and hammer test all pipe and fittings prior to installation.

3.02 INSTALLATION

A. Assembling joints:

1. Push-on joints:

- a. Insert the gasket into the groove of the bell.
- b. Uniformly apply a thin film of special lubricant over the inner surface of the gasket that will contact the spigot end of the pipe.
- c. Insert the chamfered end of the spigot end into the gasket and push until it seats against the bottom of the bell.

2. Grooved end joints:
 - a. Install grooved end pipe and fittings in accordance with the coupling manufacturer's recommendations and the following.
 - b. Clean loose scale, rust, oil, grease, and dirt from the pipe or fitting groove before installing coupling. Apply the coupling manufacturer's gasket lubricant to the gasket exterior, including lips, pipe ends, and housing interiors.
 - c. Fasten coupling alternately and evenly until coupling halves are seated. Use torques as recommended by the coupling manufacturer.
3. Flanged joints:
 - a. Bolt holes of flanges shall straddle the horizontal and vertical centerlines of the pipe. Clean flanges by wire brushing before installing flanged fittings. Clean flange bolts and nuts by wire brushing; lubricate bolts with oil and graphite.
 - b. Insert the nuts and bolts (or studs) finger tighten, and progressively tighten diametrically opposite bolts uniformly around the flange to the proper torque.
 - c. Execute care when tightening joints to prevent undue strain upon valves, pumps and other equipment.
 - d. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.
4. Mechanical joints:
 - a. Thoroughly clean, with a wire brush, surfaces that will be in contact with the gaskets.
 - b. Lubricate the gasket, bell and spigot by washing with soapy water.
 - c. Slip the gland and gasket, in that order, over the spigot and insert the spigot into the bell until properly seated.
 - d. Evenly seat the gasket in the bell at all points, center the spigot, and firmly press the gland against the gasket.
 - e. Insert the bolts, install the nuts finger tight, and progressively tighten diametrically opposite nuts uniformly around the joints to the proper tension with a torque wrench.
5. Restrained Joints:
 - a. Follow manufacturer's instructions for particular joint installed.

B. Fabrication:

1. Tapped connections:

- a. Make all tapped connections as shown on the Drawings or as directed by the Owner/Engineer.
- b. Make all connections watertight and of adequate strength to prevent pullout.
- c. Drill and tap normal to the longitudinal axis of the pipe.

2. Cutting:

- a. Perform all cutting with machines having rolling wheel cutters or knives designed to cut ductile iron. The use of a hammer and chisel to cut pipe is prohibited.
- b. After cutting, examine all cut ends for possible cracks.
- c. Carefully chamfer all cut ends to be used with push-on joints to prevent damage to gaskets when pipe is installed.

C. Installing Buried Piping:

1. Inspect each pipe and fitting before lowering the buried pipe or fitting into the trench. Inspect the interior and exterior protective coatings. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
2. Handle pipe in a manner to avoid any damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.
3. When installing piping in trenches, do not deviate more than one inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.
4. Grade the bottom of the trench by hand to the line and grade to which the pipe is to be laid, with allowance for pipe thickness. Remove hard spots that would prevent a uniform thickness of bedding. Before laying each section of the pipe, check the grade with a straightedge and correct any irregularities found. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between bell holes, except that the grade may be disturbed for the removal of lifting tackle.
5. At the location of each joint, dig bell (joint) hole dimensions in the bottom of the trench and at the sides to permit visual inspection of the entire project.
6. Keep the trench in a dewatered condition during pipe laying in accordance with Section 02240: Dewatering (During Construction).
7. When the pipe laying is not in progress, including the noon hours, close the open ends of pipe. Do not permit trench water, animals, or foreign material to enter the pipe.
8. Polyethylene encasement shall be installed in accordance with the manufacturer's instructions, or in a manner acceptable to the Owner/Engineer. Polyethylene encasement shall overlap the upstream joint by 2 feet and shall be adhered to said joint with 2-inch wide marking tape color-coded to reflect the use of the pipe. Upon installation of the encasement, any slacks, cuts or damaged portions of the polyethylene encasement shall be securely mended with tape.
9. Backfill material shall be the same as specified for pipe without polyethylene encasement; however, extra care should be taken that the backfill be free from

cinders, refuse, boulders, rocks, stones, or other materials that could damage the encasement. Special care shall be taken to prevent damage to the polyethylene wrapping when placing backfill.

10. Because exposure to sunlight will deteriorate polyethylene film, such exposure prior to backfilling the wrapped pipe shall be kept to a minimum.

D. Installing Interior Piping

1. All piping and fittings shall be installed true to alignment and rigidly supported thrust anchors shall be provided where required. Any damage to linings shall be repaired to the satisfaction of the Owner/Engineer before the pipe is installed. Each length of pipe shall be cleaned out before erection.
2. Sleeves shall be installed of proper size for all pipes passing through floors or walls as shown on the Drawings. Where indicated on the Drawings, or required for liquid or gas-tightness, the pipe shall be sealed with mechanical seal equal to Link-Seal as manufactured by Thunderline Corp., Wayne, Michigan.
3. Concrete inserts for hangers and supports shall be furnished and installed in the concrete as it is placed. The inserts shall be, in accordance with the requirements of the piping layout and jointing method and their locations shall be verified from approved piping layout drawings and the structural drawings.
4. Except as otherwise shown on the Drawings either split type couplings or flange joints may be used. Prior to approval of jointing, method layouts for hanger and supports shall be submitted to the Owner/Engineer for approval.
5. Flanged joints shall be made with bolts, bolt studs with a nut on each end, or studs with nuts where the flange is tapped.
6. All pipe and appurtenances connected to equipment shall be supported in such a manner as to prevent any strain being imposed on the equipment. When manufacturers have indicated requirements that piping loads shall not be transmitted to their equipment, a certification shall be submitted stating that such requirements have been complied with.

E. Pipe deflection:

1. Push-on and mechanical joints:

- a. The maximum permissible deflection of alignment at joints, in inches, for 20 foot lengths:

Size of Pipe (in.)	Push-On	Mechanical	
		Defl. (in.)	Defl. (angle)
4	19	34	
6	21	30	
8	21	22	
10	21	22	
12	21	22	
14	21		3°-35'
16	21		3°-35'
18	21		3°-00'
20	21		3°-00'
24	21		2°-23'

- b. The maximum permissible deflections for other lengths shall be in proportion to the above deflections.

2. Flexible and restrained joints: The maximum deflection in any direction shall not exceed the manufacturer's instructions and recommendations.

3.03 CLEANING AND FLUSHING

- A. Prior to the pressure and leakage tests, all piping shall be thoroughly cleaned of all dirt, dust, oil, grease, and other foreign matter.
- B. All lines shall be thoroughly flushed and pigged with clean water to clear all lines of foreign matter.

3.04 FIELD TESTING

- A. All field tests shall be made in the presence of the Owner/Engineer. Except as directed otherwise, all pipelines shall be tested. Pipelines laid in excavation (other than trench excavation) or embedded in concrete, shall be tested prior to backfilling of the excavation or placing of the concrete.
- B. Pressure testing of pipe shall be performed in accordance with Section 02661: Pressure Testing of Piping, herein.

3.05 DISINFECTION

- A. All water pipes and fittings of whatever size and wherever installed on potable water lines shall be thoroughly disinfected prior to being placed in service. Disinfection shall follow the applicable provisions of the procedure established for the disinfection of water mains in AWWA C-651, latest edition, shall be in accordance with both state and local requirements, and shall be in accordance with Section 02650: Disinfection.

END OF SECTION

SECTION 02623 – PLASTIC PIPE FOR PRESSURE SERVICE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes materials and methods of installation of Plastic Pipe for pressure service used in Piped Utility Systems.

1.02 SUBMITTALS

- A. Three certified copies of the tests made by the manufacturer or by a reliable commercial laboratory shall be submitted to the ENGINEER with each shipment of pipe.

1.03 HANDLING AND STORAGE

- A. All pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists or by skidding in order to avoid shock or damage. Under no circumstances shall materials be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior of the pipe.
- B. Materials, if stored, shall be kept safe from damage. The interior as well as all sealing surfaces of all pipe, fittings, and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage or freezing.
- C. Pipe stored outside and exposed to prolonged periods of sunlight shall be covered with canvas or other opaque material. Air circulation shall be provided under covering.
- D. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. Pipe shall not be stored close to heat sources.
- E. Gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis. Mechanical-joint bolts shall be handled and stored in a manner that will ensure proper use with respect to types and sizes.

PART 2 – PRODUCTS

2.01 PLASTIC PIPE

- A. Pipe for pressure service shall be Class 12454-A or B rigid PVC compound in accordance with the requirements of ASTM D1784. Pipe and appurtenances for use in potable water systems shall bear the seal of approval for potable water use of the National Sanitation Foundation or other accredited testing laboratory.
- B. PVC pipe having a nominal diameter less than 2-inches shall be made of 2000 psi hydrostatic design stress compounds designated PVC 1120 and shall conform to the applicable requirements of ASTM D1785. Threaded pipe and fittings shall be Schedule 80. Threaded fittings shall conform to ASTM D2464. Unthreaded pipe and fittings shall be Schedule 40 with solvent cemented joints. Cemented joints and fittings shall comply with ASTM D2466 and D2855.

- C. PVC pressure rated pipe having a nominal diameter 2-inches or greater, but less than 4-inches, shall be made of 2000 psi hydrostatic design stress compounds designated PVC 1120 and shall conform to ASTM D2241. PVC pipe shall be furnished in 20-foot lengths unless otherwise noted. PVC pipe shall have a standard dimension ratio SDR 14 and a water pressure rating of 200 psi. Pipe couplings shall have a SDR 21 and a water pressure rating of 200 psi. Pipe shall have both ends beveled for use with gasketed couplings or one end beveled and one end with a bell. Couplings and gaskets shall be furnished with each length of pipe. Rubber ring gaskets shall conform to ASTM D3139. Nontoxic gasket lubricant shall be as specified by the manufacturer.
- D. Pressure pipe 4 inches through 48 inches in diameter shall conform to the requirements of AWWA C900 for PVC 1120 pipe with cast iron pipe equivalent outside diameter. Pipe shall be DR18; colored Blue for potable water service. Pipe may be furnished with plain ends for use with elastomeric-gasket couplings or with one end plain and one end with a gasket bell. Couplings and gaskets shall be furnished with the pipe. Gaskets shall conform to ASTM D3139. Nontoxic gasket lubricant shall be as specified by the pipe manufacturer.

2.02 RESTRAINED JOINTS

- A. Restrained Joints.
 - 1. Restrained joints for use with PVC pipe shall consist of retainer glands fabricated of ductile-iron conforming to ASTM A536. The gland shall be such that it can replace the standard mechanical joint gland and can be used with the standardized mechanical joint bell conforming to ANSI/AWWA A21.11/C111 and ANSI/AWWA A21-53/C153. The retainer glands shall have a pressure rating equal to that of the PVC pipe on which it is used.
 - 2. PVC push-on joints adjacent to restrained fittings shall be restrained using harness restraint devices. This harness restraint shall be split to enable installation of the restraint after the spigot has been installed into the bell. The restraint shall consist of a split ring that fits behind the bell, a split restraint ring that installs on the spigot and a number of tie bars to connect the other two parts. Restraint components shall be of ductile-iron conforming to ASTM A536. The restraint ring shall consist of a plurality of individually activated gripping surfaces to hold the spigot and maximize restraint capability.
 - 3. Twist off nuts, sized same as the tee-head bolts shall be used to insure proper actuating of restraining devices.

2.03 FITTINGS

- A. Fittings for use with PVC pipe 3-inches through 64-inches in diameter shall be ductile-iron fittings conforming to the requirements of ANSI/AWWA C153/A21.53. Bolts for use with mechanical joints shall conform to the requirements of the joint standard. Fittings shall be suitable for a working pressure of the following:
 - 1. 3" through 24": 350 psi
 - 2. 30" through 48": 250 psi
 - 3. 54" through 64": 150 psi
- B. Exterior Coating:
 - 1. Fittings for buried service and fittings for installation in exposed locations which are not to be painted shall be coated with a bituminous coating approximately 1 mil thick. The finished coating shall be continuous, smooth, neither brittle when

- cold nor sticky when exposed to the sun and shall be strongly adherent to the pipe.
2. Fittings in exposed locations which are to be painted shall be primed with a universal shop primer suitable for use under the finish paint specified.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Excavation:

1. Excavate trenches as specified in Section 02200.
2. All pipe and appurtenances shall be examined at the point of delivery. Material found to be defective due to manufacture or damage in shipment shall be rejected. Tests as specified in the applicable material standard may be performed to ensure conformance with the standard.

3.02 TRENCH CONSTRUCTION

- A. Alignment and Grade: The pipelines shall be laid and maintained to the lines and grades established by the Drawings and Specifications, with fittings and valves at the required locations unless otherwise approved by the ENGINEER. Valve-operating stems shall be oriented to allow proper operation.

- B. Underground Conflicts: Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care shall be exercised to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of work and interfere so that an alteration of the plans is required, the ENGINEER will alter the Drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the ENGINEER, to provide clearance as required by the ENGINEER to prevent future damage or contamination of either structure.

C. Trench Construction:

1. The trench shall be excavated to the required alignment, depth, and width. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified.
2. PVC pipe shall be installed with pipe bedding and a compacted envelope as shown on the Drawings. Material used as bedding and in the pipe envelope (pipe embedment zone) shall be Class I, Class II or Class III material as identified in ASTM D-2321. Bedding material shall consist of 4 inches minimum of non-cohesive granular material placed uniformly under the pipe. Bedding material shall be lightly compacted.
3. Material within the haunching area shall be compacted to 95% density within non-paved areas and 98% density within paved areas, according to AASHTO T-180. Excessive compaction shall be avoided if any distortion of the pipe wall is observed. Material above the haunching area may be native material if free of particles larger than 1-1/2 inches. At least 12 inches of backfill material shall be placed over the top of the pipe before compacting directly over the crown of the pipe.

4. Holes for the bells shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.
5. When excavation of rock is encountered, all rock shall be removed to provide a clearance of at least 6-inches below and on each side of all pipe, valves and fittings. When excavation is completed, a bed of sand, crushed stone, or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the previously mentioned depths; leveled, and tamped. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris of subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation. This installation procedure shall be followed when gravel formations containing loose boulders greater than 8-inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point or rock, boulder, or stones of sufficient size and placement which, in the opinion of the ENGINEER could cause a fulcrum point.
6. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.
7. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 4 inches, or to the depth ordered by the ENGINEER and replaced under the directions of the ENGINEER with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
8. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the ENGINEER it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the ENGINEER.

3.03 PIPE INSTALLATION

- A. Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the work. All pipe, fittings, and valves, and hydrants shall be lowered carefully into the trench by means of suitable tools or equipment in such a manner as to prevent damage to pipeline materials. Under no circumstances shall pipeline materials be dropped or dumped into the trench. The trench shall be dewatered prior to installation of the pipe.
- B. The sealing surface of the pipe, the inside of the bell and the gasket shall be cleaned immediately before assembly.
- C. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.
- D. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.

- E. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or other means approved by the ENGINEER. When practical, the plug shall remain in place until the trench is pumped completely dry. Care shall be taken to prevent pipe flotation should the trench fill with water.
- F. Trench width at the top of pipe, bedding conditions, and backfill placement and compaction shall be such that design loadings on the pipe will not be exceeded.
- G. Joint Assembly: Pipe joints shall be assembled in accordance with the manufacturer's instructions.
- H. Pipe Deflection: When it is necessary to deflect pipe from a straight line in either the vertical or horizontal plane, or where long radius curves are permitted, the amount of deflection shall not exceed that recommended by the manufacturer.
- I. Pipe Cutting:
 - 1. Cutting pipe for the insertion of valves, fittings, or closure pieces shall be done in a neat, workmanlike manner without creating damage to the pipe. Ends shall be cut square and perpendicular to the pipe axis.
 - 2. Burrs shall be removed from spigots and ends shall be smoothly beveled. Field cut ends shall be marked for proper depth of joint assembly.
- J. Locator Tape: Install all plastic pipe with a locator tape of the type specified.
- K. Thrust Restraint:
 - 1. All plugs, caps, tees, and bends, unless otherwise specified, shall be provided with reaction backing, or restrained joints as specified.
 - 2. Thrust-restraint design pressure shall be equal to 1.5 times the design pressure of the line.

3.04 TESTING

- A. After completion of installation, perform testing in accordance with requirements of Section 02661: Pressure Testing of Piping.

END OF SECTION

SECTION 02641 – PIPE CLEANING AND PIGGING

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. CONTRACTOR shall be required to clean potable water mains 4 inches and larger by pigging prior to testing and disinfection.
- B. Provide all supervision, labor, tools, transportation, material and equipment necessary to clean new water mains, using Polly Pigs and an approved Polly Pig procedure. Install all items required, provide Polly Pig launching and retrieval devices as required and furnish all swabs and Polly Pigs required for thorough removal of foreign materials.

1.02 QUALIFICATIONS

- A. The materials and work specified herein shall be furnished and performed by firms who are fully experienced, reputable, and qualified in the manufacture, installation and use of the specified items.

1.03 SUBMITTALS

- A. The CONTRACTOR shall provide evidence of qualification by providing copies of his/her state certification or license to perform such work as herein described and shall provide verifiable references upon request.

1.04 CONTRACTOR RESPONSIBILITIES

- A. Supervision: There shall be on-site at all times during the work, one superintendent with a minimum of three years supervisory experience in cleaning new and old water mains.
- B. Cleaning: Cleaning shall be performed using swabs or Polly Pigs to remove all foreign objects and, for old pipe, restore the original flow characteristics without abrading the interior walls of the pipe.
- C. Equipment:
 - 1. The CONTRACTOR shall furnish pig launching equipment which will minimize the CONTRACTOR's or OWNER'S need to provide for additional valving, fittings and auxiliary water supplies. Said equipment shall be of the latest design and construction and shall include the means to maintain constant monitoring of the in-line flows and pressures of the system being cleaned and the constant location of the cleaning pigs in the system.
 - 2. The CONTRACTOR shall maintain on site for the duration of the project and have available for immediate use an electronic Polly Pig detector with the appropriately sized cavity Polly Pig for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage, and to find "lost" valves and other disparities within the system.
 - 3. The CONTRACTOR shall also have available auxiliary centrifugal pumps for cleaning.
- D. Testing: The CONTRACTOR shall perform pre-cleaning and post-cleaning flow testing to determine sizes, types, densities and numbers of pigs and/or swabs to be used to

establish the means and procedures to properly and safely clean the piping, to evaluate the system and to measure the effects of the cleaning operation.

- E. Communication: The CONTRACTOR shall provide radio communication and job site transportation between launching and retrieval points.
- F. Report upon Completion: The CONTRACTOR shall provide a written report upon completion of line cleaning to outline and detail information acquired during the cleaning progress about the system to confirm existing information.

PART 2 – PRODUCTS

2.01 POLLY PIGS

- A. Furnish Polly Pigs in sufficient numbers and sizes of appropriate densities, coatings and configurations to properly clean the system(s) prior to the system(s) being put into service.
- B. Polly Pigs shall be those as manufactured by Knapp Polly Pigs of Houston, Texas, or approved equal.

2.02 EQUIPMENT

- A. Furnish and install Polly Pig launching and retrieval devices as required.
- B. Launching and retrieval device shall be fabricated, designed and manufactured according to ANSI standards and capable of withstanding working pressures of 150 P.S.I.G.

PART 3 – EXECUTION

3.01 LINE PIGGING

- A. Equipment shall be installed in accordance with manufacturer's recommendations.
- B. Evaluation of new pipeline conditions, selection of the cleaning pigs, cleaning and flushing shall be provided by personnel thoroughly trained, knowledgeable and experienced in the technology and procedures required for the proper and safe "pigging" of this system.
- C. New piping shall be thoroughly cleaned of all material, sand, grit, gravel, stones, fluids, construction debris, threats to its sanitation, and other items that can generally be construed as "foreign" material and that would not be found in a properly cleaned system. This cleaning shall provide a smooth interior periphery of the pipe as a consequence of the cleaning procedure and will result in a conduit or pipe virtually free of any material and fluids, other than those used for the cleaning procedure, within the system.
- D. The CONTRACTOR shall provide all required material, labor, special fittings, connections, traffic control and temporary facilities necessary to accomplish the work. Night work may be required. The CONTRACTOR shall perform such night work at no additional cost to the OWNER.

END OF SECTION

SECTION 02650 – DISINFECTION

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Scope of Work: The work covered by this Section includes furnishing all labor, equipment and materials required for the disinfection of all potable and raw water mains; tanks; process units; wells; and the collection and testing of water samples for bacteriological analysis and regulatory approval. If necessary, this work shall be conducted in phases, with separate regulatory clearances for each phase of the work. Phasing of the work shall be done at no additional cost to the OWNER.
- B. Related Work (Select from list according to type of Project):
 - 1. Section 02616: Ductile Iron Pipe & Fittings
 - 2. Section 02623: Plastic Pipe for Pressure Service

1.02 REFERENCE STANDARDS

- A. The disinfection shall be performed in accordance with AWWA C651 "Disinfecting Water Mains".

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit planned procedures to ENGINEER for review prior to beginning work. Submit certificates of compliance with specified standards for all materials to be used. The CONTRACTOR shall obtain sterile sample containers, collect samples, and submit to the approved laboratory. Provide six copies of laboratory test reports to ENGINEER.

1.04 QUALITY CONTROL

- A. Laboratories used for bacteriological testing of samples shall be certified by the Florida Department of Environmental Protection (FDEP) as acceptable to that agency.
- B. All disinfection and bacteriological sampling and testing shall be in compliance with Rule 62-555-F.A.C. A letter of clearance must be issued by the FDEP prior to placing any temporary or permanent construction into service.

PART 2 – PRODUCTS

2.01 MATERIALS FOR DISINFECTION

- A. The disinfecting agent shall be liquid chlorine conforming to AWWA B301 or sodium hypochlorite or calcium hypochlorite conforming to the requirements of AWWA B300.
- B. Testing and chlorination shall be furnished and paid for by the CONTRACTOR.

PART 3 – EXECUTION

3.01 DISINFECTION OF WATER MAINS

A. Flushing

1. New Mains

- a. Flush mains prior to application of disinfecting agent. Flush with sufficient clear water to provide a full cross section of flow in the pipe at a cleansing velocity (minimum of 2.5 feet per second). Where insufficient water is available to provide cleansing velocity, 10-inch diameter and larger mains shall be cleaned during flushing by using a polyurethane bare swab. The swab shall be a light density, open-cell urethane foam body, base coated with urethane elastomer. The swab shall be able to reduce itself a minimum of 35 percent of its original cross-sectional area, negotiate mitered bends, short radius elbows, pass through tees and crosses and shall be abrasion resistant.
- b. Flushing shall continue until clear water flows from the nearest available point closest to the end of the line.

2. Existing Mains (Maintenance, Rehabilitation)

- a. The cleaning of the existing piping system shall be accomplished by the controlled and pressurized passage of a series of hydraulic or pneumatic polyurethane plugs of varying dimensions, coatings, and densities; which shall be selected by the pipe cleaning Contractor. The CONTRACTOR shall provide a means to enter the pig into the system, control and regulate flow, monitor flows and pressures, and to remove the pig from the system. The CONTRACTOR shall maintain a constant surveillance of the system and immediately report to the proper authority any in-line problems encountered or any malfunctions discovered in the piping system. A record of pig models, sizes, styles, and other pertinent information shall be kept by the CONTRACTOR and turned over to the OWNER.

B. Disinfection

1. Disinfection of all piping, valves, and appurtenances shall be by the Continuous Feed Method in accordance with AWWA C651:
 - a. Continuous Feed Method: A solution containing not less than 75 mg/l of chlorine shall be applied to all piping, valves, fittings, hydrants and appurtenances. Solution shall remain in the pipelines for a minimum period of 24 hours. A free chlorine residual of 10 mg/l is required after the 24-hour holding period.
2. During the disinfection procedure, valves and hydrants shall be opened and closed several times during the contact period to insure that all parts are contacted by the disinfecting solution.
3. After disinfection has been completed, the main shall be flushed with potable water until the chlorine residual is stabilized and matches the chlorine residual of the flushing water. Chlorine residual determination shall be made in accordance with Standard Methods using the DPD Colormetric Method.

C. Sampling and Testing

1. Sample locations shall be in compliance with the FDEP construction permit.
2. Samples of water shall be collected from the mains by the CONTRACTOR/OWNER in sterile containers and delivered to an approved laboratory for bacteriological testing. Sampling and testing shall be continued until satisfactory results are obtained on two consecutive days.
3. The interior of pipe, fittings, valves, and appurtenances used for cutting into or repairing existing mains shall be swabbed or sprayed with a one-percent hypochlorite solution before being installed.
4. Tapping sleeves shall be cleaned and disinfected in accordance with Section 4.7 of AWWA C651.

3.02 DISINFECTION OF TANKS

A. Cleaning

1. Tanks shall be thoroughly cleaned in accordance with requirements of AWWA C652.

B. Disinfection

1. After completion of cleaning, tanks shall be disinfected in accordance with the requirements of Chlorination Method 1, 2 or 3 of AWWA C652.

C. Sampling and Testing

1. After completion of disinfection, samples shall be collected by the CONTRACTOR/OWNER in sterile containers and submitted to an approved laboratory for bacteriological testing. Sampling and testing shall be continued until satisfactory results are obtained on two consecutive days.
2. In addition to bacteriological testing, the water in the storage facility shall also be tested to ensure that no offensive odor exists due to chlorine reaction or excess chlorine residual.

3.03 DISINFECTION OF PROCESS UNITS

A. Cleaning

1. Process units shall be thoroughly cleaned prior to disinfection in accordance with requirements of AWWA C653.

B. Flushing

1. All surfaces which will come in contact with potable water shall be thoroughly washed with chlorine water and scrubbed with stiff brooms to remove all dirt, cuttings and other foreign matter. During this operation, the workmen shall wear rubber boots which have been thoroughly cleaned and which shall not be worn outside of the unit during the scrubbing operation.
2. Filter units and media shall be thoroughly backwashed to remove all dirt and debris.

C. Disinfection

1. After completion of cleaning and flushing, the process units shall be disinfected in accordance with the requirements of Chlorination Method [1] [2] [3] of AWWA C652.
2. Filters shall be disinfected in accordance with Section 4.4.3, AWWA C653.
3. Piping valves and appurtenances shall be disinfected in accordance with AWWA C651.

D. Sampling and Testing

1. After completion of flushing, the unit shall be filled with clean water and samples shall be collected by the CONTRACTOR/OWNER in sterile containers and submitted to an approved laboratory for bacteriological testing. Sampling and testing shall be continued until satisfactory results are obtained on two consecutive days.

3.04 REDISINFECTION

A. General

1. If consistently unsatisfactory bacteriological test results are reported, the facilities shall be re-cleaned and re-disinfected.

3.05 DISPOSAL OF HEAVILY CHLORINATED WATER

A. Passive Non-Chemical Methods

1. Discharge to Sanitary Sewers
 - a. Determine location of nearest sanitary sewer system to the point of discharge.
 - b. Determine capacity of sanitary sewer and wastewater treatment plant to handle additional load.
 - c. Investigate potential of upset of treatment plant operations due to presence of chlorine.
 - d. Obtain permission from owner of sanitary sewer system before discharging chlorinated water.
2. Discharge to Storm Sewers
 - a. Determine whether storm sewer from inlet connects/discharges to a receiving stream or waters leading to streams.
 - b. Determine distance to nearest inlet; the farther the chlorinated water has to travel (over paved surfaces), the more chlorine is removed from the water.
3. Retention in Holding Tanks
 - a. Determine approximate volume of discharge water so appropriate storage vessel may be utilized.

- b. Monitor chlorine concentration in holding tank; release chlorinated water when it has met regulatory discharge limits.

4. Land Application

- a. Organic and inorganic impurities in soil and pavements exert a significant amount of chlorine demand and rapidly neutralize chlorine in waters.
- b. Spraying chlorinated water onto soils is an effective method for neutralizing chlorine in waters.
- c. Determine if water will percolate or will flow to receiving waters. If volume is sufficient to carry flow to waters, use a field test kit to determine chlorine residual and take the following action:
 - (1) If at or below regulatory discharge limits, allow to discharge to stream.
 - (2) If above regulatory limits, addition of chemical is necessary in order to reduce chlorine concentration.

B. Chemical Dechlorination

- 1. Chemicals used to dechlorinate water (Also refer to AWWA C651, Appendix C, or C652, Appendix B for listing)
 - a. Sulfur Dioxide
 - (1) Reacts instantaneously with free chlorine.
 - (2) Toxic chemical—not best suited for field applications.
 - b. Sodium Thiosulfate
 - (1) Skin, eye, nose, and throat irritant.
 - (2) Reacts slowly with chlorine and requires more time for dechlorination than most other dechlorination chemicals.
 - (3) Not toxic to aquatic species.
 - c. Sodium Sulfite
 - (1) Is available in tablet form, unlike most other dechlorinating chemicals.
 - (2) Effective for dechlorinating constant, low flow rate chlorinated releases.
 - d. Sodium Bisulfite
 - (1) Skin, eye, and respiratory tract irritant.
 - (2) Highly corrosive and caution must be used when handling.
 - e. Sodium Metabisulfite
 - (1) Eye, throat, skin, and lung irritant.

- f. Calcium Thiosulfate
 - (1) Not toxic to aquatic species.
 - (2) Extremely long time required for dechlorination to occur.
- g. Ascorbic Acid (Vitamin C)
 - (1) Eye, skin, and lung irritant.
 - (2) Does not scavenge dissolved oxygen.
- h. Sodium Ascorbate
 - (1) Does not scavenge dissolved oxygen
 - (2) Stable compound as solid; once mixed, degrades within a day or two.

2. Dechlorination Chemical Summary

- a. Choice of Chemical Depends Upon:
 - (1) Nature of water release.
 - (2) Strength of chlorine.
 - (3) Volume of water release.
 - (4) Distance from receiving waters.
- b. Use field test kit to measure chlorine strength prior to any discharge to streams, lakes, or other bodies of water.

END OF SECTION

SECTION 02661 – PRESSURE TESTING OF PIPING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: This section specifies the leakage and pressure testing of piping.
- B. Testing Records:
 - 1. Provide record of each piping installation during the testing. These records shall include:
 - a. Date of test.
 - b. Identification of pipeline tested or re-tested.
 - c. Identification of pipeline material.
 - d. Identification of pipe section tested.
 - e. Test pressure
 - f. Remarks: Leaks identified (type and location), types of repairs, or corrections made.
 - g. Certification by CONTRACTOR that the leakage rate measured conformed to the Specifications.
 - h. Signature of Project Manager witnessing pipe test.

1.02 SUBMITTALS

- A. Submit five (5) copies of the test records to the Owner/Engineer upon completion of the testing.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Testing fluid shall be water, unless specified otherwise.
- B. All testing shall be performed in accordance with applicable AWWA Standards (C-600) latest edition.

2.02 MATERIALS AND EQUIPMENT

- A. Provide pressure gauges, pipes, pipe fittings, bulkheads, hydraulic force pumps, meters and graduated containers to perform the hydrostatic testing.
- B. Pressure gauges used shall have been calibrated just prior to their use.

PART 3 – EXECUTION

3.01 TESTING PREPARATION

- A. Pipes shall be in place and anchored before commencing pressure testing.
- B. Conduct hydrostatic tests on exposed and above ground piping after the piping has been installed and attached to the pipe supports, hangers, anchors, expansion joints, valves and meters.

- C. Before conducting hydrostatic tests, flush pipes with water to remove dirt and debris.
- D. Test new pipelines which are to be connected to existing pipelines by isolating the new line from the existing line by means of pipe caps, plugs, special flanges, or blind flanges. After the new line has been successfully tested, and all other tests/certifications/releases have been obtained, remove caps or flanges and connect to the existing piping.

3.02 PIPE FLUSHING

A. General

1. All pressure mains shall be thoroughly flushed of sand and debris prior to pressure leakage testing. Flushing shall continue until clear water flows from the available point closest to the ends of the mains or at the end of the main itself.
2. Pressure mains 4 inches in diameter and larger shall be cleaned during flushing using a polyurethane plug manufactured of eight (8) lb./cubic foot density blown elastomer with open cell construction. The plug ("pig") shall have a resilient surface that engages the inner surface of the main with a sliding seal. The plug shall be able to reduce itself a minimum of 35 percent of its original cross-sectional area, negotiate bends, short radius elbows, pass through tees, crosses, multiple pipe sizes and valves and shall be abrasion resistant and capable of traveling in either direction.

3.03 HYDROSTATIC TESTS (DUCTILE IRON, PVC AND PCCP PIPE)

A. General

1. Hydrostatic tests shall consist of a pressure test and a leakage test. Hydrostatic tests shall be conducted on all newly installed pressure pipes, joints, valves and all service lines from tapped connection of main to the curb stops. AIR TESTING of pressure pipes WILL NOT BE PERMITTED under any circumstance. Tests may be made on sections not exceeding 2,000 feet, or as field conditions dictate. Length of the pipe to be tested shall be acceptable to the OWNER. CONTRACTOR shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required.
2. The CONTRACTOR may conduct hydrostatic tests after the trench has been partially backfilled with the joints left exposed for inspection for his informational purposes only. The hydrostatic tests for acceptance shall only be conducted after the trenches have been completely backfilled and compacted as specified. Where any section of pipe is provided with concrete thrust blocking or encasement, pressure test will not be made until at least seven days have elapsed after the thrust blocking is installed. If high-early cement is used for the concrete thrust blocking, the time may be reduced to 3 days if the OWNER concurs that the concrete has cured and reached adequate strength. When testing mortar-lined or PCCP pipe, fill the pipe to be tested with water and allow it to soak for at least 48 hours to absorb water before conducting the pressure test.

- B. Testing Criteria: All pipe sections to be pressure tested, including water mains, reuse mains and force mains, shall be subjected to a hydrostatic pressure of 150 psi. The duration of each pressure test shall be for a period of 2 hours. If during the test, the integrity of the tested line is in question, the OWNER may require a 6-hour pressure test. The basic provisions of AWWA C-600 and C-605/M23 shall be applicable.

- C. Procedure For Pressure Test: Each section of pipe to be tested, as determined by the OWNER, shall be slowly filled with water and the specified test pressure shall be applied

by means of a pump connected to the pipe in a satisfactory manner. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, and appropriate valves installed to ensure bleeding of all air from the main. If defective pipes, fittings, valves, or hydrants are discovered in consequence of this pressure test, all such items shall be removed and replaced by the CONTRACTOR with sound material and the test shall be repeated until satisfactory results are obtained. Provisions of AWWA C600 and C605/M23, where applicable, shall apply.

D. Procedure For Leakage Test

1. After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Applicable provisions of AWWA C600 and C605/M23 shall apply.
2. For DUCTILE IRON PIPE, allowable leakage in gallons per hour shall not be greater than that determined by the formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where:

- | | | |
|---|---|---|
| L | = | Allowable leakage, in gallons per hour. |
| S | = | Length of pipe tested, in feet. |
| D | = | Nominal diameter of the pipe, in inches. |
| P | = | Average test pressure during leakage test, in pounds per square inch (gauge). |

3. For PVC PIPE, allowable leakage in gallons per hour shall not be greater than that determined by the formula:

$$L = \frac{ND(P)^{1/2}}{7,400}$$

Where:

- | | | |
|---|---|---|
| L | = | Allowable leakage, in gallons per hour. |
| N | = | Number of joints in the length of pipeline tested. |
| D | = | Nominal diameter of the pipe, in inches. |
| P | = | Average test pressure during leakage test, in pounds per square inch (gauge). |

4. Leakage is defined as the quantity of water to be supplied in the newly installed pipe or any valved section under test, which is necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled. Should any test of pipe installed disclose leakage greater than that allowed, CONTRACTOR shall locate and replace or repair the defective joints, pipe or valve until the leakage from subsequent testing is within the specified allowance.

3.04 HYDROSTATIC TESTS (HDPE PIPE)

A. General

1. CONTRACTOR shall test pipelines installed under this Contract in accordance with these specifications prior to acceptance of the pipeline by the OWNER. All field tests shall be made in the presence of the OWNER. Except as otherwise directed, all pipelines shall be tested. All piping to operate under liquid pressure shall be tested in sections of approved length. The pressure testing of an HDPE line section shall be tested separately from the PVC and DIP line sections. Where impractical,

the HDPE test section shall include only a minimum amount of PVC and ductile iron pipe within the test section. If at all possible, the PVC and DIP test sections shall be left exposed during the pressure test for visual leakage observation. For these tests, the CONTRACTOR shall furnish clean water, suitable temporary testing plugs or caps, and other necessary equipment, and all labor required. If the CONTRACTOR chooses to pressure test against an existing OWNER water main / valve, the new water main must be disinfected prior to connection to the OWNER line. The OWNER will not be responsible for failure of the pressure test due to the existing valve leaking. The OWNER may elect to furnish suitable pressure gauges for these tests. If not, the CONTRACTOR will furnish suitable pressure gauges, calibrated by an approved testing laboratory, which increments no greater than 2 psi. Gauges used shall be of such size that pressures tested will not register less than 10 percent or more than 90 percent of the gauge capacity. All valved sections shall be hydrostatic tested to insure sealing (leak allowance) of all line valves.

2. Unless it has already been done, the section to pipe to be tested shall be filled with potable water and air shall be expelled from the pipe. If blow-offs or other outlets are not available at high points for releasing air, the CONTRACTOR shall provide 1-inch [minimum taps and blow-off valves (at the 12:00 position)], as necessary. The cost of constructing blow-off valves and plugging them, after a successful pressure test, shall be included in the unit price bid amount for the HDPE pipe.

B. Testing Criteria

1. Hydrostatic testing shall consist of a 150 psig test pressure, based on the elevation of the highest point of the line or section under test. Pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the OWNER. The pump, pipe connection and all necessary apparatus shall be furnished by the CONTRACTOR and shall be subject to the approval of the OWNER.
2. Maximum duration for pressure test, including initial and final phase of the test, shall not exceed eight (8) hours. If the test is not completed due to leakage, equipment failure, etc., depressurize the test section, and then allow it to "relax" for at least eight (8) hours before bringing the test section up to test pressure again.

C. Procedure For Pressure Test

1. Initial Phase of Pressure Testing: First, all air must be removed from the test section. The pressure test shall be completed after the line is backfilled. If possible, all flanged or mechanical joint valves and fittings shall be left exposed for visual leak inspection. If possible all PVC and DIP test sections shall be left exposed for visual leak inspection. Initially, the pressure within the test section shall be raised to approximately 160 psi and then allowed to be idle (no additional make-up water / pressure to be injected), for approximately 3 hours. During this 3-hour period, the test section shall be allowed to stabilize and come to an equilibrium stage. No additional make-up water / pressure shall be applied to the test section during this 3-hour stabilization period unless the line pressure drops below 140 psi. In this case, make-up water / pressure shall only be applied to the test section to maintain a minimum of 140 psi (during the 3-hour stabilization period).
2. Final Phase of Pressure Testing: The final phase of the pressure test shall involve applying make-up water / pressure to achieve an "Initial test pressure" of 150 psi (minimum) / 155 psi (maximum). The test section is then allowed to be idle (no make-up water / pressure is added) for a period of 2 hours. After this 2-hour period, make-up water / pressure is applied and measured to re-establish the "initial test pressure." The quantity of water utilized to re-pump the line shall be measured and compared to the allowable quantities as determined by TABLE 1, shown below. If the actual make-up water quantity is equal to or less than the allowable amount, the

pressure test passes. If the actual make-up water quantities are greater than the allowable amount, the pressure test fails.

TABLE 1: ALLOWABLE MAKE-UP AMOUNT (HDPE) PIPE	
Nominal Pipe Size (inches)	Make-up Water Allowance (U.S. Gallons /100 ft. of Pipe) 2-Hour Test
6	0.30
8	0.50
10	0.65
12	1.15
14	1.40
16	1.65
18	2.15
20	2.75
22	3.50
24	4.40
26	5.00
28	5.55
30	6.35
32	7.15
34	8.10
36	9.00
42	11.55
48	13.50
54	15.70

3. In the event a section fails to pass the tests, the CONTRACTOR shall do everything necessary to locate, uncover (even to the extent of uncovering the entire section), and replace the defective pipe, valve, fitting or joint. Visible leaks shall be corrected regardless of total leakage. Lines which fail to meet these tests shall be retested as necessary until test requirements are complied with. All testing shall be performed at the CONTRACTOR'S expense.

3.05 TESTS FOR NON-PRESSURE PIPING

A. GENERAL

Testing of non-pressure gravity flow pipe shall be accomplished by infiltration or exfiltration testing. Non-pressure piping which has a crown elevation below the groundwater table shall be tested by measuring the infiltration. Non-pressure piping which has a crown elevation above the groundwater table shall be tested by measuring the exfiltration.

B. INFILTRATION TESTING

The CONTRACTOR shall identify and prepare each section of piping to be tested. The designated piping shall be monitored for a minimum period of four (4) hours. Any accumulated liquid shall be measured; the line shall not be accepted until this measured quantity is less than 25 gallons per inch of diameter of pipe per mile of pipe per 24 hours. All buried leaks shall be located and repaired immediately and retested. All visible leaks must be repaired regardless of the measured leakage.

C. EXFILTRATION TESTING

The CONTRACTOR shall close all openings in the section of pipe to be tested. The hydrostatic water level of the pipe system shall be raised to a height equal to the maximum design submergence, but in no case less than 3 feet above the highest point in the line. The closed system shall be maintained for a minimum duration of 4 hours. Any loss of volume shall be noted. The line will not be accepted until this measured quantity is less than 25 gallons per inch of diameter of pipe per mile of pipe per 24 hours. All buried leaks shall be located and repaired as soon as possible. All visible leaks must be repaired regardless of the measured leakage.

D. LOW PRESSURE TESTING

If impractical to conduct the infiltration or exfiltration tests as specified, the line can be pressurized for low pressure air testing. The air test shall be made by attaching an air compressor or testing apparatus to a suitable opening. After closing all other inlets and outlets to the system, force air into the system until there is a uniform gauge pressure of 5 psi. This pressure shall be held constant without introduction of additional air for a period of at least 30 minutes.

E. MANDREL TESTING

Perform mandrel testing throughout the entire length of the gravity pipe system. The mandrel size shall be 95% of the inside diameter of the pipe.

F. MANHOLE TESTING

The allowable limits of infiltration or exfiltration of manholes shall not exceed a rate of 0.165 gallons per manhole per hour.

G. RE-TESTING

Should any test fail, necessary repairs shall be accomplished by the CONTRACTOR and the test repeated until within the established limits. The CONTRACTOR shall furnish the necessary labor, water and all other items required to conduct the required testing and shall perform the necessary system repairs required to comply with the specified test.

3.06 TESTS FOR VALVES

A. General: All valves shall be tested according to the following criteria:

1. Butterfly and plug valves shall be tested in accordance with AWWA C504.
2. Ball valves shall be tested in accordance with AWWA C507.
3. Gate valves shall be tested in accordance with AWWA C509 and C515.

END OF SECTION

SECTION 02801 – RESTORATION OF SURFACE IMPROVEMENTS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes the restoration of driveways, lawn areas, trees and plants, roadways, sprinkler systems, walks and any other existing improvement affected by the proposed work, as shown on the Drawings and as specified.

1.02 QUALITY ASSURANCE

- A. Standards
 - 1. Florida Grades and Standards for Nursery Plants, Part 1:
 - 2. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction (latest Edition), hereafter called the Standard Specifications.
- B. Asphaltic Concrete Mix Designs: Contractor shall provide mix designs prepared by an independent laboratory for each type of material used. Mix designs shall be prepared in accordance with the procedures described in Manual MS-2, Mix Design Methods for Asphalt Concrete, a publication of the Asphalt Institute.

PART 2 – PRODUCTS

2.01 SOD

- A. The sod shall match the existing sod in the area. St. Augustine sod shall be replaced with St. Augustine Floratam. In areas without well established sod, Argentine Bahia shall be used.
- B. The sod shall have well matted roots and be sufficiently thick to secure a dense stand of live grass, with a minimum thickness of two inches. The sod shall be live, fresh and uninjured at the time of planting. It shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted.

2.02 PLANTS

- A. Existing damaged plants shall be replaced by plants of equal type, quality and size whenever possible. All new plants shall be sound, healthy, vigorous and free from defects, decay, disfiguring, bark abrasions, plant diseases, insect pests, their eggs or larvae.
- B. Existing plants may be removed, preserved, and replaced at the Contractors option. Plants shall be handled by an approved nursery.
- C. Plants shall be watered and cared for until new growth appears. Dead and dying plants shall be immediately replaced. Plants used shall be in accordance with the "Grades and Standards", Florida No. 1 or better.
- D. Plants shall conform to the sizes indicated by the OWNER.

2.03 MULCH

- A. Mulch for all planter areas shall be Cypress Bark, clean, bright and free from weeds, moss, sticks, and other debris. Bark size shall not be over 2-1/2-inch diameter.

2.04 WATER

- A. The water used in the performance of this Contract shall be of drinking water quality, clean and free from injurious amounts of oil, acid, alkali, or organic matter.

2.05 PLANTING MIXTURE

- A. The planting mixture, when required, shall consist of a thorough mixture of 40% peat and 60% sand. The peat shall be Florihome peat or equivalent and the sand shall be clean and free from debris of any kind.

2.06 FERTILIZER

- A. Fertilizer shall be pelletized 8-8-8, or equivalent.

2.07 PORTLAND CEMENT

- A. Portland cement used in the performance of restoration work on this Contract shall have a compressive strength of 3000 psi at 28 days and shall conform to the requirements of Section 03300.

PART 3 – EXECUTION

3.01 LANDSCAPING RESTORATION

- A. Lawn Areas: Any lawn area affected by the required work shall be restored to a condition equal to or better than the conditions existing before the commencement of work. Grass areas disturbed by CONTRACTOR shall be restored with sod.
- B. Balled Plants:
 - 1. Plants where required shall be adequately balled with firm natural balls of soil, sized as set forth in "Grades and Standards". Balls shall be firmly wrapped with burlap or equally approved strong cloth. No balled plant will be planted if the ball is cracked or broken before or during the process of planting.
 - 2. Option: Plants may be furnished as container grown instead of balled if all other requirements are met.
- C. Preparation of Plant Pits: All plant pits shall be circular in outline and have vertical sides. Tree pits shall be two feet wider than the width of the ball and one foot deeper than the depth of the ball. Shrubs that are either B&B or in 3 gallon containers shall have pits that are two feet wider than the width of the plant ball and 6-inches deeper than the depth of the ball. Smaller shrubs shall have pits that are at least one foot wider than the width of the plant ball and 6-inches deeper than the ball depth.

D. Setting Plants

1. All plants except as otherwise specified, shall be centered in pits. Deep planting shall be avoided and unless otherwise specified, plants shall be set at such a level that after settlement they will bear the same relation to the required grade as they have to the natural grade before being transplanted.
2. Balled and burlapped plants and palms shall be placed on 6 inches to 12 inches of tamped planting mixture and adjusted so as to be at the proper level. The rope and burlap shall be cut away and the burlap folded down to the bottom of the pit. Very large B&B plants shall remain wrapped until fully backfilled and then just the upper portion of the burlap shall be removed. Backfill of planting mix shall be placed halfway up the pit and then water tamped. After this water has drained away, backfill around the edge of the pit to form a saucer and fill area three times with water.

E. Water: Water to be used initially during plant installation shall be furnished by the CONTRACTOR. The existing irrigation system, where damaged, shall be promptly repaired after the installation of the plants.

F. Sod Placement:

1. Immediately before sod is placed, 8-8-8 fertilizer shall be applied at the rate of approximately 500 pounds per acre, by broadcasting and raking into the planting area.
2. Sod shall be firmly embedded by light tamping. Wherever necessary to prevent an erosion condition caused by vertical edges at the outer limits of the sodded area, the sod shall be tamped so as to produce a featheredge at the outer limits. The sod shall be kept in a moist condition after it is planted. Water shall not be applied between the hours of 8 A.M. and 4 P.M., or when there is danger of freezing.

G. Maintenance: CONTRACTOR shall maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, filling, leveling and repairing of any washed or eroded areas as may be necessary.

3.02 PAVEMENT, CURB AND SIDEWALK REMOVAL

A. Pavement materials shall be removed and separated from other excavated materials. Prior to removal, asphaltic and Portland cement materials shall be saw cut to neat lines parallel to the trench and sufficiently remote from the edge of the trench to prevent settling or breaking off.

3.03 TESTS

A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the OWNER and at such locations as may be recommended by the ENGINEER. If the densities as determined by the specified tests fall below the required minimums, the CONTRACTOR shall pay for all retests.

END OF SECTION

SECTION 02802 – IDENTIFICATION TAPE FOR BURIED PIPE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Furnish and install identification tape over the centerline of all buried potable water lines, wastewater force mains, raw water mains, and wastewater effluent reuse mains.

1.02 SUBMITTALS

- A. Submit manufacturer's descriptive literature, illustrations, specifications and other pertinent data.

PART 2 – PRODUCTS

2.01 IDENTIFICATION TAPE

- A. Identification Tape for Ductile Iron and Steel Pipe: Identification tape shall be manufactured of inert polyethylene so as to be highly resistant to alkalies, acids and other destructive agents found in soil, and shall have a minimum thickness of 6 mils with a minimum tensile strength of 22 pounds per inch and a maximum adhesive factor of 40 ounces per inch. Tape width shall be 2 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.
- B. Identification Tape for Polyvinyl Chloride Pipe: Identification tape shall be manufactured of polyethylene with a minimum thickness of 4-mils and shall have a 1-mil thick metallic foil core. The tape shall be highly resistant to alkalies, acids and other destructive agents found in soil. Tape width shall be 3 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.
- C. Tape background colors and imprints shall be as follows:

Imprint	Background Color
"Caution Caution – Potable Water Line Buried Below"	Blue
"Caution Caution – Wastewater Force Main Buried Below"	Green
"Caution Caution – Sewer"	Green
"Caution Caution – Reuse Water Main Buried Below"	Lavender
"Caution Caution – Raw Water Main Buried Below"	White

- D. Identification tape shall be "Terra Tape" as manufactured by Reef Industries, Inc., Houston, TX, (800) 231-6074, Allen Systems Inc., Wheaton, IL (800) 323-1749, or approved equal.

2.02 LOCATE WIRE

- A. Locate wire shall be #10 THHN solid copper tracing wire.
- B. Wire insulation shall be 45 mils and shall be color coded as per the locator tape.

PART 3 – EXECUTION

3.01 INSTALLATION OF IDENTIFICATION TAPE

- A. Identification tape shall be installed for all buried pressure mains in accordance with the manufacturer's installation instructions and as specified herein.
- B. For potable, raw, reuse water and force mains, identification tape shall be installed 18 inches below final grade over centerline of pipe.
- C. For wastewater gravity sewers, identification tape shall be continuously spiral-wrapped around the pipe with the bands 12 to 18 inches apart.

3.02 INSTALLATION OF LOCATE WIRE

- A. Locate wire shall be installed under all buried pressure mains in accordance with plan details. Wire shall be extended to top of all valve boxes and at 500-foot intervals as shown on Drawing details.
- B. Contractor will perform a 12-volt DC electrical continuity test on the wire. No more than one (1) volt of loss per 1,000 feet of mainline pipe will be acceptable. The wire will pass the 12-volt DC electrical continuity test prior to final acceptance of the pipeline. Any cuts or breaks in the wire will be repaired by the Contractor at his expense.
- C. The locate wire will be tested by the Contractor at the time of pressure testing. If this test fails, the Contractor is responsible for repairing the locate wire and the pressure test will be rescheduled when the wire will pass.

END OF SECTION

SECTION 02938 – SODDING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, equipment and incidentals required to prepare lawn bed, install sodding, and repair existing sod in accordance with the drawings, scheduled mowings, and all work that is part of the 30-day grow-in period, and as specified.

1.03 RELATED WORK

- A. Irrigation System
- B. Trees, Shrubs, and Groundcover
- C. Fine Grading

1.04 QUALITY ASSURANCE

- A. Sod shall be grown by certified Florida State Plant Board SOD FARM or as approved by the OWNER'S Representative. The OWNER'S Representative shall inspect sod prior to cutting and delivery to site.
- B. The OWNER'S Representative shall have the right at any stage of the construction operation to reject any and all work and materials, which, in his opinion, do not meet the requirements of these specifications. Such rejected work and materials shall be immediately removed from the site and replaced in an acceptable manner.

1.05 SUBMITTALS

- A. Certificates and Guarantee
 - 1. Growers' Certification and Guarantee
 - a. All sod shall be Florida Standard Grade sod as defined by the "Florida Turf Producers Association" that is true to botanical variety and 98% free of weeds and foreign grasses.
 - b. Florida Standard Grade may have no visible broadleaf weeds when viewed from a standing position and the turf shall be visibly consistent with no obvious patches of foreign grasses. In no case may the total amount of foreign grasses or weeds exceed 2% of the total. The sod shall be neatly mowed and be mature enough that when grasped at one end, it can be picked up and handled without damage.
 - c. Grass species and variety with date and location of field from which sod is cut.
 - d. One certificate per truckload is required.

- e. Compliance with State and Federal quarantine restriction, if applicable.
- 2. Manufacturer's certification of fertilizer and herbicide composition.
- 3. CONTRACTOR shall submit all certifications, reports, etc., to the OWNER'S Representative a minimum of one week prior to installation.
- B. Provide Florida State Department of Agriculture, Bureau of Plant Industry, inspection certificates at time of delivery of sod.
- C. Submit soils tests to LANDSCAPE ARCHITECT for all locations shown on plans. Analysis shall include recommendation for fertilization specific to the soil chemistry of the existing soil.

PART 2 – PRODUCTS

2.01 SOD

- A. Sod shall be as shown in plans and shall have a firm texture having a compacted growth and good root development. Sod shall conform to the following:
 - 1. Furnish in pads that are not stretched, broken or torn.
 - 2. Sod thickness shall be 1-1/2 inch, minimum (excluding top growth and thatch).
 - 3. Sod shall be uniformly 2 inch in height.
 - 4. Uniform in color, leaf texture and density.
- B. Sod shall be certified to meet Florida State Plant Board specifications, absolutely true to varietal type, and free from weeds or other objectionable vegetation, fungus, insects and disease of any kind.
- C. Before being cut and lifted, the sod shall have been mowed to a two-inch length three times with final mowing not more than a week before cuffing into uniform dimensions.
- D. Time delivery so that sod will arrive at site within twenty-four (24) hours after being stripped. Do not deliver more sod than can be installed within 24 hours. OWNER'S Representative reserves the right to reject sod left in extended storage on site.
- E. Protect sod against drying and breaking.
- F. Maintain proper moisture conditions, prior to placing, to insure sod vitality and to prevent the dropping off of soils during handling.

2.02 SOIL CONDITIONERS

- A. Fertilizer:
 - 1. Fertilizer shall be complete fertilizer, the elements of which are derived from organic sources. Fertilizer shall be a standard product complying with State and Federal fertilizer laws.
 - 2. For purpose of bidding, assume 8% nitrogen, 8% phosphorus, and 8% potash by weight. At least 50% of the total nitrogen shall contain no less than 3% water-insoluble nitrogen.
 - 3. At the CONTRACTOR'S expense, samples of existing on-site soils will be submitted to a certified testing laboratory for analysis as to the suitability of the fertilizer mix specified above. The findings, together with any recommendations

- for amending the specified fertilizer mix shall be reviewed and approved by the OWNER prior to delivery and installation of plant materials at the job.
4. At the CONTRACTOR'S expense, fertilizer amendments shall be added in the amount and manner prescribed by a soil analysis. Results from soil analysis and a list of the prescribed amendments shall be presented to the OWNER'S Representative prior to incorporating into the soil.
 5. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guaranteed statement of analysis, or a manufacturer's certificate of compliance covering analysis shall be furnished to the OWNER'S Representative. Store fertilizer in a waterproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.
- B. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes containing not less than 20% available phosphoric acid.

PART 3 – EXECUTION

3.01 LAWN BED PREPARATION

- A. Areas specified to receive sod shall be cleared of all rough grass, weeds, and debris and the ground brought to an even grade as approved by OWNER'S Representative.
- B. Preparation for Finish Grading:
1. Weeding: Before and during preliminary and finish grading, dig-out all weeds and grasses by the roots and dispose of off-site. Grasses not of the perennial type less than two and one-half inches (2-1/2") high and not bearing seeds, may be turned under. Perennial weeds and grasses are to be removed. Also, remove other noxious or invasive weeds encountered on the site. The use of Round-Up or approved equal is an approved method of removal of weeds.
 2. Loosen rough-graded material by roto-tilling to a depth of four to six inches (4"-6") and regrade to maintain proper elevation.
 3. Remove all stones over two inches (2") in size, rubbish, and all other extraneous matter from rough grade before beginning finish grading.
- C. Superphosphate at a rate for bidding purposes of 5 pounds per 1000 square foot and complete fertilizer at a rate for bidding purposes of 16 pounds per 1000 square foot shall be evenly distributed over entire area and cross-disc'd in to a depth of 4-6 inches.
- D. The areas shall then be brought to proper grade, free of all construction debris, sticks, stones, or other foreign matter over 1-inch in diameter or dimension. The surface shall conform to finish grade, less the thickness of sod, free of water-retaining depressions, the soil friable and of uniformly firm texture.

3.02 SOD HANDLING AND INSTALLATION

- A. Sodding Lawns
1. Limits of sod and sod types are delineated on the Drawings.
 2. Sod shall be as shown on the Drawings certified to be of high quality in accordance with the standards established by the FTGA.

3. Do not sod areas until the planting of trees, shrubs, and other plants are sufficiently completed in that area, to eliminate the possibility of incurring damage to the lawn areas by tree planting operations.
4. Roto-till soil to a depth of six inches (6"), incorporate specified amendments, and fine grade to remove irregularities.
 - a. Lightly roll to firm surface and regrade, as necessary, to even base grade.
 - b. During rolling, soil should be sufficiently dry to avoid dense compaction.
5. Prior to sodding, clear the surface of all stones or other objects and of all roots, weeds, brush, wire, and other objects that might be a hindrance to maintenance operations.
6. Leveling: Level out all undulations or irregularities in the surface resulting from tillage, fertilizing, liming, or other operations.
7. Treat soil, as necessary, with approved fumigant or herbicide to control weeds.
8. Pre-irrigate soil to wet it to a depth of two inches (2"). Soil should be damp but not muddy.
9. Lay sod within twenty-four (24) hours after delivery to site and within forty-eight (48) hours after being cut. Do not expose sod to hot sun longer than necessary.
 - a. Roll out sod or lay squares carefully. Use a 2'x4' laid on its side as a "kicker" to butt against sod strips and force them into place.
 - b. Stagger or offset all joints between sod sections. Butt side and end joints. Ensure that joints are tight, thereby eliminating the need to patch and/or topdress to eliminate gaps.
 - c. Cut sod with a sharp knife or spade to conform to walks, planter beds, header boards, and other characteristics.
 - d. Bring new sod into close contact with the soil by thorough rolling with a 100 lb. roller.
10. After laying and rolling, water area thoroughly and deeply.
 - a. Keep sod well watered during the first two (2) weeks after installation to insure good rooting into base soil.
 - b. Supplement watering from irrigation system by hose, as necessary, to assure adequate water to berms and other critical areas to establish sod.
11. Finish grade of all sod after laying shall not be higher than adjacent paving, curbs, yard boxes, and other on-grade elements of site development.
 - a. All surfaces shall drain to drainage devices provided without puddling or ponding.
 - b. The surface of the sod shall be smoothed with gentle curves and transitions. All sodded areas shall be verified that they meet the approval of OWNER'S representative prior to proceeding with subsequent phases of construction. The OWNER'S representative reserves the right to reject uneven areas in order to achieve the intended appearance of the project.

12. Peg sod on slopes greater than one (1) in three (3) with minimum of two (2) stakes per square yard.

3.03 MAINTENANCE

- A. The CONTRACTOR shall produce a dense, well-established lawn. The CONTRACTOR shall be responsible for the repair and resodding of all eroded or bare spots until project substantial acceptance. Repair sodding shall be accomplished as in the original work except that fertilizing may be omitted.
- B. Sufficient watering shall be applied by the CONTRACTOR to maintain adequate moisture for optimum development of the lawn areas. Sodded areas shall receive no less than 1.5 inches of water per week or as directed by the OWNER'S Representative.
- C. Areas of sod that are not intended to be watered by the irrigation system shall be hand-watered to receive a minimum of 1.5 inches of water per week for the length of the plant establishment period. The plant establishment period shall be for thirty (30) consecutive calendar days unless otherwise directed by the OWNER'S Representative. Adjust watering frequency and amounts to accommodate prevailing weather conditions.
- D. Mow newly sodded lawn area as soon as sod is rooted sufficiently to permit mowing. Also, maintain existing established lawn within phase one limits during the establishment period until accepted by the OWNER'S Representative.
- E. Do not permit new lawn areas to grow in excess of three inches high during maintenance period.
- F. After the OWNER or his representative has accepted an established stand of grass, the OWNER'S Representative assumes all responsibility for maintenance; however, it is the CONTRACTOR'S responsibility to instruct the OWNER'S Representative in proper maintenance procedures in writing.

3.04 REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATIONS

- A. Lawn areas planted under this Contract and lawn areas outside the designated areas damaged by CONTRACTOR'S operations Planting, Irrigation, Landsculpturing, Plant Styling, etc. shall be repaired at once by proper sod bed preparations, fertilizing and resodding, in accordance with these specifications.

3.05 ACCEPTANCE

- A. A substantial completion inspection shall be conducted with all deficiencies noted and given to the CONTRACTOR as a punch list of items to be corrected. Substantial completion acceptance will not be issued until all punch list items have been completed and a reinspection by the OWNER is done.
- B. For the purpose of establishing an "Acceptance" standard, sod shall be healthy, well-rooted, evenly colored, viable; free of weeds, disease, open joints and bare spots.
 1. Perform other operations necessary to complete maintenance and ensure that plants are healthy, vigorous, visually pleasing, and undamaged.
 2. Perform all maintenance tasks as specified in this section.
- C. Once the reinspection for compliance with the punch list requirements has been conducted and barring any new deficiencies being noted during the reinspection, written

acceptance will be given for all work of this Section, exclusive of possible replacement of sod subject to warranty.

1. If any deficiencies of requirements exist, they will be noted in writing.
- D. Upon written substantial completion acceptance being given, the OWNER will assume all responsibilities for maintenance of landscape work. The CONTRACTOR is responsible for all maintenance as specified in this section up to this point.
- E. At the conclusion of the warranty period, an inspection will be made to determine the condition of warranted plant material.
 1. Remove all sod material noted as not being in a healthy-growing condition.
 2. At no additional cost, replace sod during the following planting season with material of like kind and size, in accord with specifications for original sodding.
 3. Warranty period applies also to replaced material.

3.06 GUARANTEE AND REPLACEMENT

A. Lawns

1. All sodding shall be established or exhibit signs of being established in thirty (30) days or less from the date of installation, or the sod shall be removed and replaced at no additional cost to the OWNER. Sodding installed by the LANDSCAPE CONTRACTOR shall be warranted in writing for a period of six (6) months from the date of substantial completion.

END OF SECTION

SECTION 03200 – CONCRETE REINFORCEMENT

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Reinforcing steel bars and welded steel wire fabric for cast-in-place concrete, complete with tie wire.
- B. Support chairs, bolsters, bar supports and spacers, for reinforcing.

1.02 QUALITY ASSURANCE

Perform concrete reinforcing work in accordance with ACI 318 unless specified otherwise in this Section.

1.03 REFERENCES

- A. ACI 318 - Building Code Requirements for Reinforced Concrete.
- B. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- C. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- D. CRSI 63 - Recommended practice for placing reinforcing bars.
- E. CRSI 65 - Recommended practice for placing bar supports, specifications and nomenclature.
- F. ACI 315 - American Concrete Institute - Manual of Standard Practice.

1.04 SHOP DRAWINGS

- A. Submit shop drawings in accordance with Contract Documents.
- B. Indicate bar sizes, spacings, locations and quantities of reinforcing steel and wire fabric, bending and cutting schedules and supporting and spacing devices.
- C. Manufacturer's Literature: Manufacturer's specifications and installation instructions for splice devices.

PART 2 - PRODUCTS

2.01 REINFORCING

- A. Reinforcing steel: Grade 60, Minimum Yield Strength 60,000 psi, deformed billet steel bars, ASTM A615; plain finish.
- B. Welded steel wire fabric: Deformed wire, ASTM A497; smooth wire ASTM A185 in flat sheets; plain finish.

2.02 ACCESSORY MATERIALS

- A. Tie wire: Minimum 16 gauge annealed type, or patented system accepted by County.

- B. Chairs, bolsters, bar supports, spacers: Sized and shaped for strength and support of reinforcing during construction conditions.
- C. Special chairs, bolsters, bar supports, spacers (where adjacent to architectural concrete surfaces): Stainless steel type sized and shaped as required.

2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 315.
- B. Locate reinforcing splices, not indicated on Drawings, at points of minimum stress. Location of splices shall be reviewed by County.
- C. Where indicated, weld reinforcing bars in accordance with AWS D12.1.

PART 3 - EXECUTION

3.01 PLACEMENT

- A. Reinforcing shall be supported and secured against displacement. Do not deviate from true alignment.
- B. Before placing concrete, ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings which would reduce bond to concrete.

3.02 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Regularly engaged in manufacture of steel bar and welded wire fabric reinforcing.
- B. Installer Qualifications: Three years experience in installation of steel bar and welded wire fabric reinforcing.
- C. Allowable Tolerances:
 - 1. Fabrication:
 - a. Sheared length: ± 1 in.
 - b. Depth of truss bars: $+0, -1/2$ in.
 - c. Stirrups, ties and spirals: $\pm 1/4$ in.
 - d. All other bends: ± 1 in.
 - 2. Placement:
 - a. Concrete cover to form surfaces: $\pm 1/4$ in.
 - b. Minimum spacing between bars: 1 in.
 - c. Top bars in slabs and beams:
 - 1) Members 8 in. deep or less: $\pm 1/4$ in.
 - 2) Members more than 8 in.: $\pm 1/2$ in.
 - d. Crosswise of members: Spaced evenly within 2 in. of stated separation.
 - e. Lengthwise of members: Plus or minus 2 in.

3. Maximum bar movement to avoid interference with other reinforcing steel, conduits, or embedded items: 1 bar diameter.

3.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.
- B. Handle and store materials to prevent contamination.

3.05 INSTALLATION

- A. Placement:
 1. Bar Supports: CRSI 65.
 2. Reinforcing Bars: CRSI 63.
- B. Steel Adjustment:
 1. Move within allowable tolerances to avoid interference with other reinforcing steel, conduits, or embedded items.
 2. Do not move bars beyond allowable tolerances without concurrence of County.
 3. Do not heat, bend, or cut bars without concurrence of County.
- C. Splices:
 1. Lap splices: Tie securely with wire to prevent displacement of splices during placement of concrete.
 2. Splice devices: Install in accordance with manufacturer's written instructions.
 3. Do not splice bars without concurrency of County, except at locations shown on Drawings.
- D. Wire Fabric:
 1. Install in longest practicable length.
 2. Lap adjoining pieces one full mesh minimum, and lay splices with 16 gauge wire.
 3. Do not make end laps midway between supporting beams, or directly over beams of continuous structures.
 4. Offset end laps in adjacent widths to prevent continuous laps.
- E. Cleaning: Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that will reduce bond with concrete.
- F. Protection During Concreting: Keep reinforcing steel in proper position during concrete placement.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Code references
 - 1. Florida Building Code (FBC) 2020 Edition.
 - 2. ACI 301, "Structural Concrete for Buildings."
 - 3. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 4. ACI 350, "Code Requirements for Environmental Engineering Concrete Structures"

1.02 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Minor equipment pads and pipe encasements.
 - 2. Structural Concrete – All other concrete.
- B. Related Sections:
 - 1. Section 02220 "Excavation, Backfill, Fill and Grading for Structures" for fill under slabs-on-grade and bottom slabs and footings.
 - 2. Section 07920 "Sealants and Caulking" for concrete joint applications.
 - 3. Section 09900 "Paintings and Special Coatings" for all interior and exterior coating liquid containment structures applications.

1.03 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Submittals:
 - 1. Design Mixtures: Submit concrete mixture proportions, characteristics and location for use for each concrete mixture. Submittal shall include documentation indicating the proposed concrete proportions will produce an average compressive strength equal to or greater than the required average compressive strength and shall consist of field strength records (field test data) or trial mixtures in accordance with ACI 301, 4.2.3.4.a or 4.2.3.4.b, respectively. Submit

alternate design mixtures when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

2. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.
 1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.
- E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 1. Location of construction joints is subject to approval of the Engineer.
- F. Samples: None.

1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, manufacturer and testing agency.
- B. Welding certificates.
- C. Material Certificates: For each of the following, signed by manufacturers:
 1. Cementitious materials.
 2. Admixtures.
 3. Form materials and form-release agents.
 4. Steel reinforcement and accessories.
 5. Waterstops.
 6. Curing compounds.
 7. Floor and slab treatments.
 8. Bonding agents.
 9. Adhesives.
 10. Vapor retarders.
 11. Semi rigid joint filler.
 12. Joint-filler strips.
 13. Repair materials.
- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

- E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- F. Field quality-control reports.
- G. Minutes of pre-installation conference.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete."
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 - 3. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 4. ACI 350, "Environmental Engineering Concrete Structures."
 - 5. ACI 305, "Hot Weather Concreting."
 - 6. ACI 306, "Cold Weather Concreting."
- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

- H. Mockups: None.
- I. Pre-installation Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - e. Special concrete finish subcontractor.
 - 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semi rigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement, if applicable.
- B. Waterstops: Store water stops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
- E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- F. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- H. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- I. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
 - 3. Furnish ties for liquid containment structures that have an integral water stop that is tightly welded to the tie.
 - 4. Furnish ties for exposed concrete that are the cone-washer type. The cones shall be made of approved wood or plastic. Common wire will not be allowed for form ties

2.02 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- C. Low-Alloy-Steel Reinforcing Bars: None.
- D. Galvanized Reinforcing Bars: None.
- E. Epoxy-Coated Reinforcing Bars: None.
- F. Stainless-Steel Reinforcing Bars: None.
- G. Steel Bar Mats: None.

- H. Plain-Steel Wire: ASTM A 82/A 82M. None.
- I. Deformed-Steel Wire: ASTM A 496/A 496M.
- J. Epoxy-Coated Wire: None.
- K. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
- L. Deformed-Steel Welded Wire Reinforcement: None.
- M. Galvanized-Steel Welded Wire Reinforcement: None.
- N. Epoxy-Coated Welded Wire Reinforcement: None.

2.03 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel deformed bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.04 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type II, gray, no substituted are allowed. Cement replacement by weight can be up 20% of the total weight, replace with Fly Ash and/or Slag.
 - a. Fly Ash: ASTM C 618, Class F.
 - b. Slag: ASTM 989, Grade 120
- B. Normal-Weight Aggregates: ASTM C 33, Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement. Use Clean, sharp, natural silica sand free of loam, clay, lumps, and other deleterious substances. Dune sand, bank run sand, and manu-factured sand are not acceptable.

2. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter. Coarse aggregate shall comply with the following:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Washed gravel, either natural or crushed. Slag, pit gravel, and bank-run gravel are not allowed.
 - c. Coarse Aggregate Size: ASTM C33/C33M, No. 57 stone, unless otherwise approved by ENGINEER.

B. Water: ASTM C 94/C 94M and potable.

2.05 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.06 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricated corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BoMetals, Inc.
 - b. Greenstreak.
 - c. Vinylex Corp.
2. Profile: Ribbed with center bulb.
3. Dimensions: 6 inches by 3/8 inch thick or 9 inches by 3/8 inch thick; nontapered.

B. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete.

1. Products: Subject to compliance with project requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Adeka Ultra Seal/OCM, Inc.; Adeka Ultra Seal.
 - b. Sika/Greenstreak; Hydrotite.
 - c. Vinylex Corp.; Swellseal.
 - d. Sika; Sika Swell S-2.
 - e. CETCO Waterstop-RX
- C. Self-sealing, non-swelling preformed joint sealant Waterstop: Shall provide a lasting, watertight bond on both fresh and cured concrete surfaces.
 1. Products: Henry Company; Synko-Flex Waterstop.
- D. Retrofit waterstops shall TPE material type. An acceptable product is Sika Westec Envirostop TPE-R installed per manufacturers instructions. Other products may be considered subject to compliance with project requirements.

2.07 VAPOR RETARDERS

- A. Sheet Vapor Retarder: ASTM E 1745, Class C. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fortifiber Building Systems Group; Moistop Plus.
 - b. Raven Industries Inc.; Vapor Block 6.
 - c. Reef Industries, Inc.; Griffolyn Type-65 or Type-85.
 - d. Stego Industries, LLC; Stego Wrap, 10 mil Class C.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.08 LIQUID FLOOR TREATMENTS

- A. VOC Content: Liquid floor treatments shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ChemMasters; Chemisil Plus.
 - b. ChemTec Int'l; ChemTec One.
 - c. Conspec by Dayton Superior; Intraseal.

- d. Curecrete Distribution Inc.; Ashford Formula.
 - e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
 - f. Edoco by Dayton Superior; Titan Hard.
 - g. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
- C. Penetrating Liquid Floor Treatments for Polished Concrete Finish: Clear, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and is suitable for polished concrete surfaces.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advanced Floor Products; Retro-Plate 99.
 - b. L&M Construction Chemicals, Inc.; FGS Hardener Plus.
 - c. QuestMark, a division of CentiMark Corporation; DiamondQuest Densifying Impregnator Application.

2.09 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. Allowed for non-liquid containment structures.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Construction Chemicals - Building Systems; Kure 200.
 - b. ChemMasters; Safe-Cure Clear.
 - c. Conspec by Dayton Superior; W.B. Resin Cure.
 - d. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
 - e. Edoco by Dayton Superior; Res X Cure WB.
 - f. Euclid Chemical Company (The), an RPM company; Kurez W VOX; TAMMSCURE WB 30C.
 - g. L&M Construction Chemicals, Inc.; L&M Cure R.
 - h. Meadows, W. R., Inc.; 1100-CLEAR.
 - i. SpecChem, LLC; Spec Rez Clear.
 - j. Symons by Dayton Superior; Resi-Chem Clear.

2.10 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: Provide preformed expansion joint filler complying with ASTM D 1752, Type I (spong rubber) or Type II (cork).

- B. Semi rigid Joint Filler: Two-component, semi rigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Reglets: Fabricate reglets of not less than 0.022 thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.11 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4500 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 - 4. Compressive Strength: Not less than 4500 psi at 28 days when tested according to ASTM C 109/C 109M.

2.12 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301. Reference Section 1.04.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Use fly ash and/or slag as needed to reduce the total amount of portland cement, which would otherwise be used. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash only: 20 percent by weight.
 - 2. Slag only: 20 percent by weight.
 - 3. Fly Ash + Slag: 20 percent by weight.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
- E. Color Pigment: If required by Architectural contract drawings, add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.13 CONCRETE MIXTURES

- A. Minor equipment pads and pipe encasements:
 - 1. Minimum Compressive Strength: 3000 psi at 28 days.
 - 2. Concrete mixture proportions in accordance with accepted design mixes. Reference Section 1.04.
- B. Structural Concrete:
 - 1. Minimum Compressive Strength: Reference Design Criteria Sheet S-01.
 - 2. Concrete mixture proportions in accordance with accepted design mixes. Reference Section 1.04.

2.14 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.15 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 – EXECUTION

3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 - 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.

- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.03 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 75 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.04 VAPOR RETARDERS

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches and seal with manufacturers recommended tape.
- B. Bituminous Vapor Retarders: if applicable.

3.05 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780. Use galvanized steel wire ties to fasten zinc-coated steel reinforcement.

3.06 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8 inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07920 "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.07 WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed water stops during progress of the Work. Field fabricate joints in water stops according to manufacturer's written instructions.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.08 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleed water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.09 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
 - 1. Apply scratch finish to surfaces indicated and to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces to receive trowel finish.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M), for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.
 - b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
 - c. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.
 - d. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 24.
 - 3. Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft. long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.

4. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 5. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
1. Coordinate sizes and locations of concrete bases with actual equipment provided.
 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 12-inch centers around the full perimeter of concrete base.
 3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
 4. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 5. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.12 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist

cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semi rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
1. Steel reinforcement placement.
 2. Steel reinforcement welding.
 3. Headed bolts and studs.
 4. Verification of use of required design mixture.
 5. Concrete placement, including conveying and depositing.
 6. Curing procedures and maintenance of curing temperature.
 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
 8. Water levels for hydraulic structures.

- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 10. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete

batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

- E. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing.

3.16 PROTECTION OF LIQUID FLOOR TREATMENTS

- A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION

SECTION 03301 - ANCHOR SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install anchor systems.
2. This Section includes all anchor systems required for the Work, but not specified under other Sections.

B. Coordination:

1. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before anchor systems Work.

1.02 REFERENCES

A. Standards referenced in this Section are:

1. ACI 318, Building Code Requirements for Structural Concrete.
2. ANSI B212.15, Cutting Tools - Carbide-tipped Masonry Drills And Blanks For Carbide-tipped Masonry Drills.
3. ANSI/MSS SP-58, Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation.
4. ASTM A194/A194M, Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
5. ASTM A276, Specification for Stainless Steel Bars and Shapes.
6. ASTM A493, Specification for Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging.
7. ASTM A563, Specification for Carbon and Alloy Steel Nuts.
10. ASTM A1011/A1011M, Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
11. ASTM B633, Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
12. ASTM C307, Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing.
13. ASTM C881/C881M, Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
14. ASTM 0695, Test Method for Compressive Properties of Rigid Plastics.
15. ASTM 0790, Test Methods for Flexural Properties of Unreinforced and reinforced Plastics and Electrical Insulating Materials.
16. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
17. ASTM E488, Test Methods for Strength of Anchors in Concrete and Masonry Elements.
18. ASTM F593, Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
19. ASTM F594, Specification for Stainless Steel Bolts, Hex Cap Screws, and studs.
20. ASTM F1554, Specification for Anchor Bolts, Steel, 36, 55 and 105-ksi Yield Strength.
21. ICC-ES AC58, Acceptance Criteria for Adhesive Anchors in Masonry Elements.

22. ICC-ES AC60, Acceptance Criteria for Anchors in Unreinforced Masonry Elements.
23. ICC-ES AC308, Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements.
24. ISO 3506-1, Mechanical Properties of Corrosion-Resistant Stainless Steel Fasteners -- Part 1: Bolts, Screws and Studs.
25. NSF/ANSI 61, Drinking Water System Components- Health Effects.

1.03 QUALITY ASSURANCE

A. Qualifications:

1. Testing Laboratory: Shall comply with ASTM E329 and shall be experienced in tension testing of post-installed anchoring systems.
2. Post-installed Anchor Installer: Shall be experienced and trained by post-installed anchor system manufacturer in proper installation of manufacturer's products. Product installation training by distributors or manufacturer's representatives is unacceptable unless the person furnishing the training is qualified as a trainer by the anchor manufacturer.

1.04 SUBMITTALS

A. In accordance with Division 1 requirements, submit the following:

1. Shop Drawings:

- a. Listing of all anchor systems products intended for use in the Work including product type, intended location in the Project, and embedded lengths.
2. Product Data:
 - a. Manufacturer's specifications, load tables, dimension diagrams, acceptable base material conditions, acceptable drilling methods, and acceptable bored hole conditions.
 - b. When required by ENGINEER, copies of valid ICC ES reports that presents load-carrying capacities and installation requirements for anchor systems.
 - c. Post installed anchors shall be epoxy adhesive type. Mechanical wedge type anchors are not allowed.

B. Informational Submittals: Submit the following:

1. Certificates:

- a. For each type of anchor bolt or threaded rod, submit copies of laboratory test reports and other data required to demonstrate compliance with the Contract Documents.
 - 1) Reports shall demonstrate compliance with ductile steel element definition of ACI 350, Appendix D, Section D.1.

b. Post-installed anchor system manufacturer's certification that installer received training in the proper installation of manufacturer's products required for the Work.

c. For each adhesive anchor installer, submit ACI/CRSI Adhesive Anchor Installer Certification.

2. Manufacturer's Instructions:

a. Installation instructions for each anchor system product proposed for use, including bore hole cleaning procedures and adhesive injection, cure and gel time tables, and temperature ranges (storage, installation and in-service).

1.05 DELIVERY, STORAGE AND HANDLING

A. Storage and Protection:

1. Keep materials dry during delivery and storage.
2. Store adhesive materials within manufacturer's recommended storage temperature range.
3. Protect anchor systems from damage at the Site. Protect products from corrosion and deterioration.

PART 2 – PRODUCTS

2.01 SYSTEM PERFORMANCE

A. General:

1. At all locations, provide stainless steel type 316 anchor systems.
2. Stainless Steel Nuts:
 - a. For anchor bolts and adhesive anchors, provide ASTM A194/A194M, Grade SS stainless steel nuts for stainless steel anchors used for anchoring equipment, gates, and weirs, and other locations, if any, where the attachment will require future removal for operation or maintenance. Provide lock washer or double nuts on each anchorage device provided for equipment, as required by equipment manufacturer.
3. Materials that can contact potable water or water that will be treated to become potable shall be listed in NSF/ANSI 61.

B. Design Criteria

1. Size, Length, and Load-carrying Capacity: Comply with the Contract Documents. When size, length or load-carrying capacity of anchor system is not otherwise shown or indicated, provide the following:
 - a. Anchor Bolts: Provide size, length, and capacity required to carry design load based on values and requirements of Paragraph 3.2.A of this Section. For conditions outside limits of critical edge distance and spacing in Paragraph 3.2.A of this Section, minimum anchor bolt embedment as shown or indicated in Paragraph 3.2.A of this Section

apply and capacity shall be based on requirements of Laws and Regulations, including applicable building codes.

- b. Adhesive Anchors and Concrete Inserts: Provide size, length, type, and capacity required to carry design load. Anchor capacity shall be based on the procedures required by the building code in effect at the Site. Where Evaluation Service Reports issued by the ICC Evaluation Service are required in this Section, anchor capacities shall be based on design procedure required in the applicable ICC Evaluation Service Report.

- 1) General: Determine capacity considering reductions due to installation and inspection procedures, embedment length, strength of base fastening materials, spacing, and edge distance, as indicated in the manufacturer's design guidelines. For capacity determination, concrete shall be assumed to be in the cracked condition, unless calculations demonstrate that the anchor system will be installed in an area that is not expected to crack under any and all conditions of design loading.
- 2) Concrete Adhesive Anchors: Unless otherwise shown or indicated in the Contract Documents or approved by ENGINEER, provide minimum embedment depth, edge distance and spacing as recommended by the manufacturer.
- 3) Concrete Masonry Adhesive Anchors: Unless otherwise shown or indicated in the Contract Documents or approved by ENGINEER, provide minimum anchor spacing and edge distance as indicated in anchor manufacturer's instructions.

- 2. Design Loads. Comply with the Contract Documents. When design load of supported material, equipment, or system is not otherwise shown or indicated, provide the following:

- a. Equipment Anchors: Use design load recommended by equipment manufacturer. When equipment can be filled with fluid, use loads that incorporate equipment load and load imposed by fluid.
- b. Pipe Hangers and Supports: Use full weight of pipe, and fluid contained in pipe that are tributary to the support plus the full weight of valves and accessories located between the hanger or support being anchored and the next hanger or support.
- c. Hangers and Supports for Electrical Systems, and HVAC, Plumbing, and Fire Suppression Systems and Piping: Use the full weight of supported system that is tributary to the support plus the full weight of accessories located between the hanger or support being anchored and the next hanger or support. When piping or equipment is to be filled with fluid, anchor systems shall be sized to support such loads in addition to the weight of the equipment, piping, or system, as applicable.
- d. Delegated Design: When anchor systems are used for supporting materials, equipment, or systems delegated to a design professional retained by CONTRACTOR, Subcontractor, or Supplier, provide anchor system suitable for loads indicated in delegated design documents and consistent with the design intent expressed in the Contract Documents.

C. Application:

1. Anchor Bolts:

- a. Where anchor bolt is shown or indicated, use cast-in-place anchor bolt unless another anchor type is approved by ENGINEER.
- b. Provide anchor bolts as shown or indicated, or as required to secure structural element to appropriate anchor surface.

2. Concrete Adhesive Anchors:

- a. Use where adhesive anchors are shown or indicated for installation in concrete.
- b. Suitable for use where subject to vibration.
- c. Suitable for use in exterior locations or locations subject to freezing.
- d. Suitable for use in submerged, intermittently submerged, or buried locations.
- e. Do not use in overhead applications, unless otherwise shown or approved by ENGINEER.
- f. Do not use for pipe hangers, unless otherwise shown or approved by ENGINEER.

3. Concrete Masonry Adhesive Anchors:

- a. Use where adhesive anchors are shown or indicated for installation in grout-filled or hollow masonry units.
- b. Suitable for use where subject to vibration.
- c. Suitable for use in exterior locations or locations subject to freezing.
- d. Do not use for pipe hangers, unless otherwise shown or approved by ENGINEER.

4. Concrete Inserts:

- a. Use only where shown or indicated in the Contract Documents.
- b. Allowed for use to support pipe hangers and pipe supports for pipe size and loading recommended by the concrete insert manufacturer.

2.02 MATERIALS

A. Anchor Bolts:

- 1. All locations: Provide stainless steel straight threaded rods complying with ASTM F593, AISI Type 316, Condition A, with ASTM F594, AISI Type 316, stainless steel nuts. Embedded anchor bolts shall be headed type and hooked bolts are unacceptable.

- a. Stainless steel straight threaded rod shall comply with ductility requirements of ACI 350 or ACI 318 Appendix D, Section 0.3.3.
 - 2. Equipment: Provide anchor bolts complying with material requirements of this Section and equipment manufacturer's requirements relative to size, embedment length, and anchor bolt projection. Anchor bolts shall be straight threaded rods with washers and nuts as specified in this Section. Hooked bolts are unacceptable.
 - 3. Anchoring of Structural Elements: Provide anchor bolts of size, material, and strength shown or indicated in the Contract Documents.
- B. Concrete Adhesive Anchors:
- 1. General:
 - a. Adhesive anchors shall consist of threaded rods anchored into hardened concrete using an adhesive system.
 - 2. Products and Manufacturers: Provide one of the following:
 - a. HIT-HY 200 Adhesive Anchoring System, by Hilti Fastening Systems, Inc.
 - b. C6 Adhesive Anchoring System by Red Head.
 - 3. Adhesives
 - a. Epoxy adhesives shall comply with physical requirements of ASTM C881/C881M, Type IV, Grade 2 and 3, Class A, B, and C, except gel times.
 - b. Adhesives shall have a current evaluation report by ICC Evaluation Service for use in both cracked and uncracked concrete with seismic recognition for SOC A through F as tested and assessed in accordance with ICC-ES AC308.
 - 4. Anchor:
 - a. Provide continuously-threaded, AISI Type 316 stainless steel adhesive anchor rod. Threaded rods shall comply with the concrete adhesive anchor manufacturer's specifications as included in the ICC Service Evaluation Report for the anchor submitted. Nuts shall have specified proof load stresses equal to or greater than the minimum tensile strength of the stainless steel threaded rod used.
 - b. Stainless steel threaded rod shall comply with ductility requirements of ACI 350 or ACI 318 Appendix D, Section D.3.3.
- C. Concrete Masonry Adhesive Anchors:
- 1. General:
 - a. Grout-filled concrete masonry adhesive anchors shall consist of threaded rods anchored into grout-filled concrete block masonry using an adhesive system.

- b. Hollow concrete masonry adhesive anchors shall consist of threaded rods with a cylindrical mesh steel or plastic screen tube anchored into hollow concrete block masonry using an adhesive system.
- 2. Products and Manufacturers: Provide one of the following:
 - a. HBU-38 Umbrella Insert with A7 Adhesive, by Red Head.
 - b. Acrylic-Tie Adhesive, by Simpson Strong-Tie Company, Inc.
- 3. Adhesive:
 - a. Adhesive system shall use two-component adhesive mix.
 - b. Hybrid adhesives shall comply with the following:
 - 1) ASTM D695 compressive yield strength greater than 7,200 psi on a seven-day cure.
 - c. Adhesives shall have current ICC Evaluation Service Report for use in grout-filled concrete masonry, tested and assessed in accordance with ICC-ES AC 58 and TCC-ES AC 60.
- 4. Anchor:
 - a. Provide stainless steel adhesive anchor rod complying with ASTM F593, AISI Type 316, Condition CW, with ASTM F594, AISI Type 316 stainless steel nuts.
- 5. Mesh Screen Tube (for hollow masonry applications):
 - a. Provide with mesh size, length, and diameter as specified by adhesive anchor manufacturer.
- D. Concrete Inserts:
 - 1. Manufacturers: Provide products of one of the following:
 - a. Unistrut Corporation
 - b. Cooper B-Line, Inc.
 - c. Anvil International, Inc.
 - 2. Spot Concrete Inserts:
 - a. Provide inserts recommended by insert manufacturer for required loading. Inserts shall comply with ANSI/MSS SP-58, malleable iron, Type 18. Spot inserts shall allow for lateral adjustment and have means for attachment to forms. Provide nuts compatible with insert and to suit threaded hanger rod sizes.

3. Continuous Concrete Inserts:
 - a. Provide inserts recommended by insert manufacturer for required loading. Inserts shall be continuous type and shall be manufactured from minimum 2-gage cold-formed channel sections, complying with ASTM A1011/A1011M, stainless steel, Grade 33, complete with Styrofoam inserts, end caps, and means for attaching to forms. Provide channel nuts compatible with insert suitable for threaded hanger rod sizes.
4. Provide inserts with plain finish.

PART 3- EXECUTION

3.01 INSPECTION

- A. Examine conditions under which materials will be installed and advise ENGINEER in writing of conditions detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Anchor Bolts:
 1. Provide anchor bolts as shown or indicated in the Contract Documents, or as required to secure structural element to the appropriate anchor surface.
 2. Locate and accurately set anchor bolts using templates or other devices as required, prior to placing concrete. Wet setting of anchor bolts is unacceptable.
 3. Protect threads and shank from damage during installation and subsequent construction operations.
- B. Adhesive Anchors-General:
 1. Prior to drilling, locate existing reinforcing steel in vicinity of proposed holes. If reinforcing conflicts with proposed hole location, obtain ENGINEER's approval of alternate hole locations to avoid drilling through or damaging existing reinforcing bars.
- C. Adhesive Anchors:
 1. Comply with manufacturer's written installation instructions and the following.
 2. Drill holes to adhesive system manufacturer's recommended drill bit diameter to the specified depth. Drill holes in hammering and rotation mode with carbide-tipped drill bits that comply with the tolerances of ANSI B212.15. Core-drilled holes are unacceptable.
 3. Before setting adhesive anchor, hole shall be made free of dust and debris by method recommended by adhesive anchor system manufacturer. Hole shall be brushed with adhesive system manufacturer-approved brush and blown clean with clean, dry, oil-free compressed air to remove all dust and loose particles. Hole shall be dry as defined by adhesive system manufacturer.
 4. Before injecting adhesive, obtain ENGINEER's concurrence that hole is dry and free of oil and other contaminants.
 5. Prior to injecting adhesive into the drilled hole, dispense to a location appropriate for such waste, an initial amount of adhesive from the mixing nozzle, until adhesive is uniform color.

6. Inject adhesive into hole through injection system mixing nozzle and necessary extension tubes, placed to bottom of hole. Discharge end shall be withdrawn as adhesive is placed but kept immersed to prevent formation of air pockets. Fill hole to depth that ensures that excess material is expelled from hole during anchor placement.
7. Twist anchors during insertion into partially-filled hole to guarantee full wetting of rod surface with adhesive. Insert rod slowly to avoid developing air pockets.
8. Provide adequate curing in accordance to adhesive system manufacturer's requirements prior to continuing with adjoining Work that could place load on installed adhesive anchors. Do not begin adjoining Work until adhesive anchors are successfully tested or when allowed by ENGINEER.
9. Limitations:
 - a. At time of anchor installation, concrete shall have compressive strength (f'c) of not less than 2,500 psi.
 - b. At time of anchor installation, concrete shall have age of not less than 21 days.
 - c. Installation Temperature: Comply with manufacturer's instructions for installation temperature requirements. Provide temporary protection and other measures, such as heated enclosures, necessary to ensure that base material temperature complies with anchor systems manufacturer's requirements during installation and curing of adhesive anchor system.
 - d. Oversized Holes: Advise ENGINEER immediately if size of drilled hole is larger than recommended by anchor system manufacturer. Cost of corrective measures, including but not limited to redesign of anchors due to decreased anchor capacities, shall be paid by CONTRACTOR.
 - e. Embedment depths shall be based on installation in normal-weight concrete with compressive strength of 2,500 psi when embedded in existing concrete, and 4,000 psi when embedded in new concrete.

F. Concrete Inserts:

1. Comply with concrete insert manufacturer's installation instructions.
2. Inserts shall be flush with slab bottom surface.
3. Protect embedded items from damage during concrete placing. Ensure that embedded items are securely fastened to prevent movement during concrete placing, and ensure that embedded items do fill with concrete during concrete placing.
4. Inserts intended for piping greater than four-inch diameter shall be provided with hooked rods attached to concrete reinforcing.

G. Anti-Seizing Compound:

1. Provide anti-seizing compound in accordance with anti-seizing compound manufacturer's installation instructions, at locations indicated in Paragraph 2.1.B of this Section.
2. Do not use anti-seizing compound at locations where anchor bolt or adhesive anchor will contact potable water or water that will be treated to become potable.

3.03 CLEANING

- A. After embedding concrete is placed, remove protection and clean bolts and inserts.

3.04 FIELD QUALITY CONTROL

A. Site Tests – Adhesive Anchors

1. CONTRACTOR will employ independent testing agency to perform field quality tensile testing of production adhesive anchors at the Site, unless otherwise specified.
 - a. Testing shall comply with ASTM E488.
 - b. Test at least ten percent of all types of adhesive anchors. If one or more adhesive anchors fail the test, CONTRACTOR shall pay cost of testing, or at ENGINEER's option CONTRACTOR may arrange for testing paid by CONTRACTOR, for all adhesive anchors of same diameter and type installed on the same day as the failed anchor. If anchors installed on the same day as the failed anchor also fail the test, ENGINEER may require retesting of all anchors of the same diameter and type installed in the Work. CONTRACTOR shall be responsible for retesting costs.
 - c. ENGINEER will direct which adhesive anchors are to be tested and indicate test load to be used.
 - d. Apply test loads with hydraulic ram.
 - e. Displacement of post-installed anchors shall not exceed $D/10$, where D is nominal diameter of anchor being tested.

B. Manufacturer's Services:

1. Provide at the Site services of qualified adhesive manufacturer's representative during initial installation of adhesive anchor systems to train CONTRACTOR's personnel in proper installation procedures. Manufacturer's representative shall observe to confirm that installer demonstrates proper installation procedures for adhesive anchors and adhesive material.

END OF SECTION

SECTION 03350 – CONCRETE FINISHES

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals required to finish cast-in-place concrete surfaces as specified herein.

1.02 SUBMITTALS

Submit to the County as provided in the Contract Documents, the proposed chemical hardener manufacturer's surface preparation and application procedures.

1.03 SCHEDULE OF FINISHES

- A. Concrete for the Project shall be finished in the various specified manners either to remain as natural concrete or to receive an additional applied finish or material under another Section.
- B. The base concrete for the following conditions shall be finished as noted and as further specified herein:
 - 1. Exterior, exposed concrete slabs and stairs - broomed finish.
 - 2. Interior, exposed concrete slabs - steel trowel finish.
 - 3. Concrete on which process liquids flow or in contact with sludge - steel trowel finish.
 - 4. Concrete where not exposed in the finished work and not scheduled to receive an additional applied finish or material - off-form finish.
 - 5. Provide concrete surfaces to be left exposed such as walls, columns, beams and joists with smooth rubbed finish.

1.04 RESPONSIBILITY FOR CHANGING FINISHES

- A. The surface finishes specified for concrete to receive additional applied finishes or materials are the finishes required for the proper application of the actual products specified under other Sections. Where different products are approved for use, it shall be the Contractor's responsibility to determine if changes in finishes are required and to provide the proper finishes to receive these products.
- B. Changes in finishes made to accommodate product different from those specified shall be performed at no additional cost to the County. Submit the proposed new finishes and their construction methods to the County for approval.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland cement and component materials required for finishing the concrete surfaces shall be as specified in the Contract Documents.
- B. Hardener shall be Lapidolith as manufactured by Sonneborn Building Products or approved equal. Hardener shall be used on all floors, stair treads and platforms.

PART 3 - EXECUTION

3.01 FORMED SURFACES

- A. Forms shall not be stripped before the concrete has attained a strength of at least 50 percent of the ultimate design strength. This is equivalent to approximately five "100 day-degrees" of moist curing.
- B. Care shall be exercised to prevent damaging edges or obliterating the lines of chamfers, rustications, or corners when removing the forms or doing any work adjacent thereto.
- C. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to the satisfaction of the County.
- D. Off-form finish. Fins and other projections shall be removed as approved. Tie cone holes and other minor defects shall be filled with non-shrink grout specified under the Contract Documents.

3.02 FLOORS AND SLABS

- A. Floors and slabs shall be screeded to the established grades and shall be level with a tolerance of 1/8-inch when checked with a 10 foot straight edge, except where drains occur, in which case floors shall be pitched to drains as indicated. Failure to meet either of above shall be cause for removal, grinding, or other correction as approved by the County.
- B. Following screeding as specified above, power steel trowel as follows:
 - 1. Immediately after final screeding, a dry cement/sand shake in the proportion of 2-sacks of portland cement to 350-pounds of coarse natural concrete sand shall be sprinkled evenly over the surface at the rate of approximately 500 pounds per 1,000 square feet of floor. Neat, dry cement shall not be sprinkled on the surface. This shake shall be thoroughly floated into the surface with an approved disc type power compacting machine weighing at least 200 pounds if a 20-inch disc is used or 300 pounds if a 24-inch disc is used (such as a "Kelly Float" as manufactured by the Weisner-Rapp Corporation of Buffalo, New York). A mechanical blade-type float or trowel is not acceptable for this work.
NOTE: This operation (application of the cement/sand shake) may be eliminated at the discretion of the County if the base slab concrete exhibits adequate fattiness and homogeneity.
 - 2. In lieu of power steel troweling, small areas as defined by the County shall be compacted by hand steel troweling with the dry cement/sand shake as ordered.
 - 3. The floor or slab shall be compacted to a smooth surface and the floating operation continued until sufficient mortar is brought to the surface to fill all voids. The surfaces shall be tested with a straight edge to detect high and low spots which shall be eliminated.
 - 4. Compaction shall be continued only until thorough densification is achieved and a small amount of mortar is brought to the surface. Excessive floating shall be avoided.
- C. After Paragraph 3.02 A and B procedures are accomplished, floors and slabs for particular conditions shall be completed as scheduled in one of the following finishes:
 - 1. Wood float finish. Hand wood float, maintaining the surface tolerance to provide a grained, nonslip finish as approved.

2. Broomed finish. Hand wood float maintaining the surface tolerance and then broom with a stiff bristle broom in the direction of drainage to provide a nonslip finish as approved.
 3. Steel trowel finish. Hand steel trowel to a perfectly smooth, hard even finish free from high or low spots or other defects as approved.
- D. Floors, stair treads and platforms shall be given a floor hardener. Application shall be according to manufacturer's instructions.

3.03 APPROVAL OF FINISHES

- A. All concrete surfaces will be inspected during the finishing process by the County.
- B. Surfaces which, in the opinion of the County, are unsatisfactory shall be refinished or reworked until approved by the County.

END OF SECTION

SECTION 03600 – GROUTING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes grouting of equipment bases and such locations as shown on the Drawings and as specified.
- B. The types of grouting include the following:
 - 1. Portland Cement Grout
 - 2. Non-shrink, Non-expanding Grout

1.02 DELIVERY AND STORAGE

- A. Prevent damage to or contamination of grouting materials during delivery, handling and storage.
- B. Store all grouting materials in undamaged condition with seals and labels intact as packaged by the manufacturer.

1.03 SUBMITTALS

- A. All submittals shall be in accordance with Specification 01340 – Shop Drawings, Project Data and Samples.

PART 2 - PRODUCTS

2.01 PREMIXED GROUTS

- A. Portland Cement Grout
- B. (For grouting CMU cells and similar items – $f'c=3000$ psi minimum)
 - 1. Portland Cement: ASTM C150, Type II
 - 2. Sand: ASTM C33, Fine Aggregate
 - 3. Water: Potable
 - 4. Pea Gravel: ASTM C33. Coarse aggregate, graded so that at least 90% passes 3/8-inch sieve and 90% is retained by a number 4 sieve.
- C. (Grout Mortar for use as fillets and leveling)
 - 1. Portland Cement: ASTM C150, Type II
 - 2. Sand: ASTM C33, Fine Aggregate (Marson's sand)
 - 3. Water: Potable
 - 4. Mix 1-part Portland cement to 3-parts sand.
- D. Pre-Mixed non-shrink, Non-expanding Grout (Nonmetallic). Non-shrink grout as shown on the Drawings shall be a mixture of selected silica sands, Portland cement, water reducing agents, plasticizing and shrinkage compensating agents. Grout shall be nonmetallic non-corrosive, non-staining and comply with CRD-C-588, Type D.

- E. The grout shall be non-shrink in accordance with ASTM C827, ASTM C191, and ASTM C109. The water-grout ratio shall be approximately 8 to 10 quarts of water per cubic foot of grout adjustable for varying job conditions.
- F. Grout shall not contain calcium chloride or other salt; aluminum or other metals; chemical additives, gypsum or expansive cements. Grout shall not expand after set.
- G. Grout shall be used and applied in accordance with the manufacturer's written instructions.
- H. Subject to compliance with requirements provide from the following:
 - 1. L&M Construction Chemicals, Inc. – Crystex
 - 2. Grout Corp. - Five Star Non-shrink Grout or equivalent

2.02 NONSHRINK GROUT

- A. Non-shrink grout shall conform to the following requirements:
 - 1. Manufactured under rigid quality control specifically for grout used in transferring heavy loads.
 - 2. Contain nonmetallic aggregates specially graded to minimize bleeding.
 - 3. Have an initial setting time of approximately one hour at 70°F.
 - 4. Produce no settlement or drying shrinkage at 3 days or later.
 - 5. Have higher strength at all ages than plain cement grout of the same flowability.
 - 6. Resist attack by oil and water and have lower absorption than plain cement grout of the same flowability.
 - 7. Minimum compressive strength, in accordance with ASTM C-109, shall be 2500 psi after 1 day and 7000 psi after 28 days.

2.03 MIXES

- A. For less than 2-inch clearance, or where size or shape of space makes grouting difficult, grout mix shall consist of Portland cement, fine aggregate and water.
- B. For greater than 2-inch clearances where coarse aggregate will not obstruct free passage of the grout, extend grout by adding 50 pounds of pea gravel per 100 pounds grout material.
- C. Use minimum amount of water necessary to produce a flowable grout without causing either segregation or bleeding.
- D. Portland cement mortar for raked-out edges of non-shrink grout: one part Portland cement, two parts sand and 0.50 part water by weight.

2.04 MIXING

- A. Mix grout in accordance with manufacturer's printed specifications.
- B. Mix grouting materials and water in a mechanical mixer for no less than 3-minutes.
- C. Mix grout as close to the work area as possible and transport the mixture quickly and in a manner that does not permit segregation of materials.
- D. After the grout has been mixed, do not add more water for any reason.

PART 3 – EXECUTION

3.01 PROCEDURES

- A. Installation methods and procedures shall be approved by Engineer and shall be in accordance with manufacturer's printed specifications before work is begun.

3.02 SURFACE PREPARATION

- A. Surface preparation shall be in accordance with manufacturer's printed specifications.
- B. Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces by bush-hammering, chipping, or other similar means, until a sound, clean concrete surface is achieved.
- C. Lightly roughen the concrete, but not enough to interfere with the proper placement of grout. Cover concrete areas with waterproof membrane until ready to grout. Immediately before grouting remove waterproof membranes and clean any contaminated surfaces.
- D. Remove foreign materials from metal surfaces in contact with grout. Align, level and maintain final positioning of all components to be grouted.
- E. Saturate concrete surfaces with clean water; remove excess water and leave none standing.

3.03 PLACING

- A. Placing shall be in accordance with manufacturer's printed specifications.
- B. Place non-shrink grouting material quickly and continuously by the most practical means permissible; pouring, pumping or under gravity pressure.
- C. Do not use either pneumatic-pressure or dry packing methods without written permission of the Engineer.
- D. Apply grout from one side only to avoid entrapping air.
- E. Final installation shall be thoroughly compacted and free from air pockets.
- F. Do not vibrate the placed grout mixture or allow it to be placed if the area is being vibrated by nearby equipment.
- G. Do not remove leveling shims for at least 48 hours after grout has been placed. After shims have been removed, fill voids with plain cement-sand grout.
- H. After non-shrink grout has reached initial set, rake out exposed edges approximately 1-inch into the grouted area and paint with Portland cement mortar.

3.04 CURING

- A. Cure grout for 3-days after placing by keeping wet and covering with curing paper or by another approved method.

END OF SECTION

SECTION 04100 - MASONRY

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work under this section includes furnishing all plant, labor, materials, and equipment for the installation of unit masonry in a first class condition.
- B. The type of masonry required is normal concrete masonry.
- C. The extent of masonry work is as shown on the drawings.
- D. Provide insulated masonry units where indicated on the architectural drawings.

1.02 QUALITY ASSURANCE

- A. Standards:
 - 1. American Society for Testing and Materials
 - 2. ASTM C 91, Masonry Cement
 - 3. ASTM C 144, Aggregate for Masonry Mortar
 - 4. ASTM C 150, Portland Cement
 - 5. ASTM C 207, Hydrated Lime for Masonry Purposes
 - 6. ASTM C 270, Mortar for Unit Masonry
 - 7. ASTM C 387, Packaged, Dry, Combined Materials for Mortar and Concrete
 - 8. ASTM C 467, Mortar and Grout for Reinforced Masonry
 - 9. ASTM C 595, Blended Hydraulic Cements
- B. Variation from Plumb: For vertical walls and arises, do not exceed 1/4" in 10' or 3/8" in a story height. For external corners, expansion joints, and other conspicuous lines, do not vary more than 1/4" in 10'.
- C. Variation from Level: For lines of exposed lintels, sills, parapets, and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum, nor 3/4" in 40' or more.
- D. Variation of Linear Building Line: For position shown in plan and related portion of walls and partitions, do not exceed 1/4" in any bay or 20' maximum, nor 3/4" in 40' or more.
- E. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed -1/4" nor +1/2".
- F. Mortar shall meet the requirements of the Florida Building Code

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications and other data for each type of masonry and accessories used. Include certification that products meet or exceed specifications.

1.04 PRODUCT, DELIVERY STORAGE AND HANDLING

- A. Deliver and store manufactured products in original unopened containers.

- B. Store cementitious ingredients in weather-tight enclosures and protect against contamination and warehouse set.
- C. Stockpile and handle aggregated to prevent contamination from foreign materials.
- D. Store admixtures to prevent contamination or damage from excessive temperature changes.
- E. Keep water free of harmful materials

1.05 JOB CONDITIONS

- A. Heat mixing water when air temperature is below 40°F (4°C) and heat aggregates when air temperature is below 32°F (0°C) to assure mortar temperatures between 40°F (4°C) and 120°F (50°C) until used.
- B. Produce subsequent mortar batches within $\pm 10^{\circ}\text{F}$ ($\pm 6^{\circ}$) of first batch.
- C. Do not heat water or sand above 120°F (50°C).

1.06 COLD WEATHER PROTECTION

- A. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.
- B. Remove all masonry determined to be frozen or damaged by freezing conditions.

1.07 PROTECTION OF WORK

- A. During erection, cover top of walls with heavy waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24" down both sides and hold cover securely in place.
 - 1. Do not apply uniform floor or roof loading for at least 12 hours after building masonry walls or columns.
 - 2. Do not apply concentrated loads for at least 3 days after building masonry walls or columns.
 - 3. Staining: Prevent grout or mortar from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry. Protect sills, ledges, and projections from dropping or mortar.

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Obtain masonry units from a single manufacturer for each type required. Manufacturers of concrete masonry will be members of the National Concrete Masonry Association or approved equal.

2.02 MORTAR AND GROUT MATERIALS

- A. ASTM C 270, 1 part cement (ASTM C 150 and C 91, Type II) 1/4 part by volume lime (ASTM C 207), not less than 2-1/4 nor more than 3 times the sum of volumes of cement and lime used.
- B. Aggregate for Mortar: Sand aggregate (ASTM C 144); type S. - Florida Building Code.
- C. Aggregate for Grout: ASTM C 404
- D. Maximum Air Content: 12%
- E. Water: Clean, potable water, free of deleterious materials, such as acids, alkalies, or organic materials.
- F. Mixing Procedures:
 - 1. Measure materials by volume or equivalent weight.
 - 2. Do not measure by shovel.
 - 3. Mix ingredients in clean mechanical batcher for 5 minutes.
 - 4. Use minimum amount of water to produce workable consistency.
 - 5. Retempering of mortar will not be permitted. Mortar allowed to stand for more than 1-1/2 hours after initial mixing shall not be used.

2.03 MASONRY LINTELS

- A. General: Provide either concrete or masonry lintels, at Contractor's option, complying with requirements below.
- B. Concrete Lintels: Precast units matching concrete masonry units and with reinforcing bars indicated or required to support loads indicated.
- C. Concrete Lintels: Precast or formed-in-place concrete lintels complying with requirements in Division 03 Section "Cast-in-Place Concrete."
- D. Masonry Lintels: Made from bond beam concrete masonry units with reinforcing bars placed as indicated and filled with coarse grout.

2.04 CONCRETE MASONRY UNITS

- A. Size: Manufacturer's standard normal and split face units with nominal face dimensions of 16" long x 8" height (15-5/8" x 7-5/8" actual), unless otherwise indicated. Width of walls shall be as indicated on drawings. Exterior walls shall consist of 8" standard normal, 4" SPLIT FACE UNITS, and 8" split face units.
- B. ASTM C 90, Grade N
- C. Provide standard light weight hollow load-bearing units unless otherwise indicated.
- D. Provide split face return units for outside corners on the veneer wythe.
- E. Aggregate weight shall conform to ASTM C 331 providing a dry net unit weight of not more than 105 lbs. per cubic foot unless otherwise indicated.

F. Curing:

1. Cure units by autoclave treatment at a minimum temperature of 350°F (176°C), and a minimum pressure of 125 psi. Limit moisture absorption to 25% of saturation during delivery and until time of installation.
2. Cure units in a moisture-controlled atmosphere or in an autoclave at normal pressure and temperature to comply with ASTM C 90, Type 1. Limit moisture absorption during delivery and until time of installation to the maximum percentage specified for Type 1 units for the average annual relative humidity as reported by the U. S. Weather Bureau Station nearest the project site.

2.05 MASONRY ACCESSORIES

A. Continuous Wire Reinforcing and Ties for Masonry: Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner and tee units. Fabricate from cold-drawn steel wire complying with ASTM A 82, with deformed continuous side rods and plain cross-rods, and a unit width of 1-1/2" to 2" less than thickness of wall or partition.

1. Provide units fabricated as follows:
 - a. Ladder Type: Fabricated with single pair of 9 gage side rods and 9 gage perpendicular cross-rods spaced not more than 16" O/C
 - b. Truss Type: Fabricated with single pair of 9 gage continuous diagonal cross-rods spaced not more than 16" O/C For multi-wythe or cavity exterior walls with concrete masonry back-up, fabricate units with additional side rods spaced for embedment in inside face of backup wythe.
2. For exterior and interior, hot-dip galvanize after fabrication with 1.5 oz. zinc coating, ASTM A 153, Class B2.
3. Individual Wire Ties for Masonry: Fabricate from 3/16" cold-drawn steel wire, ASTM A 82, unless otherwise indicated, of the length required for proper embedment in wythes of masonry. Maximum spacing shall be 16" O/C vertical and 24" O/C horizontally.

B. Anchors and Ties:

1. Provide straps, bars, bolts, and rods fabricated from not less than 16 gage sheet metal or 3/8" diameter rod stock, unless otherwise indicated.
2. For devices that extend into exterior wythe, fabricate from steel with hot-dip galvanized coating, ASTM A 153, Class B1, B2, or B3.

C. Flashing for Masonry:

1. Provide concealed flashing system on exterior walls above lintels, bond beams, above weeps and other locations as shown on the Drawings.

D. Reinforcing Bars: Deformed steel, ASTM A 615, Grade 60 of the sizes shown.

E. Bond Breaker Strips: 15 pound asphalt roofing felt complying with ASTM D 226, or 15 pound coal-tar roofing felt complying with ASTM D 227.

- F. Pre-molded Control Joint Strips: Solid rubber strips with a Shore A durometer hardness of 60 to 80, designed to fit standard sash block and maintain lateral stability in masonry wall, size and configuration as required at vertical control joints.
- G. Insulation: Fire-retardant treated expanded polystyrene insert as manufactured by "Korfil" or approved equal meeting ASTM C 578-02, Type 1. Install inserts at the masonry manufacturer's facility prior to delivery to the project site.

2.06 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Limit cementitious materials in mortar for exterior and reinforced masonry to portland cement and lime.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification.
 - 1. For masonry below grade or in contact with earth, use Type M.
 - 2. For reinforced masonry, use Type N.
 - 3. For exterior, above-grade, load-bearing and non-load-bearing walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 – EXECUTION

3.01 GENERAL

- A. Installation: Build masonry construction to the full thickness shown, except, build singlewythe walls to the actual thickness of the masonry units, using units of nominal thickness shown or specified.
- B. Cut masonry units with motor-driven saw designed to cut masonry with clean sharp, unchipped edges. Butt or mitre units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.
- C. Do not wet concrete masonry units.
- D. Frozen Materials and Work: Do not use frozen materials or materials mixed or coated with ice or frost. For masonry that is specified to be wetted, comply with the BIA

recommendations. Do not build on frozen work. Remove and replace masonry work damaged by frost or freezing.

- E. Do not lower the freezing point of mortar by use of admixtures or antifreeze agents. Do not use calcium chloride in mortar or grout.
- F. Pattern Bond: Lay exposed masonry in running bond pattern. Bond and interlock each course of each wythe at corners, unless otherwise shown.
- G. Avoid the use of less-than-half size units at corners, jambs, and wherever possible at other locations.
- H. Lay-up walls plumb and true and with course level, accurately spaced and coordinated with other work.
- I. Stopping and Resuming Work: Rack back 1/2 masonry unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if specified to be wetted), and remove loose masonry units and mortar prior to laying fresh masonry.
- J. Built-In Work: As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.
- K. Intersecting Load-Bearing Walls: If carried up separately, block vertical joint with 8" maximum offsets and provide rigid steel anchors spaced not more than 4'-0" O/C vertically, or omit blocking and provide rigid steel anchors at not more than 2'-0" O/C vertically. Form anchors of galvanized steel not less than 1-1/2" X 1/4" X 2'-0" long with ends turned up not less than 2" or with cross-pins. If used with hollow masonry units, embed ends in mortar filled cores.

3.02 MORTAR BEDDING AND JOINTING

- A. Batch Control: Measure and batch materials either by volume or weight, such that the required proportions for mortar can be accurately controlled and maintained. Measurement of sand exclusively by shovel will not be permitted.
- B. Mix mortars with the minimum amount of water consistent with workability to provide minimum tensile bond strength within the capacity of the mortar.
- C. Mix mortar ingredients for a minimum of 5 minutes in a mechanical batch mixer. Use water clean and free of deleterious materials that would impair the work. Do not use mortar that has begun to set, or if more than 1-1/2 hours has elapsed since initial mixing.
- D. Lay any solid masonry units with completely filled bed, head and collar joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.
- E. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells; also bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or to be filled with concrete or grout.
- F. Joints: Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not otherwise indicated, lay walls with 3/8" joints for concrete masonry. Cut

joints flush for masonry walls that are to be concealed or to be covered by other materials. Tool exposed joints. Rake out mortar in preparation for application of caulking or sealants where shown.

- G. Remove masonry units disturbed after laying; clean and relay in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar, and reset in fresh mortar.
- H. Collar Joints: Fill joints between wythes solidly with mortar by parging either the back of the facing, or the face of the backing, and shove units solidly into parging.

3.03 HORIZONTAL JOINT REINFORCING

- A. Provide continuous horizontal joint reinforcing as shown and specified. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls and 1/2" at other locations. Lay reinforcement a minimum of 6" at ends of units. Do not bridge control and expansion joints with reinforcing, unless otherwise indicated. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, columns, pipe enclosures, and other special conditions. Space continuous horizontal reinforcing as follows:
 - 1. For single and double wythe walls, space reinforcing at 16" O/C. vertically, unless otherwise indicated.
 - 2. Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcing placed in 2 horizontal joints approximately 8" apart, both immediately above the lintel and below the sill. Extend reinforcing a minimum of 2'-0" beyond jambs of the openings, bridging control joints where provided.
- B. Anchoring Masonry Work:
 - 1. Provide anchoring devices of the type shown and specified. If not shown or specified, provide standard type for facing and back up involved.
 - 2. Anchorage of masonry to structural members where masonry abuts or faces such members shall comply with the following:
 - a. Provide an open space not less than 1" in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.
 - b. Anchor masonry to structural members with metal ties embedded in masonry joints and attached to structure. Provide anchors with flexible tie section, unless otherwise indicated.
 - c. Space anchors as shown, but not more than 24" O/C vertically and 36" O/C horizontally.
- C. Control And Expansion Joints:
 - 1. Provide vertical expansion, control, and isolation joints in masonry where shown. Build-in related masonry accessories as the masonry work progresses.

2. See Section 07900 for "Joint Sealers".

D. Build-in joint fillers where shown, or as specified in Section 07900.

3.04 REINFORCED UNIT MASONRY INSTALLATION

A. Placing Reinforcement: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.

B. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure. Comply with requirements of ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height. Fill cells of concrete masonry indicated to be reinforced with 3000 psi grout. Vibrate grout to ensure that cells are completely filled. Reinforce walls as indicated on the structural drawings.

3.05 GROUTED COMPONENTS

A. Reinforce bond beam as shown on the drawings.

B. Reinforce CMU cells as shown on the drawings.

C. Lap splices minimum 24 bar diameters.

D. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

E. Place and consolidate grout fill without displacing reinforcing.

F. At bearing locations and exterior door opening, fill masonry cores with grout and reinforcing as shown on the drawings.

3.05 BUILT-IN WORK

A. As work progresses, install built-in anchor bolts, plates, and lintels and other items to be built-in the work and furnished by other sections. Fill in solidly with masonry around built-in items.

B. Install built-in items plumb and level.

C. Do not build in organic materials subject to deterioration.

3.06 TOLERANCES

A. Variation from Plumb: For vertical walls and arises, do not exceed 1/4" in 10' or 3/8" in a story height. For external corners, expansion joints, and other conspicuous lines, do not vary more than 1/4" in 10'.

B. Variation from Level: For lines of exposed lintels, sills, parapets, and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum, nor 3/4" in 40' or more.

C. Variation of Linear Building Line: For position shown in plan and related portion of walls and partitions, do not exceed 1/4" in any bay or 20' maximum, nor 3/4" in 40' or more.

- D. Maximum Variation From Alignment of Pilasters: 1/4 inch.
- E. Maximum Variation From Unit to Adjacent Unit: 1/32 inch.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed -1/4" nor +1/2".
- H. Mortar shall meet the requirements of the Florida Building Code

3.07 CUTTING AND FITTING

- A. Cut and fit for pipes, conduit, sleeves, grounds, and as required. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.08 REPAIR, POINTING, AND CLEANING:

- A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge any voids or holes, and completely fill with mortar. Point-up all joints at corners, openings, and adjacent work, to provide a neat, uniform appearance, properly prepared for application of caulking or sealant compounds.
- C. Clean exposed CMU masonry by dry brushing at the end of each day's work and after final pointing to remove mortar spots and droppings.

END OF SECTION

SECTION 04220 - CONCRETE UNIT MASONRY

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope: Furnish and install unit masonry and appurtenances necessary to complete work shown or specified.
- B. Codes, Specifications, and Standards:
 - 1. Codes, specifications, and standards referred to by title or number shall form a part of this specification to the extent required by the references thereto. Latest revisions as of the date of bid opening shall apply, unless otherwise specified.
 - 2. Following is a partial list of American Society for Testing & Materials (ASTM) specifications which are applicable to unit masonry:
 - A82: Spec. for Cold-Drawn Sheet Wire for Concrete Reinforcement.
 - A615: Spec. for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.
 - C90: Spec. for Hollow Load-Bearing Concrete Masonry Units.
 - C270: Spec. for Mortar for Unit Masonry.
 - C476: Spec. for Mortar and Grout for Reinforced Masonry.

1.02 QUALITY ASSURANCE

- A. Construction Tolerances:

Construct masonry within following tolerances:

 - 1. Bed Joint:

Thickness	$\pm 1/8$ in.
Level	$\pm 1/4$ in. in 10 ft., 1/2 in. max.
 - 2. Head Joint:

Thickness	$\pm 1/8$ in.
Vertical Alignment	$\pm 1/4$ in. in 10 ft., 1/2 in. max.
 - 3. Wall thickness, multiply wythes $\pm 1/4$ in.
 - 4. Wall Alignment: Vertical $\pm 1/4$ in. in 10 ft., 1/2 in. max., per floor and 1 in. max., per total height; horizontal $\pm 1/4$ in. in 10 ft., 1/2 in. max.
 - 5. Top Surface of Bearing Walls: Variation in level between adjacent floor elements 1/8 in. in 10 ft. Variation in level within width of a single unit 1/16 in.

1.03 SUBMITTALS

- A. Submittals shall be as specified in the General Conditions.
- B. Submit the following:

1. Manufacturer's Certificate of Compliance certifying compliance with application specifications and standards.
2. Certified copies of test reports of factory tests required by the applicable standards.
3. Shop drawings with physical characteristics for unit masonry.
4. Concrete Masonry Units:
 - a. Two (2) full size samples of masonry units specified and proposed for use in the work shall be submitted to the OWNER/ENGINEER for testing and/or review before they are purchased.
 - b. Material delivered shall conform to the approved samples, subject to normal variation for the quality of the product specified.
5. Manufacturer's literature for control joint filler material.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Stack and store masonry units in a place which is dry and not in direct contact with the ground. Use polyethylene, waterproof paper, or other protective coverings to keep the units dry and clean. Keep units covered, except when units are being used in construction.
- B. Keep cement and lime at least 6 inches above ground and in a dry place at all times.
- C. Pile aggregates on a smooth surface which is relatively hard so foreign materials do not get mixed with the aggregate.
- D. Do not use any material which has deteriorated or which has been damaged.
- E. Ship facing brick to the work in heavy cardboard cartons or trays. Carefully handle facing brick on the site so as to keep the units whole and with sharp edges.

1.05 JOB CONDITIONS

- A. Cold Weather Construction:
 1. Heat the mixing water when air temperature is below 40°F and above freezing.
 2. Heat both sand and mixing water when air temperature is below 32°F and above 20°. Provide enclosures if there is a wind in excess of 7 mph.
 3. Heat the sand and mixing water and provide heated enclosures when air temperature is 20° and below. Maintain a temperature of at least 40°F in the heated enclosures.
 4. Do not heat water above 160°F.
 5. Do not heat mortar above 100°F or below 70°F.
 6. Do not use frozen materials or materials containing ice.
 7. Protect masonry from freezing for 24 hours after laying. Protect masonry with covers, blankets, or heated enclosures.
- B. Hot Weather Construction:
 1. Lightly wet mortar bedding areas before placing mortar when air temperature is above 110°F, or when there is a wind in excess of 7 mph and a relative humidity of less than 60% at lower temperature.

2. Use a light spray fog during the first 24 hours after placing the units to prevent rapid curing of the mortar.

PART 2 – PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. All concrete masonry units shall be made of normal weight aggregates conforming to ASTM C33. Unglazed units shall be of same aggregate and general appearance, regardless of type.
 1. Hollow Load-Bearing Concrete Masonry Units shall conform to ASTM C90, Grade N-1, moisture controlled.
 2. Solid Load-Bearing Concrete Masonry Units shall conform to ASTM C145, Grade N-1, moisture controlled.
 3. Hollow and Solid Non-Load-Bearing Concrete Masonry Units shall conform to ASTM C129, Type 1, moisture controlled.
 4. Standard masonry lintels shall be reinforced precast concrete made of the same aggregate used for the concrete masonry units with the exposed surface matching the concrete masonry in texture and finish. Lintels shall not have less than 8 inches bearing at each end and shall have the equivalent of at least one (1) #4 rebar top and bottom of each 4 inch x 8 inch unit. Special concrete lintels shall be as detailed on drawings.

2.02 REINFORCEMENT AND TIES

- A. Prefabricated joint reinforcement for embedment in horizontal mortar joints shall be fabricated from steel wire conforming to ASTM A82 and shall consist of two or more smooth or deformed longitudinal wires weld connected to the cross wires. The distance between weld contacts of cross wires with each longitudinal wire shall not exceed 8 inches with 16 inches, respectively, for smooth and deformed longitudinal wire. Longitudinal wires and cross wires shall not be less than No. 9 gauge. Longitudinal wires shall be spaced 2 inches plus or minus 1/8 inch less than the nominal width of the wall or unit in which it is placed. Reinforcement shall be galvanized in accordance with the requirements of ASTM Specification A116, Class 1.
- B. Reinforcing steel bars and rods shall conform to the requirements of ASTM Specification A615, Grade 60.
- C. Bonding ties shall be zinc-coated ferrous metal of an approved design and shape.

2.03 MORTAR AND GROUT

- A. Mortar and grout for all reinforced masonry construction shall conform to the requirements of ASTM Specification C476.
- B. Mortar for all other masonry work shall comply with ASTM C270, amended to date, proportion specification, Type "M".
- C. Mix mortar in an approved type mixer a minimum of 5 minutes. Do not use mortar which has been mixed more than 2 hours.
- D. Do not use anti-freeze liquid, salts, or other substances to lower the freezing point of mortar or grout.

- E. Calcium chloride may be used only if written approval has been obtained from the OWNER/ENGINEER.
- F. Do not use admixture, unless specifically required.
- G. Use grout for filling cores of masonry units at control and expansion joints, at door frames, and at other locations where a grouting application is indicated on drawings, or required. Grout shall fill all of the voids in the area where it is placed and shall completely encase any reinforcing steel.
- H. Use prefabricated control joint fillers of factory-fabricated solid sections of natural or synthetic rubber, combination thereof, plastic or other rubber-like material, or other acceptable material. Durometer hardness shall be not less than 70 when tested in conformance with ASTM D2240. Use key of shape indicated and of dimensions that completely fill and fit neatly, without forcing, in masonry unit jamb sash grooves and provide control joint width of 3/8 inch with tolerance of 1/16 inch. Use shear section of 5/8 inch minimum thickness.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine the areas and the conditions under which the unit masonry work is to be installed and the materials temporarily stored. Check the foundation for vertical and horizontal alignment. Correct any discrepancies before starting the masonry construction.
- B. Cold weather conditions and hot weather conditions are included in Article 1.05, Job Conditions, in this Section.

3.02 PREPARATION

Remove laitance, loose aggregate, or anything that could prevent the mortar from bonding to the foundation.

3.03 INSTALLATION

- A. General Masonry Construction:
 - 1. All masonry construction shall be reinforced masonry, unless otherwise noted on the drawings. Vertical reinforcing shall consist of #5 bars placed in cores at 48 inch centers, unless specifically excepted.
 - 2. Lay masonry in courses of running bond, unless otherwise indicated on drawings, with joints of uniform thickness. Vertical and horizontal joints shall be 3/8 inch thick. All joints, both horizontal and vertical, shall be in proper alignment. Tool exterior joints slightly concave, with a glass-hard surface free from drying cracks.
 - 3. Provide proper units for all windows, doors, bond beams, lintels, and other special conditions. Where cutting of the unit is necessary, cut the unit neat and true to the shape required.
 - 4. Masonry units shall be sound, dry, clean, and free from cracks when placed in the structure.
 - 5. Do not dampen the units before or during construction of the wall, unless approved by the OWNER/ENGINEER in writing.
 - 6. Lay all masonry in a workmanlike manner, true to dimensions, plumb and square, and with full, tightly bonded joints without voids.

7. Do not lay masonry overhead. Erect staging on both sides of the wall.
8. Build all slots, grooves, chases, recesses, bond beams, or other required items into the work whether or not they are specifically shown on the drawings.
9. Lay the first masonry course in a full mortar bed on the foundation the full thickness of the wall, except where the wall is to be grouted. Mortar the bed joint on the foundation for all cross webs and face shells adjacent to a core; leave the hollow portion free of mortar.
10. Lay each subsequent course in a full bed and joint of mortar, except adjacent to grout cores. Use sufficient mortar so all joints will be full and solid. Horizontal beds shall be without trowel marks. Lay all units with shoved bed joints. All vertical joints shall be shoved or sloshed full without voids, regardless of parging.
11. When laying units adjacent to grout cores, do not allow excess mortar to squeeze out and fall into the grout space. Remove mortar which projects more than 3/8 inch into the grout space.
12. Space bonding ties 16 inches apart vertically and at 18 inch intervals horizontally when brick facing is to be used.
13. Place horizontal joint reinforcement in the first and second bed joints (8 inch centers) immediately below window sills and first and second bed joints (8 inch centers) above window lintels and every other bed joint (16 inch centers) throughout the remainder of the structure. Mortar cover on exterior exposed face of the wall shall be not less than 3/4 inch.
14. Form and install flashings in masonry walls as indicated on drawings or as required for proper completion of the work. Flashing over windows and doors shall be continuous over the openings and shall extend 6 inches beyond the end of the lintel into the masonry.
15. Build control joints into walls at the location shown or as required and in such a manner as to permit slight wall movement without cracking the masonry. Fill control joints with an elastic caulking compound to make them weathertight at exterior walls.
16. Install weep holes in all exterior wythes of multiwythe walls. Weep holes shall consist of 1/4 inch copper tubes placed in the bottom course of masonry on 4 foot centers.
17. The top course of all load-bearing masonry walls shall be a bond beam consisting of load-bearing units filled with grout and reinforced with two (2) #5 reinforcing bars. Reinforcement shall be continuous, except through control joints or expansion joints. Maintain a minimum clearance of 1/2 inch between reinforcement and interior faces of units. Embed wire mesh or metal lath in mortar joints receiving open-bottom bond beam units to retain the grout fill.
18. Furnish and place concrete masonry unit lintels of type and size shown. Lintels shall extend at least 8 inches beyond edge of opening and shall be firmly bedded at bearings in mortar to same quality as used in laying the wall. Where the end of a lintel occurs at a control joint, level the bed joint at such end and cover the end with a sheet of 26 ounce smooth copper with edges cut back 1/2 inch from face of wall; take out the bed and end joint for caulking.
19. Cover top of masonry work when left overnight or during inclement weather. Protect work at all times from soiling and damage.
20. Intersecting walls and corners shall be masonry bonded by overlapping courses, unless noted otherwise on the drawings. Where masonry bonding is not feasible, bonding shall be with metal ties at not over 32 inches on center vertically. Ties shall have end hooks embedded in grout cores or in the mortar filled joints.
21. Do not load masonry until approved by the OWNER/ENGINEER.

B. Grouting:

1. Grout shall be freshly mixed. Place grout in the wall within one hour after completion of mixing. Consolidate the grout in place by vibration or other methods to ensure complete filling of all grout spaces leaving no voids. Fill cells receiving anchor bolts and cells of first masonry course below bearing plates with grout.
2. Place grout into bond beams at 48 inches on center maximum along the length of the beam. Puddle or vibrate the grout in place. Puddling shall not be done with a trowel.
3. Grout bond beams over openings in one continuous operation. Do not use paper or wood in the wall to form a grout barrier.
4. Core grouting may be accomplished by either of the following methods:
 - a. Erect and grout the wall in lifts of less than 5 feet. Vertical cores to be filled shall have a clear, unobstructed size measuring not less than 2 inches by 3 inches. Stop grout pours approximately 1-1/2 inches below the top of the upper-most unit, except at the top of the wall.
 - b. Erect the wall to story height or a maximum of approximately 28 feet before grouting. Vertical cores shall have an unobstructed vertical alignment with a minimum dimension of 2 inches and a minimum area of 10 square inches. Leave cleanout openings, not less than 3 inches x 4 inches, in the wall at the bottom of each core where the wall is to be solid grouted. Check the cores for cleanness and position of reinforcement, then close the cleanouts. A minimum of 24 hours shall elapse after the portion of the wall to be grouted has been completed before grouting starts. Pour grout in a maximum of 4 feet lifts; allow a minimum of 30 minutes to elapse before pouring the next lift. Consolidate all grout at the time of pouring by puddling or vibrating; reconsolidate grout by puddling before plasticity is lost. This reconsolidation shall occur when the next lift is poured with a maximum of one hour elapsing between lift.

C. Anchor Bolts:

1. Set all bolts into the masonry as the work progresses. Solidly embed bolts in grout.
2. Do not set bolts in the top of walls, pilasters, beams, or columns closer than 3 inches from either face of the masonry in 7-inch or thicker walls. Set bolts at the centerline of thinner walls.

D. Anchorage to Floors and Roofs:

1. Anchor all walls to the floors and roofs at a maximum spacing of 4 feet on center.
2. Such anchorage shall be capable of resisting all of the forces applied to them, but not less than 200 pounds per linear foot of wall. Minimum anchorage element shall be #5 dowels.
3. Anchorage shall be into a grouted structural element of the wall.
4. Anchor beams, girders, or other concentrated loads supported by the masonry with a minimum of two 5/8 inch steel bolts or their equivalent.

E. Adjoining New Masonry to Concrete or Existing Masonry:

1. Use one of the following methods to secure new masonry to previously placed concrete:

- a. Anchor steel strap anchors 1/4 x 1 x 24 inches long with a 3 inch turn-down on either end with power-driven fasteners to the concrete. Grout the other end of the anchor in the masonry wall.
 - b. Secure one leg of a vertically positioned angle to the concrete by power-driven fasteners the entire height of the wall. Laterally brace the end of the wall by means of a sash unit that fits in the projecting leg of the angle.
 - c. Dry pack grout dowel bars into the existing concrete, or extend dowel bars from a concrete wall under construction. Extend dowel bars into the new masonry. Dowel bars shall be at least No. 4 bars at approximately 24 inches on center.
- 2. Tooth existing masonry walls so new walls can be bonded. Continue reinforcing steel or joint reinforcement by proper lapping. Where the connection to existing masonry is used as a control joint, use methods similar to paragraph 1 above.
- F. Tuckpointing:
 - 1. Cut the mortar joints to a depth of about 3/4 inch and for the full thickness of the mortar joint. If the mortar is unsound, cut deeper until only sound mortar remains.
 - 2. Clean out all loose material and dust.
 - 3. Dampen the recess formed by the masonry units and the face of the remaining mortar in the joint with water.
 - 4. Mix mortar for tuckpointing in the proportions by volume of either: 1 part masonry cement and 2-1/2 to 3 parts of sand; or 1 part Portland cement and 1/2 to 1-1/4 parts of hydrated lime plus a sand volume 2-1/4 to 3 times the sum of volumes of cement and lime. Thoroughly blend dry materials. Then mix dry materials with enough water for a putty-like consistency. After about an hour, add the remaining amount of mixing water and thoroughly mix the mortar.
 - 5. Compact the mortar into the joint or prepared recess in layers. Fill all voids. Bed tightly against the masonry units.
 - 6. Then tool the surface to match the existing mortar joints.

3.04 CONSTRUCTION PROTECTION

- A. Step back unfinished work for joining new work. Use toothing only when acceptable. Before laying new work, remove loose mortar and clean exposed joint.
- B. Protect sills, ledges, and offsets from mortar drippings and other damage during construction.
- C. Remove misplaced mortar and grout immediately and clean affected areas.
- D. Protect face material from staining.
- E. Keep masonry units dry. Keep the top of masonry construction covered with a waterproof covering when work is not in progress.
- F. Temporarily brace masonry against horizontal loads until cured and permanently braced.

3.05 CLEANING

- A. Cut out holes in joints of masonry surfaces, except weep holes. Fill holes with mortar and tool mortar to match adjacent joints. Repair cracks in masonry. Cut out defective joints and repoint.
- B. Clean mortar, grout, dirt, or other stains from masonry to dry stiff brushing at close of each day's work. If required, use additional cleaning procedures.
- C. At the conclusion of masonry work, remove from premises scaffolding, equipment, materials, debris, and refuse resulting from the work.

3.06 ACCEPTANCE OF MASONRY CONSTRUCTION

- A. Completed masonry work which meets all applicable requirements shall be accepted without specifications.
- B. Completed masonry work which fails to meet one or more requirements must be brought into compliance in an approved manner or may be rejected as provided in this Section and the General Conditions.
- C. The masonry work shall be clean and show a quality of workmanship and finish that conforms to the approved sample or as otherwise acceptable.
- D. Joints shall be tooled and tight showing no separation between mortar and units.

END OF SECTION

SECTION 05090 - WELDING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of work: The work included in this Section consists of furnishing all equipment, materials, and labor associated with performing all welding operations required for the project in accordance with the drawing, specifications, and as required.

1.02 WORK SPECIFIED ELSEWHERE

- A. General Conditions: Section 00700
- B. Administrative Requirements: Section 01310
- C. Structural Steel: Section 05120
- D. Miscellaneous Metals: Section 05500
- E. Handrails and Railings: Section 05520

1.03 STANDARDS AND REGULATIONS

- A. All work shall be in compliance with the latest edition of the following applicable standards and codes:
 - 1. Southern Standard Building Code
 - 2. American Welding Society (AWS)
 - 3. American Institute of Steel Construction (AISC)
 - 4. OSHA
 - 5. American Society for Testing Materials (ASTM)

1.04 SUBMITTALS

- A. The CONTRACTOR shall submit qualification certificates for all welders to be engaged in the work prior to any welding performed on the project. Welders performing work on site, other than miscellaneous tack welding, shall be qualified on site and approved by the OWNER/ENGINEER.
- B. The CONTRACTOR shall submit a list of welding rod types to be used on the job to the Owner/Engineer for approval prior to any welding. The CONTRACTOR shall also submit a schedule on the proposed work schedule to be followed.
- C. See Section 01310: Administrative Requirements.

1.05 TESTING AND CERTIFICATION

- A. All welding other than tack welds shall be performed by certified welders.
- B. Tests shall be performed as required by ASME and/or AWS.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

All welding shall be of good quality, assuring complete structural adequacy and leak proof joints. Welding shall be performed by qualified welders.

Any surface to be welded shall be free from loose scale, slag, rust, grease, paint, any other foreign material except mill scale which withstands vigorous wire brushing. Joint surfaces shall be free from fins and tears. Preparation of edges by gas cutting shall, wherever practicable, be by mechanically guided torch.

3.01 FILLET WELDS

- A. Parts to be fillet welded shall be brought in as close contact as practicable and in no event shall be separated by more than 3/16". If the separation is 1/16" or greater, the size of the fillet welds shall be increased by the amount of separation. The separation between laying surfaces of lap joints and butt joints on a backing structure shall not exceed 1/16". The fit of joints at contact surfaces which are not completely sealed by welds shall be close enough to exclude water after painting.
- B. Welded surfaces shall be cleaned of slag and scale by wire brushing and/or peening after each pass. Undercutting will not be permitted.

3.02 BUTT WELDS

- A. Abutting parts to be butt welded shall be carefully aligned. Misalignments greater than 1/8" shall be corrected and in making the correction the parts shall not be drawn into a sharper slope than 2 degrees (7/16" in 12").
- B. In assembling and joining parts of the structure or built-up members, the procedure and sequence of welding shall be such as will avoid needless distortion and minimize shrinkage stresses.
- C. Butt welds shall be terminated at the ends of a joint in a manner that will insure their soundness. Vertical wall form shall be welded with passes progressing upward only.

3.03 PENETRATION

- A. All complete penetration butt welds made by manual welding, except when produced with the aid of backing material or welded in the flat position from both sides in square material not more than 5/16" thick with 5/16" thick root opening not less than one-half the thickness of the thinner part joined, shall have the root of the initial layer gouged out on the back side before welding is started from that side, and shall be so welded as to secure sound metal and complete fusion throughout the entire cross section. Butt welds made with use of backing of the same material as the base metal shall have the weld metal thoroughly fused with the backing material. Backing strips may be removed by gouging or gas cutting after welding is completed, provided no injury is done to the base metal and the weld metal surface is left flush or slightly convex with full throat thickness.
- B. Butt welds shall be terminated at the ends of a joint in a manner that will insure their soundness. Where possible this should be done by the use of extension bars or runoff plates. Extension bars or runoff plates, if used, shall be removed upon completion of the weld and the ends of the weld made smooth and flush with the abutting parts.

- C. Where butt welds are terminated at a "T" joint, the weld shall be extended to the end of vertical section of the "T" and the edge of the plate ground to prepare for the horizontal weld to preclude the possibility of voids or occlusions.

3.04 PEENING

- A. Where required, multiple layer welds may be peened with light blows from a power hammer, using a round-nosed tool. Peening shall be done after the weld has cooled to a temperature warm to the hand. Care shall be exercised to prevent scaling, flaking of the weld and base metal from over-peening.

END OF SECTION

SECTION 05120 – STRUCTURAL STEEL

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes structural steel.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 01310: Administrative Requirements.
 - 2. Section 09900: Painting.

1.03 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Engineered structural steel connections required by the Contract Documents to be selected or completed by the fabricator to withstand design loadings indicated.
- B. Engineering Responsibility: Engage a fabricator who utilizes a qualified professional engineer to prepare calculations, Shop Drawings, and other structural data for structural steel connections.

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.
- C. Shop Drawings detailing fabrication of structural steel components.
 - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 - 2. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
 - 3. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolted slip-critical, direct-tension, or tensioned shear/bearing connections.
 - 4. Include Shop Drawings signed and sealed by a qualified professional engineer responsible for their preparation.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Mill test reports signed by manufacturers certifying that their products, including the following, comply with requirements.

1. Structural steel, including chemical and physical properties.
2. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
3. Direct-tension indicators.
4. Shop primers.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed structural steel work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.
 1. Fabricator must participate in the AISC Quality Certification Program and be designated an AISC-Certified Plant as follows:
 - a. Category: Category I, conventional steel structures.
 - b. Category: Category II, complex steel building structures.
 - c. Fabricator shall be registered with and approved by authorities having jurisdiction.
- C. Comply with applicable provisions of the following specifications and documents:
 1. AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
 2. AISC's "Load and Resistance Factor Design (LRFD) Specification for Structural Steel Buildings."
 3. AISC's "Specification for Allowable Stress Design of Single-Angle Members."
 4. AISC's "Specification for Load and Resistance Factor Design of Single-Angle Members."
 5. ASTM A 6 "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use."
 6. Research Council on Structural Connections' (RCSC) "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 7. Research Council on Structural Connections' (RCSC) "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Professional Engineer Qualifications: A professional engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for projects with structural steel framing that are similar to that indicated for this Project in material, design, and extent.
- E. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel."
 1. Present evidence that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

- F. Pre-installation Conference: Conduct conference at Project site to comply with the requirements of Section 01310: Administrative Requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver structural steel to Project site in such quantities and at such times to ensure continuity of installation.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.07 SEQUENCING

- A. Supply anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Structural Steel Shapes, Plates, and Bars: Carbon Steel: ASTM A 36.
- B. Structural Steel Shapes, Carbon Steel: ASTM A 572.
- C. Cold-Formed Structural Steel Tubing: ASTM A 500, Grade B.
- D. Hot-Formed Structural Steel Tubing: ASTM A 501.
- E. Steel Pipe: ASTM A 53, Type E or S, Grade B.
 - 1. Weight Class: Standard.
 - 2. Weight Class: Extra strong.
 - 3. Weight Class: Double extra strong.
 - 4. Finish: Black.
 - 5. Finish: Galvanized.
 - 6. Finish: Black, except where indicated to be galvanized.
- F. Anchor Rods, Bolts, Nuts, and Washers: As follows:
 - 1. ASTM F1554 – GRADE 50
- G. Non-High-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A; carbon-steel, hex-head bolts; carbon-steel nuts; and flat, unhardened steel washers.
 - 1. Finish: Hot-dip zinc-coating, ASTM A 153, Class C

- H. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc-coating, ASTM A 153, Class C
 - 2. Direct-Tension Indicators: ASTM F 959, Type 325.
 - a. Finish: Plain, uncoated.
 - b. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.
 - c. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50, epoxy coated.
- I. Welding Electrodes: Comply with AWS requirements.
- J. Headed Steel Anchors (HSA) as manufactured by TRW Nelson Division type [H4L] or approved equal conforming to ASTM A108, grade 1015 forged steel headed, uncoated, size as shown on Drawings.

2.02 PRIMER

- A. Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer with good resistance to normal atmospheric corrosion, complying with performance requirements of FS TT-P-664.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds and repair painting galvanized steel, with dry film containing not less than 93 percent zinc dust by weight, and complying with DOD-P-21035A or SSPC-Paint 20.

2.03 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: Premixed, nonmetallic, non-corrosive, non-staining grout containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application, and a 30-minute working time. (Minimum compressive strength of 7,000 psi after 28 days)

2.04 FABRICATION

- A. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
 - 1. Camber structural steel members where indicated.
 - 2. Identify high-strength structural steel according to ASTM A 6 and maintain markings until steel has been erected.
 - 3. Mark and match-mark materials for field assembly.
 - 4. Fabricate for delivery a sequence that will expedite erection and minimize field handling of structural steel.
 - 5. Complete structural steel assemblies, including welding of units, before starting shop-priming operations.
 - 6. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded.
- C. Finishing: Accurately mill ends of columns and other members transmitting loads in bearing.
- D. Holes: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on Shop Drawings.
 1. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.
 2. Weld threaded nuts to framing and other specialty items as indicated to receive other work.

2.05 SHOP CONNECTIONS

- A. Shop install and tighten non-high-strength bolts, except where high-strength bolts are indicated.
- B. Shop install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.
 2. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent surface bleeding of backside welding on exposed steel surfaces. Grind smooth exposed fillet welds 1/2 inch and larger. Grind flush butt welds. Dress exposed welds.

2.06 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:
 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
 2. Surfaces to be field welded.
 3. Surfaces to be high-strength bolted with slip-critical connections.
 4. Surfaces to receive sprayed-on fireproofing.
 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Prepare surfaces according to SSPC specifications as follows:
 1. SSPC-SP 5 "White Metal Blast Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2. Apply 2 coats of shop paint to inaccessible surfaces after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Apply a 1-coat, non-asphaltic primer complying with SSPC's "Painting System Guide No. 7.00" to provide a dry film thickness of not less than 1.5 mils.

2.07 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel indicated for galvanizing according to ASTM A 123. (2.0 oz per square foot)

2.08 SOURCE QUALITY CONTROL

- A. Owner will engage an independent testing and inspecting agency to perform shop inspections and tests and to prepare test reports.
1. Testing agency will conduct and interpret tests and state in each report whether test specimens comply with or deviate from requirements.
 2. Provide testing agency with access to places where structural steel Work is being fabricated or produced so required inspection and testing can be accomplished.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- D. Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Shop-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
1. Direct-tension indicator gaps will be verified to comply with ASTM F 959, Table 2.
- F. In addition to visual inspection, shop-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
1. Liquid Penetrant Inspection: ASTM E 165.
 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 3. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
 4. Ultrasonic Inspection: ASTM E 164.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Before erection proceeds, and with the steel erector present, verify elevations of concrete and masonry bearing surfaces and locations of anchorages for compliance with requirements.

- B. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 PREPARATION

Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.03 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.
- B. Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 - 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 - 3. Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
 - a. Comply with manufacturer's instructions for proprietary grout materials.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 1. Maintain erection tolerances of architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection.
- G. Finish sections thermally cut during erection equal to a sheared appearance.
- H. Do not enlarge unfair holes in members by burning or by using drift pins. Ream holes that must be enlarged to admit bolts.

3.04 FIELD CONNECTIONS

- A. Install and tighten strength-strength bolts, except where high-strength bolts are indicated.
- B. Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Install and tighten high-strength bolts according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Bolts: ASTM A 325 high-strength bolts, unless otherwise indicated.
 - 2. Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.
 - 3. Connection Type: Slip-critical, direct-tension, or tensioned shear/bearing connections as indicated.
- D. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
 - 1. Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.
 - 3. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent surface bleeding of backside welding on exposed steel surfaces. Grind smooth exposed fillet welds 1/2 inch and larger. Grind flush butt welds. Dress exposed welds.

3.05 FIELD QUALITY CONTROL

- A. OWNER will engage an independent testing and inspecting agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from requirements.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- D. Field-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Field-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Direct-tension indicator gaps will be verified to comply with ASTM F 959, Table 2.

- F. In addition to visual inspection, field-welded connections will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option.
1. Liquid Penetrant Inspection: ASTM E 165.
 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 3. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T."
 4. Ultrasonic Inspection: ASTM E 164.

3.06 CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
1. Apply by brush or spray to provide a minimum dry film thickness of 1.5 mils.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on structural steel are included in Section 09900: Painting.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint according to ASTM A 780.

END OF SECTION

SECTION 05500 – METAL FABRICATIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Steel framing and non-ferrous supports for mechanical and electrical equipment.
 - 2. Steel framing and non-ferrous supports for applications where framing and supports are not specified in other Sections.
 - 3. Miscellaneous steel trim including steel angle corner guards and steel edgings.
 - 4. Metal bollards.
 - 5. Abrasive metal nosings, treads and thresholds.
 - 6. Loose bearing and leveling plates for applications where they are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
 - 2. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
- C. Related Requirements:
 - 1. Section 03300 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
 - 2. Section 05521 "Pipe and Tube Railings."
 - 3. Section 05530 "Gratings."

1.03 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.04 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Metal nosings and treads.
 - 2. Paint products.
 - 3. Grout.

- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
1. Steel framing and non-ferrous supports for mechanical and electrical equipment.
 2. Steel framing and non-ferrous supports for applications where framing and supports are not specified in other Sections.
 3. Miscellaneous steel trim including steel angle corner guards and steel edgings.
 4. Metal bollards.
 5. Abrasive metal nosings, treads and thresholds.
 6. Loose steel bearing plates.
 7. Loose steel lintels.

1.05 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by stainless-steel manufacturers, certifying that products furnished comply with requirements.
- B. Welding certificates
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

1.06 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."
 4. All field welding shall be inspected by a Certified Welding Inspector (CWI), Hired and paid for by the Contractor.

1.07 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.02 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- C. Steel Plates, Shapes, and Bars: ASTM A992 (Fy=50 ksi).
- D. Stainless-Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 316L.
- E. Stainless-Steel Bars and Shapes: ASTM A276, Type 31603 (310L) (Fy=25 ksi).
- F. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from plate complying with ASTM A36/A36M or ASTM A283/A283M, Grade C or D.
- G. Rolled-Stainless-Steel Floor Plate: ASTM A793.
- H. Steel Tubing: ASTM A500/A500M, Grade B (Fy=46 ksi).
- I. Steel Pipe: ASTM A53/A53M, Grade B (Fy=35 ksi).
- J. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: 1-5/8 by 1-5/8 inches or as indicated.
 - 2. Material: Galvanized steel, ASTM A653/A653M, commercial steel, Type B structural steel, Grade 33 (Grade 230), with G90 (Z275) coating; 0.108-inch 0.079-inch 0.064-inch nominal thickness.
- K. Cast Iron: Either gray iron, ASTM A48/A48M, or malleable iron, ASTM A47/A47M, unless otherwise indicated.
- L. Aluminum Shapes, Plate and Sheet: ASTM B209 (ASTM B209M), Alloy 6061-T6.
Aluminum Extrusions: ASTM B221 (ASTM B221M), Alloy 6061-T6.
- M. Aluminum-Alloy Rolled Tread Plate: ASTM B632/B632M, Alloy 6061-T6.
- N. Aluminum Castings: ASTM B26/B26M, Alloy 443.0-F.

2.03 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941 (ASTM F1941M), Class Fe/Zn5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening stainless steel.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A325, Type 3 (ASTM A325M, Type 3); with hex nuts, ASTM A563, Grade C3 (ASTM A563M, Class 8S3); and flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F593; with hex nuts, ASTM F594; and flat washers; Alloy Group 2.

- D. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563 (ASTM A563M); and flat washers.
 - 1. Hot-dip galvanize all Grade 36 anchor bolts.
- E. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
- F. Cast-in-Place Anchors in Concrete: Headed type only allowed.
- G. Post-Installed Anchors: Adhesive Hilti HIT-HY 200, Red Head C6 with ASTM F593 316SS threaded rods or equivalent. Expansion or mechanical anchors are not allowed.
- H. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B633, Class Fe/Zn5, as needed for fastening to inserts.

2.04 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 09900 "Painting."
- B. Galvanized Steel: Reference Section 09900 "Painting".
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- E. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- F. Concrete: Comply with requirements in Section 03300 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa) or greater.

2.05 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.

- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.06 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.
- D. Prime miscellaneous framing and supports with primer specified in Section 09900 "Painting." where indicated.

2.07 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive bolts as specified on design drawings.
 - 1. Provide mitered and welded units at corners.

2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.
- C. Galvanize and prime shelf angles located in exterior walls.
- D. Prime shelf angles located in exterior walls primer specified in Section 09900 "Painting."
- E. Furnish wedge-type concrete inserts or adhesive anchor fasteners, to attach shelf angles to cast-in-place concrete as specified on design drawings.

2.08 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Prime exterior miscellaneous steel trim with primer specified in Section 09900 "Painting."

2.09 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 80 steel pipe 1/4-inch wall-thickness or as specified on the design drawings.
 1. Cap bollards with 1/4-inch thick steel plate.
 2. Where bollards are indicated to receive controls for door operators, provide cutouts for controls and holes for wire.
 3. Where bollards are indicated to receive light fixtures, provide cutouts for fixtures and holes for wire.
- B. Fabricate bollards with 1/2-inch thick steel baseplates for bolting to concrete slab, and drill baseplates at all four corners for 3/4-inch anchor bolts, unless indicated otherwise on the design drawings.
 1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.
- C. Fabricate sleeves for bollard anchorage from steel pipe or tubing with 1/4-inch thick steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches deep and 3/4 inch larger than OD of bollard.
- D. Fabricate internal sleeves for removable bollards from Schedule 40 steel pipe or 1/4-inch wall-thickness steel tubing with an OD approximately 1/16 inch less than ID of bollards. Match drill sleeve and bollard for 3/4-inch steel machine bolt.
- E. Prime bollards with primer specified in Section 09900 "Painting."

2.10 ABRASIVE METAL NOSINGS, TREADS AND THRESHOLDS

- A. Cast-Metal Units: Cast [iron] [aluminum] [bronze (lead red or semi-red brass)] [nickel silver (lead nickel bronze)], with an integral-abrasive, as-cast finish consisting of aluminum oxide, silicon carbide, or a combination of both. Fabricate units in lengths necessary to accurately fit openings or conditions.
 - 1. Nosings: Cross-hatched units, 4 inches wide with 1/4-inch or 1-inch lip, for casting into concrete.
 - 2. Nosings: Cross-hatched units, 1-1/2 by 1-1/2 inches, for casting into concrete.
 - 3. Treads: Cross-hatched units, full depth of tread with 3/4-by-3/4-inch nosing, for application over bent plate treads or existing stairs.
 - 4. Thresholds: Fluted-saddle-type units, 5 inches wide by 1/2 inch high, with tapered edges.
 - 5. Thresholds: Fluted-interlocking- (hook-strip-) type units, 5 inches wide by 5/8 inch high, with tapered edge.
 - 6. Thresholds: Plain-stepped- (stop-) type units, 5 inches wide by 1/2 inch high, with 1/2-inch step.
- B. Extruded Units: Aluminum or as indicated on drawings, Bronze, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.
 - 1. Provide ribbed units, with abrasive filler strips projecting 1/16 inch above aluminum extrusion.
 - 2. Nosings: Square-back units, 1-7/8 inches wide, for casting into concrete steps.
- C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.
- D. Drill for anchors and countersink. Locate holes not more than 4 inches from ends and not more than 12 inches o.c., evenly spaced between ends, unless otherwise indicated. Provide closer spacing if recommended by manufacturer.
 - 1. Provide two rows of holes for units more than 5 inches wide, with two holes aligned at ends and intermediate holes staggered.
- E. Apply bituminous paint to concealed surfaces of cast-metal units.
- F. Apply clear lacquer to concealed surfaces of extruded units.

2.11 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates.
- C. Prime plates with primer specified in Section 09900 "Painting."

2.12 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span, but not less than 8 inches unless otherwise indicated.

- C. Galvanize and prime loose steel lintels located in exterior walls.
- D. Prime loose steel lintels located in exterior walls with primer specified in Section 09900 "Painting."

2.13 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.14 GUTTERS AND DOWNSPOUTS

- A. Gutters: Form from 0.0179-inch- thick, aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Fabricate in minimum 96-inch long sections, sized according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced 24 inches o.c., fabricated from same metal as gutters. Provide bronze, copper, or aluminum wire ball strainers at outlets. Finish gutters to match roof fascia. Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eaves with gutter hangers spaced not more than 2 feet o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- B. Downspouts: Form from 0.0179-inch- thick, aluminum-zinc alloy-coated steel sheet prepainted with coil coating; in 10-foot- long sections, complete with formed elbows and off-sets. Finish downspouts to match walls. Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 36 inches o.c. in between. Tie downspouts to drainage system indicated.
- C. Install gutters and downspouts: and other accessories according to manufacturer's written instructions, with positive anchorage to building and weather tight mounting. Coordinate installation with flashings and other components.

2.15 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.16 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with primers specified in Section 09900 "Painting." as indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
1. Exterior Items: SSPC-SP6/NACE No. 3, "Commercial Blast Cleaning."
 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP6/NACE No. 3, "Commercial Blast Cleaning."
 3. Items Indicated to Receive Primers Specified in Section 09900 "Painting": SSPC-SP6/NACE No. 3, "Commercial Blast Cleaning."
 4. Other Items: SSPC-SP3, "Power Tool Cleaning."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.17 ALUMINUM FINISHES

- A. As-Fabricated Finish: AA-M12.
- B. Clear Anodic Finish: AAMA 611, Class I, AA-M12C22A41.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.02 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Install pipe columns on concrete footings and slabs with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.03 INSTALLING METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.
 - 1. Do not fill removable bollards with concrete.
- B. Anchor bollards to existing construction with expansion anchors, anchor bolts or through bolts. Provide four 3/4-inch bolts at each bollard unless otherwise indicated.
 - 1. Embed anchor bolts at least 4 inches in concrete.
- C. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete or in formed or core-drilled holes not less than 8 inches deep and 3/4 inch larger than OD of bollard. Fill annular space around bollard solidly with non-shrink grout; mixed and placed to comply with grout manufacturer's written instructions. Slope grout up approximately 1/8 inch toward bollard.
- D. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- E. Anchor internal sleeves for removable bollards in concrete by inserting in pipe sleeves preset into concrete or formed or core-drilled holes not less than 8 inches deep and 3/4 inch larger than OD of sleeve. Fill annular space around internal sleeves solidly with non-shrink grout; mixed and placed to comply with grout manufacturer's written instructions. Slope grout up approximately 1/8 inch toward internal sleeve.
- F. Anchor internal sleeves for removable bollards in place with concrete footings. Center and align sleeves in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace sleeves in position until concrete has cured.
- G. Place removable bollards over internal sleeves and secure with 3/4-inch machine bolts and nuts. After tightening nuts, drill holes in bolts for inserting padlocks. Owner furnishes padlocks.

H. Fill bollards solidly with concrete, mounding top surface to shed water.

1. Do not fill removable bollards with concrete.

3.04 INSTALLING NOSINGS, TREADS, AND THRESHOLDS

A. Center nosings on tread widths unless otherwise indicated.

B. For nosings embedded in concrete steps or curbs, align nosings flush with riser faces and level with tread surfaces.

3.05 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with non-shrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.06 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09900 "Painting."

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

SECTION 05510 - STRUCTURAL ALUMINUM

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to design, furnish and install structural aluminum members, including beams, columns, stair stringers, stair treads, intermediate platforms, platform grating, handrails, platform columns, horizontal and vertical bracing, surface preparation and shop priming.
2. The extent of structural aluminum shall be as shown on the design drawings.
3. The Work also includes:
 - a. Providing base plates and anchor bolt requirements at column base to concrete foundations.

B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with, or before the aluminum Work.
2. Field verify all dimensions and elevations before installation.

C. Related Sections:

1. Section 03301 "Anchor Systems."
2. Section 05500 "Metal Fabrications."
3. Section 05521 "Pipe and Tube Railings."
4. Section 05540 "Aluminum Canopy Performance Specification."
5. Section 06600 "Fiberglass Reinforced Polymer Products and Fabrications."

1.02 REFERENCES

A. Codes and standards referenced in this Section are listed below:

1. Florida Building code (FBC) 2020 Edition.
2. ASCE 7-16 "Minimum Design Loads for Buildings and Other Structures."
3. ADM1-2015 "Aluminum Design Manual-Part 1-A Specification for Aluminum Structures."
4. American Society for Testing and Materials, (ASTM).
 - a. ASTM B 209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - b. ASTM B 211, Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire.
 - c. ASTM B 221, Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
 - d. ASTM B 308/B 308M, Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles.
 - e. ASTM B 429, Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
 - f. ASTM F 593, Specification for Stainless Steel Bolts, Hex Cap Screws and Studs.
 - g. ASTM F 594, Specification for Stainless Steel Nuts.

5. American Welding Society, (AWS).
 - a. AWS D1.2/D1.2M, Structural Welding Code-Aluminum.
6. National Association of Architectural Metal Manufacturers, (NAAMM).
 - a. NAAMM, Metal Stairs Manual and Metal Finishes Manual.

1.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer shall have a minimum of five years experience producing substantially similar equipment and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.

B. Component Supply and Compatibility:

1. Obtain all products included in this Section regardless of the component manufacturer from a single aluminum manufacturer.
2. The aluminum fabricator to review and approve to prepare all Shop Drawings and other submittals for all components furnished under this Section.
3. All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by the aluminum fabricator.

C. Source Quality Control: Contractor shall be responsible for entire design, fabrication and installation of aluminum canopy and stair Work.

D. The Shop Drawings and calculations shall be prepared by a Registered Professional Engineer licensed in the State of Florida and is a recognized expert in the type of Work shown and specified.

1.04 SUBMITTALS

A. Action Submittals: Submit the following:

1. Shop Drawings:

- a. Erection and detailed Shop Drawings, which show the plan location, elevation and details for the fabrication and erection of the aluminum Work. Show anchorage and accessory items. Include details of all connections between all materials.

2. Delegated Design Submittals:

- a. Provide signed and sealed Shop Drawings and calculations, which are prepared by a Registered Professional Engineer licensed in the State of Florida.

1.05 DELIVERY, STORAGE AND HANDLING

A. Packing, Shipping, Handling and Unloading:

1. Deliver materials to the Site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices which are to be embedded in cast-in-place concrete in ample time to prevent delay of that Work.

B. Storage and Protection:

1. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect materials from corrosion and deterioration.

C. Acceptance at Site:

1. All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site. Replace loss and repair damage to new condition in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 DESIGN CRITERIA

- A. Aluminum structures shall comply with the design criteria established on the drawings and specifications.
- B. Pre-engineered aluminum stairs shall comply with additional requirements of the NAAMM, "Metal Stairs Manual".
- C. Sizes of miscellaneous items such as carrier angles and platform stiffeners, and design stresses shall be as recommended in Section 4 of the "Metal Stairs Manual", unless otherwise shown.
- D. All required gravity and wind loadings shall comply with the 2020 Florida Building Code.

2.02 FABRICATION

A. General:

1. Use welding for joining pieces together, unless otherwise shown or specified. Welding to comply with the applicable provisions of AWS D1.2/D1.2M. Fabricate units so that bolts and other fastenings do not appear on finish surfaces. Make joints true and tight, and make connections between parts light-proof tight. Provide continuous welds, ground smooth where exposed.
2. Construct units to conform to sizes and arrangements as shown. Provide aluminum framing, hangers, columns, struts, clips, brackets, bearing plates and other components as required. Erect units to line, plumb, square, and true with horizontal runs registering level with floor and platform levels.
3. Provide brackets and bearing surfaces as detailed and as required to anchor and contain the aluminum structures on the supporting structures.
4. Finish: Provide architectural mill finish as specified in the NAAMM Manual.
5. Protection of Aluminum from Dissimilar Materials: Coat all surfaces of aluminum in contact with dissimilar materials, such as concrete, masonry and steel as specified in Division 09 - Finishes.

B. Stair Framing:

1. Fabricate stringers of structural aluminum channels, or plates, or a combination thereof, as shown. Provide closures for exposed ends of stringers.
2. Construct platforms of structural aluminum channel headers and miscellaneous framing members, as shown. Bolt or weld headers to stringers. Bolt or weld framing members to strings and headers.
3. Stair stringer depth shall be no less than 12-inches.

C. Aluminum Grating Treads and Platforms:

1. For aluminum grating and treads, refer to Section 05530 Gratings.
2. Fabricate grating treads with abrasive nosing on one edge and with aluminum angle or aluminum plate carrier at each end for stringer connections. Secure treads to stringers with bolts.
3. Fabricate grating platforms, with nosing matching that on grating treads, at all landings. Provide toe-plates at open-sided edges of floor grating fastened to platform framing members.
4. Provide platforms 3/8-inch minimum thick with solid abrasive surface matching that on treads. Secure platforms to platform framing members with bolts.

D. Stair Aluminum Railing:

1. Aluminum railings shall conform to the requirements of Section 05521 Pipe and Tube Railings.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine the conditions under which the Work is to be installed and notify the Owner, in writing, of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Anchor bolts to existing concrete shall be epoxy adhesive type. Mechanical wedge type anchors are not allowed.

3.03 INSTALLATION

A. Fastening to In-Place Construction:

1. Provide anchorage devices and fasteners where necessary for securing aluminum members to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts and other connectors as required. The anchorage devices and fasteners shall be Type 316 stainless steel. Anchor bolts to existing concrete shall be epoxy adhesive type. Mechanical wedge type anchors are not allowed.

B. Cutting, Fitting and Placement:

1. Perform cutting, drilling and fitting required for the installation of the aluminum members. Set the aluminum members accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry or similar construction.
2. Fit exposed connections accurately together to form tight hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

END OF SECTION

SECTION 05511 – PRE-ENGINEERED ALUMINUM STAIRS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to design, furnish and install aluminum stairs, including surface preparation and shop priming.
2. The extent of aluminum stairs shall be as shown.
3. The Work also includes:
 - a. Providing openings in and attachments to aluminum stairs to accommodate the Work under this and other Sections and providing for the aluminum stairs all items such as anchor bolts, studs and all items required for which provision is not specifically included under other Sections.

B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with, or before the aluminum stairs Work.
2. Field verify all dimensions and elevations before installation.

C. Related Sections:

1. Section 05500, Metal Fabrications.
2. Section 05521, Pipe and Tube Railings.
3. Section 05530, Gratings.
4. Section 09900, Painting.

1.02 REFERENCES

A. Standards referenced in this Section are listed below:

1. Aluminum Association (AA), Specification for Aluminum Structures.
2. American Society for Testing and Materials, (ASTM).
 - a. ASTM B 209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - b. ASTM B 211, Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire.
 - c. ASTM B 221, Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
 - d. ASTM B 308/B 308M, Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles.
 - e. ASTM B 429, Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

- f. ASTM F 593, Specification for Stainless Steel Bolts, Hex Cap Screws and Studs.
 - g. ASTM F 594, Specification for Stainless Steel Nuts.
 - 3. American Welding Society, (AWS).
 - a. AWS D1.2/D1.2M, Structural Welding Code-Aluminum.
 - 4. National Association of Architectural Metal Manufacturers, (NAAMM).
 - a. NAAMM, Metal Stairs Manual and Metal Finishes Manual.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Manufacturer shall have a minimum of five years experience producing substantially similar equipment and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.
- B. Component Supply and Compatibility:
 - 1. Obtain all products included in this Section regardless of the component manufacturer from a single pre-engineered aluminum stair manufacturer.
 - 2. The pre-engineered aluminum stair manufacturer to review and approve to prepare all Shop Drawings and other submittals for all components furnished under this Section.
 - 3. All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by the pre-engineered aluminum stair manufacturer.
- C. Codes: Comply with the applicable requirements of the state and local building codes.
- D. Source Quality Control: CONTRACTOR shall be responsible for entire design, fabrication and installation of pre-engineered aluminum stair Work.
- E. The Shop Drawings and calculations shall be prepared by a Registered Professional Engineer licensed in the State of Florida and is a recognized expert in the type of Work shown and specified.

1.04 SUBMITTALS

- A. Action Submittals: Submit the following:
 - 1. Shop Drawings:
 - a. Erection and detailed Shop Drawings, which show the plan location, elevation and details for the fabrication and erection of the aluminum stair Work. Show anchorage and accessory items. Include details of all connections between all materials.

2. Delegated Design Submittals:
 - a. Provide signed and sealed Shop Drawings and calculations, which are prepared by a Registered Professional Engineer licensed in the State of Florida.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Packing, Shipping, Handling and Unloading:
 1. Deliver materials to the Site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices which are to be embedded in cast-in-place concrete in ample time to prevent delay of that Work.
- B. Storage and Protection:
 1. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect materials from corrosion and deterioration.
- C. Acceptance at Site:
 1. All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify ENGINEER, in writing, if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 DESIGN CRITERIA

- A. Pre-engineered aluminum stairs shall comply with the requirements of the NAAMM, "Metal Stairs Manual".
- B. Sizes of miscellaneous items such as carrier angles and platform stiffeners, and design stresses shall be as recommended in Section 4 of the "Metal Stairs Manual", unless otherwise shown.
- C. All required stair loadings and other stair related requirements shall comply with the 2017 Florida Building Code.

2.02 FABRICATION

- A. General:
 1. Use welding for joining pieces together, unless otherwise shown or specified. Welding to comply with the applicable provisions of AWS D1.2/D1.2M. Fabricate units so that bolts and other fastenings do not appear on finish surfaces. Make joints true and tight, and make connections between parts light-proof tight. Provide continuous welds, ground smooth where exposed.
 2. Construct stair units to conform to sizes and arrangements as shown. Provide pre-engineered aluminum framing, hangers, columns, struts, clips, brackets, bearing plates and other components for the support of pre-engineered aluminum stairs and platforms. Erect pre-engineered aluminum stair Work to line, plumb, square, and true with runs registering level with floor and platform levels.

3. Provide brackets and bearing surfaces as detailed and as required to anchor and contain the pre-engineered aluminum stairs on the supporting structure.
4. Finish: Provide Architectural mill finish as specified in the NAAMM Manual.
5. Protection of Aluminum from Dissimilar Materials: Coat all surfaces of aluminum in contact with dissimilar materials, such as concrete, masonry and steel as specified in Section 09900 Painting.

B. Stair Framing:

1. Fabricate stringers of structural aluminum channels, or plates, or a combination thereof, as shown. Provide closures for exposed ends of stringers.
2. Construct platforms of structural aluminum channel headers and miscellaneous framing members, as shown. Bolt or weld headers to stringers. Bolt or weld framing members to strings and headers.
3. Stair stringer depth shall be no less than 12-inches.

C. Aluminum Grating Treads and Platforms:

1. For aluminum grating and treads, refer to Section 05530, Gratings.
2. Fabricate grating treads with abrasive nosing on one edge and with aluminum angle or aluminum plate carrier at each end for stringer connections. Secure treads to stringers with bolts.
3. Fabricate grating platforms, with nosing matching that on grating treads, at all landings. Provide toe-plates at open-sided edges of floor grating fastened to platform framing members.
4. Provide platforms 3/8-inch minimum thick with solid abrasive surface matching that on treads. Secure platforms to platform framing members with bolts.

D. Stair Aluminum Railing:

1. Aluminum railings shall conform to the requirements of Section 05521, Pipe and Tube Railings.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine the conditions under which the Work is to be installed and notify the ENGINEER, in writing, of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction.

3.03 INSTALLATION

A. Fastening to In-Place Construction:

1. Provide anchorage devices and fasteners where necessary for securing pre-engineered aluminum stairs to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts and other connectors as required. The anchorage devices and fasteners shall be Type 316 stainless steel.

B. Cutting, Fitting and Placement:

1. Perform cutting, drilling and fitting required for the installation of the pre-engineered aluminum stairs. Set the pre-engineered aluminum stairs accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry or similar construction.
2. Fit exposed connections accurately together to form tight hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

END OF SECTION

SECTION 05521 – PIPE AND TUBE RAILINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Aluminum pipe railings.
- B. Related Sections:
 - 1. Section 05500 "Metal Fabrications".

1.03 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. General: Railings to withstand structural loads indicated.
- C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
 - b. Infill load and other loads need not be assumed to act concurrently.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.04 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of mechanically connected railings.
 - 2. Railing brackets.
 - 3. Grout.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Initial Selection: For products involving selection of color, texture, or design.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
 - 2. Fittings and brackets.
 - 3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
 - a. Show method of finishing and connecting members at intersections.
- E. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the professional engineer registered in the State of Florida responsible for their preparation.

1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified professional engineer.
- B. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- C. Welding certificates.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E894 and ASTM E935.

1.06 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.07 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication. Provide additional railing posts at middle rail interruption locations.

1.08 COORDINATION AND SCHEDULING

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 - 1. Aluminum Pipe and Tube Railings:
 - a. Blum, Julius & Co., Inc.
 - b. Hollaender Manufacturing Company.
 - c. Superior Aluminum Products, Inc.
 - d. Tuttle Railing Systems; Div. of Tuttle Aluminum & Bronze, Inc.

2.02 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

2.03 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded Bars and Tubing: ASTM B221 (ASTM B221M), Alloy 6063-T5/T52.
- C. Extruded Structural Pipe and Round Tubing: ASTM B429/B429M, Alloy 6063-T6.
 - 1. Provide Standard Weight (Schedule 40) pipe, unless otherwise indicated.
- D. Drawn Seamless Tubing: ASTM B210 (ASTM B210M), Alloy 6063-T832.
- E. Plate and Sheet: ASTM B209 (ASTM B209M), Alloy 6061-T6.

F. Die and Hand Forgings: ASTM B247 (ASTM B247M), Alloy 6061-T6.

G. Castings: ASTM B26/B26M, Alloy A356.0-T6.

2.04 FASTENERS

A. General: Provide the following:

1. Aluminum Railings: Type 316 stainless-steel fasteners.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.

D. Post-Installed Anchors: Adhesive Hilti HIT-HY 200, Red Head C6 with ASTM F593 316SS threaded rods or equivalent. Expansion or mechanical anchors are not allowed. Anchors shall be capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488, conducted by a qualified independent testing agency.

1. Material for Exterior Locations: Stainless Steel, ASTM F593 with hex nuts, ASTM F594, Alloy Group 2.

2.05 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

1. For aluminum railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187.

C. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.06 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- I. Form changes in direction as follows:
 - 1. As detailed.
- J. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- K. Close exposed ends of railing members with prefabricated end fittings.
- L. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers, or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- O. For removable railing posts, fabricate slip-fit sockets from stainless-steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height. Provide socket covers designed and fabricated to resist being dislodged.
 - 1. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.
- P. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.07 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.08 ALUMINUM FINISHES

- A. Mechanical Finish: AA-M12 (Mechanical Finish: nonspecular as fabricated).
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.02 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.03 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.04 ANCHORING POSTS

- A. Anchor posts to concrete and metal surfaces with base plates as required by conditions, connected to posts and to metal supporting members as follows:
 - 1. For aluminum pipe railings, weld posts to plate and bolt to supporting surfaces. Bolt and plate assembly designed and engineered for this purpose.

3.05 ATTACHING RAILINGS

- A. Attach railings to wall with wall brackets, except where end flanges are used. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- B. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.
- C. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
 - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt or predrilled hole for exposed bolt anchorage.
 - 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

3.06 ADJUSTING AND CLEANING

- A. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.

3.07 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION

SECTION 05530 – GRATINGS

PART 1 – GENERAL

1.01 GENERAL

- A. Contractor shall provide all labor, materials, and equipment as shown, specified, and required to furnish and install trench and platform grating assemblies, miscellaneous supports and frames.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Metal bar gratings.
 - 2. Metal frames and supports for gratings.
- B. Related Sections:
 - 1. Section 03300 "Cast-In-Place Concrete" for anchorage to concrete walls.
 - 2. Section 05500 "Metal Fabrications" for non-ferrous metals framing system components.
 - 3. Section 05521 "Pipe and Tube Railings" for metal pipe and tube handrails and railings.

1.03 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Gratings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.
 - 1. Walkways and Elevated Access Platforms Used as Exits: Uniform load of 100 lbf/sq. ft. – All steel and aluminum applications.
 - 2. Limit deflection to L/240 or 1/4 inch, whichever is less.

1.04 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Clips and anchorage devices for gratings.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work.
 - 1. Shop Drawings detailing fabrication and installation of all work. Include plans, elevations and details of sections and connections. Show panel section layouts, miscellaneous supports, and fastener types and locations.
 - 2. Furnish setting drawings, templates, and installations details for installing frames and anchorages, including concrete inserts. Deliver such items to Project site in time for installation.

1.05 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.

- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.06 QUALITY ASSURANCE

- A. Metal Bar Grating Standards: Comply with NAAMM MBG 531, "Metal Bar Grating Manual."
- B. NAAMM Metal Bar Grating Manual ANSI/NAAMM MBG 532, "Heavy Duty Steel Grating."
- C. Welding Qualifications:
 - 1. Quality procedures and personnel according to AWS D1.1, "Structural Welding Code – Steel".
 - 2. Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code - Aluminum."

1.07 PROJECT CONDITIONS

- A. Field Measurements: Contractor shall field measure and verify actual locations of walls, beams and other construction contiguous with gratings by field measurements before fabrication to ensure proper installation.

1.08 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for gratings, grating frames, and supports. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 – PRODUCTS

2.01 HEAVY DUTY STEEL

- A. ASTM A36 for hot rolled structural steel bars, and ASTM A510 for carbon steel wire rods and coarse round wire.

2.02 STEEL

- A. ASTM A1011 for hot rolled carbon steel sheet and strip. ASTM A510 for carbon steel wire rods and coarse round wire.

2.03 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer for type of use indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded Bars and Shapes: ASTM B 221, alloys as follows:
 - 1. 6061-T6 or 6063-T6, for bearing bars of gratings and shapes.

2. 6061-T1, for grating crossbars.

C. Aluminum Sheet: ASTM B 209, Alloy 5052-H32.

2.04 FASTENERS

A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use. Select fasteners for type, grade, and class required.

1. Provide stainless-steel fasteners for fastening aluminum.

B. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts, and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1 (A1).

2.05 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy that is welded.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.06 FABRICATION

A. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.

D. Fit exposed connections accurately together to form hairline joints.

E. Welding: Comply with AWS recommendations and the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.

F. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings, frames, and supports rigidly in place and to support indicated loads.

1. Fabricate toe plates to fit grating units and weld to units in shop unless otherwise indicated.
2. Fabricate toe plates for attaching in the field.
3. Toe plate Height: 4 inches unless otherwise indicated.

2.07 METAL BAR GRATINGS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. IKG Industries; a division of Harsco Corporation.
 2. Ohio Gratings, Inc.
- B. Rectangular Bar Grating: As noted on the drawings and as indicated below.
1. Bearing Bar Spacing: 1-3/16 inches o.c.
 2. Bearing Bar Depth: Varies as noted on drawings and as required to comply with structural performance requirements.
 3. Bearing Bar Thickness: 3/16 inch and as required to comply with structural performance requirements.
 4. Crossbar Spacing: 4 inches o.c.
 5. Aluminum Finish: Mill finish.
 6. Steel Finish: Galvanized.
- C. Grating Sections: Fabricate with banding bars attached by welding to entire perimeter of each section. Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.
1. Provide no fewer than four saddle clips for each grating section composed of rectangular bearing bars 3/16 inch or less in thickness and spaced 15/16 inch or more o.c., with each clip designed and fabricated to fit over two bearing bars.
 2. Furnish threaded bolts with nuts and washers for securing grating to supports.
 3. Furnish self-drilling fasteners with washers for securing grating to supports.
- D. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.
1. Edge-band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.
- E. Do not notch bearing bars at supports to maintain elevation.

2.08 GRATING FRAMES AND SUPPORTS

- A. Frames and Supports for Metal Gratings: Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.
1. Unless otherwise indicated, fabricate from same basic metal as gratings.
 2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors a maximum 16 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.

2.09 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

- B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: non-specular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.
- D. Fit exposed connections accurately together to form hairline joints.
 - 1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- E. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.02 INSTALLING METAL BAR GRATINGS

- A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.
- B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.
- C. Attach non-removable units to supporting members by welding where both materials are same; otherwise, fasten by bolting as indicated above.

END OF SECTION

SECTION 05531 - ACCESS HATCHES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, equipment and incidentals required and install access hatches as shown on the Drawings and specified herein. Prefabricated access hatches and frames shall be sized as shown on the drawings.

1.02 COORDINATION

- A. The work in this Section shall be completely coordinated with the work of other Sections. Verify at the site both the dimensions and work of other trades adjoining items of work in this Section before fabrication and installation of items herein specified.
- B. Furnish to the pertinent trades all items included under this Section that are to be built into the work of other Sections.

1.03 SUBMITTALS

- A. Detail fabrication shop drawings, provided for assemblies indicated in the Contract Documents, showing sizes of members, method of assembly, anchorage, and connection to other members shall be submitted to the Owner's Representative for approval before fabrication.

1.04 FIELD MEASUREMENTS

- A. Field measurements shall be taken at the site to verify or supplement indicated dimensions and to insure proper fitting of all items.

1.05 REFERENCED SPECIFICATIONS

- A. Unless otherwise specified, materials shall conform to the following:

Aluminum (Extruded Shapes)	6061-T6 (Alum. alloy)
Aluminum Bar Structural	6061-T6 (Alum. alloy)
Bolts and Nuts	ASTM 276 Stainless Steel, Type 316
Fasteners Stainless	AISI, Type 316
Steel Plate and Sheet Wire	AISI, Type 316
Welding Rods for Steel/Alum.	AWS Spec. for Arc Welding

PART 2 - PRODUCTS

2.01 ANCHORS, BOLTS AND FASTENING DEVICES

- A. Anchors, bolts, etc., shall be furnished as necessary for installation of the work of this Section.
- B. The bolts used to attach the various members to the anchors shall be the sizes shown or required. Stainless steel shall be attached to concrete or masonry by means of 316 stainless steel machine bolts, and iron or 316 stainless steel shall be attached with 316 stainless steel machine bolts unless otherwise specifically noted.
- C. Post installed anchors shall be adhesive Hilti HIT-HY 200, Red Head C6 with ASTM F593

316SS threaded rods or equivalent. Expansion or mechanical anchors are not allowed.

2.02 ALUMINUM ITEMS

- A. Prefabricated aluminum hatches shall be manufactured by Bilco, Halliday, US Foundry or approved equal. Hatches shall be double or single leaf type as shown on drawings. Hatches shall be watertight. All hatches shall be provided with fall proof grating inserts.
- B. Aluminum Hatches: Entry access and pump removal hatches shall be flush aluminum access doors. Hatches shall be extruded frame and drain. Frames shall be 1/4" (min.) aluminum with strap anchors. Cover shall be 1/4" (min.) aluminum diamond or checker skid resistant surface pattern plate, reinforced to withstand a live load of 300 psf or HS-20 wheel load whichever produces the greater stress with stainless steel hinges bolted to the underside and torsion rods or spring operators for ease of operation and the cover shall open to 90 degrees and lock automatically in the position. A vinyl grip handle shall be provided to release the cover for closing. Hardware shall be stainless steel. Factory finish shall be a mill finish with bituminous coating applied to exterior of the frame. Manufacturer shall guarantee against defects in material or workmanship for a period of five years (min.). Covers shall be equipped with recessed lifting handle which lies flush with the door surface, and a stainless steel staple which may be used to secure the door with a padlock when closed.
- C. Miscellaneous aluminum shapes and plates shall be fabricated as shown. If angle frames are provided for hatches, assembly shall be furnished complete with welded strap anchors attached. Furnish all miscellaneous aluminum shown, but not otherwise detailed. Structural shapes and extruded items shall conform to the detail dimensions on the Plans within the tolerances published by the American Aluminum Association.

PART 3 - EXECUTION

3.01 FABRICATION

- A. All metal work for access hatches shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability.
- B. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Steel accessories and connection to steel or cast iron shall be steel, unless otherwise specified. Threaded connections shall be made so that the threads are concealed by fitting.
- C. The face of welds shall be dressed flush and smooth. Exposed joints shall be close fitting and jointed where least conspicuous.
- D. Welding of parts shall be in accordance with the Standard Code of Arc and Gas Welding in Building Construction of the AWS and shall only be done where shown, specified, or permitted by the Engineer. All welding shall be done only by welders certified as to their ability to perform welding in accordance with the requirements of the AWS Code. Component parts of built-up members to be welded shall be adequately supported and clamped or held by other adequate means to hold the parts in proper relation for welding.
- E. Welding of aluminum work shall be on the unexposed side as much as possible in order to prevent pitting or discoloration.
- F. All aluminum finish exposed surfaces, except as specified below, shall have

manufacturer's standard mill finish. A coating of methacrylate lacquer shall be applied to all aluminum shipment from the factory.

- G. Castings shall be of good quality, strong, tough, even-grained, smooth, free from scale, lumps, blisters, sand holes, and defects of any kind which render them unfit for the service for which they are intended. Castings shall be thoroughly cleaned and will be subjected to a hammer inspection in the field by the Engineer. All finished surfaces shown on the Drawings and/or specified shall be machined to a true plane surface and shall be true and seat at all points without rocking. Allowances shall be made in the patterns so that the thickness specified or shown shall not be reduced in obtaining finished surfaces. Castings will not be acceptable if the actual weight is less than 95 percent of the theoretical weight computed from the dimensions shown. The Contractor shall provide facilities for weighing castings in the presence of the Engineer showing true weights, certified by the supplier.

3.02 INSTALLATION

- A. Install all furnished items embedded in concrete. Items to be attached to concrete after such work is completed shall be installed in accordance with the details shown. All dimensions shall be verified at the site before fabrication is started.
- B. Where aluminum is embedded in concrete, apply a heavy coat of approved bitumastic troweling mastic in accordance with the manufacturer's instructions prior to installation.

END OF SECTION

SECTION 05532 - ALUMINUM GRATING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of aluminum grating shall be as shown on the Drawings and include all necessary fasteners and accessory items to make a complete system.

1.02 QUALITY ASSURANCE

- A. Codes and Standards: Provide the aluminum grating to conform to the following codes and standards per current edition:
 - 1. ASTM B 221: Specification for Aluminum Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
 - 2. ANSI/NAAMM MBG 531: Metal Bar Grating Manual
 - 3. ASTM E-448: Test Method for Strength of Anchors in Concrete and Masonry Elements
 - 4. AWS D1.2: Structural Welding Code - Aluminum

1.03 SUBMITTALS

- A. All submittals shall be in accordance with Specification 01310 – Administrative Requirements.
- B. Submit manufacturer's specifications, load tables, dimensions, diagrams, anchor details and installation instructions.
- C. On request, furnish reports of load versus deflection tests conducted on assembled grating panels. Such tests shall be certified by an independent, nationally recognized testing laboratory.
- D. Shop Drawings: Submit shop drawings for the fabrication and erection of all assemblies of work which are not completely shown by the manufacturer's data sheets. Include plans, elevations, and details of sections and connections. Show anchorage and accessory items.
 - 1. Include setting drawings and templates for location and installation of items anchorage devices. Coordinate installation of anchorages for gratings and supports and deliver items to project site in time for installation

1.04 JOB CONDITIONS

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible, to ensure proper fitting of the work. However, don't delay job progress; allow for trimming and fitting wherever the taking of field measurements before fabrication might delay the work.
- B. Shop Assembly: Preassemble items in the shop to the greatest extent possible, so as to minimize field splicing and assembly of units as the project site. Disassemble units only to the extent necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1.05 WARRANTY/GUARANTEE

- A. Manufacturer's Standard Warranty: The grating sections shall be free of defects in material and workmanship for 3 years from final completion. If the materials are defective, the manufacturer shall repair or replace them at no additional cost.

PART 2 - PRODUCTS

2.01 ALUMINUM GRATING

- A. The aluminum grating design shall be manufactured with alloy 6061-T6 or 6063-T6 and size as noted on the Drawings.
- B. Loading and Deflection Requirements: The grating shall be designed to support a 100 psf uniform live load with a theoretical design deflection of 0.25 inch or less, or as noted on the Drawings if requirements are more stringent.
- C. Walking Surface Finish: The grating surface shall have a plain fluted pattern surface.
- D. Color: The grating color shall be natural aluminum.

2.02 ACCESSORIES

- A. Fastener: Provide Type 50 aluminum fasteners with hold down clips for sectional and frame attachment with stainless steel Allen wrench screw type by the manufacturer.
- B. Frame: Provide extruded aluminum alloy 6063-T6 frame by the grating manufacturer. The frame finish shall match that of the specified grating.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that the grating installation will not disrupt other trades and verify that the substrate is clean and free of foreign matter. Correct all defects prior to installation.

3.02 INSTALLATION

- A. General: Install the grating in accordance with the project drawings, specifications, approved shop drawings, and manufacturer's installation standards.
- B. Grating panels shall be fabricated to be square within manufacturer's tolerances and free from warping and any defect that may affect serviceability and reliability.
- C. Install the grating with a min. 1-1/2 inch bearing surface at the frame or support ends. The grating shall be fastened to the frame or support substrate using fasteners and clips supplied by the grating manufacturer. Fastening shall be consistent with the manufacturer's instructions.
- D. Tolerances between sections shall not exceed the dimensional spacing of the grating style type. Adjacent sections shall line up to form an uninterrupted straight line, where possible.
- E. Grating sections shall be installed to be removable unless indicated otherwise.

- F. Openings shall be field cut by the installer where indicated to permit field installation of wiring, equipment, piping, etc. All rectangular cutouts shall be made to the next bearing section past the obstruction. The cutout clearance to obstruction from the edge of the grating shall be no larger than 2 inches. Cutouts shall be done in the field (unless otherwise requested).

END OF SECTION

SECTION 05540 - ALUMINUM CANOPY

PART 1 – GENERAL

1.01 SCOPE

- A. Furnish and install aluminum canopy to include beam and column framing members, secondary members, connection hardware and anchor bolts as required.
- B. Furnish and install fiberglass reinforced polymer roof deck to include deck panels and attachments to aluminum roof members as required.

1.02 DESCRIPTION

- A. **ALUMINUM CANOPY:** The contractor shall purchase and install all materials and components required for a complete installation as shown and specified in the bid documents. A similar canopy system to what is required is located immediately adjacent to the proposed location of this system as a guide for what is to be installed.
- B. **FIBERGLASS REINFORCED POLYMER ROOF DECK:** The contractor shall purchase and install all materials and components required as shown and specified in the bid documents. The roof deck shall be a similar product to the Resolute product shown on the design drawings.
- C. **RELATED SECTIONS:**
 - 1. Section 03301 "Anchor Systems."
 - 2. Section 05500 "Metal Fabrications."
 - 3. Section 05510 "Structural Aluminum."
 - 4. Section 06600 "Fiberglass Reinforced Polymer Products and Fabrications."

1.03 DESIGN REQUIREMENTS

- A. The Contractor shall utilize an in-house engineer or retain a consulting engineer to perform as the Delegated Engineer for the aluminum canopy.
- B. The Contractor shall select and propose a fiber reinforced plastic roof deck that meets the gravity load and wind load requirements provided in Section 1.04 below.
- C. **Codes and Standards:** The contractor shall comply with the following codes and standards unless specifically directed otherwise:
 - 1. Florida Building Code (FBC) 2020 Edition.
 - 2. ASCE 7-16 "Minimum Design Loads for Buildings and Other Structures."
 - 3. ADM1-2015 "Aluminum Design Manual-Part 1-A Specification for Aluminum Structures."
 - 4. AISC Steel Design Guide 27 "Structural Stainless Steel."

1.04 PERFORMANCE REQUIREMENTS

Design, fabricate, and erect the aluminum canopy system to withstand loads from wind and gravity, and structural movement, and resist in-service use without failure. Design members to withstand stresses resulting from combinations of loads that produce maximum allowable stresses.

- A. Design Roof Live Loads: Uniform loads per Florida Building Code 2020.
- B. Design Dead Loads: Self-weight of canopy and roof deck members plus a collateral uniform load of 10 psf.
- C. Design Wind Loads: Wind pressures in accordance with FBC and ASCE 7-16 (ASCE 7) and as further defined below.
 - 1. Wind Speed: 146 mph, Risk Category III, Exposure C.
 - 2. Internal Pressure Coefficient (Gpci) = +/-0.00 (Open Structure).

1.05 SUBMITTALS

The contractor shall submit the following for review and acceptance:

- A. Structural Calculations: Include design criteria, referenced design codes and standards, structural member calculations and structural connection calculations.
- B. Product Data: Include manufacturer's product information for the proposed fiber reinforced plastic roof deck.
- C. Shop Drawings: Provide shop drawings for the aluminum canopy.
- D. Delegated Engineer Responsibility: Design and preparation of drawings and calculations referenced above.
 - 1. Delegated Engineer Qualifications: Professional Engineer legally qualified to practice in the State of Florida and experienced in providing engineering services for aluminum systems similar to the system shown on the Drawings and specifications for this project.
 - 2. Certification Letter: A letter, signed, and sealed by the Delegated Engineer, certifying conformity to the applicable governing codes and criteria specified in the Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 06600 - FIBERGLASS REINFORCED POLYMER (FRP) PRODUCTS AND FABRICATIONS

PART 1 - GENERAL**1.01 SUMMARY**

A. This section includes the following FRP Products & Fabrications:

1. FRP Roof Deck and Siding
2. FRP Pultruded Gratings and Treads
3. FRP Structural Shapes and Plate
4. FRP Standard Railings
5. Molded Gratings and Treads

1.02 SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals governed by this section necessary to install the fiberglass reinforced polymer (FRP) products as specified in the contract documents.

1.03 QUALITY ASSURANCE

A. The material covered by these specifications shall be furnished by an ISO-9001 certified manufacturer of proven ability who is regularly engaged in the manufacture, fabrication and installation of FRP systems.

1.04 DESIGN CRITERIA

- A. Design live loads of FRP gratings and floor panels shall not be less than 100 PSF uniformly distributed unless specifically stated otherwise in drawings. Grating and floor panel deflection at the center of a simple span not to exceed 0.25".
- B. Design wind loads for FRP components and cladding shall be per Drawing S00.1, Section 16.
- C. Structural members shall be sized to support all applied loads. Deflection in any direction shall not be more than L/180 of span for structural members unless specifically stated otherwise in drawings and/or supplementary conditions. Connections shall be designed to transfer the loads.
- D. Temperature exposure is limited to 100 °F unless specifically stated otherwise in drawings and/or supplementary conditions.

1.05 SUBMITTALS

- A. Shop drawings of all fabricated roof deck, siding, pultruded gratings and treads, structural shapes and plate, standard railings, molded gratings and treads and appurtenances shall be submitted to the Owner for approval. Fabrication shall not start until receipt of Owner's approval.
- B. Manufacturer's catalog data showing:
1. Materials of construction
 2. Dimensions, spacings, and construction of grating, handrails and building panels.

- C. Detail shop drawings showing:
 - 1. Dimensions
 - 2. Sectional assembly
 - 3. Location and identification mark
 - 4. Size and type of supporting frames required

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials used in the manufacture of the FRP products shall be raw materials in conformance with the specification and certified as meeting the manufacturer's approved list of raw materials.
- B. The visual quality of the pultruded shapes shall conform to ASTM D4385.
- C. With the exception of molded gratings and treads, all FRP products noted shall be manufactured using a pultruded process utilizing vinyl ester resin with flame retardant and ultraviolet (UV) inhibitor additives. A synthetic surface veil fabric shall encase the glass reinforcement. FRP shapes shall achieve a flame spread rating of 25 or less in accordance with ASTM test method E-84, the flammability characteristics of UL 94 V0 and the self-extinguishing requirements of ASTM D635. (Polyester resin is available without flame retardant and UV inhibitor additives.)
- D. All cut ends, holes and abrasions of FRP shapes shall be sealed with a compatible resin coating.
- E. Should additional ultraviolet protection be required, a one mil minimum UV coating can be applied.
- F. All exposed surfaces shall be smooth and true to form, consistent with ASTM D4385.

2.02 PULTRUDED GRATINGS AND TREADS

- A. Grating shall be DURADEK® or DURAGRID® as manufactured by Strongwell or approved equal.
- B. The panels shall sustain a deflection of no more than 0.25" under a uniform distributed load of 100 PSF for the span lengths shown on the plans. See Strongwell's Fiberglass Grating brochure for a list of available sizes.
- C. Stair treads shall be capable of withstanding a uniform load of 100 PSF or a concentrated load of 300 lbs. on an area of 4 sq. inches located in the center of the tread, whichever produces greater stress and deflect less than 0.25".
- D. The top surface of all panels, gratings, and treads shall have a non-skid grit affixed to the surface by an epoxy resin followed by a top coat of epoxy resin.
- E. Hold down clamps shall be type 316L stainless steel clips. Use 2 at each support with a minimum of 4 per panel.
- F. Color shall be high visibility yellow or grey.
- G. All shapes and fabrications that are to be exposed to UV shall be coated with polyurethane coating of a minimum thickness of 1 mil.

- H. The FRP grating and stair treads shall be fabricated from bearing bars and cross rods manufactured by the pultrusion process. The glass fiber reinforcement for the bearing bars shall be a core of continuous glass strand rovings wrapped with continuous strand glass mat. A synthetic surface veil fabric shall encase the glass reinforcement.

2.03 FABRICATION OF STANDARD RAILING SYSTEM

- A. The fiberglass standard railing system shall be fabricated into finished sections by fabricating and joining together the pultruded square tube using molded or pultruded components; epoxy bonded and connected as shown in the fabrication details. Railing sections shall be fabricated to the size shown on the approved fabrication drawings and shall be piece marked with a water proof tag.
- B. For Side Mount
 - 1. Post shall be constructed with a pultruded bottom plug. Length shall be sufficient to extend a minimum of 1" beyond the uppermost bolt hole to prevent crushing of post tubing. Bolt holes shall provide clearance of 1/16" for 1/2" diameter bolts/studs. On square tubes, holes shall be on longitudinal center line of post, 1" from bottom of post (minimum) and not less than 3" apart on center. Posts shall be fastened with stainless steel anchor bolts or studs, 1/2" diameter.
 - 2. Post locations shall be no greater than 18", nor less than 9" from horizontal or vertical change in handrail direction. For square tubes, post centers shall be no greater than 72" apart on any straight run or rail, or 48" apart on any inclined rail section.
- C. Other Attachment Methods
 - 1. Base mount, embedded and removable are also types of mounting procedures for railing. Design and calculations must be signed and sealed by a licensed Structural Engineer in the State of Florida and submitted to the Owner for approval.
- D. Installation of Handrail Sections
 - 1. The fabricated railing sections shall be supplied complete with fittings by the FRP manufacturer. The components used to join fabricated sections together may be shipped loose, to be epoxied and riveted, if required, together, if required in the field by the contractor.
 - 2. The fabricated handrail sections shall be installed as shown on the approved shop drawings. The handrail sections shall be accurately located, erected plumb and level. The sections shall be fastened to the structure as shown on the approved shop drawings.
- E. Approved Fabricators
 - 1. Strongwell or approved equal.

2.04 MOLDED GRATING AND TREADS

- A. Grating shall be DURAGRATE® as supplied by Strongwell or approved equal.
- B. Design

1. The grating shall be one piece construction with the tops of the bearing bars and cross bars in the same plane.
2. The mesh pattern and thickness shall be: (selected pattern and thickness shown on the drawings)
 - a. 3/4" square mesh, 1-1/2" thick
 - b. 1-1/2" square mesh, 1" thick
 - c. 1-1/2" square mesh, 1-1/2" thick
 - d. 2" square mesh, 2" thick
 - e. 1" x 4" rectangular mesh, 1" thick
 - f. 1-1/2" x 6" rectangular mesh, 1-1/2" thick
3. The standard resin systems and colors are: vinyl ester (high visibility yellow or grey).

C. Products

1. The FRP molded grating and treads shall be manufactured by the open mold process.
2. Molded stair treads shall be 1-1/2" thick in a 1-1/2" x 6" rectangular mesh pattern. The resin system will be the same as the molded grating. The stair tread shall come complete with anti-slip nosing.
3. Hold down clamps shall be:
 - a. Type M clips for attaching grating to supports.
 - b. Type J clips for attaching grating to supports for moderate loads.
4. Grating with cover plate
 - a. Grating shall be the same as described above in this section.
5. The cover plate for molded grating shall be an integrally molded plate as manufactured by Strongwell or approved equal.
 - a. The integrally molded plate may use the same resin as the grating.
 - b. The integrally molded plate shall be bonded to the grating, and a non-skid grit shall be affixed to the top surface of the assembly.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Fastening to in-place construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous FRP fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts and other connectors.

- B. Cutting, fitting and placement: Perform cutting, drilling and fitting required for installation of miscellaneous FRP fabrications. Set FRP fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; measured from established lines and levels.
- C. Provide temporary bracing or anchors in form work for items that are to be built into concrete masonry or similar construction.

END OF SECTION

SECTION 07100 - WATERPROOFING, DAMPPROOFING AND CAULKING

PART 1 - GENERAL**1.01 SCOPE OF WORK**

- A. Furnish all materials, labor, equipment, and incidentals required to perform all through wall flashing work, waterproofing, dampproofing, caulking, and related work necessary for the proper completion of the project as required by the Drawings and as specified herein.
- B. Dampproof the exterior surfaces of all exterior poured- in-place concrete walls or concrete masonry foundation walls from the top of the footings up to 6 inches below finished grade.

1.02 APPLICABLE SCHEDULE

- A. Deliver all materials in original manufacturer's packages with labels and seals intact. Handle and store in accordance with manufacturer's instructions.
- B. Inspect job conditions for defects which would prevent proper installation of caulking. Do not proceed until defects have been corrected.
- C. Caulk all exterior wall joints between metal wall panels and adjacent materials, between frames in openings and adjacent materials, between masonry and cast-in-place concrete, brick paver expansion and control joints and all other joints shown on the Drawings or required for the completion of the Work.
- D. Caulk all interior joints between frames and masonry, at tops of masonry walls, between masonry and structural concrete, expansion and control joints in ceramic tile and brick pavers, exterior window and door frames, louvers, and all other joints shown on the drawings or required for the completion of the Work.
- E. Joints noted as "caulk", "caulking", or "sealant" shall be caulked with the sealant specified herein.
- F. Furnish and place through wall flashing in exterior masonry walls as shown on the Drawings.
- G. Furnish and place vapor barrier under all building structure slabs contacting soil as specified herein.

1.03 SUBMITTALS

Submit two representative samples of any or all other proposed materials and installation method required for the work of this Section as requested by the County.

PART 2 - PRODUCTS**2.01 DAMPPROOFING**

- A. Dampproofing shall be Bitumastic Black Solution by the Koppers Company, Inc., Dehydrating 4 by W.R. Grace and Co., or equal.

2.02 CAULKING

- A. Caulking Compound: One component, synthetic rubber base sealant, soft curing, nonstaining, conforming to F.S. TT-S-00230 and Thiokol's Building Trade Performance Specifications for Type 1 Class B sealants. Colors shall match material receiving caulking, as directed by the County.
- B. Interior Silicone Sealant: F.S. TT-001543 for perimeter of plumbing fixtures against walls and floors and joints between laminated plastic counters and walls shall be transparent.
- C. Primer: As recommended by caulking compound manufacturer.
- D. Back-up Material: Closed cell foam polyethylene, or similar nonbituminous material as recommended by manufacturer of caulking compound and completely compatible with selected compound.

2.03 HYDRAULIC CEMENT

- A. Material for quick-set hydraulic cement shall be Waterplug as manufactured by Thoro System Products, or equal.

2.04 VAPOR BARRIER

- A. Vapor barrier shall be 10 mil thick polyethylene sheet with a vapor transmission rating of 0.20 perms. Laps between adjacent sheets shall be 10 inches minimum. Vapor barrier shall be carefully inspected by the County prior to concrete placement. Additional polyethylene sheet required for repair or replacement of damaged vapor barrier shall be furnished and installed by the Contractor as directed by the County at no additional cost to the County.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation of Dampproofing
 - 1. Surface to be treated shall be free from oil and dirt and shall be in the proper condition as indicated by the manufacturer prior to the application of the dampproofing material. The concrete shall have been completely cured and the surface shall be dry and free from frost at the time of application.
 - 2. Surfaces to be dampproofed shall receive two (2) heavy coats 10 mils thick, the first coat being carefully applied so that "holidays" or untreated air-bubble depressions in the surface shall be completely filled and the second coat will guarantee a 100% coating of the surface.
 - 3. Particular care shall be given to the application of dampproofing at all construction joints which are encountered.
 - 4. The number of coats specified is in addition to primer coats as recommended by the manufacturer.
- B. Installation of Caulking
 - 1. Surface Preparation: Clean metal surfaces free of grease, oil, wax, lacquer, and other foreign residue by wiping with a clean cloth moistened with a suitable solvent.

Scrape or brush masonry surfaces clean. Apply appropriate primer to contact surfaces.

2. Joint Preparation: Joints to be caulked having a depth in excess of 3/8-inch shall be packed with back-up material. Round back-up material shall be sized to require 20 percent to 5 percent compression upon insertion. In joints not of sufficient depth to allow packing, install polyethylene bond-breaking tape at back of joint. Avoid lengthwise stretching of back-up material. Cut all corners, avoid wrapping around corners.
3. Application: Apply compound with pressure flow gun with nozzle of proper size and shape to suit width of joint, promptly after mixing and with sufficient pressure to fill joint. Apply as a continuous operation horizontally in one direction and vertically from bottom to top, except joints having excessive widths where compound might sag, the joints shall be built up with excessive beads. Finish joints smooth and slightly covered.
4. Cleaning: Immediately clean adjacent material which may be soiled by caulking operation.

C. Installation of Quick-Set Hydraulic Cement

1. The surface shall be cleaned and free of dirt, loose mortar particles, paints, films, protective coatings, efflorescence, laitance, form treatments, curing compounds, and other materials.
2. Cut out crack at least 3/4 inches wide and deep, cutting back into wall slightly. Flush away all cuttings and dirt. Force water-plug into prepared crack with a round tool and smooth out. Form cove at junction.
3. To be applied under manufacturer's recommendations.

END OF SECTION

SECTION 07900 – JOINT SEALANTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preparing sealant substrate surfaces.
- B. Sealant and backing.

1.02 REFERENCES

- A. ANSI/ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- B. ANSI/ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- C. ASTM C804 - Use of Solvent-Release Type Sealants.
- D. ASTM C920 - Specification for Elastomeric Joint Sealants.
- E. FS TT-S-01657 - Sealing Compound: Butyl Type.
- F. SWI (Sealing and Waterproofer's Institute) - Sealant and Caulking Guide Specification.

1.03 SUBMITTALS

- A. Submit product data indicating sealant chemical characteristics, performance criteria, limitations, color availability and intended use.
- B. Submit manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum five years documented experience.
- B. Applicator: Company specializing in applying the work of this Section with minimum five years documented experience.
- C. Conform to Sealant and Waterproofer's Institute requirements for materials and installation.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with all Sections referencing this Section.

1.07 WARRANTY

- A. Provide five year warranty from date of final acceptance.
- B. Warranty: Include coverage of installed sealants and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
- C. In addition, the warranty shall state that all exposed sealants will be guaranteed against any crazing developing on the surface of the material for five years of outdoor exposure, any staining of the adjacent surfaces, by sealant or by primer (yellowing, etc.) caulking, or color change on surface of cured sealant.

1.08 DEFINITIONS

- A. Regardless of the terminology used on the drawings the following definitions shall be used to identify and clarify the use of materials specified.
 - 1. "Caulking" may apply only to oil based and other organic materials and work in connection with them. Use in the filling or closing of interior joints where expansion or contraction are of no consideration, and where filling and closing of these interior joints is primarily for appearance, or painting.
 - 2. "Sealant" shall apply to all other conditions, interior and exterior, where expansion, contraction, resiliency, and waterproof or weather tight construction are a consideration.

PART 2 - PRODUCTS

2.01 SEALANTS

- A. Sealant for Exterior Work including perimeter of exterior doors and windows (except as specified otherwise) Single component polyurethane, ASTM C-920 type W, grade NS, class 25, use NT, M, A:
 - 1. Sonneborn: "Sonolastic" NP1
 - 2. Tremco: "Dymonic"
 - 3. Pecora: "Dynatrol" I
- B. Polyurethane Sealant for use in concrete control joints and expansion joints: ASTM C920, Class A, single component, chemical curing, non-staining, non-bleeding, self-leveling type; limestone color; manufactured by:
 - 1. Tremco: "Tremflex" S/L.
 - 2. Sonneborn: "Sonolastic" SL1.
 - 3. Pecora: "Urexpan" NR-201.
- C. Interior Caulking: Vertical and horizontal surfaces for dry, non-traffic installations provide single part water based VOC free siliconized acrylic latex sealant complying with ASTM C834. Siliconized color to be selected from manufacturer's standard offering.
- D. Butyl Sealant for threshold setting bed: Single component, solvent release, non-skinning, non-sagging, TT-S-01657 type I, manufactured by:
 - 1. Tremco: "Butyl Seal".
 - 2. Sonneborn: "Multi-Purpose Sealant"

3. Pecora: "BC158"

E. Color: Match adjacent surfaces where not painted, or as otherwise selected by the Owner from manufacturer's standard colors.

2.02 ACCESSORIES.

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

2.03 JOINT BACKING

A. Closed cell polyethylene rod, circular or rectangular dimension as indicated or required; or bond-breaking type coated open cell polyurethane rod similar to "Polytite B" by Sandell Manufacturing. Materials shall be free of oil or other staining elements. Oakum and other types of absorptive materials shall not be used.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces, and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.

B. Beginning of installation means installer accepts existing surfaces & substrate.

3.02 PREPARATION

A. Clean and prime joints in accordance with manufacturer's instructions.

B. Remove loose materials and foreign matter which might impair adhesion of sealant.

C. Verify that joint backing and release tapes are compatible with sealant.

D. Perform preparation in accordance with ASTM C804 for solvent release, C790 for latex base sealants.

E. Protect elements surrounding the work of this Section from damage or disfiguration.

3.03 INSTALLATION

A. Install sealant in accordance with manufacturer's instructions.

B. Measure joint dimensions and size materials to achieve required width/depth ratios.

C. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.

D. Install bond breaker where joint backing is not used.

- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints as detailed.

3.04 CLEANING AND REPAIRING

- A. Clean adjacent soiled surfaces.
- B. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.05 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of the Supplemental General Conditions.
- B. Protect sealants until cured.

END OF SECTION

SECTION 07920 - SEALANTS AND CAULKING

PART 1 - GENERAL

1.01 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are reread to in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM) Publications: C 920-79 Elastomeric Joint Sealants

1.02 SUBMITTALS

- A. Submit under provisions of Section 01340.
- B. Certificates of Conformance or Compliance: Submit certificates from the manufacturers attesting that materials meet the specified requirements.
- C. Manufacturer's Descriptive Data: Submit complete descriptive data for each type of material. Clearly mark data to indicate the type the Contractor intends to provide. Data shall state conformance to specified requirements. Data for sealant and calking shall include application instructions, shelf life, mixing instructions for multicomponent sealants, and recommend cleaning solvents.

1.03 DELIVERY AND STORAGE

Deliver materials to the job site in the manufacturers' external shipping containers, unopened, with brand names, date of manufacture, and material designation clearly marked thereon. Containers of elastomeric sealant shall be labeled as to type, class, grade, and use. Carefully handle and store all materials to prevent inclusion of foreign materials or subjection to sustained temperatures exceeding 100 degree F or less than 40 degree F.

PART 2 – PRODUCTS

2.01 MANUFACTURER

Manufacturer: Subject to compliance with requirements provide products manufactured by single source.

2.02 MATERIALS

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Products shall conform to the reference documents listed for each use. Color of sealant and calking shall match adjacent surface color unless specified otherwise. For ASTM C 920 sealants, use a sealant that has been tested on the type(s) of substrate to which it will be applied. Interior Calking or Sealant: Provide ASTM C 920, Type M, Grade NS,

Class 12.5, Use NT. Color of calking or sealant shall be selected by Owner from manufacturer's full range.

- C. Exterior Sealant: For joints in vertical surfaces, provide ASTM C 920, Type M, Grade NS, Class 25, Use NT. For joints in horizontal surfaces, provide ASTM C 920, Type M, Grade P, Class 25, Use T. Color of sealant shall be selected by Owner from manufacturer's full range.
- D. Latex rubber modified, acrylic emulsion polymer sealant compound; manufacturer's standard, one part, nonsag, mildew resistant, acrylic emulsion sealant complying with ASTM C834, formulated to be paintable and recommended for exposed applications on interior locations involving joint movement of not more than plus or minus 5 percent.
- E. Floor Joints Sealant: Provide ASTM C-920, Type S or M, Grade P, Class 25, Use T. Color of sealant shall be selected by Owner from manufacturer's standard colors.
- F. Primer for Sealant: Use a non-staining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.
- G. Bond Breakers: Use the type of consistency recommended by the sealant manufacturer for the particular application.
- H. Silicone Joint Sealants: Use Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
- I. Backstops: Use glass fiber roping or neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by the sealant manufacturer. Backstop material shall be compatible with the sealant. Do not use oakum and other types of absorptive materials as backstops.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Surfaces shall be clean, dry to the touch, and free from frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion. Where adequate grooves have not been provided, clean out grooves to a depth of ½" and grind to a minimum width of ¼" without damage to the adjoining work. No grinding shall be required on metal surfaces.
- B. Steel Surfaces: Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finish work, scraping and wire brushing. Remove protective coatings by sandblasting or using a solvent that leaves no residue.
- C. Copper or Bronze Surfaces: Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive just prior to sealant application. Use non-staining solvents recommended by the item manufacturer.

3.02 SEALANT PREPARATION

Do not modify the sealant by addition of liquids, solvents, or powders. Mix multicomponent elastomeric sealants in accordance with manufacturer's printed instructions.

3.03 APPLICATION

- A. Backstops: Where joint cavities are constructed deeper than indicated, tightly pack the back or bottom with backstop material to provide a joint of the depth indicated. Install backstops dry and free of tears or holes.
- B. Primer: Just prior to application of the sealant or calking compound, clean out all loose particles from joints. Apply primer in accordance with compound manufacturer's directions. Do not apply primer to exposed finish surfaces.
- C. Bond Breaker: Provide bond breakers as recommended by the sealant manufacturer for each type of joint and sealant used.
- D. Sealant and Caulking Compounds: Use a compound that is compatible with the material to and against which it is applied. Do not use a compound that has exceeded its shelf life or has become too jelled to be discharged in a continuous flow from the gun. Apply the compound in accordance with the manufacturer's printed instructions. Force the compound into the joints with sufficient pressure to fill the joints solidly. Compound shall be uniformly smooth and free from wrinkles.
- E. Interior Sealant and Caulking: Provide sealant or caulking at all exposed joints in the building and at all joints indicated to receive sealant or caulking.
- F. Exterior Sealant: Provide sealant at all joints around the perimeter of openings and at all exposed joints on the building and at all joints indicated to receive sealant.
- G. Floor Joints Sealants: Provide sealant in all control joints and in other floor joints indicated or specified.
- H. Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

3.04 PROTECTION AND CLEANING

- A. Protection: Protect areas adjacent to joints from compound smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.
- B. Cleaning: Immediately scrape off fresh compound that has been smeared on masonry and rub clean with a solvent as recommended by the compound manufacturer. Upon completion of compound application, remove all remaining smears and stains resulting therefrom and leave the work in a clean and neat condition.

END OF SECTION

SECTION 08120 - ALUMINUM DOORS & FRAMES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Flush aluminum doors with aluminum frames.

1.02 REFERENCES

- A. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tube.
- C. ASTM D 1621 - Compressive Properties of Rigid Cellular Plastics.
- D. ASTM D 1623 - Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- E. ASTM D 2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- F. ASTM D 6670-01 - Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products
- G. ASTM E 283 - Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- H. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.03 PERFORMANCE REQUIREMENTS

- A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
- B. Air Infiltration: For a single door, test specimen shall be tested in accordance with ASTM E 283 at pressure differential of 6.24 psf. Door shall not exceed 0.28 cfm per square foot
- C. Uniform Structural Load: For a single door, test specimen shall be tested in accordance with ASTM E 330: Plus or minus 120 pounds per square foot.
- D. Indoor air quality testing per ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.
- E. Compressive Strength, Foam Core, Nominal Value, ASTM D 1621: 79.9 psi.
- F. Compressive Modulus, Foam Core, Nominal Value, ASTM D 1621: 370 psi.
- G. Tensile Adhesion, Foam Core, Nominal Value, ASTM D 1623: 45.3 psi.
- H. Thermal and Humid Aging, Nominal Value, 158 Degrees F and 100 Percent Humidity for 14 Days, ASTM D 2126: Minus 5.14 percent volume change.

1.04 SUBMITTALS

- A. Comply with Division 1.
- B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.
- C. Florida Product Approval and Installation Certificates indicating compliance with required wind loading as indicated on the structural drawings and in the Florida Building Code.
- D. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, finish, options, and accessories.
- E. Samples:
 - 1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, finish, and accessories.
 - 2. Color: Submit manufacturer's samples of standard colors of doors and frames.
- F. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.
- G. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.
- H. Maintenance Manual: Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.
- I. Warranty: Submit manufacturer's standard warranty.

1.05 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years successful experience.
 - 2. Door and frame components from same manufacturer.
 - 3. Evidence of a compliant documented quality management system.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying opening door mark and manufacturer.
- B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finish from damage during handling and installation.

1.07 WARRANTY

- A. Warrant doors, frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
- B. Warranty Period: Ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Basis of Design: Special-Lite, Inc., PO Box 6, Decatur, Michigan 49045. Toll Free (800) 821-6531. Phone (269) 423-7068. Fax (800) 423-7610. Web Site www.special-lite.com. E-Mail info@special-lite.com.

2.02 ALUMINUM FLUSH DOORS

- A. Model: SL-16 aluminum flush double doors with aluminum frames and transoms.
- B. Door Opening Size: As indicated on the Drawings.
- C. Construction:
 - 1. Door Thickness: 1-3/4 inches.
 - 2. Stiles and Rails: Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes, minimum of 2-5/16-inch depth.
 - 3. Corners: Mitered.
 - 4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom integral to standard tubular shaped stiles and rails reinforced to accept hardware as specified.
 - 5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
 - 6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
 - 7. Rail caps or other face sheet capture methods are not acceptable.
 - 8. Extrude top and bottom rail legs for interlocking continuous weather bar.
 - 9. Meeting Stiles: Pile brush weatherseals. Extrude meeting stile to include integral pocket to accept pile brush weatherseals.
 - 10. Bottom of Door: Install bottom weather bar with nylon brush weatherstripping into extruded interlocking edge of bottom rail.
 - 11. Glue: Use of glue to bond sheet to core or extrusions is not acceptable
- D. Face Sheet:
 - 1. Material: 0.062-inch thick aluminum.
 - 2. Texture: Smooth.
- E. Core:
 - 1. Material: Poured-in-place polyurethane foam.

2. Density: Minimum of 5 pounds per cubic foot.
3. R-Value: Minimum of 9.

F. Cutouts:

1. Manufacture doors with cutouts for required vision lites.
2. Provide factory installed vision lites.

G. Hardware:

1. Pre-machine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
2. Provide factory installed hardware.

2.03 MATERIALS

A. Aluminum Members:

1. Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes: ASTM B 221.
2. Sheet and Plate: ASTM B 209.
3. Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.

B. Components: Door and frame components from same manufacturer.

C. Fasteners:

1. Material: Aluminum, 18-8 stainless steel, or other non-corrosive metal.
2. Compatibility: Compatible with items to be fastened.
3. Exposed Fasteners: Screws with finish matching items to be fastened.

2.04 FABRICATION

A. Sizes and Profiles: Required sizes for door and frame units, and profile requirements shall be as indicated on the Drawings.

B. Coordination of Fabrication: Field measure before fabrication and show recorded measurements on shop drawings.

C. Assembly:

1. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
2. Remove burrs from cut edges.

D. Welding: Welding of doors or frames is not acceptable.

E. Fit:

1. Maintain continuity of line and accurate relation of planes and angles.
2. Secure attachments and support at mechanical joints with hairline fit at contacting members.

2.05 ALUMINUM DOOR FRAMING SYSTEMS

A. Tubular Framing:

1. Size and Type: 2-inch x 4-inch.
2. Materials: Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes, 1/8-inch minimum wall thickness.
3. Applied Door Stops: 0.625-inch high, with screws and weatherstripping. Doorstop shall incorporate pressure gasketing for weathering seal. Counterpunch fastener holes in door stop to preserve full metal thickness under fastener head.
4. Frame Members: Box type with 4 enclosed sides. Open-back framing is not acceptable.
5. Caulking: Caulk joints before assembling frame members.
6. Joints:
 - a. Secure joints with fasteners.
 - b. Provide hairline butt joint appearance.
7. Field Fabrication: Field fabrication of framing using stick material is not acceptable.
8. Hardware:
 - a. Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and hardware schedule.
 - b. Factory installed hardware.
9. Anchors:
 - a. Anchors appropriate for wall conditions to anchor framing to wall materials.
 - b. Door jamb and header mounting holes shall be spaced no more than 24 inches apart.
 - c. Secure head and sill members of transom, side lites, and similar conditions.

2.06 HARDWARE

- A. Pre-machine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
- B. Factory installed hardware.
- C. Hardware Schedule: As specified in Section 08710.
- D. Finish: As specified in Section 08710.

2.07 VISION LITES

- A. Factory Glazing: 5/16" Old Castle Stormglass per Florida Product Approval #9875.1 & 9875.2.
- B. Lites in Exterior Doors: Allow for thermal expansion.
- C. Rectangular Lites:
 - 1. Size: As indicated on the Drawings.
 - 2. Factory glazed with screw-applied aluminum stops anodized to match perimeter door rails.

2.08 ALUMINUM FINISHES

- A. Anodized Finish: Class I finish, 0.7 mils thick.
 - 1. Clear Anodize, AA-M10C22A41, Class I, 0.7 mils thick.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Ensure openings to receive frames are plumb, level, square, and in tolerance.

3.03 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Install doors plumb, level, square, true to line, and without warp or rack.
- C. Anchor frames securely in place.
- D. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
- E. Set thresholds in bed of mastic and back seal.
- F. Install exterior doors to be weathertight in closed position.
- G. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- H. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

3.04 ADJUSTING

- A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.05 CLEANING

- A. Clean doors promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that would damage finish.

3.06 PROTECTION

- A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 08710 – FINISH HARDWARE

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

- A. Acceptable Designs: Specified products and their manufacturers establish acceptable design, material, type, grade, size, function and finish of hardware items required. Do not substitute other products, except with Engineer's acceptance.
- B. Manufacturer: Obtain each kind of hardware latch and locksets, hinges, closers from only one (1) manufacturer, although several may be indicated as offering products complying with the manufacturer's requirements.
- C. Supplier: The hardware supplier shall be a full member of the Society of Architectural Hardware Consultants and shall be available during normal working hours during the course of the project for hardware consultation to the Owner, Engineer, and Contractor.

1.02 SUBMITTALS

- A. Product Data: Submit in accordance with the requirements of Division 1. Include installation and maintenance instructions for operating parts and finish. Transmit copy of applicable data to Installer.
- B. Certificates: Any hardware that is furnished other than that scheduled on the drawings shall have manufacturer's certificates certifying that the hardware meets this specification submitting the hardware shop drawings.
- C. Hardware Schedule: Submit final hardware schedule in the manner and format indicated below. Hardware schedules are intended for coordination of work.
 - 1. Organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening, including:
 - a. Type, style, function, size and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of hardware cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, code, etc. contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - 2. Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work, e.g. hollow metal frames, which is critical in the project construction schedule.

3. Include product data, samples, shop drawings of other work affected by builder's hardware, and other information essential to the coordinated review of hardware schedule.
 4. Templates: Furnish for the installation of all hardware and to the manufacturer of related equipment for his preparation of that equipment for all hardware that must be attached thereto. Templates shall also be furnished to the manufacturer of wood doors for use on all wood doors that are factory fitting and factory machined for hardware.
- D. Keying Schedule: Submit separate detail schedule indicating clearly how the Owner's final instruction on keying of locks has been fulfilled. Prior to submittal blank key schedule to be completed by maintenance personnel.
- E. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of builders hardware, submit one (1) sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.

1.03 JOB CONDITIONS

- A. Coordinate hardware with other work. Tag each item or package separately with identification related to the final hardware schedule. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper location shop or project site for installation.
- B. Packing and Marking: Package each item of hardware separately in individual containers, complete with necessary screws, keys, instructions and installation templates for spotting mortising tools. Mark each container with item's number corresponding to number shown on hardware supplier's schedule and properly tag each cylinder's key.
- C. Provide secure lock-up for hardware delivered to the project but not the installed. Control the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation.
- D. Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work to confirm that adequate provisions are made for the proper installation of hardware.
- E. Inspection of Hardware and Installation: The hardware supplier shall visit the project when the hardware is delivered and check it before it is installed. He shall visit the project again after all the hardware has been installed and shall notify the Engineer if there is any hardware that has not been installed correctly. Contractor and supplier shall furnish Engineer with written certification to this effect. After the hardware is installed, the hardware supplier shall meet with the Owner or his representative and explain the functions, uses, and maintenance of all types of hardware installed. The Contractor shall turn over to the Owner, after completion of the work, all tools, wrenches and templates that come packaged with the hardware for the Owner's use in servicing the hardware. The hardware supplier shall adjust the door closers for proper operation with particular attention being given to final operation of the air conditioning, heating and ventilating system.

PART 2 - PRODUCTS

2.01 PRODUCTS

A. Acceptable Manufacturers:

1. Hinges: Hager, McKinney, Stanley
2. Continuous Gear Hinges: Special-Lite, McKinney, Zero, Select
3. Cylinders: Best, Corbin Russwin, Sargent
4. Door Closers: RYOBI, LCN, Sargent
5. Locks, Latches: Best, Corbin Russwin, Sargent
6. Silencers, Stops & Flush Bolts: Baldwin, Ives, Rockwood
7. Kick Plates, & Misc.: Baldwin, Ives, Rockwood
8. Weatherstrip: National Guard, Pemko, Zero
9. Push/Pulls: Baldwin, Ives, Rockwood
10. Exit Devices: Precision, Sargent, Von Duprin
11. Thresholds: National Guard, Pemko, Zero
12. Overhead Stops/holders: ABH, Glynn-Johnson, Rixson
13. Door Bottoms: Special-Lite, Pemko, Zero

2.02 MATERIALS, FABRICATION AND FINISHES

A. General:

1. Manufacturer's Name Plate: Do not use products which have manufacturer's name or trade name displayed in a visible location except in conjunction with required UL labels.
2. Unless otherwise noted, exposed hardware items shall receive satin stainless steel finish.
3. Furnish screws of type as required for substrates indicated with each hardware item. Finish exposed screws to match the hardware finish or, if exposed in surfaces of other work, to match the finishes of such other work as closely as possible.
4. Unless otherwise noted, provide concealed fasteners for hardware units that are exposed when door is closed. Where fasteners must remain exposed when door is closed, provide vandal resistant fasteners.
5. Finish shall be as scheduled. Dull Chrome [US26D], Dull Stainless Steel [US32D] Aluminum Lacquer [AL], Extruded Aluminum [Alum] and Prime Coat [USP] as listed on the Hardware Schedule on the Architectural Drawings.
6. Tools for maintenance: Furnish a complete set of specialized tools as needed for Owner's continued adjustment, maintenance and removal and replacement of builder's hardware.
7. Hardware Operation: Force required to activate door hardware shall be not greater than 5 lbf.
8. Door Opening Force: Maximum force for pushing or pulling open a door shall comply with this paragraph. For hinged doors, the force shall be applied perpendicular to the door at the door opener or 30 inches from the hinged side whichever is farther from the hinge.
 - a. Exterior hinged doors shall not exceed 8.5 lbf. Slight increases in opening force shall be allowed where 8.5 lbf. is insufficient to compensate for air pressure differentials.
 - b. Interior hinged doors shall not exceed 5.0 lbf.

B. Hinges:

1. Provide template-produced hinges complying with ANSI A156.1.
2. Provide stainless steel pins, non-removable type for exterior doors and non-rising types for interior doors. Pins shall have flat button ends finished to match hinge leaves.
3. Hinges shall be as scheduled:
 - a. full-mortised, 4½" x 4½" unless otherwise noted; five knuckle ball bearing type, heavy duty rated.
 - b. Special-Lite SL-11HD continuous hinges on Special-Lite door units.

C. Lock Cylinders and Keying:

1. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
2. Equip locks with manufacturer's construction master key feature that permits voiding of construction keys without cylinder removal.
3. Comply with the Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
4. Key Material: Provide keys of nickel silver only.
5. Permanently inscribe each key with number or lock that identifies cylinder manufacturer's key symbol.
6. Keying: Establish a new Master key System as directed by the Owner. Furnish four (4) Master keys, three (3) keys per lock.

D. Locks and Latches:

1. Strikes: Except as otherwise indicated or specified, provide manufacturer's standard wrought box strike for each latch or lock bolt with curved lip extended to protect frame, finished to match hardware set.
2. Handles and knobs: Provide manufacturer's lever handle set complete with stem, roses and trim unless otherwise noted.
3. Lock throw: Provide 1/2" minimum throw on doors.

E. Exit Devices: Exit devices shall be as scheduled with no substitutes accepted. Exit devices shall comply with ANSI Standard 156.3 Grade 1 modified as follows:

1. The devices shall be "touchpad" type with touchpad that shall extend a minimum of ½ of the door width.
2. Devices should have a ¼" gap between the face of the door and the touchbar unit, eliminating the need for shims or cutting away the glass moulding.
3. Lock stile chassis shall be cast bronze. Stamped steel units will not be accepted. All device latchbolts shall be extruded bronze and, where used in vertical rod devices, shall be deadlocking type.
4. Device strikes shall be investment cast stainless steel.
5. Device end cap shall be all metal and secured with a bracket that completely inserts into device housing.
6. All outside device trim shall be cast or forged brass full escutcheon. Lever trim shall be "vandal resistant" with substantial resistance to rotation when locked.
7. All vertical rod devices shall be concealed and have "latch retraction" hold back.
8. Devices must be convertible from one function to another simply by exchanging back plate assembly in lock stile case and selecting proper outside trim.

9. Device shall be secured to the door with sex bolts and through bolting at both ends.
 10. All devices shall be UL approved for all types and functions indicated in the Hardware Schedule.
 11. Devices shall have published three (3) year warranty.
 12. All exit devices shall be by the same manufacturer.
 13. Mullions shall be "keyed removable" type with only a key required for take down. No key or tools shall be required to reinstall. Mullions shall be by the same manufacturer as the exit devices.
- F. Closers: Shall be as scheduled.
1. Closer shall be non-handed and adjustable.
 2. Closer shall have R14 high silicone aluminum alloy cylinder body with 1 1/2" steel piston.
 3. Closer shall have ten (10) year warranty.
 4. Closer shall have all season fluid to eliminate seasonal adjustment.
 5. All closers mounted parallel arm shall have EDA arm.
 6. All closers shall have a hold open function.
- G. Astragals: Special-Lite bevel style with vinyl weather seal.
- H. Silencers, Stops & Flush Bolts: Shall be as scheduled.
1. Silencers: Provide plug-type silencers in all metal door frames unless continuous bumper-type weather-stripping is shown or specified. Provide three (3) silencer units in door frames.
 2. All Stops, wall and floor shall be by the same manufacturer.
 3. Flush bolts shall have 3/4" throw with 2" vertical adjustment. Shall have override feature and stainless steel cams and rub plates. All flush bolts shall be by the same manufacturer.
- I. Door Stripping and Seals: Unless otherwise indicated, provide full-length weather-stripping at each edge of every exterior swing door leaf. All weather-stripping to be by same manufacturer.
- J. Door Bottom: Concealed adjustable bottom brush. Install door manufacturer's multidirectional adjustable bottom with double nylon brush weatherstripping. Door bottom must be concealed and adjust to accommodate irregular tapered floor conditions
- K. Thresholds: Extruded aluminum, smooth commercial mill finish, grooved tread, 4" minimum tread by full door width. Thickness of threshold shall be 0.5" at primary tread surfaces, 0.1875" for secondary tread surfaces, and 0.125" for concealed flanges and legs.
- L. Kick Plates, Mop Plates and Armor Plates: .050 material sized as follows:
1. Kick Plates: 8 x 2 LDW
 2. Mop Plates: 4 x 2 LDW
 3. Armor Plates: 16 x 2 LDW

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Properly tag, index and file all keys until turned over to the Owner. Apply hardware in accordance with templates and manufacturer's instructions; mortise and fit accurately; apply securely and adjust carefully.
1. Mount hardware units at heights recommended in "Recommended Locations for Builders Hardware" by DHI, except where shown otherwise on drawings.
 2. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate.
 3. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
 4. Exercise care not to injure work when applying hardware. Review shop drawings and Contract Drawings for proper location. Cover door hardware with a heavy cloth until painting is completed. At completion of the work, examine doors and hardware, adjust as required and leave hardware in proper working order, free from defects.
 5. At all times be responsible for the distribution of keys for hardware installed during construction, and cause all keys to be returned prior to final completion of the building
- B. Preparation:
1. Do not install finish hardware until the wet trades have been fully completed.
 2. Supplier shall mark each item of hardware for location. Protect markings until each item is installed. If any item of hardware is delivered to the Project not properly marked, return it to the supplier for marking before attempting to install it.
 3. Install and make necessary adjustments for proper working order. Hardware damaged by improper adjustments or abuse will be rejected.
 4. Provide clean, properly sized, and accurately placed mortises and drilled holes for all mortise and surface mounted finish hardware. Use appropriate jigs, templates and power mortising equipment for the installation of all mortised hardware items.
 5. Metal frames to receive hardware items shall be drilled and tapped accurately.
 6. Removal for Painting:
 - a. Before painters finish is applied, remove all finish hardware except prime-coated items.
 - b. After final paint and finish coats are dry, permanently replace and adjust finish hardware for proper operation.
- C. Thresholds:
1. Cut and fit threshold to profile door frames, with mitered corners and hairline joints. Screw thresholds to substrate with No. 10 or larger bronze or stainless steel screws.
 2. Set thresholds in a bed of either butyl/rubber sealant or polyisobutylene mastic sealant to completely fill concealed voids and exclude moisture from every source. Do not plug drainage holes or block weeps. Remove excess sealant.

- D. Weatherstrip: Accurately install weatherstrip to the door or frames where scheduled using proper type flush fasteners spaced not over 18" o.c. Installed work shall make continuous contact with the abutting surfaces and shall function for use intended. Adjust seals as required.
- E. Mounting Heights: Shall be as follows, measured from finished floor except for top hinge which is measured from door top:
 - 1. Bottom hinge: 10-3/8" hinge center.
 - 2. Top hinge: 9-3/4" hinge center.
 - 3. Intermediate hinges: Equally spaced between top and bottom hinges.
 - 4. Locks and latches: 38" operating spindle.
 - 5. Pulls and pull/push plates: 42" center.

3.02 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Lubricate moving parts with type lubricant recommended by manufacturer and graphite-type if no other recommended]. Replace units that cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.
- B. Upon completion of the work and before final acceptance, demonstrate that all hardware is in satisfactory working order, that all keys fit in their respective locks and upon acceptance of the work, tag and deliver all keys to the Owner.
- C. Final Adjustment: Wherever hardware installation is made more than one (1) month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy to make a final check and adjustment of all hardware items in such space or area. Clean and re-lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finish during the final adjustment of hardware.

END OF SECTION

SECTION 09865 - SURFACE PREPARATION AND SHOP PRIME PAINTING

PART 1 – GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals required for the surface preparation and application of shop primers on ferrous metals, excluding stainless steels, as specified herein.

1.02 SUBMITTALS

- A. Submit to the ENGINEER for approval, as provided in the Contract Drawings for shop drawings, manufacturer's specifications and data on the proposed primers and detailed surface preparation, application procedures and dry mil thickness.
- B. Submit representative physical samples of the proposed primers, if required by the ENGINEER.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Submerged Services: Shop primer for ferrous metals which will be subject to splash action or which are specified to be considered submerged service shall be sprayed with one coat of Koppers 654 epoxy Primer or Koppers Inertol Primer 621-FDA, dry film thickness 3.5 to 4.5 mils by Koppers Co., Inc., or equal.
- B. Nonsubmerged Services: Shop primer for ferrous metals other than those covered by paragraph 2.01 A shall be sprayed with one coat of Koppers Pug Primer, dry film thickness 3.0 to 4.0 mils by Koppers Co., Inc. or equal.
- C. Nonprimed Surfaces: Gears, bearing surfaces, and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during all periods of storage and erection and shall be satisfactory to the ENGINEER up to the time of the final acceptance.
- D. Compatibility of Coating Systems: Shop priming shall be done with primers that are guaranteed by the manufacturer to be compatible with their corresponding primers and finish coats specified in the Contract Documents for use in the field and which are recommended for use together.

PART 3 – EXECUTION

3.01 APPLICATION

- A. Surface Preparation and Priming:
 - 1. Non submerged components scheduled for priming, as defined above, shall be sandblasted clean in accordance with SSPC-SP-6, Commercial Grade, immediately prior to priming. Submerged components scheduled for priming, as defined above, shall be sandblasted clean in accordance with SSPC-SP-10. Near White, immediately prior to priming.
 - 2. Surfaces shall be dry and free of dust, oil, grease, dirt, rust, loose mill scale and other foreign material before priming.

3. Shop prime in accordance with approved paint manufacturer's recommendations.
4. Priming shall follow sandblasting before any evidence of corrosion has occurred and within 24 hours.

END OF SECTION

SECTION 09900 – PAINTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, tools, materials, equipment, scaffolding or other structures and incidentals necessary to complete this Contract in its entirety.
- B. The work includes painting and finishing of all new interior and exterior exposed items above and below grade and submerged surfaces, such as concrete, structural steel, miscellaneous metals, ceilings, walls, floors, doors, frames, transoms, roof fans, construction signs, guardrails, posts, fittings, valves, tanks, equipment and all other work obviously required to be painted unless otherwise specified herein or on the Drawings. The omission of minor items in the Schedule of Work shall not relieve the Contractor of his obligation to include such items where they come within the general intent of the Specification as stated herein.
- C. The following items shall not be painted:
 - 1. Any code-requiring labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.
 - 2. Any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.
 - 3. Aluminum handrails (except where in contact with concrete) walkways, windows, louvers and grating unless otherwise specified herein.
 - 4. Signs and nameplates.
 - 5. Finish hardware.
 - 6. Chain link fence.
 - 7. Piping buried in the ground or embedded in concrete.
 - 8. Concealed surfaces of pipe or crawl space.
 - 9. Nonferrous metals, unless specifically noted otherwise.
 - 10. Electrical switchgear and motor control centers.
 - 11. Stainless steel angles, tubes, pipe, etc.
 - 12. Products with polished chrome, aluminum, nickel or stainless steel finish.
 - 13. Plastic switch plates and receptacle plates.
 - 14. Flexible couplings, lubricated bearing surfaces, insulation and metal and plastic pipe interior.
 - 15. Sprinkler heads.
 - 16. Lifting chain on cranes and hoists
 - 17. Electrical cable, festooned conductor system, cables, collector pole brackets, etc.
- D. All work shall be done in strict accordance with this Specification, the Design Drawings and the painting package, including manufacturer's printed instructions.
- E. The Contractor will obtain, at its own expense, all permits, licenses and inspections and shall comply with all laws, codes, ordinances, rules and regulations promulgated by authorities having jurisdiction which may bear on the Work. This compliance will include Federal Public Law 91-596 more commonly known as the "Occupational Safety and Health Act of 1970".

1.02 DEFINITIONS

- A. Field Painting is the painting of new or rebuilt items at the job site. Field painting shall be

the responsibility of the Contractor.

- B. Shop Painting is the painting of new or rebuilt items in the shop prior to delivery to the jobsite.
- C. Abbreviations The abbreviations and definitions listed below, when used in this specification, shall have the following meanings:
 - 1. SSPC - Steel Structures Painting Council
 - 2. Exterior - Outside, exposed to weather
 - 3. Interior Dry - Inside, concealed or protected from weather
 - 4. Interior Wet - Inside, subject to immersion services
 - 5. ASTM - American Society of Test Materials
 - 6. NACE - National Association of Corrosion Engineers
 - 7. NSF - National Sanitation Foundation
 - 8. AWWA - American Water Works Association
- D. Dry Film Thickness shall be in Mils.

1.03 RESOLUTION OF CONFLICTS

- A. It shall be the responsibility of the Contractor to arrange a meeting prior to the start of painting, or flooring installation between the Contractor, the Paint Manufacturer, whose products are to be used, and the County. All aspects of surface preparation, application and coating systems as covered by this Specification will be reviewed at this meeting.
- B. Clarification shall be requested promptly from the County when instructions are lacking, conflicts occur in the Specifications, or the procedure seems improper or inappropriate for any reason.
- C. Copies of all manufacturer's instructions and recommendations shall be furnished to the County by the Painting Contractor.
- D. It shall be the responsibility of the Coating Manufacturer to have their factory representative meet in person with the Contractor and County a minimum of three times during the job as a consultant on surface preparation, mil thickness of coating and proper application of coating unless meeting is determined to be unnecessary by the County.

1.04 SUBMITTALS

- A. Contractor shall submit catalog data and cut sheets for the painting system being used if not the TNEMEC materials specified.
- B. Samples as detailed in 3.01 B shall be submitted regardless of system being used, showing each color to be used.
- C. Hazardous Material Disposal documentation shall be submitted if applicable.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Effective oil and water separators shall be used in all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Separators shall be placed as far as practicable from the compressor.

- B. All equipment for application of the paint and the completion of the work shall be furnished by the Contractor in first-class condition and shall comply with recommendations of the paint manufacturer.
- C. Contractor will provide free of charge to the County a "Nordson-Mikrotest" or "Positest" dry film thickness gauge for ferrous metal and an OG232 "Tooke" gauge or equal for non-ferrous and cementitious surface, to be used to inspect coatings by the County and Contractor. The gauges may be used by the Contractor and returned each day to the County. County will return gauges to Contractor at completion of job.

2.02 MATERIALS

- A. All materials specified herein are manufactured by the TNEMEC Company, Inc., North Kansas City, Missouri. These products are specified to establish standards of quality and are approved for use on this Project.
- B. Equivalent materials of other manufacturers may be substituted on approval of the County. Requests for substitution shall include manufacturer's literature for each product giving the name, generic type, descriptive information and evidence of satisfactory past performance and an independent laboratory certification that their product meets the performance criteria of the specified materials.
- C. Abrasion - Fed. Test Method Std. No. 141, Method 6192, CS-17 Wheel, 1,000 grams load.
- D. Adhesion - Elcometer Adhesion Tester.
- E. Exterior Exposure - Exposed at 45 degrees facing the ocean (South Florida Marine Exposure)
- F. Hardness - ASTM D3363-74
- G. Humidity - ASTM D2247-68
- H. Salt Spray (Fog) - ASTM B117-73
- I. Standard practice for Operating the Severe Wastewater Analysis Testing Apparatus ASTM G210-13
- J. Substitutions which decrease the total film thickness, change the generic type of coating, or fail to meet the performance criteria of the specified materials shall not be approved. Prime and finish coats of all surfaces shall be furnished by the same manufacturer.
- K. All coatings to be shop applied must meet the requirements for volatile organic compounds (VOC) of not more than 3.5 lbs/gallon after thinning.
- L. Colors, where not specified, shall be as selected by the County or their Representative.
- M. All coatings in contact with potable water need to be NSF Certified in accordance with ANSI/NSF Standard 61.
- N. All above ground potable water mains and appurtenances shall be painted Scott Paints safety blue or approved equal; purple (Pantone purple 522 C) for reclaimed water; or Hunter Green (Rustoleum 7538) for pressure sewer. Exterior of the new EQ Return PS shall be painted Bradenton Beige to match the other structures at the facility. Contractor shall submit color chart to owner for color selection approval prior to ordering material.

PART 3 - EXECUTION

3.01 INSPECTION OF SURFACES

- A. Before application of the prime coat and each succeeding coat, all surfaces to be coated shall be subject to inspection by the County. Any defects or deficiencies shall be corrected by the Contractor before application of any subsequent coating.
- B. Samples of surface preparation and of painting systems shall be furnished by the Contractor to be used as a standard throughout the job, unless omitted by the County.
- C. When any appreciable time has elapsed between coatings, previously coated areas shall be carefully inspected by the County, and where, in his opinion, surfaces are damaged or contaminated, they shall be cleaned and recoated at the Contractor's expense. Recoating times of manufacturer's printed instructions shall be adhered to.
- D. Coating thickness shall be determined by the use of a properly calibrated "Nordson-Mikrotest" "Positest" Coating Thickness Gauge (or equal) for ferrous metal or an OG232 "Tooke" Paint Inspection gauge (or equal) for non-ferrous and cementitious surfaces. Please note that use of the "Tooke" gauge is classified as a destructive test.

3.02 SURFACE PREPARATION

The surface shall be cleaned as specified for the paint system being used. All cleaning shall be as outlined in the Society for Protective Coatings (SSPC) Surface Preparation Specification, And the International Concrete Repair Institute (ICRI) unless otherwise noted. If surfaces are subject to contamination, other than mill scale or normal atmospheric rusting, the surfaces shall be pressure washed, and acid or caustic pH residues neutralized, in addition to the specified surface preparation.

3.03 STANDARDS FOR SURFACE PREPARATION

- A. Chemical and/or Solvent Cleaning: Remove all grease, oil, salt, acid, alkali, dirt, dust, wax, fat, foreign matter and contaminates, etc. by one of the following methods: steam cleaning, alkaline cleaning, or volatile solvent cleaning.
- B. Hand Tool Cleaning: Removal of loose rust, loose mill scale and loose paint to a clean sound substrate by hand chipping, scraping, sanding and wire brushing.
- C. Power Tool Cleaning: Removal of loose rust, loose mill scale and loose paint to a clean sound substrate by power tool chipping, descaling, sanding, wire brushing and grinding.
- D. Flame Cleaning: Dehydrating and removal of rust, loose mill scale and some light mill scale by use of flame, followed by wire brushing.
- E. White Metal Blast Cleaning: Complete removal of all mill scale, rust, rust scale, previous coating, etc., leaving the surface a uniform gray-white color.
- F. Commercial Grade Blast Cleaning: Complete removal of all dirt, rust scale, mill scale, foreign matter and previous coating, etc., leaving only shadows and/or streaks caused by rust stain and mill scale oxides. At least 66% of each square inch of surface area is to be free of all visible residues, except slight discoloration.
- G. Brush-Off Blast Cleaning: Removal of rust scale, loose mill scale, loose rust and loose coatings, leaving tightly-bonded mill scale, rust and previous coatings. On concrete

surfaces, brush-off blast cleaning shall remove all laitance, form oils and solid contaminants. Blasting should be performed sufficiently close to the surface so as to open up surface voids, bugholes, air pockets and other subsurface irregularities, but so as not to expose underlying aggregate.

- H. Pickling: Complete removal of rust and mill scale by acid pickling, duplex pickling or electrolytic pickling (may reduce the resistance of the surface to corrosion, if not to be primed immediately).
- I. Near-White Blast Cleaning: Removal of all rust scale, mill scale, previous coating, etc., leaving only light stains from rust, mill scale and small specks of previous coating. At least 95% of each square inch of surface area is to be free of all visible residues and the remainder shall be limited to slight discoloration.
- J. Power Tool Cleaning to Bare Metal: Complete removal of rust, rust scale, mill scale, foreign matter and previous coatings, etc., to a standard as specified on a Commercial Grade Blast Cleaning (SSPC-SP-6, NACE-3) by means of power tools that will provide the proper degree of cleaning and surface profile.
- K. Surface Preparation of Concrete (SSPC-SP13)
- L. Visual standards "Pictorial Surface Preparation Standards for Painting Steel Surfaces", and the National Association of Corrosion Engineer, "Blasting Cleaning Visual Standards" TM-01-70 and TM-01-75 shall be considered as standards for proper surface preparation.
- M. Oil, grease, soil, dust, etc., deposited on the surface preparation that has been completed shall be removed prior to painting according to Solvent Cleaning under this Specification.
- N. Weld flux, weld spatter and excessive rust scale shall be removed by Power Tool Cleaning as per these Specifications.
- O. All weld seams, sharp protrusions and edges shall be ground smooth prior to surface preparation or application of any coatings.
- P. All areas requiring field welding shall be masked off prior to shop coating, unless waived by the County.
- Q. All areas which require field touch-up after erection, such as welds, burnbacks, and mechanically damaged areas, shall be cleaned by thorough Power Tool as specified in these Specifications.
- R. Touch-up systems will be same as original specification except that approved manufacturer's organic zinc-rich shall be used in lieu of inorganic zinc where this system was originally used. Also strict adherence to manufacturer's complete touch-up recommendations shall be followed. Any questions relative to compatibility of products shall be brought to the County's attention; otherwise, Contractor assumes full responsibility.

3.04 PRETREATMENTS

When specified, the surface shall be pretreated in accordance with the specified pretreatment prior to application of the prime coat of paint.

3.05 STORAGE

Materials shall be delivered to the job site in the original packages with seals unbroken and with legible unmutated labels attached. Packages shall not be opened until they are inspected by the County and required for use. All painting materials shall be stored in a clean, dry, well-ventilated place, protected from sparks, flame, direct rays of the sun or from excessive heat. Paint susceptible to damage from low temperatures shall be kept in a heated storage space when necessary. The Contractor shall be solely responsible for the protection of the materials stored by himself at the job site. Empty coating cans shall be required to be neatly stacked in an area designated by the County and removed from the job site on a schedule determined by the County. County may request a notarized statement from Contractor detailing all materials used on the Project.

3.06 PREPARATION OF MATERIALS

- A. Mechanical mixers, capable of thoroughly mixing the pigment and vehicle together, shall mix the paint prior to use where required by manufacturer's instructions; thorough hand mixing will be allowed for small amounts up to one gallon. Pressure pots shall be equipped with mechanical mixers to keep the pigment in suspension, when required by manufacturer's instructions. Otherwise, intermittent hand mixing shall be done to assure that no separation occurs. All mixing shall be done in accordance with SSPC Vol. 1, Chapter 4, "Practical Aspects, Use and Application of Paints" and/or with manufacturer's recommendations.
- B. Catalysts or thinners shall be as recommended by the manufacturer and shall be added or discarded strictly in accordance with the manufacturer's instruction.

3.07 APPLICATION

- A. Paint shall be applied only on thoroughly dry surfaces and during periods of favorable weather, unless otherwise allowed by the paint manufacturer. Except as provided below, painting shall not be permitted when the atmospheric temperature is below 50 deg F, or when freshly painted surfaces may be damaged by rain, fog, dust, or condensation, and/or when it can be anticipated that these conditions will prevail during the drying period.
- B. No coatings shall be applied unless surface temperature is a minimum of 5 Degrees above dew point; temperature must be maintained during curing.
- C. See coating schedule for actual coating systems to be used on this project.

3.08 DEW POINT CALCULATION CHART

DEW POINT CALCULATION CHART

Ambient Air Temperature - Fahrenheit

Relative Humidity	20	30	40	50	60	70	80	90	100	110	120
90%	18	28	37	47	57	67	77	87	97	107	117
85%	17	26	36	45	55	65	76	84	95	104	113
80%	16	25	34	44	54	63	73	82	93	102	110
75%	15	24	33	42	52	62	71	80	91	100	108
70%	13	22	31	40	50	60	68	78	88	96	105
65%	12	20	29	38	47	57	66	76	85	93	103
60%	11	19	27	36	45	55	64	73	83	92	101

DEW POINT CALCULATION CHART

Ambient Air Temperature - Fahrenheit

Relative Humidity											
55%	9	17	25	34	43	53	61	70	80	89	98
50%	6	15	23	31	40	50	59	67	77	86	94
45%	4	13	21	29	37	47	56	64	73	82	91
40%	1	11	18	26	35	43	52	61	69	78	87
35%	-2	8	16	23	31	40	48	57	65	74	83

SURFACE TEMPERATURE AT WHICH CONDENSATION OCCURS

Dew Point

Temperature at which moisture will condense on surface. No coatings should be applied unless surface temperature is a minimum of 5deg above this point. Temperature must be maintained during curing.

Example

If air temperature is 70 deg F and relative humidity is 65%, the dew point is 57 deg F. No coating should be applied unless surface temperature is 62 deg F minimum.

- A. No coating shall be applied unless the relative humidity is below 85%.
- B. Suitable enclosures to permit painting during inclement weather may be used if provisions are made to control atmospheric conditions artificially inside the enclosure, within limits suitable for painting throughout the painting operations.
- C. Field painting in the immediate vicinity of, or on, energized electrical and rotating equipment, and equipment and/or pipes in service shall not be performed without the approval of the County.
- D. Extreme care shall be exercised in the painting of all operable equipment, such as valves, electric motors, etc., so that the proper functioning of the equipment will not be affected.
- E. The Contractor's scaffolding shall be erected, maintained and dismantled without damage to structures, machinery, equipment or pipe. Drop cloths shall be used where required to protect buildings and equipment. All surfaces required to be clear for visual observation shall be cleaned immediately after paint application.
- F. Painting shall not be performed on insulated pipe within three (3) feet of insulation operations or on insulation whose covering and surface coat have not had time to set and dry. Painting shall not be performed on uninsulated pipe within one (1) foot of any type of connection until the connection has been made, except as directed by the County.
- G. The prime coat shall be applied immediately following surface preparation and in no case later than the same working day. All paint shall be applied by brushing, paint mitt and roller, conventional spraying, or airless spraying, using equipment approved by the paint manufacturer.
- H. Each coat of paint shall be recoated as per manufacturer's instructions. Paint shall be

considered recoatable when an additional coat can be applied without any detrimental film irregularities such as lifting or loss of adhesion.

- I. Surfaces that will be inaccessible after assembly shall receive either the full specified paint system or three shop coats of the specified primer before assembly.
- J. Finish colors shall be in accordance with the COLOR SCHEDULE and shall be factory mixed (i.e., there shall be no tinting by the Contractor, unless authorized by the County).
- K. All edges and weld seams in immersion service shall receive a "stripe coat" (applied by brush) of the 2nd coat prior to application of the full 2nd coat.
- L. All open seams in the roof area of tanks shall be filled after application of the topcoat with a flexible caulking such as Sika Flex 1A.

3.09 WORKMANSHIP

- A. The Contractor must show proof that all employees associated with this Project shall have been employed by the Contractor for a period not less than six (6) months.
- B. Painting shall be performed by experienced painters in accordance with the recommendations of the paint manufacturer. All paint shall be uniformly applied without sags, runs, spots, or other blemishes. Work which shows carelessness, lack of skill, or is defective in the opinion of the County, shall be corrected at the expense of the Contractor.
- C. The Contractor shall provide the names of at least three other projects of similar size and scope that they have successfully completed under their current company name.

3.10 APPLICATION OF PAINT

A. By Brush and/or Rollers

- 1. Top quality, properly styled brushes and rollers shall be used. Rollers with a baked phenol core shall be utilized.
- 2. The brushing or rolling shall be done so that a smooth coat as nearly uniform in thickness as possible is obtained. Brush or roller strokes shall be made to smooth the film without leaving deep or detrimental marks.
- 3. Surfaces not accessible to brushes or rollers may be painted by spray, by dauber or sheepskins, and paint mitt.
- 4. It may require two coats to achieve the specified dry film thickness if application is by brush and roller.

B. Air, Airless or Hot Spray

- 1. The equipment used shall be suitable for the intended purpose, shall be capable of properly atomizing the paint to be applied and shall be equipped with suitable pressure regulators and gauges.
- 2. Paint shall be applied in a uniform layer, with a 50% overlap pattern. All runs and sags should be brushed out immediately or the paint shall be removed and the surface resprayed.
- 3. High build coatings should be applied by a cross-hatch method of spray application to ensure proper film thickness of the coating.
- 4. Areas inaccessible to spray shall be brushed; if also inaccessible to brush, daubs or sheepskins shall be used, as authorized by the manufacturer.
- 5. Special care shall be taken with thinners and paint temperatures so that paint of

- the correct formula reaches the receiving surface.
6. Nozzles, tips, etc., shall be of sizes and designs as recommended by the manufacturer of the paint being sprayed.
 7. The first coat on concrete surfaces in immersion service should be sprayed and back rolled.

3.11 PROTECTION AND CLEANUP

- A. It shall be the responsibility of the Contractor to protect at all times, in areas where painting is being done, floors, materials of other crafts, equipment, vehicles, fixtures, and finished surfaces adjacent to paint work. Cover all electric plates, surface hardware, nameplates, gauge glasses, etc., before start of painting work.
- B. At the option of the County during the course of this project, the Contractor will contain all spent abrasives, old paint chips, paint overspray and debris by means suitable to the County, including, but not limited to, full shrouding of the area.
- C. If shrouding is required, the Contractor must provide a complete design of the intended shroud or cover. Care must be taken not to modify or damage the structure during the use of the shroud. If damage should occur, the Contractor is held responsible for all repairs.
- D. At completion of the work, remove all paint where spilled, splashed, spattered, sprayed or smeared on all surfaces, including glass, light fixtures, hardware, equipment, painted and unpainted surfaces.
- E. After completion of all painting, the Contractor shall remove from job site all painting equipment, surplus materials and debris resulting from this work.
- F. The Contractor is responsible for the removal and proper disposal of all hazardous materials from the job site in accordance with Local, State and Federal requirements as outlined by the Environmental Protection Agency.
- G. A notarized statement shall be presented to the County that all hazardous materials have been disposed of properly including, but not limited to: name of disposal company, disposal site, listing of hazardous materials, weights of all materials, cost per pound and EPA registration number.

3.12 TOUCH-UP MATERIALS

The Contractor shall provide at the end of the Project at least one (1) gallon of each generic topcoat in each color as specified by the County for future touch-up. Two gallons may be required for (2) component materials.

3.13 ON-SITE INSPECTION

During the course of this Project, the County will reserve the option of incorporating the services of a NACE Level III inspection service. The inspection service will be responsible for assuring the proper execution of this Specification by the successful Contractor.

3.14 STEEL - STRUCTURAL, TANKS, PIPES AND EQUIPMENT

A. EXTERIOR EXPOSURE (NON-IMMERSION)

1. System No. 1095-1: Epoxy/High Build Urethane

This system is highly resistant to abrasion, wet conditions, corrosive fumes and chemical contact. Provides 3-4 times the color and gloss retention of conventional paints. Second coat to be close to finish color but not the same color. This system should be used for above ground exterior steel surfaces that are neither submerged, nor buried.

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning

Shop Coat: 66HS-1211 Epoxoline Primer	3.0 - 4.0
2nd Coat: 66HS-Color Hi-Build Epoxoline	2.0 - 3.0
3rd Coat: 1095-Endura-Shield III	<u>2.0 - 3.0</u>
Dry Film Thickness	7.0 - 10.0
Minimum	8.0 Mils

2. System No. 1095-2: High Build Urethane for Marginally Cleaned Surfaces or Topcoating Existing System

This system can be used over factory finish paint or cover non-sandblasted steel and offer the high performance of a urethane coating. Specify Series 1074U Endura-Shield for gloss finish.

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning or SSPC-SP3 Power Tool Cleaning

Shop Coat: Manufacturer Standard Primer (or existing coating)	3.0-5.0
2nd Coat: 135 Chembuild	3.0 - 5.0
3rd Coat: 1095-Color Endura-Shield	<u>2.0 - 3.0</u>
Dry Film Thickness	8.0 - 13.0
Minimum	9.5 Mils

4. System 90-97: Zinc/Epoxy/Urethane

This system offers the added corrosion protection of a zinc rich primer. Series 90-97 Tneme-Zinc is an organic zinc-rich primer that can be used for field touch up of a zinc primer or for touch up of galvanized surfaces that are damaged.

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning

Shop Coat: 90-97 Tneme-Zinc	2.5 - 3.5
2nd Coat: 66HS-Color Hi-Build Epoxoline	2.0 - 3.0
3rd Coat: 1095 Endurashield	<u>2.0 - 3.0</u>
Dry Film Thickness	6.5 - 9.5
Minimum	8.0 Mils

B. INTERIOR EXPOSURE (NON-IMMERSION)

1. System No. 66HS-1: High Build Epoxy

This system will provide chemical and corrosion resistance against abrasion, moisture, corrosion fumes, chemical contact and immersion in non-potable water. Primer coat must be touched-up before second coat is applied. Substitute Series 161HS for low temperature cure or quick recoats. Use this system for interior exposed, non submerged metals.

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning

Shop Coat: 66HS-1211 Epoxoline Primer	3.0 - 5.0
2nd Coat: 66HS-Color Hi-Build Epoxoline	<u>4.0 - 6.0</u>
Dry Film Thickness	7.0 - 11.0
Minimum	9.0 Mils

2. System No. 66HS-2: High Build Epoxy (Over OEM Finishes)

This system is to be used over standard manufacturer's primer to offer a high performance epoxy finish. Excellent for areas of rust not able to be completely cleaned.

Surface Preparation: Spot SSPC-SP6 Commercial Blast Cleaning or SSPC- SP11 Power Tool Cleaning to Bare Metal

Shop Coat: Manufacturer's Standard (or existing coating)	1.0 - 2.0
2nd Coat: 27WB	2.5 - 4.0
3rd Coat: 66HS-Color Hi-Build Epoxoline	<u>2.0 - 4.0</u>
Dry Film Thickness	5.5 - 10.0
Minimum	7.0 Mils

C. IMMERSION

1. System No. 104-1: High Solids Epoxy (Non-Potable Water)

This system will provide chemical and corrosion resistance for protection against abrasion, moisture, corrosive fumes, chemical contact and immersion in **mild to moderate** Wastewater, such as clarifiers, chlorine contact basins, aeration basins, settling basins and other open top (aerobic) structures. Primer coat must be touched-up before second coat is applied. Scarify the surface before topcoating if the Series 66HS has been exterior-exposed for 60 days or longer. Substitute Series 161HS for low temperature cure or quick recoats.

Surface Preparation: SSPC-SP10 Near-White Blast Cleaning

Shop Coat: 66HS-1211 Epoxoline Primer	3.0 - 5.0
2nd Coat: 104-Color Hi-Build Epoxoline	6.0-8.0
3rd Coat: 104-Color Hi-Build Epoxoline	<u>6.0-8.0</u>
Dry Film Thickness	15.0 - 21.0
Minimum	11.0 Mils

2. System No. 20HS-1: Epoxy-Polyamide (Potable Water)

This system meets American Water Works Association AWWA D 102 Inside Paint System Number 1. Series 20HS meets the new requirements of approval for

potable water use as established by the National Sanitation Foundation Standard 61. Substitute Series FC20HS for low temperature cure or quick recoats.

Surface Preparation: SSPC-SP10 Near-White Blast Cleaning

Shop Coat:20HS-WH02 Pota-Pox (Tank White)	3.0 - 5.0
2nd Coat: 20HS-1255 Pota-Pox (Beige)	4.0 - 6.0
3rd Coat: 20HS-WH02 Pota-Pox (Tank White)	<u>4.0 - 6.0</u>
Dry Film Thickness	11.0-17.0
Minimum	12.0 Mils

3.15 OVERHEAD METAL DECKING, JOIST

A. INTERIOR EXPOSURE

System No. 115-1: Uni-Bond

This system should be used on ceiling areas where a one-coat system is desired. Can be applied over steel, galvanized and aluminum decking, joist, shop primed beams, conduits and concrete.

Surface Preparation: Surfaces must be dry, clean and free of oil, grease and other contaminates. Allow concrete to cure 28 days.

Coating:	115-Color Uni-Bond
Dry Film Thickness	2.5 - 4.0

B. EXTERIOR EXPOSURE

System No. 1029-1: Enduratone

This system can be applied over a wide variety of coatings and factory finishes. It can also be applied direct to galvanized aluminum decking, joists, & conduits

Surface Preparation: Pressure clean to remove all dirt, oil, grease, chemicals and foreign contaminates. Remove loose paint and all rust by hand and power tool cleaning (SSPC-SP 2 & 3)

1st Coat:	1029-Color Endura-tone	2.0-3.0
2 nd Coat:	1029-Color Enduratone	<u>2.0-3.0</u>
Dry Film Thickness		4.0-6.0

3.16 GALVANIZED STEEL - PIPE AND MISCELLANEOUS FABRICATIONS

A. EXTERIOR / (NON-IMMERSION)

System No. 1095-3: Epoxy/High Build Urethane

Series 66HS has excellent adhesion to galvanized steel. This system is highly resistant to abrasion, wet conditions, corrosive fumes and chemical contact. Provides 3-4 times the color and gloss retention of conventional paints. First coat to be same color as or close to the finish color. Specify Series 1074U Endura-Shield for gloss finish.

Surface Preparation: SSPC-SP1 Solvent Cleaning, followed by Sweep Abrasive Blasting (SSPC-SP7)

1st Coat: 66HS-Color Hi-Build Epoxoline	2.0 - 4.0
2nd Coat: 1095-Color Endura-Shield	<u>2.0 - 4.0</u>
Dry Film Thickness	4.0 - 8.0
Minimum	5.0 Mils

B. INTERIOR EXPOSURE (NON IMMERSION) AND ALUMINUM IN CONTACT WITH CONCRETE

System No. 66HS-3: Polyamide Epoxy

Surface Preparation: SSPC-SP1 Solvent Cleaning

1st Coat: 66HS-Color Hi-Build Epoxoline	2.0 - 4.0
2nd Coat: 66HS-Color Hi-Build Epoxoline	<u>2.0 - 4.0</u>
Dry Film Thickness	4.0 - 8.0
Minimum	5.0 Mils

3.17 CONCRETE

A. EXTERIOR - ABOVE GRADE

1. System No. 1026-1: Acrylic Emulsion Low Sheen

If semi-gloss finish is desired, use Series 1029 Tneme-Cryl SG as the second coat.

Surface Preparation: Allow new concrete to cure for 28 days. Surface must be clean and dry.

1st Coat: 1026-Color Tneme-Cryl	2.0 - 3.0
2nd Coat: 1026-Color Tneme-Cryl	<u>2.0 - 3.0</u>
Dry Film Thickness	4.0 - 6.0
Minimum	5.0 Mils

2. System No. 156-1: Modified Acrylic Elastomer

If texture is needed, use 157 Enviro-Crete TX (medium texture) For application over previously applied coatings, use TNEMEC Series 151 Elasto-Grip at 1.0 - 2.5 mils DFT prior to the application of Series 156 Enviro-Crete.

Surface Preparation: Surface must be clean and dry.

1st Coat: 156-Color Enviro-Crete	4.0 - 8.0
2nd Coat: 156-Color Enviro-Crete	<u>4.0 - 8.0</u>
Dry Film Thickness	8.0 - 16.0
Minimum	10.0 Mils

B. EXTERIOR - BELOW GRADE

1. System No. 46-31: Coal Tar-Epoxy

Surface Preparation: Surface shall be clean and dry.

One Coat:	46H-413 Hi-Build Tneme-Tar
Dry Film Thickness	14.0 - 20.0

C. EXTERIOR/INTERIOR EXPOSURE (NON-IMMERSION)

1. System No. 1026-2: Acrylic Emulsion, Low Sheen (Interior/Exterior)

This system will provide a decorative coating with good exterior durability, color retention, and a high vapor transmission rate. **For Semi-Gloss finish, use 1029-Color Tneme-Cryl S/G.**

Surface Preparation: Surface shall be clean and dry. Allow concrete to cure for 28 days.

Block Filler (CMU only): 1254 Epoxoblock	125 SF/GL
1st Coat: 1026-Color Tneme-Cryl	2.0 - 3.0
2nd Coat: 1026-Color Tneme-Cryl	<u>2.0 - 3.0</u>
Dry Film Thickness	4.0 - 6.0
Minimum	5.0 Mils
*Does not include Block Filler	

2. System No. 66HS-4: Epoxy-Polyamide (Interior)

Series 66HS provides excellent protection from abrasion, moisture, corrosive fumes and chemical contact.

Surface Preparation: Surfaces shall be clean and dry. Allow concrete to cure for 28 days. All surfaces must be clean and dry.

Block Filler (CMU only): 1254 Epoxoblock	125 SF/GL
1st Coat: 66HS-Color Hi-Build Epoxoline	3.0 - 5.0
2nd Coat: 66HS-Color Hi-Build Epoxoline	<u>4.0 - 6.0</u>
Dry Film Thickness	7.0-11.0*
Minimum	9.0 Mils *
(Does not include Block Filler)	

D. IMMERSION - POTABLE & NON-POTABLE WATER

1. System No. 104-2: High Solids Epoxy (Non-Potable Water). This system will provide chemical and corrosion resistance for protection against abrasion, moisture, corrosive fumes, chemical contact and immersion in **mild to moderate** Wastewater, such as clarifiers, chlorine contact basins, aeration basins, settling basins and other open top (aerobic) structures.

Surface Preparation: Existing Concrete: all existing surfaces (walls, floors, top of walls) shall be pressure washed with 3,000-4,000psi potable water to remove all contaminants. Completely remove existing failing coating system using sweep abrasive blasting. New Concrete: Allow new concrete to cure for 28 days. Sweep abrasive blast per SSPC-SP13 to remove all laitance, fines, curing compounds, form release oils, and other contaminants, and to establish a surface profile equal to ICRI CSP 5 or greater.

Apply Tnemec Series 218 to all surfaces at a minimum of 1/16" to re-surface concrete, fill voids and bugholes, mitigate concrete outgassing, and to create a monolithic, paintable surface.

1st Coat: 104-1255 H.S. Epoxy Primer	6.0 - 8.0
2nd Coat: 104 Color H.S. Epoxy	<u>6.0 - 8.0</u>
3rd Coat: 104 Color H.S. Epoxy	<u>6.0-8.0</u>
Dry Film Thickness	18.0 - 240.0
Minimum	20.0 Mils

2. System No. 20HS-2 Epoxy-Polyamide (Potable Water)

This system meets American Water Works Association AWWA D 102 Inside System No. 1. Series 20HS meets the requirements of approval for potable water use as established by the National Sanitation Foundation Standard 61.

Surface Preparation: Allow new concrete to cure for 28 days. Sweep abrasive blast per SSPC-SP13 to remove all laitance, fines, curing compounds, form release oils, and other contaminants, and to establish a surface profile equal to ICRI CSP 5 or greater.

Apply Tnemec Series 218 to all surfaces at a minimum of 1/16" to re-surface concrete, fill voids and bugholes, and to create a monolithic, paintable surface.

1st Coat: 20HS-15BL Pota-Pox	4.0 - 6.0
2nd Coat: 20HS-1255 Pota-Pox Finish	<u>4.0 - 6.0</u>
3rd Coat: 20HS -15BL	<u>4.0 - 6.0</u>
Dry Film Thickness	12.0 - 17.0
Minimum	13.0 Mils

E. INTERIOR EXPOSURE (NON-IMMERSION)

1. System No. 66HS-5: High Solids Epoxy

This system will produce a slick, tile-like finish that has excellent chemical and water resistance. Surface will be easy to clean.

Surface Preparation: Allow new concrete to cure for at least 28 days. Surface to be clean and dry.

1st Coat: 66HS-Color H.S. Epoxy	6.0 - 8.0
2nd Coat: 66HS-Color H.S. Epoxy	<u>6.0 - 8.0</u>
Dry Film Thickness	12.0 - 16.0
Minimum	4.0 Mils

2. System No. 113-1: Acrylic-Epoxy Semi-Gloss

This system will provide high performance and can be applied directly over existing coatings without lifting. Can be used when low odor is required during application. Specify Series 114 Tneme-Tufcoat for Gloss Finish.

Surface Preparation: Allow new concrete to cure for at least 28 days. Surface must be clean and dry.

One or Two Coats:	113-Color Tneme-Tufcoat
Dry Film Thickness	4.0 - 6.0

3.18 CONCRETE FLOORS

A. EPOXY FLOOR COATINGS

1. System No. 290-1: Epoxy- Chemical Resistant Urethane

This system will provide a durable, long-wearing coating that bonds tightly to concrete and stands up under heavy foot traffic, frequent cleaning, spillage of water, oil, grease, or chemical, and UV Exposure.

Surface Preparation: Allow new concrete to cure for 28 days. Mechanically abrade or Sweep Abrasive Blast Cleaning

Moisture vapor transmission should not exceed three lbs per 1,000 sq ft in a 24 hour period. (Reference ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.") Relative humidity should not exceed 80%. (Reference ASTM F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes.")

Note: For moisture content up to 10 lbs per 1,000 sq ft or relative humidity up to 90%, Series 208 may be substituted for Series 201 as the primer.

1st Coat: 201- Epoxoprime	5.0-7.0
2nd Coat: 237-Color Tneme-Glaze	8.0-10.0
3 rd Coat: 290 CRU	2.0-3.0
Dry Film Thickness	15.0- 20.0
Minimum	17.0 Mils

For a non-skid finish, broadcast 30-50 mesh clean, dry silica sand into the 2nd coat at a rate of 5 lbs per 150 square feet.

2. System No. 241/222: Decorative Quartz Flooring (Non-Slip)

This system provides a decorative, chemical, abrasion, impact resistant, non-slip, seamless flooring system with a moisture mitigating base coat that resists up to 20 lbs of moisture vapor pressure.

Surface Preparation: Allow new concrete to cure for 28 days. Mechanically abrade or Sweep abrasive Blast to provide a minimum surface profile equal to ICRI CSP3

1st Coat: 241 Ultra-Tread MVT	70 square feet per small kit
2nd Coat: 222 Deco-Tread	(1 ct. @ 1/16" ea.)
3rd Coat: 284 Tneme-Glaze (clear)	8.0 - 12.0
Minimum Dry Film Thickness	1/8"+

3.19 POROUS MASONRY

A. EXTERIOR/INTERIOR EXPOSURE

1. System No. 156-2: Modified Epoxy - Sand Texture

Modified Waterborne Acrylate. This system offers long term protection against wind-driven rain, mold/mildew growth, chalking & fading, and bridges hairline cracks.

Surface Preparation: Surface shall be clean and dry.

1st Coat: 157-Color Envirocrete	6.0-9.0
2nd Coat: 157 Envirocrete	6.0-9.0
Dry Film Thickness	12.0-18.0
Minimum DFT:	14.0 mils

2. System No. 104-3: High Solids Epoxy (Interior Only)

This system will produce a film thickness of 16 mils. The surface will be tile-like for easy cleaning and will provide protection against chemical attack, corrosive fumes, high humidity and wash down. Backroll first coat to fill porosity.

Surface Preparation: Surface to be clean and dry.

1st Coat: 104-Color H.S. Epoxy	8.0 - 10.0
2nd Coat: 104-Color H.S. Epoxy	8.0 - 10.0
Dry Film Thickness	16.0 - 20.0
Minimum	18.0 Mils

3. System No. 113-2: Acrylic-Epoxy Semi-Gloss (Interior Only)

Series 113 Tneme-Tufcoat has very low odor and can be used when painting in occupied areas.

Specify Series 114 Tneme-Tufcoat for a gloss finish.

Surface Preparation: Surface must be clean and dry.

1st Coat: 1254 Epoxoblock WB	125 SF/Gal
2nd Coat: 113-Color Tneme-Tufcoat*	<u>4.0 - 6.0</u>
	**4.0 - 6.0

* ***Two coats may be required if applied by roller***

** ***Total Dry Film Thickness of Topcoats Only***

4. System No. 156-3: Modified Acrylic Elastomer

If texture is needed, use 157 Enviro-Crete TX For application over previously applied coatings, use TNEMEC 151 Elasto-Grip at 1.0 - 2.5 mils DFT in lieu of Series 1254.

Surface Preparation: Surfaces must be clean and dry.

1st Coat: 1254 Epoxoblock WB	125 SF/Gal
2nd Coat: 156-Color Enviro-Crete	4.0 - 8.0
3rd Coat: 156-Color Enviro-Crete	<u>4.0 - 8.0</u>
Dry Film Thickness	8.0 - 16.0
Minimum	10.0 Mils

3.20 GYPSUM WALLBOARD

A. INTERIOR EXPOSURE

1. System No. 113-3: Acrylic-Epoxy

Surface Preparation: Surface must be clean and dry.

1st Coat: 51PVA Sealer	1.0 - 2.0
2nd Coat: 113 H.B. Tneme-Tufcoat*	<u>4.0 - 5.0</u>
Dry Film Thickness	<u>5.0 - 7.0</u>
Minimum	6.0 Mils

*Two coats may be required if application is by brush and roller.

2. System No. 66HS-5: Hi-Build Epoxoline

Surface Preparation: Surface must be clean and dry.

1st Coat: 51PVA Sealer	1.0 - 2.0
2nd Coat: 66HS-Color Hi-Build Epoxoline*	<u>4.0 - 6.0</u>
Dry Film Thickness	<u>5.0 - 8.0</u>
Minimum	5.0 Mils

*Two coats may be required if applied by roller

3. System No. 1026--3: Acrylic Emulsion, Low Sheen
(Interior/Exterior Exposure)

This system is designed for mild use areas like office walls, laboratory ceilings, stairwells, etc. For Semi-Gloss finish, use 1029-color Tneme-Cryl S/G.

Surface Preparation: Surface must be dry and clean.

1st Coat: 1026-Color Tneme-Cryl	2.0 - 3.0
2nd Coat: 1026-Color Tneme-Cryl	<u>2.0 - 3.0</u>
Dry Film Thickness	<u>4.0 - 6.0</u>
Minimum	5.0 Mils

3.21 WOOD

A. EXTERIOR/INTERIOR EXPOSURE

1. System No. 1029-2: Acrylic Emulsion Semi-Gloss

Specify Series 1028 Hi-Build Tneme-Gloss for High Gloss finish.

Surface Preparation: Surface shall be clean and dry.

1st Coat: 10-99W Undercoater	2.0-3.0
2nd Coat: 1029 Enduratone	1.5 - 3.5
3rd Coat: 1029 Enduratone	<u>1.5 - 3.5</u>
Dry Film Thickness	<u>5.0 - 10.5</u>
Minimum	6.0 Mils

3.22 PVC PIPE

A. EXTERIOR OR INTERIOR

System No. 1095-4: Acrylic Polyurethane

Surface Preparation: SSPC-SP1 followed by hand or power sanding to scarify / degloss surface.

Two Coats: 1095 Endurashield Dry Film Thickness 2.0-3.0 mils per coat.

3.23 INSULATED PIPE

A. INTERIOR EXPOSURE

System No. 1026-4: Acrylic Emulsion, Low Sheen

For semi-gloss finish, use 1029-Color Tneme-Cryl S/G.

Surface Preparation: Surface shall be clean and dry.

1st Coat: 1026-Color Tneme-Cryl	2.0 - 3.0
2nd Coat: 1026-Color Tneme-Cryl	<u>2.0 - 3.0</u>
Dry Film Thickness	4.0 - 6.0
Minimum	5.0 Mils

3.24 HIGH HEAT COATING

A. EXTERIOR/INTERIOR EXPOSURE

1. System No. 1528-1: Inert Multipolymeric Matrix (1200 deg F Maximum)

Surface Preparation: SSPC-SP10 Near-White Blast Cleaning - 1.5 Mil Surface Profile

1st Coat: 1528-Color Endura-Heat DTM	2.0-4.0
2nd Coat: 1528-Color Endura-Head DTM	<u>2.0-4.0</u>
Dry Film Thickness	4.0-6.0

3.25 SURFACES EXPOSED TO H₂S/H₂SO₄ (SEVERE EXPOSURE/IMMERSION)

A. CEMENTITIOUS SURFACES

System No. 434-1: Polyamine Epoxy Mortar system

Surface Preparation: Allow new concrete to cure for 28 days. Sweep abrasive blast per SSPC-SP13 to remove all laitance, fines, curing compounds, form release oils, and other contaminants, and to establish a surface profile equal to ICRI CSP 5 or greater.

Apply Tnemec Series 218 to all surfaces at a minimum of 1/16" to re-surface concrete, fill voids and bugholes, mitigate concrete outgassing, and to create a monolithic, paintable surface.

1st Coat: 434 Perma-Shield	125 mils
2nd Coat: 435 Perma-Glaze	<u>18.0-20.0</u>

Dry Film Thickness	143-145
Minimum	144.0

B. FERROUS METAL SURFACES

System No. 142-1: Flake /Aluminum Oxide Filled Polyamine Epoxy
Surface Preparation: SSPC-SP-10 Near White Metal Blast Cleaning (1.5 Mil Profile)

1st Coat: Series 1 Omnithane	2.5-3.5
2nd Coat: 142 Epoxoline	<u>14 - 18.0</u>
Dry Film Thickness	16.0 – 23.5.0
Minimum	20.0 Mils

3.26 EXTERIOR OF PRESTRESSED CONCRETE TANKS

A. System No. 156-4: New Tanks

Surface Preparation: Allow new concrete to cure for at least (3) days. Surface to be clean and dry.

1st Coat: 156-Color Envirocrete	4.0 - 6.0
2nd Coat: 156-Color Envirocrete	<u>4.0 - 6.0</u>
Dry Film Thickness	8.0 - 12.0
Minimum	10.0 Mils

B. System No. 156-5: Existing Tanks (Previously Painted)

Surface Preparation: Remove all dirt, oil, grease, chalk, and loose paint per high pressure water blast (min. 3500 psi).

1st Coat: 151 Elasto-Grip	1.0 - 2.5
Stripe Coat: Stripe all hairline cracks with a brushed coat of Series 156 Envirocrete	3.0 - 5.0
Topcoat: 156-Envirocrete	<u>4.0 - 6.0</u>
Dry Film Thickness (Cracks)	8.0 - 13.5
Dry Film Thickness (Other)	5.0 - 8.5

3.27 SECONDARY CONTAINMENT AREAS

A. System No. 239SC-1: Modified Novolac Epoxy

This system offers superior chemical resistance to a wide range of aggressive chemicals, including Sulfuric Acid, Hydrofluosilicic Acid, Sodium Hydroxide, Sodium Hypochlorite, Polymer Emulsion, and hydrocarbons.

Surface Preparation: Allow new concrete to cure for 28 days. Sweep abrasive blast per SSPC-SP13 to remove all laitance, fines, curing compounds, form release oils, and other contaminants, and to establish a surface profile equal to ICRI CSP 5 or greater.

Moisture vapor transmission should not exceed three lbs per 1,000 sq ft in a 24 hour period. (Reference ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.") Relative humidity should not exceed 80%. (Reference ASTM F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes.") Note: For moisture content up to 10 lbs per 1,000 sq ft or relative humidity up to 90%, Series 241 may be substituted for the primer. Refer to the Series 241 product data sheet for more

information.

Apply Tnemec Series 218 to all vertical surfaces at a minimum of 1/16" to re-surface concrete, fill voids and bugholes, and to create a monolithic, paintable surface.

Apply Tnemec Series 215 or 218 as needed to fill voids in horizontal surfaces.

Primer: Tnemec Series 239SC RCK	6.0-8.0
Basecoat: Tnemec Series 239SC MCK	60.0-80.0
Fiberglass Mat: Tnemec Series 211-0215SC	NA
Saturant Coat: Tnemec Series 239SC RCK	10.0-12.0
Top Coat: Tnemec Series 282	<u>8.0-10.0</u>
Dry Film Thickness	84.0-110.0

Notes:

1. See Tnemec's Fiberglass Mat Reinforced Mortar Application Guide for System details
2. Series 282 is not color stable. For extended color and gloss retention, apply a finish coat of Tnemec Series 290 CRU @ 2.0-3.0 mils DFT

B. System No. 61-1: Cycloaliphatic Amine Epoxy

This system offers superior resistance to gasoline, diesel fuel, and other hydrocarbons. Use TNEMEC Series 215 between coats as a filler and surfacer wherever it is required.

Surface Preparation: Allow new concrete to cure for 28 days. Sweep abrasive blast per SSPC-SP13 to remove all laitance, fines, curing compounds, form release oils, and other contaminants, and to establish a surface profile equal to ICRI CSP 5 or greater.

Moisture vapor transmission should not exceed three lbs per 1,000 sq ft in a 24 hour period. (Reference ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.") Relative humidity should not exceed 80%. (Reference ASTM F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes.") Note: For moisture content up to 10 lbs per 1,000 sq ft or relative humidity up to 90%, Series 241 may be applied prior to the "Primer" coat. Refer to the Series 241 product data sheet for more information.

Apply Tnemec Series 218 to all **vertical** surfaces at a minimum of 1/16" to re-surface concrete, fill voids and bugholes, mitigate concrete outgassing, and to create a monolithic, paintable surface.

Apply Tnemec Series 215 or 218 as needed to fill voids in **horizontal** surfaces.

Primer: 61-5002 Tneme-Liner (Beige)	8.0 - 12.0
Topcoat: 61-5001 Tneme-Liner (Gray)	<u>8.0 - 12.0</u>
Dry Film Thickness	16.0 - 24.0

3.28 CLEAR WATER REPELLENT FOR CONCRETE, MASONRY AND BRICK

A. Silane /Siloxane Sealer (Min. 42% Solids)

Surface Preparation: Allow new concrete to cure 28 days. All surfaces must be clean, dry, and free of oils, curing compounds, form release oils, and other contaminants that might interfere with the penetration of the sealer.

COATING: BRICK, CONCRETE
Tnemec Series 662 Two Coats @ 75-200 SF/GAL

SPLIT FACED OR POROUS MASONRY
Tnemec Series 662..... Two Coats @ 35-100 SF/GAL

3.29 CANAL PIPE (AERIAL) CROSSINGS

- A. System 701-1: **NEW**. Zinc/Epoxy/Fluoropolymer for New Pipe or Existing Pipe Requiring Removal of Existing Coatings

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning

Primer: 90-97 Tneme-Zinc	2.5 - 3.5
2nd Coat: 66HS-Color Hi-Build Epoxoline	2.0 - 3.0
3rd Coat: 701-Color Hydroflon	<u>2.0 - 3.0</u>
Dry Film Thickness	6.5 - 9.5
Minimum	8.0 Mils

- B. System No. 701-2: **EXISTING**. High Build, Semi- Gloss Fluoropolymer for Marginally Cleaned Surfaces or Topcoating Over Existing Systems

Surface Preparation: High Pressure Water Blast (min. 3500 psi) or Solvent Clean (SSPC-SP1) and Spot Hand or Power Tool Clean (SSPC-SP 2 - 3) or Brush Blast (SSPC-SP7). Existing coatings must be clean, dry and tightly adhering prior to application of coatings.

Spot Coat: 135-Color Chembuild	3.0 - 5.0
Prime Coat: 135-Color Chembuild	3.0 - 5.0
2nd Coat: 701-Color Hydroflon	<u>2.0 - 3.0</u>
Minimum Dry Film Thickness (NIC Spot Coat)?	6.0

3.30 PROJECT DESIGNER SYSTEMS REFERENCE GUIDE

- A. STEEL

EXTERIOR (NON-IMMERSION)

- A.1 System No. 1095-1-1: Epoxy/High Build Urethane
A.2 System No. 1095-2: High Build Urethane
A.4 System 90-97: Zinc/Epoxy/Urethane

INTERIOR EXPOSURE (NON-IMMERSION)

- B.1 System No. 66HS-1: High Solids Epoxy
B.2 System No. 66HS-2: High Build Epoxy

IMMERSION

- C.1 System No. 104-1: High Solids Epoxy (Non-Potable)
C.2 System No. 20HS-1: High Build Epoxy (Non-Potable)

- B. OVERHEAD METAL DECKING, JOIST (INTERIOR EXPOSURE)

System No. 115-1: Uni-Bond

- C. OVERHEAD METAL DECKING, JOINT (EXTERIOR EXPOSURE)
System No. 1029-1 Enduratone
- D. GALVANIZED STEEL-PIPE AND MISCELLANEOUS FABRICATORS
System No. 1095-3: Epoxy/High Build Urethane
- E. GALVANIZED STEEL-INTERIOR EXPOSURE (NON-IMMERSION) AND ALUMINUM IN CONTACT WITH CONCRETE
System No. 66HS-3: Polyamide Epoxy
- F. CONCRETE
EXTERIOR-ABOVE GRADE
A.1 System No. 1026-1: Acrylic Emulsion Low Sheen
A.2 System No. 156-1: Modified Acrylic Elastomer
EXTERIOR-BELOW GRADE
B.1 System No. 46-61: Coal Tar Pitch Solution
EXTERIOR/INTERIOR EXPOSURE (NON-IMMERSION)
C.1 System No. 1026-2: Acrylic Emulsion Low Sheen
C.2 System No. 66HS-4: Epoxy-Polyamide
IMMERSION (POTABLE & NON-POTABLE)
D.1 System No. 104-2: High Solids Epoxy (Non-Potable)
D.2 System No. 20HS-2: Epoxy Polyamide (Potable)
INTERIOR EXPOSURE (NON-IMMERSION)
E.1 System No. 66HS-5: High Solids Epoxy
E.2 System No. 113-1: Acrylic Epoxy Semi-Gloss
- G. CONCRETE FLOORS
A.1 System No. 290-1: Epoxy-Polyamide
A.5 System No. 241/222: Decorative / Functional Flooring (Non-Slip)
- H. POROUS MASONRY - EXTERIOR/INTERIOR EXPOSURE
A.1 System No. 156-2: Modified Epoxy-Sand Texture
A.2 System No. 104-3: High Solids Epoxy (Interior Only)
A.3 System No. 113-2: Acrylic Epoxy Semi-Gloss (Interior Only)
A.4 System No. 156-3: Modified Acrylic Elastomer
- I. GYPSUM WALLBOARD
A.1 System No. 113-3: Acrylic Epoxy
A.2 System No. 66HS-5: Hi-Build Epoxoline

- A.3 System No. 1026-3: Acrylic Emulsion, Low Sheen
 - J. WOOD EXTERIOR/INTERIOR EXPOSURE.
 - A.1 System No. 1029-2: Acrylic Emulsion Semi-Gloss
 - A.2 System No. 6-5: Acrylic Latex
 - K. PVC PIPE EXTERIOR/INTERIOR EXPOSURE
 - A.1 System No. 1095-5: Acrylic Polyurethane
 - L. INSULATED PIPE-INTERIOR EXPOSURE
 - A.1 System No. 1026-4: Acrylic Emulsion, Low Sheen
 - M. HIGH HEAT SURFACES-FERROUS METAL
 - A.1 System No. 1528-1: Silicone Aluminum (1200deg F Maximum)
 - N. SURFACES EXPOSED TO H₂S/H₂SO₄ (SEVERE EXPOSURE/IMMERSION)
 - A.1 System No. 434-1: Polyamine Epoxy Mortar Systems
 - A.2 System No. 142-1: Flake / Aluminum Oxide Filled Polyamine Epoxy
 - O. EXTERIOR OF PRESTRESSED CONCRETE TANKS
 - A. System 156-4 New Tanks
 - B. System 156-5: Existing Tanks (Previously Painted)
 - P. SECONDARY CONTAINMENT AREAS
 - A. System No. 239SC-1: Modified Novolac Epoxy
 - B. System No. 61-1: Cycloaliphatic Amine Epoxy
 - Q. CLEAR WATER REPELLENT FOR CONCRETE, MASONRY AND BRICK
 - A. Silane /Siloxane Sealer (Min. 42% Solids)
 - R. CANAL PIPE (AERIAL) CROSSINGS
 - A. System No. 701-1: Zinc/Epoxy/Fluoropolymer
 - B. System No. 701-2: High Build/Fluoropolymer
 - C. Ductile Iron Pipe Above Grade: Series 66 High Build Epoxy
- 3.31 COATING SCHEDULE
- 1. Concrete – Immersion – Potable Water – System 20HS-2 Epoxy Polyamide
 - 2. Concrete – immersion – Non-Potable Water – System 104-2 High Solids Epoxy
 - 3. Exterior concrete above grade - System 156-1
 - 4. Exterior concrete below grade – System 46-31
 - 5. Ductile iron pipe submerged exposed to corrosive environment – System 142-1
 - 6. Ductile iron pipe non-submerged exposed to exterior corrosive environment – System 90-97
 - 7. Ductile iron pipe non-submerged exposed to interior corrosive environment – System 66HS-1

8. Carbon steel and mechanical equipment non-immersion exposed to corrosive environment – System 1095-1
9. Galvanized steel in pump room - System 1095-3
10. PVC piping non-submerged interior-System 1095-4

Contractor shall submit color chart to owner for color selection.

END OF SECTION

SECTION 09901 – PAINTING SCHEDULE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Exposed surfaces, both interior and exterior of areas shown, shall be painted according to the schedule listed in the following paragraph.

PART 2 – PRODUCTS

2.01 SCHEDULE

Surface	Painting System (Section 09900)	Page
EXTERIOR		
Aerator Structure Walls	156-1	13
Distribution Box	156-1	13
Above Grade Piping (Ductile Iron)	1095-1	10
Above Grade Piping (PVC)	1095-4	19
INTERIOR		
Transfer Pump Room Walls/Ceiling MCC #7 Room Walls/Ceiling	66HS-4	14
Transfer Pump Room Floor	290-1	16
Piping & Equipment in Transfer Pump Room	66HS-1	11
Pump Bases	66HS-4	14
Distribution Box	20HS-2	15
Aerator Walls, Ceiling, Baffles	20HS-2	15

PART 3 – EXECUTION

3.01 GENERAL

- A. Paint materials and equipment according to the manufacturer's recommendations.

END OF SECTION

SECTION 11001 – EQUIPMENT – GENERAL PROVISIONS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Provisions: Requirements specified in Conditions of Contract and Division 1, form a part of this Section.
- B. Work Included in this Section: The CONTRACTOR shall provide all the required labor, project equipment and materials, tools, construction equipment, safety equipment, transportation, and test equipment (unless otherwise specified) for furnishing, installation, adjustment, and full test loading of all the mechanical work shown on the Drawings and included in these Specifications.

1.02 QUALITY ASSURANCE

- A. Incorporated Documents: Published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work of these Specifications where cited by abbreviations noted in Section 01070 and below. In every situation, the latest specifications, standards, tests, etc., shall apply unless otherwise noted.
- B. Variances: In instances where two codes are at variance, the more restrictive requirements shall apply.
- C. Standard of Quality: Items of equipment are specified herein by the name of a manufacturer for the purpose of establishing a standard of quality and acceptable experience. Alternate equipment will be given consideration, per Section 01640: Product Selection and Substitution Procedures.
- D. Data: Unless otherwise specified, all equipment furnished shall have a data plate fabricated of 316 stainless steel with a minimum thickness of 1/16 inch and embossed or preprinted lettering, and fastened to the frame with corrosion-resisting pins. Nameplates shall have stamped on them the manufacturer, serial number, model number, type, operating and performance data, and other pertinent data. Letters and numerals shall not be smaller than 3/16 inch high.
- E. Taggings: Where the size of the equipment prevents the fastening of data plates, name tags shall be provided and attached to the equipment and device item to identify it. The name tags shall have a rectangular configuration with square corners and shall be approximately 1-1/2 inches by 3 inches in size. They shall be made from brass or stainless steel sheet metal and have a minimum thickness of 0.032 inches. Letters and numerals shall be engraved or etched in the name tags by a professional engraver and shall not be smaller than 3/16 inch high in size. The name and number for each item of equipment, as designated on the Drawings, shall appear on the name tag for the item. Valve tag information shall conform to Section 09905 (if applicable). A 3/16-inch diameter hole shall be provided in the upper left-hand corner of each name tag and shall be used to attach the name tags to the equipment and device items with 1/8-inch stainless steel cable.

1.03 DRAWINGS

- A. Project Drawings: The Drawings are diagrammatic and show the general layout of the complete construction work.
 - 1. Locations of equipment, inserts, anchors, motors, panels, conduits, stub-ups, fittings, fixtures, water, power and process inlets, unless specifically dimensioned on

the Drawings, shall be determined to suit field conditions encountered, and the CONTRACTOR shall be responsible for ensuring clearance between pipes, equipment, and similar appurtenances, without extra cost to the OWNER.

2. The CONTRACTOR shall review the Drawings and Specifications of other trades and shall include the mechanical work shown thereon that will be required for the installations.
3. Should there be a need to deviate from the Drawings and Specifications; the CONTRACTOR shall submit written details and reasons for all changes to the Owner/Engineer for approval before making such changes. All extra costs to make the changes shall be borne by the CONTRACTOR.

B. Shop Drawings

1. Prior to fabrication, the CONTRACTOR shall obtain, from the manufacturer, shop drawings for all equipment. Shop drawings shall include fabrication, assembly, unit support drawings, installation drawings, and wiring diagrams together with detailed specifications and data covering materials used, power drive assembly, parts, devices, and other accessories forming a part of the equipment to be furnished.
2. The CONTRACTOR shall submit Certified performance or Certified test curves, as specified for all pumps furnished under this Contract. The CONTRACTOR shall notify the Owner/Engineer three weeks prior to all testing should the Owner/Engineer elect to witness the tests.
3. Submit shop drawings and material lists for approval as specified in applicable Sections and in conformance with the requirements of Section 01310: Administrative Requirements.

1.04 ADAPTATION OF EQUIPMENT

- A. Should any alternate equipment selected require any revision to the structure, piping, electrical, or other work shown on the Drawings, the CONTRACTOR shall include the cost of such revisions in his bid for the equipment and no extra payment shall be made for such revision. All such revisions shall be subject to the approval of the Owner/Engineer.

1.05 UTILITY SERVICE AND PROCESS INTERRUPTION

- A. All utility service and/or process interruptions initiated by the CONTRACTOR in the prosecution of his work shall be scheduled in advance and approved by the appropriate Utility Company and the OWNER.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. The CONTRACTOR shall submit to the Owner/Engineer operation and maintenance manuals on all mechanical equipment in accordance with the requirements of the General Conditions.

PART 2 – PRODUCTS

2.01 MATERIALS AND WORKMANSHIP

- A. All equipment furnished under this Division shall be new and guaranteed free from defects in materials, design, and workmanship. These Specifications, to the extent possible, identify service conditions and requirements for all equipment; however, it shall be the manufacturer's responsibility to ascertain, to his satisfaction, the conditions and service under which the equipment will operate and to warrant that operation under those conditions will be successful. All parts of the equipment shall be amply proportioned for all stresses that may occur during fabrications, erection, and intermittent or continuous operation.

- B. All equipment shall be designed, fabricated, and assembled in accordance with the best modern engineering and shop practices. Individual parts shall be manufactured to standard sizes and gauges so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required for tests. Materials shall be suitable for service conditions.
- C. Except where otherwise specified, structural and miscellaneous fabricated steel used in items of equipment shall conform to the Standards of the American Institute of Steel Construction. All structural members shall be considered as subject to shock or vibratory loads. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment, shall have a minimum nominal thickness of 1/4 inch. The location of the fabricator and his shop schedule shall be furnished to the Owner/Engineer prior to the beginning of fabrication so that the Owner/Engineer can schedule shop inspection if so desired.

2.02 SAFETY GUARDS

- A. All belt or chain drives, fan blades, couplings, exposed shafts and other moving or rotating parts shall be covered on all sides by safety guards which shall be free of all sharp edges and corners. Safety guards shall conform to the requirements of appropriate safety agencies, such as OSHA.
- B. Safety Guards shall be fabricated from 16 US Standard gauge, or heavier, galvanized or aluminum-clad sheet steel or 1/2-inch mesh, galvanized expanded metal. Each guard shall be designed for easy installation and removal. All necessary supports and accessories shall be provided for each guard. Supports and accessories, including bolts, shall be hot-dip galvanized. All safety guards in outdoor locations shall be designed to prevent the entrance of rain and dripping water.

2.03 EQUIPMENT BASES AND BEDPLATES

- A. A heavy cast-iron or welded steel base shall be provided for each item of equipment which is to be installed on a concrete foundation. Equipment assemblies, unless otherwise specified, or shown on the Drawings, shall be mounted on a single, heavy, cast-iron or welded steel bedplate. Bases and bedplates shall be provided with machined support pads, tapered dowels for alignment of mating, or adjacent items, adequate openings to facilitate grouting, and openings for electrical conduits. All seams and contact edges between steel plates and shapes shall be continuously welded and ground smooth. The plates shall have a minimum thickness of 1/4 inch. All pump bedplates must include a drip lip and provision for directing accumulated gland leakage to a single disposal drain point. Pipe all accumulated gland and seal water leakage and spent cooling water to a floor drain provided adjacent to each piece of equipment. Floor drain may be provided for more than one piece of equipment provided the equipment drain line does not create a safety or tripping hazard.

2.04 JACKING SCREWS AND ANCHOR BOLTS

- A. Jacking screws shall be provided in the equipment bases and bedplates to aid in leveling prior to grouting.
- B. Equipment suppliers shall furnish anchor bolts, nuts, washer, and sleeves of adequate design as required for proper anchorage of the bases and bed plates to the concrete bases. Sleeves shall be a minimum of 1-1/2 times the diameter of the anchor bolts. Unless otherwise shown or specified, anchor bolts for items of equipment mounted on baseplates shall be long enough to permit 1 inch of grout beneath the baseplate and to provide adequate anchorage into structural concrete. Anchor bolts, together with templates or setting

drawings, shall be delivered sufficiently early to permit setting the anchor bolts when the structural concrete is placed. Anchor bolts shall be 316 stainless steel which conforms to ASTM A-167 and ASTM A-267.

2.05 DRIVES

- A. General: All drive units shall have an AGMA rating and service factor suitable for 24 hours per day operation under the specified maximum, or "worse case" operating load. Drive unit housing shall be constructed of high-grade cast iron, welded steel, or other suitable material. Thermal rating of each unit shall exceed the design load or proper cooling devices shall be provided. All drives shall be designed especially for the service for which they are to operate.
- B. Electric Motors: All electric motors supplied under this Contract shall conform to all requirements specified in Division 16. Additional or superseding requisites for certain motors may be found in Division 11, and to a lesser extent, in other Divisions wherein electric motor driven equipment is specified. The CONTRACTOR must coordinate the work of all trades, and the functional, safety and Code requirements for each installation, in order to comply with these Specifications.
- C. V-Belt Drives: Where motors are mounted above the driven machine on a pedestal, the belt tensioning shall be accomplished by four studs which are double nutted to the motor plate to raise and lower the motor plate. Hinges with a jacking screw to tension the belts shall not be used. Where motors are mounted horizontally adjacent to the driven equipment, belt tensioning shall be accomplished by utilization of sliding rail type motor mount, with manual adjustment of motor location, and thereby, belt tension, through a manual, permanently mounted hand crank mechanism. All V-belt tensioning devices shall be such that under no circumstances will it be possible for any device, once set to the desired adjustment, to go out of the adjustment due to the load being imposed upon the drive at that setting. This requirement shall be construed to mean that a set belt tension may not go out of adjustment due to gradual stretching of belts, but shall mean that no portion of any device or devices used to accomplish belt tensioning may slip, become loose, or otherwise move from the desired setpoint, once selected, except when manually reset by operating personnel by use of the adjustment device or devices.

2.06 LUBRICATION

- A. Lubrication of equipment shall ensure constant presence on all wearing surfaces. Lubricant fill and drain openings shall be readily accessible. Easy means for checking the lubricant level shall be provided. Prior to testing and/or operation, the equipment shall receive the prescribed amount and type of lubricant as required by the equipment manufacturer. The CONTRACTOR shall provide to the OWNER a 1-year supply of lubricants for each piece of equipment installed. All lubricants shall be properly packaged, labeled, and delivered to the OWNER concurrent with equipment installation. An inventory listing of lubricant types by equipment and quantities shall be provided.

2.07 GEARS

- A. Provide oil-lubricated totally-enclosed gear reducers and increasers.
- B. Service Ratings: Each gear shall have a nameplate service horsepower rating at least equal to the nameplate rating of the driving motor. Each gear shall have mechanical and thermal capacity equal to or greater than an equivalent horsepower determined by multiplying the service horsepower rating by the specified service factor recommended by AGMA for heavy duty service, except each set of worm gears shall have a minimum service factor of 1.20 and all other gears shall have a minimum service factor of 1.50.

- C. Bearings: Provide antifriction bearings throughout, designed to give a minimum 20,000 hours B10 life for the specified horsepower in continuous operation, of proportions, mountings, and adjustment consistent with acceptable modern practices for applied radial and thrust loads at speeds involved. Provide thrust bearing rates of 1-1/2 times the maximum thrust loading involved.
- D. Gear Nameplates: Equip each gear with an AGMA nameplate which shows service horsepower, actual service factor for actual mechanical or thermal rating as applicable, and AGMA gear Class I rating.

PART 3 – EXECUTION

3.01 COORDINATION

- A. The Drawings show, in a diagrammatic form, the arrangements desired for the principal apparatus, piping, and similar appurtenances, and shall be followed as closely as possible. Proper judgment must be exercised in carrying out the work to secure the best possible headroom and space conditions throughout, to secure neat arrangement of piping, valves, fixtures, hangers, and similar appurtenances, and to overcome local difficulties and interferences of structural conditions wherever encountered.
- B. The CONTRACTOR shall take all measurement for his work at the installation sites, verify all subcontractor Drawings prior to required submittal and be responsible for the proper installation, within the available space, of the apparatus specified and shown on the Drawings. The CONTRACTOR must secure the approval of the Owner/Engineer for all variations and/or substitutions before making any changes.

3.02 PROTECTION

- A. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling and storage. All equipment shall be protected from exposure to the elements and shall be kept thoroughly dry and clean at all times. Pumps, motors, electrical equipment, and other equipment having anti-friction or sleeve bearings shall be stored in weathertight storage facilities such as warehouses. All materials and equipment showing evidence of rust, dirt contamination, or other surface or subsurface deterioration shall be cleaned and restored to the Owner/Engineer's satisfaction prior to installation.
- B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted in accordance with the requirements of Section 09900 to the satisfaction of the Owner/Engineer.
- C. Electrical equipment, controls, and insulation shall be protected against moisture or water damage.
- D. The CONTRACTOR shall maintain equipment storage facilities in accordance with the provision of Division 1.
- E. All equipment shall be stored in the designated storage facilities from delivery until installation.
- F. All mechanical equipment, whether in the CONTRACTOR'S designated storage facility prior to final installation, or whether installed, but not yet placed into service or accepted by the OWNER, shall be periodically exercised at intervals, and in accordance with procedures prescribed by each manufacturer, if such a recommendation is included in the manufacturer's installation, operation and maintenance instructions.

3.03 INSTALLATION CHECK

- A. The CONTRACTOR shall have an experienced, competent, and authorized representative of the manufacturer or supplier of each major item of equipment visit the site of the work and inspect, check, adjust if necessary, and approve the equipment installation. In each case, the equipment supplier's representative shall be present when the equipment is placed in operation. The CONTRACTOR shall have the equipment supplier's representative revisit the job site as often as necessary until all problems are corrected and the equipment installation and operation is satisfactory to the Owner/Engineer.
- B. Each equipment supplier's representative shall furnish to the OWNER, through the CONTRACTOR, a written report certifying that the equipment: (1) has been properly installed and lubricated; (2) is in accurate alignment; (3) is free from all stress imposed by connecting piping or anchor bolts; and (4) has been operated successfully under full load conditions.
- C. Equipment manufacturers shall furnish the services of competent, factory-trained personnel during the warranty period specified to inspect, service, and repair the equipment where required. Service requests shall be answered and acted upon promptly. This requirement shall not include normal maintenance and service of equipment, which will be the responsibility of the OWNER.
- D. All costs for this work shall be included in the price bid by the CONTRACTOR.

3.04 EQUIPMENT INSTALLATION

- A. All equipment shall be installed in full accordance with the equipment manufacturer's recommendations and good practice. Where specified in other parts of this Division, factory-trained service personnel shall be on-site to supervise the installation. Sufficient notice shall be given to the Owner/Engineer prior to equipment installation in order that the Owner/Engineer or his representative may be present during installation. In general, the following installation practices shall be followed:
 - 1. Examine equipment for damage in shipping and handling. The examination shall include checking for corrosion, poor workmanship, dirt or deleterious substances, and poor fits.
 - 2. Level the base plate or bedplate.
- B. Install equipment.
- C. Check alignment of couplings.
- D. If grout has been used, check alignment and levelness after the grout has set.
- E. Check direction of rotation and correct, if necessary, to insure proper operation.
- F. Provide drain lines from all equipment gland leakage housings, seal water openings, and strainers to nearest floor drain or point of disposal. Blow-down valves shall be provided on all strainers whether or not shown on the Drawings.

3.05 PLACING IN OPERATION

- A. Prior to being placed in operation, equipment shall be inspected by the manufacturer's factory-trained personnel. All defects discovered during this inspection shall be corrected prior to initial equipment start-up. Internal coatings applied at the factory shall be removed if required. Lubricant shall be applied in the proper places and levels shall conform to the

manufacturer's recommendations. In the presence of the Owner/Engineer, full-load operational testing shall be performed and the results of such tests shall be recorded. Unsatisfactory performance shall be corrected and tests shall be repeated until the equipment performance meets the Specifications. The CONTRACTOR shall furnish all power, materials, services, test equipment and labor required to successfully complete all full load equipment testing specified. The CONTRACTOR shall certify in writing to the Owner/Engineer, in triplicate, that all tests were conducted in accordance with these Specifications and that all components within each system successfully function as required. The CONTRACTOR shall notify the Owner/Engineer ten (10) calendar days in advance of the time when the equipment will be placed into operation. During the course of initial operation, the CONTRACTOR shall instruct OWNER'S personnel in the proper operation and maintenance of the equipment, as specified herein.

3.06 INSTRUCTION

- A. After the equipment specified in Divisions 11 and 16 has been installed, tested, adjusted, and placed in satisfactory operating condition, services of representatives of each equipment manufacturer shall be provided to instruct the operating personnel in the use and maintenance of the equipment. The instruction period shall be scheduled at a time mutually agreed upon with the OWNER. The manufacturer's representatives shall fully instruct the OWNER'S personnel regarding use and maintenance of the equipment. During this instruction period, it shall be the responsibility of the manufacturer to answer all questions for the OWNER'S operating personnel. Manufacturer shall also demonstrate lubrication, disassembly, adjusting, routine parts replacement, and other "hands-on" activities related to maintenance of the equipment. Provide a minimum of not less than three (3) hours for this instruction for each piece of equipment or set of identical pieces of equipment provided unless otherwise specified. More days shall be provided if called for in the individual equipment specification. Each manufacturer shall include the service in the price of his equipment. Training session schedules shall be coordinated with the Owner/Engineer and under no circumstances shall more than two training sessions be scheduled for the same day. The CONTRACTOR shall designate an individual through whom manufacturer's training will be coordinated. This individual will coordinate all training sessions through OWNER'S designated training coordinator.

3.07 SPECIAL TOOLS AND ACCESSORIES

- A. All special tools, special tool lists, equipment, or accessories required for the installation and maintenance of equipment specified in Division 11, shall be provided by the equipment manufacturer. Special tools shall be defined as those items manufactured by the equipment supplier specifically for performing maintenance and installation of their respective equipment.

3.08 SHOP PAINTING

- A. Except as specifically supplemented or superseded by requirements herein, shop painting shall conform to requirements in Section 09900. Electric motors, gears, starters, and other similar self-contained or enclosed components shall be shop primed and finished with high-grade oil-resistant acrylic enamel. Surfaces which will be inaccessible after assembly shall be painted or otherwise protected before assembly by a method which provides protection for the life of the equipment.
- B. Surfaces to be painted at the project site shall be shop painted with one or more coats of a primer which will adequately protect the equipment until finishes are applied at the project site. Primers shall be as specified in Section 09900. All equipment shall be primed with primer compatible with the coating system selected by the CONTRACTOR, and if not, the

CONTRACTOR shall re-prime the equipment such that it is compatible and in conformance with Section 09900.

- C. Machined and polished metallic surfaces which are not to be painted shall be coated with a rust preventative compound as specified in Section 09900.

3.09 DAMAGED PRODUCTS

- A. The CONTRACTOR shall notify the Owner/Engineer in the event that any equipment or material is damaged subsequent to receipt at the job site, and prior to acceptance of the installation by the OWNER.
- B. Repairs to damaged products in lieu of replacement shall not be made without prior approval by the Owner/Engineer.

END OF SECTION

SECTION 11215 - HORIZONTAL SPLIT CASE CENTRIFUGAL PUMPS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Furnish all labor, materials, equipment and incidentals required and install, place in operation, and field test electric motor driven, volute type horizontal split case, single suction centrifugal pumps as indicated on the Drawings and as specified herein.
2. All appurtenances, bolts, washers, etc., necessary to construct, test and operate the pumping unit are intended to be supplied herein whether specifically called out or not.

B. Related Work Described Elsewhere:

1. Painting and Special Coatings: Section 09900
2. Mechanical - General Requirements: Section 15000
3. Electrical: Division 16

C. General Design:

1. Three (3) Aerator Transfer service pumping units are required under this Contract. The pumping unit shall be located and arranged as shown on the Drawings.
2. All working parts of the pump and motor, such as bearings, wearing rings, shaft sleeves, motor windings, etc., shall be of standard dimensions such that parts will be interchangeable between like units, and such that the OWNER may at any time in the future obtain replacement and repair parts for those furnished in the original equipment. All parts shall be properly stamped for identification and their location shall be as shown on the assembly drawings of the instruction books furnished.
3. The general scope of this project is to replace existing horizontal split case pumps that are still in service, along with the station piping and valves, with new pumps specified in this section, and install new motor controlling VFDs to operate them, specified elsewhere.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. To assure unity of responsibility, the motor and the pump shall be furnished and coordinated by the pump manufacturer. The CONTRACTOR shall assume responsibility for the satisfactory installation and operation of the entire pumping system including pump, motor, and controls as specified.
2. The pumps covered by these Specifications is intended to be standard pumping equipment of proven ability as manufactured by a reputable manufacturer having extended experience in the production of such pumps. The pumps furnished shall be designed, constructed, manufactured and installed in accordance with the best practice and methods, and shall operate satisfactorily when installed.

- Pump shall be manufactured in accordance with the Hydraulic Institute Standards.
3. All equipment furnished under this Specification shall be new and unused, shall be the standard product of the following "Basis of Design Manufacturer"
 4. Acceptable Manufacturers:
 - a. Peerless Pump
 5. Alternate pump manufacturers must be submitted and approved by the Engineer via addendum, prior to the end of questions date and the Bid Opening Date. Alternate manufacturers must provide equal performance, materials of construction, and configuration, in the opinion of the Engineer, to be acceptable for the project, in advance of the bid date.

1.03 SUBMITTALS

A. Materials and Shop Drawings:

1. Copies of all materials required to establish compliance with the Specifications shall be submitted in accordance with the provisions of Section 00800. Submittals shall include at least the following:
 - a. Certified shop and erection drawings showing all important details of construction, outline dimensions, space required, clearances, operating features, type of shop and/or finish coat, and anchor bolt locations.
 - b. Descriptive literature, bulletins, and/or catalogs of the equipment, including pump cross section with parts identification and materials of construction.
 - c. Data on the characteristics and performance of the pump. Data shall include guaranteed performance curves, based on actual shop test of similar units, which show that they meet the specified requirements for head, capacity, efficiency, NPSHR and horsepower. Curves shall be submitted on 8 1/2 inch by 11 inch sheets, at a scale large as is practical. Curves shall be plotted from no flow at Shut Off Head to Pump Capacity at minimum specified TDH.
 - d. Manufacturer's drawings of all accessory equipment such as couplings, guards, etc.
 - e. Flexible coupling data including manufacturer, model, type, size, detail drawings, and calculations for coupling sizes.
 - f. The total weight of the equipment including the weight of the single largest item.
 - g. A complete total bill of materials of all equipment.
 - h. A list of the manufacturer's recommended spare parts to be supplied with the manufacturer's current price for each item. Include gaskets, packing, etc., on the list. List bearings by the bearing manufacturer's numbers only.
 - i. Complete motor data.

- j. Copies of all factory test results, as specified.
 - k. Manufacturer's recommendations for cleaning and disinfecting the high service pumps.
- 2. In the event that it is impossible to conform to certain details of the Specifications due to different manufacturing techniques, describe completely all nonconforming aspects. Alternate manufacturers must submit this information to the Engineer, in advance of the bid date, to participate in the project.
 - 3. Upon receipt of approval of submitted material, provide the number of certified prints specified in Section 00700.
- B. Operating Instructions:
- 1. Operating and maintenance manuals shall be furnished. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc., that are required to instruct operating and maintenance personnel unfamiliar with such equipment. The number and special requirements shall be specified in the Specific Provisions of these Specifications and Section 01730.
 - 2. A factory representative of all major component manufacturers, who has complete knowledge of proper operation and maintenance shall be provided for at least one-half (1/2) day to instruct representatives of the OWNER and the ENGINEER on proper operation and maintenance. With the OWNER'S permission, this work may be conducted in conjunction with the inspection of the installation and test run as provided under PART 3. If there are difficulties in operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no cost to the OWNER.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.
- B. All equipment and parts must be properly protected against any damage during a prolonged period at the site. Refer to Section 01600 on the required method for storing equipment with moving parts for extended periods of time.
- C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the OWNER.
- D. Finished surfaces of all exposed pump openings shall be protected by wooden blanks, strongly built and securely bolted thereto.
- E. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
- F. After hydrostatic or other test, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.
- G. Each box or package shall be properly marked to show its net weight in addition to its

contents.

- H. Pumps and drive units shall be delivered with the equipment fully lubricated insofar as possible. If any point cannot be so serviced, it shall be clearly marked to the effect that it is not lubricated and requires service prior to operation. An adequate supply of the proper lubricant, with instructions for its application, shall be supplied with the equipment for each point not lubricated prior to shipment.

1.05 WARRANTY

- A. All equipment supplied under this Section shall be warranted for a period of two (2) years by the CONTRACTOR and the equipment manufacturers. Warranty period shall commence on date of final payment, as outlined in the General Conditions and the Contract.
- B. The equipment shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the equipment and the unit(s) restored to service at no expense to the OWNER.

PART 2 – PRODUCTS

2.01 GENERAL

- A. These specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishings, the shop testing, the delivery and complete installation and field testing of all materials, equipment and appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these Specifications or not.
- B. For all units there shall be furnished and installed all necessary and desirable accessory equipment and auxiliaries whether specifically mentioned in these Specifications or not. Accessory equipment shall be furnished and installed as required for an installation incorporating the highest standards for the type of service, including field testing of the entire installation and instructing the regular operating personnel in the care, operation and maintenance of all equipment.

2.02 MATERIALS AND EQUIPMENT

- A. The pumping unit required under this Section of the Specifications shall be complete including pump and motor with proper alignment and balancing of the individual unit. All parts shall be so designed and proportioned as to have liberal strength stability and stiffness, and to be specifically adapted for the work to be done. Ample room shall be provided for inspection, repairs, and adjustment.
- B. Each baseplate for pump and drives shall be rigidly and accurately anchored into position. All necessary foundation bolts, plates, nuts, and washers shall be furnished by the pump manufacturer for installation by the CONTRACTOR. All anchor bolts and nuts shall be Type 316 stainless steel.
- C. Stainless steel (300 series) nameplates, 24 U.S. std. gage minimum, giving the name of the manufacturer, model or type, serial number, impeller size or designation, the rated capacity, head, speed, electrical or power characteristics, and all other pertinent data shall be securely attached to each pump and motor.

- D. Each pumping unit and its driving equipment shall be designed and constructed to withstand the maximum run-away speed of the unit due to back flow through the pump.
- E. The pumps shall be of the horizontal, centrifugal, split case single suction type. The flanged suction and discharge connections shall be located in the lower half of the casing allowing removal of the rotating element without disturbing the pipe connections.
- F. The pumps shall be of standard dimensions, built to limit gauges or formed to templates, such that parts will be interchangeable between like units.
- G. Performance Requirements:
 - 1. When operating at the maximum output speed of the motor, each pump shall have a curve which meets all the minimum conditions listed in Table 11215-A. The pump and drive motor shall be capable of operating satisfactorily under the full range of conditions as defined by Table 11215-A.
 - 2. With the pumping unit operating at maximum speed, the maximum brake horsepower required by the pump shall not exceed the maximum horsepower listed in Table 11215-A. If the pumping unit requires more than maximum horsepower listed in Table 11215-A at any full speed operation point between primary and secondary discharge head, they will be rejected.
 - 3. Certified Factory Tests: Factory testing in accordance with the standards of the Hydraulic Institute shall be required for all pumps. Six copies of the certified pump performance curves for each pump, 8 1/2" x 11", laminated in plastic, shall be submitted including head, capacity, brake horsepower, NPSHR, and pump efficiency for each pump supplied. The curves shall indicate the pump number manufacturer, model number, and location in the plant.
- H. Pump Construction:
 - 1. Pump Casings:
 - a. The pump case shall be of cast iron construction ASTM A-48, Class 30, having a minimum tensile strength of not less than 30,000 pounds per square inch and suitable for a working pressure of up to 175 psig.
 - b. Casings shall be free from blow holes, sand pockets or other imperfections. They shall be given a hydrostatic pressure test to at least 1 1/2 times the maximum pump shut-off head and an affidavit that these cases have withstood these pressure tests shall be furnished to the OWNER and ENGINEER before shipment.
 - c. The interior and exterior surfaces of the casings shall be smooth with matching flanges.
 - d. The casing joint shall be a scraped or machined fit, requiring a gasket not more than 0.015 inch thick.
 - e. Suction and discharge flanges shall be faced and drilled ANSI Class 125 Standard. There shall be 1/4 inch I.P.T. tapped holes closed with 316 series stainless steel plugs in both the suction and discharge flanges of all pumps for test gauge connections.

- f. The casing at the suction inlet to the impeller shall be protected with bronze renewable wearing rings. They shall be of one-piece construction, held rigidly in slots in the case and shall not be held in place by the clamping action of the case alone.
- g. All case fastener studs shall be 316 series Stainless steel, as well as stud nuts, and shall be provided with stainless steel washers to protect the coated surfaces below the nuts.
- h. All pump casings shall have factory finish coatings applied prior to assembly and no fasteners, glands, plugs, shafts, shaft sleeves, couplings, keys, or accessories shall be coated or have coating materials on them.
- i. Pump coatings shall be as specified under Coatings, Section 09900, but as a minimum, shall be provided with a minimum of two coats of High Solids epoxy totaling a minimum of 12Mils DFT thickness, anywhere on the coated surfaces, with a clear coating of polyurethane, 3 Mils DFT minimum.

2. Impellers:

- a. The impeller shall be of Aluminum Nickel, bronze, enclosed suction type of one-piece construction. Impeller shall be machined outside, smoothly finished on the internal water passages, shall be hydraulically and statically balanced and keyed to the shaft. The impeller shall be fixed in the axial direction by the shaft sleeves. Alloy shall be ASTM B-584, C-95800, no exception.
- b. Impeller shall be protected from wear at the suction inlet with integral or renewable bronze wear rings. These rings shall be fastened to the impeller such that they cannot loosen in service.

3. Bearings:

- a. The weight of the pump shaft and impeller assembly shall be carried on bearings at each end of the pump shaft. Bearings shall be grease lubricated, inboard bearing shall be a single row radial type ball bearing and outboard bearing shall be a single or a double row angular contact ball thrust bearing. Bearings shall be selected in accordance with ANSI B3.15 and B3.16 and shall have a minimum L10 bearing life of 50,000 hours at maximum load and 250,000 hours at average load. The bearing housings shall be provided with a tapped drain and plug. The bearing housings shall be constructed of cast iron. Alternate bearing design shall be of a design acceptable to the ENGINEER.
- b. The outboard bearing of each pump shall be designed to accept any thrust loads and shall function so that the impeller rotor will be centered in the end play (axial movement) of the wearing ring.
- c. At the inner end of each bearing housing the shaft shall be equipped with a slinger type water deflector, fastened to the shaft with set screws, to prevent water from the mechanical seal boxes entering the bearing housings.

- d. Lubrication shall be Synthetic grease lubricated with Conoco / Phillips, Dynalife HT, or equal, without exception.
- 4. Shafts: Pump shafts shall be of high grade 416 series, stainless steel, ground and polished over the entire length. They shall be protected from seal wear at the stuffing boxes by renewable 316 series, stainless steel shaft sleeves on which the pump seals shall ride. Sleeves shall be fastened to the shaft such as to prevent leakage between the sleeve and the shaft.
- 5. Mechanical Seals:
 - a. Mechanical seal boxes shall be placed on both sides of the pump centerline to seal the pump shaft.
 - b. Each pump shall be furnished with John Crane Type 1 or 21, mechanical seals, with all metal parts consisting of 316 stainless steel with EPDM elastomers, and a silicon carbide block type seat and a carbon rotating element..
 - c. provide stainless steel, seal flush lines that are routed from the top of the pump casing to each seal box, using 18-8 or 316 series stainless steel tubing
 - d. The mechanical seal boxes shall be equipped with heavy, cast, one-piece "O" ring sealed glands.
 - e. Provide stainless steel glands and gland fastening hardware.
- 6. Motors:
 - a. The motors shall be TEFC premium efficiency type and shall be supplied by the pump manufacturer. Motors shall be INVERTER DUTY RATED AND LABELED. Motors shall be NEMA MG-1 Part 31 and Part 33.
 - b. The motor shall have a service factor of 1.15 and shall be non-overloading, without the use of the service factor over the full range of operation for the pumps specified.
 - c. The motor shall be suitable for operation on 230/460 volt, 3 phase, 60 hertz power supply.
 - d. The frame, brackets and conduit box shall be constructed of cast iron. Motor feet shall be completely cleaned of any paint coatings prior to mounting on pump bases.
 - e. Motor winding and rotor insulation shall be in accordance with NEMA MG 1-12.42, Class H, with a Class F temperature rise, and shall be a minimum 65 degree C Rise.
 - f. Motors shall be specifically designed for variable speed operation using variable frequency. Motors shall be Baldor, U.S. Motors or approved equivalent. Motors shall be guaranteed premium efficiency at full load of 96.6% compatible with the variable frequency controller as specified in Division 16.

- g. Motors shall have grounded rotors and electrically isolated bearings.
- h. Provide NEMA 4 Accessory conduit connection box.
- i. Provide 120 VAC, space heaters
- j. Provide thermostats imbedded in the motor windings and terminals brought out to the accessory conduit boxes.
- k. Provide Coro Duty Paint
- l. Provide stainless steel motor fasteners and hardware
- m. Provide each motor with the manufacturer's standard motor tests
- n. Provide precision / special rotor balance.
- o. Provide a Falk, Steelflex, steel grid type coupling, type T-10, to couple the motor and the pump..

7. Baseplate:

- a. Each unit, motor and pump shall be mounted on a structural type, fabricated steel baseplate consisting of heavy "C" shape, channel steel, with raised machined pump and mounting blocks that shall be tapped for pump and motor fasteners.. Mounting pads shall be machined flat, level, and parallel to each other.
- b. Motor shimming shall be made with pre-manufactured, stainless steel shim products that clearly show the thickness value of each shim.
- c. Pumps shall not be shimmed to their steel bases. Only the motors shall be shimmed to meet the motor shaft.
- d. Motor shimming shall be accomplished using no more than three shims under any foot.
- e. Motor shimming shall be performed by the pump representative using the latest computerized, laser alignment tools that will provide a printed report on the alignment of each pump unit. These alignment reports shall bear the pump and motor serial numbers, and be submitted to the engineer for acceptance.
- f. Baseplates shall be designed so as not to exceed the dimensions shown on the Drawings.
- g. A circular drip rim shall collect condensation moisture from the pump. The depth of the drip rim shall be not less than 1-1/4 inches. At the lowest point of the drip rim there shall be 3/4-inch pipe tap for drainage piping.
- h. Baseplates shall be of such design and have sufficient grout holes that they can be filled with grout after the units are leveled and aligned.
- i. Each baseplate shall be supplied with a minimum of five, 316SS anchor bolts on each side of the pump bases for holding the baseplates in position

while installing, leveling, aligning and grouting the units. Anchor bolts shall be sufficiently strong for all stresses which will be imposed on them during the operation of the units.

- j. Anchor bolts shall be provided with steel pipe sleeves and heavy semi-finished hex nuts and shall be supplied by the supplier of the equipment specified in this paragraph.
- k. Pump Bases shall be completely coated before the mounting of any pump equipment. Raised, machined mounting blocks for pumps and motors shall not be painted to prevent "soft foot".
- l. Pump bases shall be set and laser leveled on the existing pump foundations prior to grouting in place. Grout shall be as specified under Seciton 03600, and herein.

2.03 SPECIAL TOOLS AND SPARE PARTS

- A. The manufacturer shall furnish the following spare parts
 - 1. One set of mechanical seals for each pump supplied.
 - 2. One set of 316 series stainless steel, shaft sleeves for the set of pumps.
 - 3. One complete set of all gaskets required for the assembly of the pump for each pump supplied.
 - 4. 6 pump casing (bonnet) gaskets for the set of pumps.
 - 5. three Falk, coupling repair kits to include the cover gasket and LTG, (long term grease)
- B. Spare parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the locations shown on the Drawings. Installation shall include furnishing the required oil and grease for initial operation. The grades of oil and grease shall be in accordance with the manufacturer's recommendations. Anchor bolts shall be set in accordance with the manufacturer's recommendations.
- B. Baseplates shall be fully grouted in accordance with Specification 03600 – Grout. As a minimum, each pump base shall be completely filled to the top surface of the steel "C" chanel structures with a high strength, non-shrink, epoxy grout similar or equal to Five-Starr, DP Grout, or Sika Products, Sika Dur 42.
- C. The CONTRACTOR shall submit a certificate from the equipment manufacturer stating that the installation of equipment is satisfactory, that the equipment is ready for permanent operation, that nothing in the installation will render the manufacturer's warranty null and void, and that the operating personnel have been suitably instructed in operation, lubrication and care of each unit.

3.02 SHOP PAINTING

- A. Before exposure to weather and prior to shop painting, all surfaces shall be thoroughly cleaned, dry and free from all mill scale, rust, grease, dirt and other foreign matter.
- B. All pumps and motors shall be shop primed, with primer compatible with field painting as specified in Section 09900.
- C. Contractor is directed to NOT PAINT the pumps or motors at the site, and only paint the connected piping. Pumps shall be finish coated at the factory.
- D. All nameplates shall be properly protected during painting.

3.03 INSPECTION AND TESTING

A. General:

- 1. The ENGINEER shall have the right to inspect, test or witness tests of all materials or equipment to be furnished under these Specifications, prior to their shipment from the point of manufacture.
- 2. The ENGINEER shall be notified in writing prior to initial shipment, in ample time so that arrangement can be made for inspection by the OWNER.
- 3. The OWNER or his representative shall be furnished all facilities, including labor, and shall be allowed proper time for inspection and testing of material and equipment.
- 4. Materials and equipment shall be tested or inspected as required by the ENGINEER, and the cost of such work shall be included in the cost of the equipment. The CONTRACTOR shall anticipate that delays may be caused because of the necessity of inspection, testing and accepting materials and equipment before their use is approved.
- 5. Furnish the services of a factory representative for at least one-half (1/2) day who has complete knowledge of proper operation and maintenance to inspect the final installation and supervise a test run of the equipment. The manufacturer's representative shall inspect the completed installation for soundness (no damaged or cracked components), completeness, correctness of setting and alignment, that the pumps are free from stresses imposed by the attached piping, and for the adequacy and correctness of packing, lubrication, and sealing. The representative shall submit to the ENGINEER a signed report detailing the results of his inspection. The CONTRACTOR'S responsibility for startup services shall be fulfilled when startup is complete, the equipment functioning properly and has been accepted by the OWNER.
- 6. Field tests shall not be conducted until such time that the entire installation is complete and ready for testing.

B. Pumps:

- 1. After all pumps have been completely installed, and working under the direction of the manufacturer, conduct in the presence of the OWNER or his representative, such tests as necessary to indicate that pump discharge conforms to the Specifications. Field tests shall include all pumps included under this Section. Supply all electric power, water, labor, equipment and incidentals required to complete the field tests.
- 2. Pumps and motors shall be pre-aligned at the site after the contractor has set the pumps on their foundations and prior to attaching the connected pipe, and prior to grouting.

3. After the pre-alignment, and before pipe is connected, the contractor shall place all grout and allow a 7 day cure.
4. Pumps shall be finish aligned after the grout has set and the pipe is connected, and with cooperation of the contractor, the alignment technician shall also check for the absence of pipe stress and soft foot.

C. Motors:

1. The CONTRACTOR shall megger each motor winding before energizing the motor, and, if insulation resistance is found to be low, shall notify the ENGINEER and shall not energize the motor.
2. The CONTRACTOR shall check all motors for correct clearances and alignment and for correct lubrication in accordance with manufacturer's instructions. The CONTRACTOR shall check direction of rotation of all motors and reverse connections if necessary.

D. Surface Preparation and Shop Prime Painting, (connected piping and appurtenances):

1. Fabricated steel base and pumping unit, including guard, shall be shop primed with universal rust inhibitive primer, TNE MEC 69, or equivalent. The shop primer shall be compatible with CONTRACTORS finish paint specified in Section 09900.
2. Motors shall have manufacturer's standard finish paint for corrosive environment.

**TABLE 11215-A
PERFORMANCE REQUIREMENTS**

	AERATOR TRANSFER PUMP
Design Flow, GPM	2800
Design TDH, feet	46
Motor Horsepower, HP	40 (Inverter Duty Rated)
Motor Design Speed, RPM	1175
Minimum Pump Efficiency at Design Point	85%
Hydraulics Institute Test Tolerance	1-U
Suction Diameter – Inches	12
Discharge Diameter – Inches	10
Basis of Design Manufacturer	Peerless Model 10AE16

**TABLE 11215-B
MATERIALS OF CONSTRUCTION**

Component	Material
Casing	Cast Iron, Class 30
Impeller	Bronze ASTM B-584, C-95800
Pump Shaft	416 series Stainless steel
Casing Wear Rings	Bronze C-95200 aluminum Bronze
Impeller Wear Rings	Integral
Mechanical Seals	JC-1, or 21, Carbon/SC/EPDM
Shaft Sleeves	316 Stainless Steel
Impeller Key	Stainless Steel

END OF SECTION

SECTION 11290 – SLIDE GATES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work shall include furnishing and installing rising stem, aluminum slide gates. Each complete with integral frame, stem, stem guides and operator.
- B. Location shall be as shown on the Drawings.
- C. Related Work Specified Elsewhere:
 - 1. Section 05500 – Metal Fabrication
 - 2. Section 09900 – Paintings and Coatings

1.02 QUALITY ASSURANCE

- A. Slide gate, including the frame, stem, guides and operator shall be furnished by one manufacturer.
- B. Acceptable Manufacturers: Subject to compliance with requirements, manufacturer's offering products which may be incorporated in the work include the followings (or approved equivalent):
 - 1. Rodney Hunt Company
 - 2. Hydro Gate Corporation
 - 3. Whipps, Inc.

1.03 SUBMITTALS

- A. Submit shop drawings, fully dimensioned with installation details.

PART 2 - MATERIALS AND EQUIPMENT

2.01 SLIDE GATE

- A. The slide gates, where shown on the Drawings, shall be fabricated aluminum self-contained type with the disc arranged to lower or raise top open and with the guides designed to mount on the face of concrete. All parts of the gates shall be a minimum thickness of 1/4-inch.
- B. Guides and Seat
 - 1. The guides shall be of extruded aluminum incorporating a dual slot design. The primary slot shall accept the plate of the disc and the secondary slot will be sufficiently wide to accept the reinforcing ribs of the disc. The guides shall be designed for maximum rigidity, shall have a weight of not less than four (4) pounds per foot and shall be provided with holes for anchor bolts every 18 inches for face-mounted units.
 - 2. Guides shall extend beneath the opening a sufficient amount to support the disc in the fully down or open position for downward opening gates. The guides shall be furnished with high density polymer seats on both the upstream and downstream sides of the slide for ease of operation. The seat material shall be made of ultra-high molecular weight polymer having an intrinsic viscosity of at least 14. The seats shall be mechanically attached in a dovetail groove in the

frame and shall be placed on both sides of the gate disc. The seats shall extend up to the top of the two vertical guides above the operating floor.

3. An aluminum angle shall be welded to the guides across the invert of the opening on face mounted gates and up both sides of all gates. A hollow bulb J-seal shall be attached to this angle with stainless steel strips and attaching bolts. The seal shall be arranged so that it will deflect a minimum of 1/16-inch. Designs that use polymer seats that are shaped to act as seals are acceptable in lieu of J-seals.
4. Where guides extend above the operating floor, they shall be sufficiently strong so that no further reinforcing will be required. Where required, the yoke to support the operating benchstand shall be formed by two angles welded at the top of the guides to provide a one piece rigid frame. The arrangement of the yoke shall be such that the disc and stem can be removed without disconnecting the yoke.

C. Disc

1. The disc or sliding member shall be of aluminum plate reinforced with ("U" shaped) aluminum extrusions welded to the plate not more than 16-inches apart. The disc shall not deflect more than 1/360 of the span of the gate under the design head. Reinforcing ribs shall extend into the guides so that they overlap the seating surface of the guide. A specially shaped resilient seal shall be mounted on the bottom of the disc to provide flush-bottom closure. The shape of the seal shall produce a seating surface having a minimum width of 3/4 -inch, and the seal shall extend beyond the seating surface of the frame. The vertical face of the seal shall be in contact with the seating surface of the guide to provide a proper seal at the corners.

D. Stem

1. The operating stem shall be Type 304 stainless steel designed to have an L/r of less than 200 and to withstand in compression at least twice the rated output of the benchstand. The stem shall be connected to the disc by means of a bolted connection. The rising stem shall be provided with a clear butyrate plastic stem cover with mylar positioning markers. All stems shall have a minimum diameter of 1-1/2 inches.
2. All necessary attaching bolts and anchor bolts shall be 304 stainless steel and shall be furnished by the slide gate manufacturer.

E. Operator

1. Unless noted otherwise on the Drawings, operation of the gate shall be by means of a handwheel operated benchstand mounted on the yoke of the gate. The benchstand shall be fully enclosed, equipped with roller bearings above and below the operating nut.
2. Handwheel-operated benchstands shall be designed to operate slide gates with an effort not exceeding 40 pounds and shall be designed to withstand, without damage, at least a 100-pound effort.

F. Leakage

1. Leakage shall not exceed 0.05 gpm per foot of seating perimeter, for seating or unseated head conditions.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation shall be in accordance with the Drawings and the manufacturer's instructions.

3.02 FIELD TESTING

- A. The slide gate shall be tested by operating them to fully open and back to fully closed.

END OF SECTION

SECTION 11294 – MOVEABLE WEIR GATES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes furnishing all labor, materials, equipment and incidentals required for installing and field testing the wall mounted, manually operated long movable weir gates, conforming to AWWA C562 complete and ready for operation as shown on the Drawings.
- B. The weir gates will be used to control the water level on the upstream side in the new splitter box.

1.02 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
 - 1. Rodney Hunt Company
 - 2. Hydro Gate Company
 - 3. Whipps, Inc.

1.03 SUBMITTALS

- A. Submit shop drawings, fully dimensioned with installation details.

PART 2 - MATERIALS AND EQUIPMENT

2.01 WEIR CONSTRUCTION

- A. Weir Gates
 - 1. Weir gates shall be of the downward-opening type designed to mount on the face of concrete walls. Weir gates shall have rising stems. Gates where the width of the slide is more than twice the height shall have double stems. Design the gate to be lowered for opening and to be raised for closing.
- B. Slide Gate Design
 - 1. Slide gates and appurtenances shall comply with AWWA C562, except as modified herein.
 - 2. Provide slide gates complete with gates, guides, frames, baseplates, seats, stems, stem guides, seals, actuators, and anchor bolts. Design slide gates for seating and unseating heads as indicated in the gate schedule in the Contract Drawings. Measure the seating and unseating heads from the top surface of the water to the centerline of the closed disc.
 - 3. Under the design seating and unseating heads, the leakage shall not exceed 0.05 gpm per foot of wetted seating perimeter.
- C. Movable weir gate shall comply with all of the requirements listed in Section 11290 for slide gates as modified herein:
- D. Movable weir gates shall consist of a weir plate, guides, frame, seating surface, operating stems, bench stand, and actuators.

- E. The drive unit shall be by manual bench stand. The drive unit shall consist of one benchstand mounted gearbox. The gearbox shall be fully enclosed in a high strength housing with bronze lift nuts, roller-type bearings and mechanical seals around the operating nut and around the stainless steel pinion shafts where they extend from the case.
- F. The weir plate shall be aluminum, minimum 1/4" thickness, suitably reinforced to withstand the seating head conditions. It shall be slotted to allow full travel of the weir. The operating stem shall be connected to the weir plate by means of bolted connections.
- G. The frame shall consist of structural aluminum angle to be face mounted to the concrete with anchors bolts. The side frame members shall extend upward a sufficient amount so that the weir shall contact the side seats at all positions.
- H. The guides shall weigh at least 4 pounds per foot. The guide shall have a minimum material thickness of 1/4 inch. For self-contained gates, the guides shall extend in one continuous piece from the gate invert to form posts for handwheel actuator stand. The extended guides or posts shall require no additional reinforcing to support the actuator. The guide frames shall be fabricated from extrusions suitable for the loads imparted to it by the water head and operator.
- I. Provide angles to be field mounted to the guides to support checkered plate or grating as shown in the Drawings. Size angle to support load and span.
- J. The operating stems shall be 304 stainless steel.
- K. The actuators shall be bench stands. The gear reduction shall be fully enclosed with mechanical seals around the operating nut and around the pinion shafts where they extend from the case.
- L. All pinion shafts shall operate on roller bearings. Initial setting of the weir shall be performed by handwheel operating the bench stands.

2.02 PAINTING

- A. Aluminum in contact with concrete shall be given a minimum 8 mil coating of bitumen before attachment to the structure.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation shall be in accordance with the Drawings and the manufacturer's instructions.

3.02 FIELD TESTING

- A. The adjustable weirs shall be tested by operating them to fully open and back to fully closed.

END OF SECTION

SECTION 11340 - AMMONIA FEED SYSTEM IMPROVEMENTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all materials, services, labor and equipment as required to disassemble, relocate and reassemble existing ammonia storage and feed system components, provide new feed system equipment and piping, and construct, shop test, install, field test and place into operation, a complete and operable ammonia feed system, as shown in the Drawings and specified herein and related Sections.
1. Some of the existing ammonia feed system components are to be relocated, reused, and incorporated into the new ammonia feed system. Existing City provided items to be utilized and incorporated in the new ammonia feed system include:
 - a. One (1) 1,000-gallon steel ammonia storage vessel.
 - b. Two (2) W&T/Evoqua ammoniators (vacuum feed).
 - c. Two (2) vacuum regulation valves.
 - d. One (1) pressure reducing valve.
 2. The two (2) existing injectors, adjacent valves, and piping/tubing near injection point in the transfer pipe to the tank are to remain. New ammonia gas tubing (vacuum) from the new ammonia feed panels shall tie into the vacuum gas inlets of the two (2) existing injectors.
 3. All piping and tubing from the relocated ammonia storage vessel to the injectors shall be new.
 4. The two (2) ammoniators' controllers are to communicate with the plant's existing PLC in the same manner as with the current system. The ammoniator controllers receive a feed rate signal (4-20 mA for PPD of ammonia) from the plant's PLC/SCADA and feed rate is reported back to SCADA.
 5. New pressure and vacuum switches on the new ammonia system panels will send alarms to plant PLC and show on SCADA. Modification of PLC programming and existing human-machine interface software screens will be performed by the Instrumentation System Supplier.
 6. Provide and install new power and communications conduit and wire to the new ammonia panels.
 7. Include field testing of the installation and instruction of operating personnel in the care, operation, and maintenance of the new feed system.
- B. This specification is intended to give a description of what is required but does not cover all details, which vary in accordance with the requirements of the equipment. It is, however, intended to cover furnishing, shop testing, delivery, complete installation, and field testing of all materials, equipment, instruments, and appurtenances for the complete and operable ammonia feed system.

1.02 SYSTEM DESCRIPTION

The anhydrous ammonia feed system is used for feeding of ammonia downstream of the chlorine injection point for creating chloramine residual in the water supply. The anhydrous ammonia is stored in a steel pressure vessel and gas pressure is controlled through a pressure reducing valve, and then two (2) vacuum regulation valves. The vacuum ammonia gas is then fed into two (2) ammoniators which are controlled (paced with flow and chlorine dose) by the City's PLC. The ammoniators are each rated at a maximum feed rate of 120 ppd of ammonia. The ammonia gas (vacuum) is then fed into the gas inlets of two (2) injectors, which mix ammonia gas with water to create ammonia solution. Ammonia solution is then injected into the pipeline. Components of the City's existing ammonia feed system are to be relocated and reused, and an improved ammonia feed system is to be installed as shown on the Drawings and described herein.

1.03 RELATED WORK DESCRIBED ELSEWHERE

- A. Stainless steel piping is included in Section 15064.
- B. Stainless steel tubing is included in Section 15065.
- C. Polymer vacuum piping and tubing is included in Section 15090.
- D. PVC pipe is included in Section 02623.
- E. Process valves for use with the ammonia feed system are included in Section 15102.
- F. Pipe hangers, and supports are included in Division 15.
- G. Electrical is included in Division 16.
- H. Instrumentation is included in Division 13.

1.04 QUALITY ASSURANCE

- A. The ammonia feed system specified in this Section shall be furnished, coordinated, installed, and tested by a single qualified chemical feed system supplier, hereafter referred to as the Ammonia Feed System Supplier (AFSS) who shall be experienced in the design, manufacture, coordination, installation, and servicing of gaseous water treatment chemical storage and feed equipment of similar type, size, and complexity.
- B. The AFSS shall have experience installing gaseous chemical storage and feed systems of similar type and capacity to this project at municipal water treatment plants in Florida. The AFSS will be responsible for overseeing and directing ammonia feed system improvements in this Project. The AFSS shall be responsible for fabricating, assembling, testing, and supplying the new ammonia pressure control panel and new ammoniator cabinet. For a chemical feed system supplier to be considered qualified, it must submit references for three (3) similar gaseous chemical feed systems installations at municipal water treatment plants in Florida completed within the last five (5) years, listing for each project at least one (1) contact name/phone number of a person directly employed by the client/owner who may be called. Referenced installations must be for the gaseous chemicals used in water treatment such as anhydrous ammonia or chlorine gas.
- C. The AFSS shall combine new valves, instruments, and piping with existing relocated City provided equipment to manufacture the new ammonia pressure control panel and

ammoniator cabinet. The AFSS shall assume full responsibility for completeness and proper operation of the ammonia feed system. The Contractor may perform associated work such as emptying, moving, and installing the existing ammonia tank, and providing and installing the piping, conduit, and wiring outside of the limits of the new panels. All new ammonia system valves, instruments, and accessories are to be provided by the AFSS. All work related to the ammonia feed system shall be under the direction of the AFSS.

- D. The AFSS must have a physical manufacturing facility with fabricating equipment and staff used to complete the work within 100 miles of the Project site. Panels and cabinets assembled by a second party fabricator, the Contractor, or the Instrumentation System Supplier are not acceptable. The AFSS shall have field technical personnel and facilities necessary for fulfilling requirements of the work. The AFSS shall be capable of providing service personnel and replacement parts at the Project site no later than 48 hours after notification. To ensure quality and unit responsibility, the pressure control panel and ammoniator cabinet must be assembled and tested by the AFSS at their facility.
- E. Shop Testing:
 - 1. Each panel system must be tested prior to shipment. The test can be performed with air. The system shall be operated throughout the entire operating range.
 - 2. All panel assemblies shall be leakage tested. Documented testing results shall be provided.
- F. The equipment shall comply with these referenced standards:
 - 1. American National Standards Institute (ANSI)
 - 2. American Society for Testing and Materials (ASTM).
 - 3. National Electrical Manufacturers Association (NEMA).
- G. Suppliers: Specialty chemical feed system suppliers who are qualified to provide the materials, equipment and services needed for the ammonia feed system improvements include Guardian Equipment Inc., 330 Hickman Drive, Sanford, FL 32771 (407-936-2216).

1.05 SUBMITTALS

- A. Submit for approval, shop drawings and other data to establish compliance with these specifications, in accordance with the provisions of Division 1 and the General Conditions:
 - 1. List of references with contact information for three (3) similar projects in the state of Florida in the last 5 years.
 - 2. For the panels and cabinets, submit the following items for review and approval:
 - a. Panel layout drawings that include:
 - i. Front panel view to scale.
 - ii. Functional name of components mounted in and on panel or cabinet.
 - iii. Nameplate location, text, letter size and colors to be used.
 - iv. Location of anchorage connections.
 - v. Location of external wiring and process piping connections.

- vi. Details of panel or cabinet construction with dimensions and materials of construction.
 - vii. Mounting and installation details, coordinated with actual application including bolt locations for attachment to pedestals and supports frames.
 - viii. Details of connections to external piping including size and connection type.
 - b. Product information on all instruments, valves, and accessories:
 - i. Manufacturer's product name/model number, including manufacturer's name and address.
 - ii. Manufacturer's data sheets and catalog literature describing operation and all materials of construction, and power requirements for electric powered items.
 - iii. Performance and operation data.
 - iv. Installation, mounting, and calibration details and instructions.
 - v. Service requirements.
 - c. Panel wiring diagrams for prewiring showing the following:
 - i. Wire sizes and types.
 - ii. Terminal strip and terminal numbers.
 - iii. Wire color coding.
 - iv. Functional and manufacturer's names of components to which wiring is connected.
 - v. Surge protection and grounding features.
 - vi. Lighting and light switches.
 - vii. Electrical control schematics (in accordance with NFPA 79).
- 3. Equipment catalog cut sheets, descriptive literature, bulletins or other published information for all tubing/piping, fittings, valves, supports, and pull boxes to be used.
- 4. Handling and storage instructions.
- 5. Copies of all factory test results.
- B. In the event that it is impossible to conform with certain details of these specifications due to different manufacturing techniques, describe completely all nonconforming aspects.

1.06 OPERATING INSTRUCTIONS

- A. Electronic PDF copies of an operating and maintenance (O&M) manual shall be furnished. The manual shall be prepared specifically for this installation and shall include all required catalog cuts, drawings, equipment lists, descriptions, and necessary information, that are required to instruct operating and maintenance personnel. The approved shop drawing submittal shall be included with the manual. O&M manuals shall be as specified in Section 01730.
- B. An AFSS representative who has complete knowledge of proper operation and maintenance shall be provided for one (1) day to instruct representatives of the Owner on proper operation and maintenance. This work may not be conducted in conjunction with the inspection of the installation and test run. A separate visit will be scheduled for inspection of installation and test run.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All equipment and parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.
- B. Items shall be stored in a clean, dry weathertight building.
- C. Assembled parts and components shall not be dismantled for shipment.
- D. Proper care shall be taken to protect parts from the entrance of water during shipment, storage, and handling.
- E. Each box, crate or package shall be properly marked to show its contents.
- F. Handle during delivery, storage, and installation in a manner to prevent damage.

1.08 WARRANTY AND GUARANTEES

Refer to the General Conditions for guarantee and warranty requirements. Existing Items that are reused as part of the new system are not covered under warranty.

PART 2 - PRODUCTS

2.01 SERVICE CONDITIONS

- A. The AFSS shall furnish ammonia pressure control panel and ammoniator cabinet with all accessories, fittings, appurtenances, specialty items and all supports, and anchors required for complete and operable ammonia feed system.
- B. All parts and mechanisms shall be amply proportioned for all stresses that may occur during fabrication, shipping, erection, and intermittent or continuous operation. All units shall be constructed such that dismantling and repairing can be accomplished without difficulty.

2.02 AMMONIA FEED SYSTEM

- A. General:
 - 1. This specification addresses ammonia metering systems complete with the assemblies containing existing ammoniators and existing pressure control valves, and all necessary piping, valves, fittings, supports, electrical wiring, and accessories as specified. The panels shall contain the following items:
 - a. Ammoniators (existing).
 - b. Pressure and vacuum gauges with diaphragm seals (new).
 - c. Pressure and vacuum switches (new).
 - d. Isolation ball valves (new).
 - e. Pressure reducing valves (1 existing and 1 new).

- f. Vacuum control valves (existing).
 - g. Y strainers (new).
 - h. Piping, valves, supports, hardware, wiring, and accessories (new).
 - 2. The AFSS shall confirm chemical compatibility of all new items that will contact ammonia. All materials upstream of the vacuum regulators are to be compatible with both liquid and gaseous forms of ammonia.
- B. Ammonia Feed System Pressure Control Panel and Ammoniator Cabinet:
- 1. Each system shall be completely assembled, mounted, tested, and delivered to the site mounted on a panel with sunshield or in a cabinet and shall include prewiring. The AFSS shall be responsible for providing valves, instruments, accessories, except for existing feed equipment to be reused, in which case the AFSS will be responsible for obtaining and incorporating those components. All components of the panel-mounted feed systems shall be tested prior to shipment.
 - 2. The fabricated pressure control panel shall be constructed entirely of aluminum sheet, 1/4" thick, and feature a sunshield with overhanging top (min 20" overhang) and sides (min 6" overhang). The rear of the sunshield shall have aluminum brackets for mounting to support stanchions.
 - 3. The fabricated ammoniator panel cabinet shall be constructed of fusion welded polypropylene sheets (UV stabilized), totally enclosed on all 6 sides, with sliding 3/8" thick clear Lexan sheet front access doors. The sliding doors shall be completely removable for improved access. Provide adequate supports/mounts for all new and reused equipment, instruments, valves, and piping. The minimum dimensions of the ammoniator cabinet are 5' high x 4' wide x 15" depth.
 - 4. Provide all components and devices, support hardware, fasteners, wiring and piping/tubing required to provide panels complete and operational.
 - 5. Install front panel-mounted devices no lower than 3.5 feet above and no higher than 6.0 feet above the operating floor.
 - 6. Locate and install hardware so that connections can be easily made and there is room for servicing each item.
 - 7. Prevent movement by adequately supporting and restraining devices and components mounted on or within panel.
 - 8. Provide numbered terminal strips for terminating field wiring, unless otherwise shown or indicated.
 - 9. Provide copper grounding studs for hardware requiring grounding.
 - 10. Provide the following lighting accessories inside each panel:
 - a. 120 vac LED light fixture with protective plastic shield mounted under the top of the sunshield or cabinet.
 - b. One 120 vac snap switch, to turn on service light, mounted in weatherproof outlet box with cover and located so that switch is easily accessible.
 - 11. The ammonia pressure control panel and ammoniator cabinet are to be mounted on aluminum or stainless steel support stanchions mounted on the outside face or the top surface of the existing 40"x12" concrete containment wall, facing south toward the walkway as shown on the Drawings. Design, provide and install

structural supports and/or stanchions made of aluminum designed to withstand FBC wind load requirements for the site.

12. All fastening hardware including anchor bolts for anchoring support frame to concrete wall, mounting the panel and cabinet to supports, and for mounting piping, valves, instruments and accessories to the panels, are to be 316 stainless steel. No galvanized carbon steel is to be used for any supports or fastening hardware.
13. Pipe/tubing supports shall be all 316 stainless steel for use with stainless steel tubing and shall be Swagelok cushioned tube clamp supports mounted to 316 stainless steel channel. Pipe supports for use with PVC pipe shall be Unistrut nonmetallic FRP channel and FRP pipe clamps.
14. Identification:
 - a. Provide laminated hard plastic nameplate for identification of each panel or cabinet. Use stainless steel screws and nuts for fastening nameplates to panels.
 - b. Panel identification nameplates shall have 1/2-inch high engraved letters.
 - c. Identify front panel-mounted devices with nameplates engraved with functional description of device.
 - d. Tag electric components and devices mounted within panels with high adhesive labels.
 - e. Identify terminals within terminal strip with sequential numbers and wire numbers.
 - f. Internal panel wiring shall be color-coded and numerically identified with unique wire numbers affixed at each end of each wire.

C. Piping, Valves and Appurtenances:

1. Piping shall be as noted on the Ammonia Feed System Piping Schedule on the Drawings and will vary with location and working pressure.
2. Ball valves shall be used for isolation as shown on the Drawings and as specified in other Sections. Valve seals shall be compatible with anhydrous ammonia. All ball valves (polymer and metal) for ammonia service shall have the balls vented on the upstream side.
3. Contractor to route vent from the vacuum regulation valves back to a nearby high point using 1/2" PVC pipe.
4. Materials of construction of all piping and valves to be suitable for ammonia service. Components upstream of vacuum regulators shall be suitable for both liquid and gaseous ammonia.
5. Piping identification and flow arrows to be as specified in Subparagraph 3.02.

D. Instrumentation

1. Instrumentation shall comply with the requirements of Division 13.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install all equipment and connect all piping and electrical wiring as indicated on the Drawings and in strict accordance with the AFSS written instruction, diagrams and recommendations.
- B. The ammonia feed system is currently in use by the plant though the City can operate the system without use of ammonia (switch to free chlorine residual). Contractor/AFSS shall be required to schedule taking the existing ammonia feed system out of service with the City operating personnel at least 30 days in advance.
- C. Ammonia Tank Relocation:
 - 1. The existing ammonia tank is to be relocated from its current onsite location to the new location as shown on the Drawings.
 - 2. The tank is to be fully emptied of remaining ammonia and pressure depressurized down to vacuum condition prior to moving it. Contractor will be responsible for all costs associated with having a qualified anhydrous ammonia distributor safely pump out any remaining ammonia from the tank and depressurize it. Ammonia recovery systems used to be in full compliance with all regulatory and environmental standards including those of OSHA, EPA, and DOT. Ammonia pump out service provider shall be Tanner Industries Inc. 2530 Vulcan Rd., Apopka, FL 32703, (407) 295-8770, or Engineer approved equal.
 - 3. Contractor shall anchor ammonia tank to the existing concrete slab at new tank location using four (4) 316 stainless steel epoxy anchors.

3.02 FIELD COATING

Stainless steel piping and valves do not need to be painted. Any carbon steel or iron body valves shall be painted. Above ground ammonia PVC piping is to be exterior painted for UV protection. Color shall be white for ammonia service. Coating requirements, surface preparation and coating application shall be in accordance with Division 9 and the coating manufacturer's written instructions.

3.03 PIPING IDENTIFICATION

All piping containing or transporting ammonia gas shall be identified with labels stating "AMMONIA" at a maximum interval of 20 feet and with at least one (1) marker on every straight run and additional markers at turns and where pipes pass through or over walls. Pipe markers to be wrap around style made from rigid outdoor grade vinyl and printed with UV resistant ink and be made to wrap completely around the pipe of the specific pipe size used. An arrow indicating direction of flow shall be on each label. Lettering and flow arrows to be black on orange background.

3.04 INSPECTION, TESTING AND STARTUP

- A. General:
 - 1. Materials and equipment shall be inspected, and field tested for proper operation.

2. Furnish the services of a AFSS representative who has complete knowledge of proper operation and maintenance to inspect the final installation and supervise a test run of the equipment.
3. The duties of the AFSS service representative shall be as follows: After the equipment has been installed but before it is operated, the representative shall inspect the completed installation for soundness (no damaged or cracked components), completeness, correctness of setting and alignment. The representative shall also check out all instruments and controllers in manual and automatic operation including all alarms and emergency shut down controls. The representative shall start-up the equipment in the presence of the Contractor, the Engineer and operating personnel and instruct the operating personnel in proper operation and maintenance procedures, start-up/shut down procedures, response to emergency conditions and troubleshooting. The responsibility of the Contractor with regards to start-up shall be fulfilled when the start-up is complete, the equipment is functioning properly and has been accepted by the Owner.
4. Field tests shall not be conducted until the entire installation is complete and ready for testing.
5. The Contractor shall submit to the Engineer a certified report from the AFSS representative of the results of the representative's inspections, adjustments, testing and start-up. The report shall include descriptions of the inspections, adjustments made, and the start-up. The report shall also include a statement that the equipment is ready for permanent operation and that nothing in the installation will render the warranty null and void. Final payment shall not be made to the Contractor until this report has been submitted to and approved by the Engineer.

B. Field Testing:

1. Upon completion of all the mechanical work, the Contractor shall conduct testing as specified herein to demonstrate that the equipment performs in accordance with all specifications.
2. The AFSS and Contractor shall perform initial testing of the equipment to insure that the Demonstration Test can be completed.
3. The Demonstration Test shall demonstrate that all items of these Specifications have been met by the equipment, as installed, and shall include the following tests:
 - a. That the feed system performs satisfactorily.
 - b. That the ammoniator controllers respond to the plant SCADA and pressure and vacuum switches all properly communicate with and are shown on SCADA.
4. If the equipment does not meet the Demonstration Test, the Contractor shall, at his own expense, make such changes and adjustments in the equipment which he deems necessary and shall conduct further tests until written certification is received from the Engineer.

END OF SECTION

SECTION 13100 – I&C GENERAL REQUIREMENTS

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The CONTRACTOR shall provide, through the services of a single Control Systems Integrator (CSI), all components, configuration, programming, system installation services and testing, as well as all required and specified ancillary services, in connection with the Instrumentation and Control System (ICS).
- B. The system shall include all materials, labor, tools, fees, and documentation required to furnish, install, test, and place into operation, a "TURNKEY" complete and operable ICS as shown and/or specified within this section, related ICS specification sections, and subsections within equipment specifications.
- C. The system shall include all measuring elements, signal converters, transmitters, specialty cables, control panels, digital hardware and software, signal and data transmission systems, interconnecting wiring and such accessories as shown, specified, and/or required to provide the functions indicated, whether specifically mentioned or not.
- D. The specifications provided within this section shall be applied to all of the Instrumentation and Control specifications listed below as well as additional specification sections as referenced under paragraph 1.3. The ICS shall be provided as a single and complete system as specified herein and as specified within the following ICS specifications:
 - 1. Section 13120: Instrumentation and Control, Field Equipment
 - 2. Section 13130: Instrumentation and Control, Control Enclosures
- E. The CONTRACTOR shall be ultimately responsible for installation of the ICS. However, the CSI will include installation within the scope of his subcontract to provide for installation of the complete system as specified. The CSI shall also coordinate this work with the CONTRACTOR to ensure that the proper type, size, and number of wires with their conduits are provided and installed. This coordination will also ensure that proper electrical power circuits are provided for all components and systems.
- F. The CONTRACTOR'S responsibilities, as distinct from the CSI's responsibilities, shall be to provide all additional materials and work necessary to supplement the materials and work provided by the CSI; thereby satisfying all requirements that are within ICS specification sections.
- G. The CONTRACTOR shall coordinate structural work, penetrations, painting, etc., as required for installation of a complete ICS. In-line or integrally mounted items (such as flow elements, level sensors, etc.) shall be installed under the supervision of the CSI.
- H. The CSI shall be responsible for all application software services and programming, to include the integration of all new/modified I/O into the existing plant VT-SCADA network. Additionally, the CSI shall provide all materials, labor, documentation, etc., including coordination, startup, and testing services, as necessary to ensure the complete system is fully tested and capable of providing all specified functions. CSI shall be responsible for calibrating and fully testing all PLC I-O, including verification of the operation of PLC

hardware and that I-O signals are successfully transmitted into, or out of as applicable, the PLC software.

- I. The CONTRACTOR shall be responsible for coordinating interfaces between ICS equipment provided under the ICS specification sections and the equipment provided under other sections of the specifications. The CONTRACTOR shall verify and coordinate space requirements, process equipment power supply and voltage, process equipment control power supply and voltage, compatibility of control signals, details of equipment installation and interconnection. Coordination shall include distribution of approved shop drawings to all vendors, subcontractors, etc., involved in the control interface. Likewise, the CONTRACTOR shall ensure that instrumentation and control devices provided under other sections of the specifications are compatible and of the same manufacturer, quality and characteristics as similar devices specified under the ICS specification sections.

1.02 SCOPE OF WORK

- A. For SP-020, this project shall include the integration of I/O signals from two (2) new Aeration Blower RVSSs, three (3) new Aeration Transfer Pump VFDs, three (3) new motor operated valves, four (4) new magnetic flow meters [additive alternate], and one (1) new ultrasonic level transmitter, into the City of Ormond Beach (herein referred to as OWNER) Water Treatment Plant SCADA and instrumentation control system (ICS). The ICS shall monitor and control the new blower and pumping systems, instruments, valves, and associated equipment, as shown on the drawings and as specified herein and other related sections.

1. Aeration Blower shall be normally-on package unit by vendor, in accordance with contract drawings and project specifications. PLC control operator shall be able to select run/stop and remotely reset soft starter faults through SCADA.
2. Aeration Transfer Pump PLC control shall be programmed with the option for either Wetwell Level or Influent Flow control setpoint, as selected by the operator. Aeration Tank Wetwell Low-Low level, high motor temp, and open disconnect switch status shall stop pumps. Check valve fail-to-open status shall trigger an alarm condition, but not shut down the pump.

Pumps will operate in a Lead/Lag/Standby arrangement that automatically rotates between pumps. If any one pump is off-line, that pump shall be skipped in rotation, such that there is always a lead and lag pump selected. PLC control operator can override automatic controls for any one pump through manual pump selection via SCADA.

Aerator Contact Chamber Wet Well level transmitter shall provide backup level control (off/ lead/ lag DO set points) direct to VFDs, for automatic operation if PLC is offline.

3. All motor operated valves shall utilize PLC control operator selectable open/close service through SCADA.

- B. For SP-030, this project shall include the integration of I/O signals from one (1) new pressure sustaining valve, two (2) new motor operated valves, and the new / relocated Ammonia Feed System equipment, into the OWNER's Water Treatment Plant SCADA and ICS. The ICS shall monitor and control the Ammonia Feed System, Recarbonation Tank and Distribution Box valves, instruments, and associated equipment, as shown on the drawings and as specified herein and other related sections.

1. Recarbonation Tank pressure sustaining valve shall monitor and maintain a tank level setpoint selectable by the PLC control operator through SCADA. This valve shall also provide PLC flow measurement values for monitoring purposes.
 2. All motor operated valves shall utilize PLC control operator selectable open/close service through SCADA.
 3. Refer to contract drawings and specification sections 11340 and 13130B regarding improvements to the Ammonia Feed System for the two (2) existing relocated ammoniators and associated new / relocated instrumentation. Ammoniator feed rate setpoint shall be controllable by the PLC control operator through SCADA.
- C. This project will provide for the following components, systems or subsystems:
1. Furnish various local process monitoring instrumentation complete with surge protection and signal transmission as specified.
 2. Furnish and install new equipment inside the Aeration Building control panels as required to provide local control and monitoring for the blowers, pumps, flow meters and valves, and provide all specified SCADA Input signals.
 3. Furnish surge protection devices (SPD) for instrumentation and control panels as specified.
 4. Furnish spare parts and testing equipment as described herein and other related sections.
 5. Provide implementation and testing of the complete system.
 6. Furnish training of OWNER'S personnel.
 7. Provide Operations and Maintenance Manuals.
- D. VTSCADA programming to be provided by the CSI:
1. WTP SCADA and Historian Server application programming.
 2. WTP SCADA graphics modifications to incorporate Aeration PLC Control Panel and related I/O functions.
- E. The CSI shall provide the Aeration PLC control panel complete with wiring, relay logic, pilot devices, backup power systems, power and signal line surge protection, and appropriate interfaces for all equipment connected to the Aeration PLC control panel.
- F. The CONTRACTOR, working in conjunction with the CSI, shall be responsible to provide a complete and operational system in full compliance with the specifications and contract drawings. The CSI shall be responsible for the detailed design, field verification, installation, technical oversight, testing, quality assurance, and documentation of all technical details involving instrumentation and control for this project. The CSI shall furnish trained personnel on site during any activities requiring installation, calibration, testing, or startup of any of the pump stations' instruments, controls, and communications.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 11 – Equipment
1. Refer to individual product specifications within specification sections for additional requirements specific to those devices. Instrumentation and control equipment supplied as part of packaged systems shall be integrated into the ICS as specified.
- B. Division 15 – Mechanical

1. Refer to individual product specifications within specification sections for additional requirements specific to those devices. Instrumentation and control equipment supplied as part of packaged systems shall be integrated into the ICS as specified.

C. Division 16 – Electrical

1. Refer to individual product specifications within specification sections for additional requirements specific to those devices. Instrumentation and control equipment supplied as part of packaged systems shall be integrated into the ICS as specified.
2. Where electrical subcomponents are to be provided as part of ICS equipment, but for which there is no specification, provide in accordance with Division 16 - Electrical. These subcomponents shall be compatible and of the same quality and characteristics as similar devices specified under Division 16 - Electrical. If possible, the same make and/or model supplied under Division 16 shall be provided.
3. The following work shall be provided under Division 16 – Electrical:
 - a. Conduit, raceways, and installation of wire and cable for all instrumentation and control system signal wiring, grounding systems, special cables and network cables, except as noted.
 - b. Instrumentation and control system signal field wire.
 - c. Grounding systems for all ICS equipment.
 - d. Mounting of ICS electrical enclosures (i.e. control panels, SPD boxes, electronic instrumentation, etc.) with exclusion of final measuring elements of instrumentation (i.e. flow tubes, sensors in process piping, etc.) which shall be as coordinated by the CONTRACTOR.

1.04 CODES AND STANDARDS

- A. The ICS shall comply with the National Electric Code, National Electric Safety Code, OSHA, and with all applicable federal, state, county, city, municipal, and electrical utility codes and regulations, as well as the Contract Documents. In the event of any conflict between these codes, regulations, and Contract Documents, the most restrictive shall apply.
- B. The Instrumentation and Control System shall comply with the following codes and standards as well as any others referenced within the specifications and drawings. In the event of any conflict between these codes, regulations, standards and Contract Documents, the most restrictive shall apply.
 1. Applicable state, county, city and municipal code requirements.
 2. Applicable standards of the National Fire Protection Association (NFPA)
 - a. National Electrical Code (NEC)
 - b. Standard for Electrical Safety in the Workplace (NFPA 70E)
 3. Applicable standards of the Underwriter's Laboratories, Inc. (U.L.)

- a. UL 508 Industrial Control Equipment
 - b. UL 508A Industrial Control Panels
- 4. Applicable standards of the Institute of Electrical and Electronics Engineers (IEEE).
- 5. Applicable standards of the National Electrical Manufacturers Association (NEMA).
 - a. NEMA 250 Enclosures for Electrical Equipment (1000 V Maximum)
 - b. NEMA ICS 1 Industrial Control and Systems: General Requirements
 - c. NEMA ICS 6 Enclosures for Industrial Control and Systems
- 6. Applicable standards of the International Society of Automation (ISA)
 - a. ISA 5.1 - Instrumentation Symbols and Identification
 - b. ISA 5.4 - Instrument Loop Diagrams
 - c. ISA 20 - Specification Forms for Process Measurement and Control Instruments, Primary Elements, and Control Valves
 - d. ISA TR20.00.01 - Specification Forms for Process Measurement and Control Instruments

1.05 SUBMITTALS

- A. Submittals shall be provided in accordance with the requirements set forth in Division 1.
- B. Every submittal shall have a separate section entitled "Requested Deviations from ICS Specifications" which shall clearly define and clearly explain all requested deviations and exceptions of the Instrumentation and Control System to this Specification. Only those deviation requests listed in this section will be reviewed.
- C. After all changes or corrections resulting from the Engineer/Owner's review of the system supplier's drawings have been made, panels may be built and instrumentation devices may be supplied in accordance with the approved drawings. One set of "as shipped" prints shall be included in all panels when shipped from the system supplier's wiring and assembly shop.
- D. The following major list of submittals shall be provided as a minimum. Major submittals are generally listed in the order they are to be provided. Refer to related ICS specification sections and equipment subsections for additional submittals and submittal requirements.
 - 1. Process Instrumentation Submittal
 - 2. Control Panel Submittal, including SCADA hardware and/or software as specified.
 - 3. Testing Submittal
 - 4. Tools, Supplies, and Spare Parts Lists Submittal
 - 5. Preliminary & Final Operation and Maintenance Manuals
- E. Process Instrumentation Submittal
 - 1. This submittal shall provide complete documentation of all field devices and other instrument and control equipment not specified to be submitted elsewhere.

- a. Provide data sheets for each component listing all model numbers, optional, and ancillary devices that are being provided.
- b. The data sheets shall be provided with an index and proper identification and cross referencing. They shall include but not be limited to the following information.
 - (1) Plant Equipment Number and ISA tag number per the Loop Diagrams.
 - (2) Product (item) name used herein and on the Contract Drawings.
 - (3) Manufacturers complete model number.
 - (4) Location of the device.
 - (5) Input - output characteristics.
 - (6) Range, size, and graduations.
 - (7) Physical size with dimensions, enclosure NEMA classification and mounting details.
 - (8) Materials of construction of all components.
 - (9) Instrument or control device sizing calculations where applicable.
 - (10) Certified calibration data on all flow metering devices.
- c. Provide equipment specification sheets which shall fully describe the device, the intended function, how it operates and its physical environmental and performance characteristics. Each data sheet shall have appropriate cross references to loop or equipment identification tags. As a minimum the specification sheets shall include the following:
 - (1) Dimension, rigid-clearances.
 - (2) Mounting or installation details.
 - (3) Connection.
 - (4) Electrical power or air requirements.
 - (5) Materials of construction.
 - (6) Environmental characteristics.
 - (7) Performance characteristics.
- d. The submittal shall also contain all planning information, site preparation instructions, grounding and bonding procedures, cabling diagrams, plug identifications, safety precautions or guards, and equipment layouts in order to enable the CONTRACTOR to proceed with the detailed site preparation for all equipment.

F. Control Panel Submittal

- 1. Provide detailed drawings covering control panels, consoles and/or enclosures which shall include:
 - a. Cabinet assembly and layout drawings to scale. These shall include both front and interior layouts. In cases where the project scope includes existing panels that are to be refurbished, include details of panel modifications showing new and existing equipment and panel components.
 - b. Material, fabrication and painting specifications.
 - c. Color selection samples for selection by the ENGINEER/OWNER.

- d. Heat calculations for control panels incorporating a PLC control system.
 - e. Power supply device sizing calculations, which includes UPS systems (where applicable).
 - f. Panel wiring diagrams showing all power connections to equipment within and on the panel, combined panel power draw requirements (volts, amps), breaker sizes, fuse sizes, and grounding. This wiring diagram shall be in ladder logic format and shall reference the appropriate loop drawing for continuations or details where required. Show all wire numbers and terminal block designations
2. Provide detailed loop diagrams on a single 11-in x 17-in or 8.5-In x 11-in sheet for each monitoring or control loop. The loop diagram shall show all components of the loop both analog, digital, and discrete including all relays, switches, dropping resistors, etc. which are being provided for proper operation. Loop numbers used shall correspond to the loop numbers indicated in the Contract Documents. The format shall be the International Society of Automation, Standard for Instrument Loop Diagrams, ISA-5.4 plus the following requirements:
- a. On each diagram, present a tabular summary of (1) the output capability of the transmitting instrument, (2) the input impedance of each receiving instrument, (3) an estimate of the loop wiring impedance based on wire sizes and approximate length used, (4) the total loop impedance, (5) reserve output capacity.
 - b. Show all interconnecting wiring between equipment, panels, terminal junction boxes and field mounted components. The diagrams shall show all components and panel terminal board identification numbers and all wire numbers. This diagram shall include all intermediate terminations between field elements and panels (e.g. terminal junction boxes). The diagrams shall be coordinated with the electrical contractor and shall bear his mark showing this has been done.
 - c. Show location of all devices.
 - d. Show instrument description showing type, manufacturer, model number, range, set points, and operation (e.g. fail open, open on energize, normally closed, etc.) as applicable.
 - e. Show all instrument loop power or instrument air requirements back to termination on terminal block or bulkhead, fuse block (including fuse size), etc., as applicable.
3. Provide complete documentation of the proposed hardware (PLCs, communications equipment, peripherals, etc.) including:
- a. A system block diagram(s) showing in schematic form, the interconnections between major hardware components such as: control centers, panels, consoles, computer and peripheral devices, telemetry equipment, local digital processors and similar equipment. The block diagram shall reflect the total integration of all devices in the system and shall reflect any

man/machine interface locations. All components shall be clearly identified with appropriate cross references to the location of each.

The diagram shall reference all interconnecting cabling requirements for components of the system including any data communication links.

- b. Data sheet for each hardware component, listing all model numbers, optional, auxiliary, and ancillary devices that are being provided.

The data sheets shall be provided with an index and proper identification and cross referencing. They shall include but not be limited to the following information.

- (1) Equipment Number and ISA tag number per the Loop Diagrams (as applicable).
- (2) Product (item) name used herein and on the Contract Drawings.
- (3) Manufacturers complete model number.
- (4) Location of the device.
- (5) Input - output characteristics.
- (6) Range, size, and graduations.
- (7) Physical size with dimensions, enclosure NEMA classification and mounting details.
- (8) Materials of construction of all components.
- (9) Power supply device sizing calculations where applicable.

- c. Equipment specification sheets which shall fully describe the device, the intended function, how it operates and its physical environmental and performance characteristics. Each data sheet shall have appropriate cross references to loop or equipment identification tags. As a minimum the specification sheets shall include the following:

- (1) Dimensions and working clearances.
- (2) Mounting or installation details.
- (3) Connection diagrams.
- (4) Electrical power requirements (volts, amps).
- (5) Materials of construction.
- (6) Environmental characteristics.
- (7) Performance characteristics.

- d. The submittal shall also contain all planning information, site preparation instructions, grounding and bonding procedures, cabling diagrams, plug identifications, safety precautions or guards, and equipment layouts in order to enable the Contractor to proceed with the detailed site preparation for all equipment.

- 4. Provide a complete system Input/Output (I/O) and termination list for the pump station PLC panel. Each list shall be sorted first by ISA tag name and second by I/O type (i.e. AI, AO, DI, DO, PI, PO. etc.). Each list shall contain as a minimum the following for each active point and spare point:

- a. Full ISA instrument tag (or "SPARE").
- b. Type of I/O (i.e., DI, DO, AI or AO).

- c. I/O terminal point physical location (panel name, rack, slot, point, etc.).
 - d. I/O point address.
 - e. Point name and description.
 - f. Terminal Strip and Number
5. Provide complete documentation for all required software, licensing and/or upgrades required and specified for the new pump station.

G. Testing Submittals

- 1. The test plan shall be submitted after all equipment submittals have been approved by the OWNER and/or ENGINEER.
- 2. The test plan shall demonstrate that the CSI has designed and configured a system that meets the design specifications. The documents for the test plan shall be structured so that it is easily understood what the inputs are, what the predicted outputs should be, and what the actual outputs are. The test plan should have sign-off and date block for the CSI, the CONTRACTOR, and the OWNER.
- 3. The complete test plan should include but not be limited to the following:
 - a. Test assumptions and methods
 - b. Test Equipment List
 - c. Test Personnel Staffing and Qualifications
 - d. Test Schedule with time allotted for each task
 - e. System hardware and software summary.
 - f. Communications test to the various PLCs for Discrete and Analog I/O data transfer.
 - g. 100 percent I/O point test including all spare points based upon the previously submitted System I/O list.
 - h. Functional tests.
- 4. Test Procedures: Submit the procedures proposed to be followed during the test. Procedures shall include test descriptions, forms, and checklists to be used to control and document the required tests. Testing may not be started until all Testing Submittals have been approved.
- 5. Test Documentation: Submit a copy of the signed off test procedures upon completion of each required test.

H. Tools, Supplies, and Spare Parts Lists Submittal

- 1. This submittal shall include a list of all required and recommended spares. The following information shall be provided in table format:
 - a. Specification Section

- b. Tag name
- c. Description
- d. Quantity
- e. Manufacturer
- f. Model, part, order number
- g. Storage instructions for all spare parts.
- h. Local distributor and manufacturer contact information. Contact information shall include address, phone number, and website.

I. Operation and Maintenance Manuals (O&Ms)

- 1. Prior to installation of any equipment onsite, preliminary O&M manuals shall have been submitted and approved. No installation of equipment shall be permitted without the Contractor maintaining an updated version of these preliminary O&M manuals onsite for the OWNER's and ENGINEER's use.
- 2. After all field changes or corrections made during installation and field check out have been completed, then all system supplier documentation, including drawings, shall be revised to reflect the "as installed, corrected and accepted" condition of the system and final record copies of O&M manuals for the system shall be provided to the OWNER and ENGINEER for approval.
- 3. Final system documentation shall be provided in 3-hole type binders of archival quality (e.g. slant D or elliptical binding, vinyl with metal hinge or extra heavy weight vinyl, etc.) with a binding no larger than three (3) inches. Materials shall be printed on 8.5" x 11" or 11" x 17" tear resistant paper or ring reinforced paper where tear resistant is not available. Drawings shall be either folded to fit within an 8.5" x 11" binder or in an 11" x 17" 3-hole binder. Each binder shall include fifteen percent (15%) spare space for the addition of future material. Tear resistant paper shall be Xerox Never Tear or equal.
- 4. Final documentation shall also be provided in an electronic format. Electronic documentation shall be organized and provided on CD which shall include all CAD drawings, manuals and word processing documents. Electronic documentation format shall be primarily Adobe .pdf with additional documents provided in AutoCAD .dwg, Microsoft Office, HTML or as approved by the ENGINEER or OWNER. Organization of the electronic documentation shall be such as to allow point and click navigation from a table of contents to the particular documents with the ability to return to the table of contents from any location with one mouse click.
- 5. AutoCAD drawings files shall include all supporting files, symbol libraries and print configurations needed to support future modifications and properly print additional drawing copies.
- 6. All electronic media (i.e. software, electronic documentation, configuration files/reports, device backups, etc.) shall be provided with two (2) backup copies, each organized into a separate binder. Media storage binders shall include but not be limited to the following:
 - a. Table of contents.
 - b. Archival media holders (e.g. CD, DVD, etc.).

- c. Support contacts (i.e. company, phone, internet link, etc.).
 - d. Software system requirements and installation instructions.
- 7. Laminated or water/tear resistant copies of all applicable instrumentation and control system drawings shall be supplied in drawing pocket of each control enclosure after "as installed, corrected, and accepted" revisions have been made to the enclosure.
- 8. Operation and Maintenance manuals shall include but not be limited to the following:
 - a. Manufacturer standard O&M manuals for all equipment and software furnished.
 - b. Custom O&M information describing the specific configuration of equipment and software, and the operation and maintenance requirements for this particular project.
 - c. The manuals shall contain all illustrations, detailed drawings, wiring diagrams and instructions necessary for installing, operating and maintaining the equipment.
 - d. All modifications to manufacturer standard equipment and/or components shall be clearly identified and shown on the drawings and schematics. All information contained therein shall apply specifically to the equipment furnished and shall only include instructions that are applicable.
 - e. A functional description of the entire system, with references to drawings and instructions.
 - f. A complete "as built" set of all approved shop drawings, which shall reflect all work required to achieve final system acceptance.
 - g. A complete list of the equipment supplied, including serial numbers, ranges, configuration parameters and other pertinent data.
 - h. Full specifications on each item.
 - i. Detailed service, maintenance and operation instructions for each item supplied.
 - j. Special maintenance requirements particular to this system shall be clearly defined, along with special calibration and test procedures.
 - k. Complete parts lists with stock numbers and name, address and telephone number of the local supplier.
 - l. References to manufacturers' standard literature where applicable.
 - m. Warning notes shall be located throughout the manual where such notes are required to prevent accidents or inadvertent misuse of equipment.
 - n. The operating instructions shall clearly describe the step by step procedures that must be followed to implement all phases of all operating modes. The instructions shall be in terms understandable and usable by

operating personnel and maintenance crews and shall be useful in the training of such personnel.

- o. The maintenance instructions shall describe the detailed preventive and corrective procedures required, including environmental requirements during equipment storage and system operation, to keep the system in good operating condition. All hardware maintenance documentation shall make reference to appropriate diagnostics, where applicable, and all necessary wiring diagrams, component drawings and PCB schematic drawings shall be included.

1.06 MEETINGS

- A. The CONTRACTOR shall be required to give the OWNER and their representatives, a minimum of two weeks' notice prior to any scheduled meetings. The notice may be shortened by consent of both the OWNER and the ENGINEER.
- B. Preliminary Site Testing Meeting: A preliminary site testing meeting shall be conducted by the CONTRACTOR for the OWNER and ENGINEER, to ensure site readiness, testing strategies and proper coordination between parties related or involved in testing the ICS. The CONTRACTOR shall be responsible for arranging the on-site meeting after the Site Testing Plan has been approved and no earlier than 3 weeks prior to testing. The ENGINEER must be satisfied that the site is ready and that the testing will be performed to their satisfaction prior to any documented ICS testing being performed. The CONTRACTOR shall arrange for detailed meeting minutes to be recorded, approved, and distributed to meeting attendees. Additional meetings may be required at the discretion of the OWNER and ENGINEER to resolve specific action items not addressed in the preliminary site testing meeting. Two weeks prior to the meeting the CONTRACTOR shall submit the following for approval:
 - 1. A proposed list of meeting attendees including organization and phone number.
 - 2. A proposed meeting agenda.
 - 3. A list of personnel to be involved in the testing including their responsibilities, qualifications, and phone numbers.
 - 4. A list of tasks requiring OWNER, ENGINEER, or outside party involvement in testing.
 - 5. A testing schedule that coordinates the ICS testing with the operability of the specific equipment being tested.
- C. Additional meetings may be required at the discretion of the OWNER and ENGINEER, to resolve specific action items not addressed in the preliminary site testing meeting.

1.07 CONTROL SYSTEM INTEGRATOR (CSI)

- A. The Contractor shall have total system responsibility for all instrumentation, controls, services, and systems, as indicated in the contract drawings and described herein. These sections of the specifications shall be considered as a single unit and shall be included in the single source responsibility from the CONTRACTOR.
- B. The Contractor shall provide the services of a single, approved, Control System Integrator, working as a direct sub-contractor to the Contractor, who shall be responsible to provide all of the equipment, controls and instrumentation, hardware, configuration, testing, startup,

calibration and training required to provide a complete and working system as described herein.

- C. The Control System Integrator shall provide the services of one or more trained and highly qualified service technician(s) who shall provide all of the necessary services relative to installation, calibration, wiring, coordination, startup, troubleshooting, and training for all equipment and systems provided as part of this project. The qualified service technician(s) shall remain on site during the major installation and startup events to verify and certify that all equipment and systems are properly installed, wired, calibrated, and made operational.
- D. The Control System Integrator shall be regularly engaged in the detailed design, fabrication, installation and startup of instrumentation and control systems for water and wastewater treatment facilities in the state of Florida. Any CSI that has been subject to litigation or the assessment of liquidated damages for nonperformance on any project within the last five calendar years shall not be acceptable.
- E. Where specific manufacturers and/or models of major hardware or software products (PLC, Software, Network Equipment, etc.) are specified to be used on this project, the CSI shall have completed at least one project using that specified hardware or software. As used herein, the term "completed" shall mean that a project has been brought to final completion and final payment has been made.
- F. Control System Integrator shall meeting the following minimum qualifications:
 - 1. A minimum of 7-years of experience with at least 5 years in water/wastewater projects.
 - 2. References for three (3) completed projects of like size and application to the project specified herein.
 - 3. Project bonding capacity of at least \$2 million.
 - 4. UL 508 certified panel shop.
- G. The Contractor shall select the Control System Integrator from one of the following:
 - 1. Wood/CEC Controls, Bradenton, FL
 - 2. Revere Controls, Birmingham, AL
 - 3. or Approved Equal (Will require written submission of background/qualification information for Owner/Engineer review. Approval must be granted, in writing, prior to submission of bids.)
 - 4. Named listing in this specification in no way relieves the Control System Integrator from meeting the qualifications specified herein.
- H. The OWNER shall have the right of access to the CSI's facilities and the facilities of their equipment suppliers to inspect materials and parts, witness inspections, tests and work in progress, and examine applicable design documents, records and certifications during any stage of design, fabrication and tests. The CSI and their equipment suppliers shall furnish office space, supplies and services required for these surveillance activities.

1.08 QUALITY ASSURANCE

- A. The listing of specific products in this specification in no way relieves the CONTRACTOR of furnishing equipment which shall meet the performance and quality criteria specified herein.
- B. All equipment and materials shall be new and the products of reputable recognized suppliers having adequate experience in the manufacture of these particular items.

- C. For uniformity, only one manufacturer will be accepted for each type of product.
- D. All equipment shall be designed for the service intended and shall be of rugged construction, of ample strength for all stresses that may occur during fabrication, transportation, and erection as well as during continuous or intermittent operation. Equipment and components shall be adequately stayed, braced and anchored and shall be installed in a neat and workmanlike manner. Appearance and safety, as well as utility, shall be given consideration in the design of details.
- E. All components and devices installed shall be standard items of industrial grade, unless otherwise noted, which shall be of sturdy and durable construction and be suitable for long, trouble free service.
- F. All equipment shall be suitable for the specified environmental conditions.
- G. Optional or substituted equipment or both requiring changes in details or dimensions required to maintain all structural, mechanical, electrical, control, operating, maintenance or design features incorporated in these specifications and drawings, shall be made at no additional cost to the OWNER. In the event that the changes are necessary, calculations and drawings showing the proposed revisions shall be submitted for approval. The CONTRACTOR shall coordinate all changes with other affected trades and contracts and pay all additional charges incurred.

1.09 DEFINITIONS AND ABBREVIATIONS

- A. The following definitions and abbreviations are used throughout the specifications and drawings when referring to instrumentation and control equipment, functions, and service. Definitions and abbreviations are not listed for those used in common industry practice except where to provide explicit meaning. Refer to ISA, IEEE, and other industry standard references for those not listed herein.

CSI	Control System Integrator
ICS	Instrumentation and Control System
OIT	Operator Interface Terminal
OVS	Operator WorkStation
RTU	Remote Telemetry Unit
PID	Proportional-Integral-Derivative Control
SCADA	Supervisory Control and Data Acquisition
TVSS	Transient Voltage Surge Suppression
PLC	Programmable Logic Controller

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All materials, equipment, and devices shall, as a minimum, meet the requirements of UL, where UL Standards are established for those items, and the requirements of NFPA-70. All control panels shall comply with the requirements of UL 508A for Industrial Control Panels. All items shall be new and unused unless specified or indicated otherwise.
- B. Properly store, adequately protect, and carefully handle equipment and materials to prevent damage before and during installation. Handle, store, and protect equipment and materials

in accordance with the manufacturer's recommendations. Replace damaged or defective items.

- C. All equipment shall be the latest and proven design. Specifications and drawings call attention to certain features, but do not purport to cover all details entering into design of the instrumentation system. The completed system shall be compatible with functions required and the equipment furnished by the CONTRACTOR.
- D. All electrical components of the system shall operate on 120 volt, single phase, 60 Hz power source, except as otherwise noted in the Specifications. Drawings and specifications indicate the energy sources that will be provided. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
- E. All necessary fuses or switches required by the instrumentation manufacturer for equipment shall be provided with the equipment. All instruments requiring internal power supply shall have integrated on-off switches.
- F. The mechanical, process, and electrical drawings indicate the approximate locations of field instruments, control panels, systems and equipment as well as field mounted equipment provided by others. The CSI shall examine the mechanical, process and electrical drawings to determine actual size and locations of process connections and wiring requirements for instrumentation and controls furnished under this Contract. The CSI shall inspect all equipment, panels, instrumentation, controls and appurtenances either existing or furnished under other Divisions of the Specifications to determine all requirements to interface same with the ICS. The CONTRACTOR shall coordinate the completion of any required modifications with the associated supplier of the item furnished.
- G. Instrumentation equipment and enclosures shall be suitable for ambient conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines, and electrical equipment.
- H. Inside control rooms and climate-controlled electrical rooms, the temperature will normally be 20 to 25 degrees C; relative humidity 40 to 80 percent without condensation and the air will be essentially free of corrosive contaminants and moisture. Appropriate air filtering shall be provided to meet environmental conditions (i.e., for dust).
- I. Other indoor areas may not be air conditioned/heated; temperatures may range between 0 and 40 degrees C with relative humidity between 40 and 95 percent.
- J. Field equipment, including instrumentation and panels, may be subjected to wind, rain, lightning, and corrosives in the environment, with ambient temperatures from -20 to 40 degrees C and relative humidity from 10 to 100 percent. All supports, brackets and interconnecting hardware shall be as shown on the installation detail drawings, otherwise aluminum or 316 stainless steel.

2.02 TOOLS, SUPPLIES, AND SPARE PARTS

- A. Provide special tools, other than those normally found in an electronic technician's tool box, required to test, diagnose, calibrate, install, wire, connect, disconnect, assemble and disassemble any digital equipment, instrument, panel, rack, cabinet or console mounted equipment for service and maintenance (i.e., connector pin insertion and removal tools, wire crimping tool, special wrenches, special instrument calibrators, indicator lamp insertion and

removal tools, etc.). **Where possible, provide equipment that does not require special tools to test, replace or maintain. Any equipment which requires special tools to operate under normal operating conditions shall be rejected.**

- B. Provide tools and test equipment together with items such as instruction manuals, carrying/storage cases, unit battery charger where applicable, special tools, calibration fixtures, cord extenders, patch cords and test leads, which are not specified but are necessary for checking field operation of equipment supplied under this Section. Instruction on purpose and use of all special tools shall be included in the O&M of any equipment which requires special tools.
- C. The CSI shall provide supplies as needed or as required by the OWNER during the specified warranty period. All fuses consumed during installation, testing, start-up, the system availability demonstration, and the warranty period shall be replaced by the CONTRACTOR.
- D. Provide spare parts for items of ICS equipment as recommended by the manufacturer and in accordance with the Contract Documents.
- E. Furnish all spares in moisture-proof boxes designed to provide ample protection for their contents. Label all boxes to clearly identify contents and purpose.
- F. Refer to individual product specifications for additional requirements specific to those devices.

2.03 SIGNAL TRANSMISSION

- A. The CONTRACTOR shall be responsible for providing a signal transmission system free from electrical interference that would be detrimental to the proper functioning of the ICS equipment.
- B. The CONTRACTOR shall be responsible for coordinating signal types and transmission requirements between the various parties providing equipment under this Contract. This shall include, but not be limited to, distribution of appropriate shop drawings among the equipment suppliers and subcontractors.
- C. The CSI shall provide 24 VDC power supplies for signals and instruments where applicable and as required inside panels, controls, etc. Where two-wire instruments transmit directly to the instrumentation and control system, the CSI shall provide power supplies at the PLC-equipped control panels for those instruments. Where four-wire instruments with on-board loop power supplies transmit directly to the instrumentation and control system, the CSI shall provide necessary signal isolators or shall otherwise isolate the input from the ICS loop power supply. Similar provisions shall be made when a third element such as a recorder, indicator or single loop controller with integral loop power supply is included in the loop.
- D. Analog signal transmission between electric or electronic instruments, controllers, and all equipment and control devices shall be individually isolated, linear 4-20 mA and shall operate at 24 VDC. Signal output from all transmitters and controllers shall be current regulated and shall not be affected by changes in load resistance within the unit's rating. All cable shields shall be grounded at one end only, at the control panel, with terminals bonded to the panel ground bus. Analog signal isolation and/or conversion shall be provided where necessary to interface with instrumentation, equipment controls, panels and appurtenances.

- E. Non-standard analog transmission systems such as pulse duration, pulse rate, and voltage regulated shall not be permitted except where specifically noted in the Contract Documents. Where transmitters with nonstandard outputs do occur, their outputs shall be converted to an isolated, linear, 4-20 mA signal.
- F. All discrete inputs to equipment and PLC's, from field devices, starters, panels, etc., shall be dry contacts in the field device or equipment, powered from the PLCs, unless specified otherwise. Sensing power (wetting voltage) supplied by the PLC shall be 24 VDC.
- G. All discrete outputs from local control panels and Control and Information System PLCs, to field devices, starters, panels, etc., shall be 120 VAC / 24 VDC 5A dry contacts. Output contacts may be powered from the field equipment, or powered from 24 VDC / 120 VAC sourced from PLCs cabinet power system, as required to interface with field equipment. Outputs to solenoid valves, horns, and strobe lights shall be 120 VAC, powered from the PLC or control panel unless specified or shown otherwise.
- H. Discrete signals between starters, panels, etc. where 120 VAC is utilized shall be clearly identified in the starter, panel, etc. as being powered from a different power supply, than other starter/panel components. Where applicable, warning signs shall be affixed inside the starter, panel, etc., stating that the panel is energized from multiple sources. Output contacts in the starter, panel, etc. which are powered from other locations shall be provided with special tags and/or color coding. Disconnecting terminal strips shall be provided for such contacts. The above requirements shall apply to all starters and panels, regardless of supplier.

2.4 NAMEPLATES

- A. All items of equipment listed in the instrument schedule, control panels, and all items of digital hardware shall be identified with nameplates. Each nameplate shall be located so that it is readable from the normal observation position and is clearly associated with the device or devices it identifies. Nameplates shall be positioned so that removal of the device for maintenance and repair shall not disturb the nameplate. Nameplates shall include the equipment identification number and description. Abbreviations of the description shall be subject to the ENGINEER'S approval.
- B. Nameplates shall be made of 1/16 inch thick machine engraved laminated phenolic plastic having white numbers and letters not less than 3/16 inch high on a black background.
- C. Nameplates shall be attached to equipment utilizing stainless steel screws. In cases where the label cannot be attached by the above method, it shall be drilled and attached to the associated device by means of stainless steel wire.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The CSI shall provide the CONTRACTOR a periodic written report detailing progress of start-up. This report shall include specific tabulations of devices on which start-up has been completed.
- B. Equipment shall be located so that it is accessible for operation and maintenance. The CSI shall examine the Contract Drawings and Shop Drawings for various items of equipment in

order to determine the best arrangement for the work as a whole, and shall supervise the installation of ICS equipment.

- C. Instrumentation and Control System equipment shall be installed in accordance with the manufacturer's instructions. The locations of equipment, transmitters, alarms and similar devices shown on the Drawings are approximate only. Exact locations shall be as approved by the ENGINEER during construction. Obtain in the field, all information relevant to the placing of process control work and in case of any interference with other work, proceed as directed by the ENGINEER and furnish all labor and materials necessary to complete the work in an approved manner.
- D. The CSI shall investigate each space in the building through which equipment must pass to reach its final location. If necessary, the CSI shall be required to ship his material in sections sized to permit passing through restricted areas in the building. The CSI shall also investigate, and make any field modifications to the allocated space for each cabinet, enclosure and panel, to assure proper space and access (front, rear, side).
- E. Two complete sets of approved shop drawings shall be kept at the job site during all on-site construction. Both sets shall be identically marked up to reflect any modifications made during field installation or start-up. All markings shall be verified and initialed by the ENGINEER or his designated representative. Following completion of installation and the operational readiness test, one set of the marked up drawings shall be provided to the ENGINEER, the other retained by the CSI for incorporation of the mark-ups into final as-built documentation.
- F. All work shall be in strict accordance with codes and local rulings, should any work be performed contrary to said rulings, ordinances and regulations, the CONTRACTOR shall bear full responsibility for such violations and assume all costs arising there from.
- G. Brackets and hangers required for mounting of equipment shall be provided. They shall be installed in a workmanlike manner and not interfere with any other equipment.
- H. The CONTRACTOR shall take steps to keep electrical and control enclosures clean and free of contaminants throughout installation. Cleaning only after installation is not acceptable. Under no circumstances are electrical and control enclosures to be cleaned using compressed air to blow out dust, causing contaminants to be forced into sensitive electronics.
- I. Provisions shall be made to completely capture filings (metal, etc.) when drilling into enclosures, to prevent contamination of electrical equipment.
- J. Upon completion of the instrumentation and control work, the CONTRACTOR shall thoroughly clean all soiled surfaces of installed equipment and materials and remove all surplus materials, rubbish, and debris that has accumulated during the construction work. The entire area shall be left neat, clean, and acceptable to the OWNER.

3.02 WIRING AND GROUNDING

- A. The following wiring practice guidelines shall be used in order to minimize ground loops, to minimize electromagnetic interference/radio frequency interference (EMI/RFI) to this equipment, and to provide maximum practical immunity from damage resulting from lightning-induced transients.

- B. Common wires or conductors shall not be utilized (either within panels or external to panels or for grounding of field devices) for both signal shield or signal grounding and for safety grounds.
- C. Exposed wire lengths extending from within shielded signal cables shall be minimized to reduce pick-up of EMI/RFI by signal circuits. Exposed lengths of less than one inch are preferred, and a maximum exposed length of two inches may be permitted where necessary. No splicing of signal wires is permitted.
- D. All signal wiring shall be shielded, both within panels and external to panels. Unless otherwise specified, all signal wiring shall be No. 16 AWG stranded tinned two-conductor twisted pair, with 100 percent coverage aluminized Mylar or aluminized polyester shield and tinned copper drain wire.
- E. Signal wiring within outdoor or indoor field device enclosures shall conform to the same requirements as panel wiring.
- F. The shield on each process instrumentation cable shall be continuous from source to destination and grounded at one end only. In general, grounding of signal cable shields shall be done at the control panel end. The signal cable for no signal shall share a common cable shield grounding wire with the signal cable shield for any other signal and shall not share a common grounding wire with any other circuit. The length of no signal cable shield grounding wire shall not exceed two inches, with less than one-inch maximum length preferred.
- G. All outdoor instruments and all outdoor enclosures shall be grounded using the practice defined in Section 800.40 of the National Electric Code.

3.03 TESTING, GENERAL REQUIREMENTS

- A. The CSI shall test all equipment hardware and configuration at the factory prior to shipment. Unless otherwise specified in the individual specification sections, all equipment provided by the CONTRACTOR/CSI shall be tested at the factory as a single fully integrated system.
- B. As a minimum, testing shall include the following:
 - 1. Factory Acceptance Test (FAT)
 - 2. Operational Readiness Testing (ORT).
 - 3. System Acceptance Testing (SAT).
- C. Each test shall be in the cause and effect format. The person conducting the test shall initiate an input (cause) and, upon the system's or subsystem's producing the correct result (effect), the specific test requirement will have been satisfied.
- D. All tests shall be conducted in accordance with prior ENGINEER approved procedures, forms, and check lists. Each specific test to be performed shall be described and a space provided after it for sign off by the appropriate party after its satisfactory completion.
- E. Copies of these sign off test procedures, forms, and check lists will constitute the required test documentation.
- F. Provide all special testing materials and equipment. Wherever possible, perform tests using actual process variables, equipment, and data. Where it is not practical to test with real

process variables, equipment, and data; provide suitable means of simulation. Define these simulation techniques in the test procedures.

- G. The CONTRACTOR shall require the CSI to coordinate all of his testing with him, all affected Subcontractors, and the OWNER.
- H. The ENGINEER reserves the right to test or retest all specified functions whether or not explicitly stated in the prior approved test procedures.
- I. The ENGINEER'S decision shall be final regarding the acceptability and completeness of all testing.
- J. The CONTRACTOR/CSI shall furnish the services of servicemen, all special calibration and test equipment, and labor to perform the field tests.

3.04 FACTORY ACCEPTANCE TESTING (FAT)

- A. The entire system except for primary elements, final control elements, and field mounted transmitters, shall be interconnected and tested to ensure the system will operate as specified. All analog and discrete input/output points not interconnected at this time shall be simulated to ensure proper operation of all alarms, monitoring devices/functions, and control devices/functions.
- B. All panels and assemblies shall be inspected and tested to verify that they are in conformance with related submittals, specifications, and Contract Documents.
- C. Factory acceptance testing shall take place over a contiguous time period after all factory fabrication has been completed.
- D. The test shall verify the functionality, performance, and stability of the hardware and configuration. The system must operate continually for 96 hours without failure before the test shall be judged successful. All deficiencies identified during testing shall be corrected and retested prior to the beginning this continuous test.
- E. Successful completion of this test, as determined by the ENGINEER, shall be the basis for approval of the system to be shipped to the site. No equipment shall be shipped until the ENGINEER has reviewed all test results, and approved the system as ready for shipment.
- F. The ENGINEER and the OWNER reserve the right to attend the factory acceptance testing in its entirety. A minimum of two weeks' notice shall be given prior to the start of testing.

3.5 OPERATIONAL READINESS TESTING (ORT)

- A. The entire system shall be certified (inspected, calibrated, tested, and documented) that it is ready for operation. Each specified function shall be verified on a paragraph-by-paragraph, loop-by-loop and site-by-site basis.
- B. The OWNER and/or ENGINEER reserve the right to witness any test, inspection, calibration, or start-up activity. Acceptance by the ENGINEER of any plan, report, or documentation relating to any testing or commissioning activity specified herein, shall not relieve the CONTRACTOR of his responsibility for meeting all specified requirements.

- C. The CSI shall provide the services of factory trained technicians, tools and equipment to field calibrate, test, inspect and adjust each instrument to its specified performance requirement in accordance with manufacturer's specifications and instructions. Any instrument which fails to meet any contract requirements, or any published manufacturer performance specification for functional and operational parameters, shall be repaired or replaced, at the discretion of the ENGINEER, at no cost to the OWNER. The CONTRACTOR shall bear all costs and provide all personnel, equipment and materials necessary to implement all installation tests and inspection activities for equipment specified herein.
- D. Each instrument shall be calibrated at 0, 25, 50, 75 and 100 percent of span using test instruments to simulate inputs and read outputs. Test instruments shall be rated to an accuracy of at least five (5) times greater than the specified accuracy of the instrument being calibrated. Where applicable, such test instruments shall have accuracies as set forth by the National Institute for Standards and Technology (NIST).
- E. The CSI shall provide a written calibration sheet to the ENGINEER for each instrument, certifying that it has been calibrated to its published specified accuracy. The CONTRACTOR shall submit proposed calibration sheets for various types of instruments for ENGINEER approval prior to the start of calibration. This sheet shall include but not be limited to date, instrument tag numbers, calibration data for the various procedures described herein, name of person performing the calibration, a listing of the published specified accuracy, permissible tolerance at each point of calibration, calibration reading as finally adjusted within tolerance, defect noted, corrective action required and corrections made.
- F. If doubt exists as to the correct method for calibrating or checking the calibration of an instrument, the manufacturer's printed recommendations shall be used as an acceptable standard, subject to the approval of the ENGINEER.
- G. Upon completion of calibration, devices calibrated hereunder shall not be subjected to sudden movements, accelerations, or shocks, and shall be installed in permanent protected positions not subject to moisture, dirt, and excessive temperature variations. Caution shall be exercised to prevent such devices from being subjected to over-voltage, incorrect voltages, overpressure or incorrect air. Damaged equipment shall be replaced and recalibrated at no cost to the OWNER.
- H. After completion of instrumentation installation and calibration, the CSI shall perform a loop check. The CONTRACTOR shall submit final loop test results with all instruments listed in the loop. Loop test results shall be signed by all representatives involved for each loop test.
- I. Loop/Component Inspections and Tests: The entire system shall be checked for proper installation, calibrated, and adjusted on a loop-by-loop and component-by-component basis to ensure that it is in conformance with related submittals and the Contract Documents.
 - 1. The Loop/Component Inspections and Tests shall be implemented using ENGINEER approved forms and check lists.
 - 2. The CONTRACTOR shall require the CSI to maintain the Loop Status Reports and Components Calibration sheets at the job-site and make them available to the ENGINEER/OWNER at any time.
 - 3. These inspections and tests do not require witnessing. However, the ENGINEER will review and initial all Loop Status Sheets and Component Calibration Sheets and spot-check their entries periodically and upon completion of the Operational Readiness Tests. Any deficiencies found shall be corrected.

3.6 SYSTEM ACCEPTANCE TEST (SAT)

- A. Successful completion of the operational readiness test, as determined by the OWNER and/or ENGINEER shall be the basis for starting the witnessed system acceptance test. The ENGINEER shall approve the ORT test results and the ENGINEER and OWNER shall be given a minimum of two weeks' notice prior to the start of the System Acceptance Test.
- B. The system acceptance test shall repeat loop and functional testing done during the operational readiness test in order to demonstrate to the OWNER and ENGINEER that the system has been started up, is operating, and is in compliance with these Specifications. Each specified function shall be demonstrated on a paragraph-by-paragraph, loop-by-loop and site-by-site basis.
- C. The following documentation shall be made available to the ENGINEER during the test:
 - 1. All Contract Drawings and Specifications, addenda, and change orders.
 - 2. Master copy of the test procedure.
 - 3. One copy of all O&M Manuals shall be made available to the ENGINEER at the job-site both before and during testing.
- D. Any malfunction during the tests shall be analyzed, and corrections made by the CSI. The ENGINEER and/or OWNER will determine whether any such malfunctions are sufficiently serious to warrant a repeat of this test.
- E. After all functions have been tested and all corrections made, the system shall operate continuously for 15 days without failure before this test will be considered successful.
- F. The total availability of the system shall be greater than 99.5 percent during this test period. Availability shall be defined as "Avail. = (Total Time-Down Time,) / (Total Time) x 100%". Down times due to power outages or other factors outside the normal protection devices or back-up power supplies provided, shall not contribute to the availability test times above.

3.7 TRAINING

- A. The CSI shall provide project specific classroom training at the OWNER'S site or other approved location. Training shall be provided for the operation and maintenance of all equipment provided, as well as site specific installation configuration training for the system as a whole.
- B. Each student shall be provided with training materials. All training materials shall be provided in hardcopy as well as on a training CD, with all materials in Microsoft Office or Adobe PDF file format. All training CD's shall be updated with final configuration information and resubmitted for approval. Final CD media shall be archival quality.
- C. The OWNER reserves the right to video tape any and all training sessions for the purposes of future or refresher training.
- D. To facilitate the OWNER'S operations staff scheduling, training shall be conducted in two (2) four-hour sessions, a morning session and an afternoon session. Morning and afternoon sessions will cover the same material on a given day. The training shall consist of one (1) day minimum with (2) sessions per day.
- E. Maintenance training shall be provided to designated maintenance personnel, so that each component may be maintained without the assistance of outside organizations. The training

shall be extensive so that after training, personnel shall be able to identify component malfunctions and repair components to the board/module replacement level. Training shall cover the entire system including controls and field equipment.

- F. Maintenance training shall be conducted in one (1) session, with a minimum of one (1) day of instruction.
- G. Refer to related specification sections for additional training requirements.
- H. Training sessions shall be carried out to the satisfaction of the OWNER before final acceptance will be provided.

3.8 WARRANTY

- A. The warranty period for this system shall be for one year and shall begin upon final acceptance of the complete system by the OWNER. During this warranty period, the CSI shall provide, at no additional cost to the OWNER, the services of a trained, competent, field service engineer who shall arrive on site within 36 hours of notification by the OWNER or ENGINEER, to repair and/or replace any faulty device or equipment supplied by the system supplier as part of this Instrumentation and Control System. All preventive and corrective activities shall be documented with service reports, which shall identify the equipment being serviced, state the condition of the equipment, describe all work performed, and list materials used. A copy of all service reports shall be delivered to the OWNER on or before the next business day.
- B. The CSI shall be capable of providing, after the warranty period for this system expires, a 1-year renewable service contract whereby a trained, competent field service ENGINEER shall arrive on site within 36 hours of notification by the OWNER. Information relative to charges for such service and availability of such service shall be submitted to the OWNER and the ENGINEER.

END OF SECTION

SECTION 13120 – I&C FIELD EQUIPMENT

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The CONTRACTOR, through the services of a single Control Systems Integrator (CSI), shall furnish, test, install and place in satisfactory operation all equipment required to provide a complete and operable Instrumentation and Control System (ICS) as specified herein and as shown on the Contract Drawings, even if each needed item is not specified or shown.
- B. The CSI shall provide full onsite supervision of all field equipment installations provided under this section, including instances where installation is provided by others.
- C. Field equipment (i.e. primary elements, measuring devices, transmitters, field controllers, chart recorders, indicators, and other instrumentation and accessories) shall be provided with all components necessary for a fully functional system, whether specifically mentioned in these specifications or not. This shall include, as applicable or recommended by the manufacturer: sample conditioning, sample sink(s), sensors, sensor holder and mounting brackets, transmitter, all required cables, calibration equipment, chemicals, reagents and spare parts.
- D. Specialty cables & conduits between sensors/probes and their electronics/transmitters shall be furnished with each instrument. Cables shall be coordinated with the conduit installation and shall be of sufficient length to not require any splicing. Special cables include any type of cable not specified in Division 16 – Electrical.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of specification Section 13100: Instrumentation and Control, General Requirements, and the sections referenced therein shall be applied.
- B. Refer to Attachment A at the end of this section for the Instrument Schedule which includes a list of field instruments required under this contract.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Unless otherwise specified, instruments shall be provided with enclosures to suit the specified environmental conditions. Field-mounted devices shall be rugged and mounted on walls, equipment racks, or pipe stanchions. Where the field equipment's integral enclosure for a specified instrument is not available with the specified environmental rating, the field equipment shall be provided in a control enclosure as specified in Specification Section 13130: Instrumentation and Controls, Control Enclosures.
- B. Where separate elements and transmitters are required, they shall be fully matched, and unless otherwise noted or shown on the Contract Drawings, installed adjacent or near to each other, in a readily accessible location. Special cables that are required for interconnection between sensors or probes and transmitters shall be furnished with the instrumentation devices by the associated equipment manufacturer. Special cables shall be

of the required length for the equipment locations and conduit routing paths shown on the Contract Drawings. No splicing of cables will be accepted.

- C. Electronic equipment shall utilize printed circuitry and shall be coated (tropicalized) to prevent contamination by dust, moisture and fungus. Ambient conditions shall be -15 to 50° C and twenty to ninety-five percent (20% - 95%) relative humidity, unless otherwise specified. Field mounted equipment and system components shall be designed for installation in dusty, humid and corrosive service conditions.
- D. All non-loop-powered instruments and equipment shall be designed to operate on a 60 Hz alternating current power source at a nominal 120 VAC, except where specifically noted. All regulators and power supplies required for compliance with the above shall be provided. Where equipment requires voltage regulation, constant voltage transformers shall be supplied.
- E. All analog transmitter and controller outputs shall be isolated, 4-20 mA into a load of 0-750 ohms minimum, unless specifically noted otherwise.
- F. Process taps for primary sensors shall be sized to suit each individual installation and the requirements of the instrument served. It is the Contractor's responsibility to ensure that the location, supports, orientation and dimensions of the connections and taps for instrumentation furnished under this Division are such as to provide the proper bracing, the required accuracy of measurement, protection of the sensor from accidental damage, and accessibility for maintenance while the plant is in operation. Isolation valves shall be provided at all process taps.
- G. All instrumentation exposed to sunlight shall be provided with sunshields constructed from 316 stainless steel. Sunshields shall be designed to withstand regional wind loads. Sunshield design shall be submitted for approval.
- H. All outdoor external sample/process piping, including valves and appurtenances, shall be insulated with weather-proof insulation.

2.2 TOOLS, SUPPLIES, AND SPARE PARTS

- A. Tools, supplies and spare parts shall be provided as specified in Section 13100: Instrumentation and Controls, General Requirements, and as specified for each equipment item. In addition, the following items shall be provided:
 - 1. All instruments shall be supplied with one (1) years' worth of supplies, including chemicals and reagents, for the calibration, operation and maintenance of the device.

2.3 ACCESSORIES

- A. Instrument tubing shall be 1/4 x 0.065-inch seamless, annealed, ASTM A-269 Type 316L stainless steel with Type 316 - 37° stainless steel flared fittings, or Swagelock or Parker-CPI flareless fittings.
- B. Diaphragm seals shall be provided to systems as shown on the Contract Drawings, as specified herein and/or for isolation of pressure gauges, switches and transmitters attached to systems containing non-potable water, chemical solutions or corrosive fluids. As a minimum, seals shall be of all 316 stainless steel construction. Diaphragms shall be 316L

stainless steel for operating pressures at or above 15 psi, and elastomers for operating pressures below 15 psi. Diaphragm material shall be non-reactive with the process fluid. Refer to Attachment A Instrument Schedule for specific materials requirements. Seal shall have fill connection, 1/4-inch NPT valve flush port and capable of disassembly without loss of filler fluid. Where specified, diaphragm seals shall comply with the above requirements, and shall be provided with 316 stainless steel factory filled capillaries. Seals shall be Helicoid Type 100 HA, Mansfield & Green, Ashcroft, or equal.

- C. Isolation valves shall be 1/2-inch diameter ball valves with 316 stainless steel body, 316 stainless steel ball.

2.4 SURGE PROTECTION DEVICES

- A. SPD shall be supplied for all field equipment power, signal, and communications wires. Refer to Specification Section 13130: Instrumentation and Controls, Control Enclosures for requirements.

2.5 PRESSURE GAUGE

- A. General: Unless otherwise noted or specified, pressure and vacuum gauges shall conform to the following requirements:
- B. Mounting Type: Gauges shall be of the stem-mount type unless noted otherwise.
- C. Construction: Gauges shall be of the bourdon tube or bellows type with 270 degrees clockwise pointer travel. Dials shall be white face with black numerals. Dial size shall be 4-1/2 inches. Connections for all gauges shall be male 1/2 NPT with square wrench flats. Wetted parts shall be corrosion-resistant to the process fluid shown and unless otherwise specified shall be the manufacturer's best quality standard. The case shall be filled with glycerin and shall be black phenolic. Accuracy shall be ± 0.5 percent of span.
- D. Chemical Seal: Where specified or shown in the drawings, the gauge, with optional locking device, shall be furnished with a diaphragm seal. The diaphragm seal shall have a 316 stainless steel (minimum) top and bottom housing and a 316 stainless steel diaphragm welded to the top housing. When the process fluid or pressure is not compatible with 316 stainless steel, the manufacturer shall provide a diaphragm seal compatible with the process fluid. The process connection shall be a 3/4-inch threaded connection with a flushing connection. The fill fluid shall be glycerin. A locking device shall be included from the factory on all fluid-filled instruments to prevent inadvertent loosening or removal from the seal.
- E. Where no seal is specified the gauge will be supplied with a pressure limiting snubber to protect against surges and pulsations.
- F. Manufacturers: The gauges shall be as manufactured by Ashcroft, Wika, McDaniels, U.S. Gauge or approved equal.
- G. The diaphragm seals shall be field serviceable for oil filling. Refer to paragraph 2.3 for other requirements and list of approved manufacturers.
- H. Refer to specification 15130 – Pressure Gauges for requirements.

2.6 MAGNETIC FLOW METERS

- A. Magnetic Flowmeters shall consist of a flowmeter with remote signal converter/transmitter that is capable of converting and transmitting a signal from the flow tube. The flow tube shall utilize the characterized principle of electromagnetic induction and shall produce DC signals directly proportional to the flow rate.
- B. Refer to specification 15155 for additional requirements.
- C. The flowmeter accuracy shall be $\leq \pm 0.5\%$ of reading from 2-100% meter capacity.
- D. The flowmeter shall include but not be limited to the following:
 - 1. NEMA 6P / IP68 accidental submersion enclosure
 - 2. Meter body shall be powder coated aluminum or carbon steel with an epoxy finish
 - 3. Electrical Housing shall be epoxy painted aluminum
 - 4. ANSI Class 150 flanges (minimum)
 - 5. Tefzel or polyurethane liner to suit process requirements
 - 6. Flush type or bullet type (slurry applications) electrodes compatible with process fluid
 - 7. Empty pipe detection
 - 8. SST bolts/nuts, centering device, Teflon gaskets
 - 9. Grounding rings when installed in non-metallic piping. Grounding rings shall be chemically resistant to process, 316SST minimum.
 - 10. The cables for interconnecting the flow tube to the transmitter shall be furnished by the manufacturer and of sufficient length as to not require splicing.
- E. The transmitter shall include but not be limited to the following:
 - 1. NEMA 4X enclosure
 - 2. 120VAC, 60Hz input power
 - 3. Process display with keypad for menu driven configuration
 - 4. One (1) 4-20ma output
 - 5. HART protocol
 - 6. One (1) alarm relay output
 - 7. Empty pipe detection
 - 8. Lo-flow cutoff
 - 9. Damping
 - 10. Flow Totalizer
 - 11. Non-volatile memory
- F. Magnetic Flowmeters shall be Rosemount meter with integral or remote display and signal converter.
- G. Also see Specification 15155 – Magnetic Flow Meter.

2.7 LEVEL / FLOW TRANSMITTER, ULTRASONIC TYPE:

- A. Ultrasonic transmitters shall be provided for continuous measurement of storage tanks, concrete tanks, chemical storage tanks and/or as indicated on the Contract Drawings. Transmitters shall also be suitable for open channel, weir and flume flow measurement

based on level measurement. Equipment shall be provided with features and accessories as described herein and suitable for the application.

- B. Ultrasonic level transmitters shall meet the following specifications as a minimum:
1. NEMA 4X enclosure
 2. 120VAC, 60Hz input power
 3. Process LCD display with keypad for menu driven configuration
 4. One (1) isolated 4-20 mA output
 5. Up to six (6) relays for alarm or pulse output
 6. Accuracy: 0.25 %
- C. The CSI shall provide all mounting hardware needed for all applications for this project; and shall coordinate the details of the installation so that the instruments are installed in keeping with the best standard and recommended practices of the manufacturer and conforming to the requirements set forth by the Engineer.
- D. Level transmitters shall be fully programmable and configurable using an integral keypad. The final documentation shall be provided with a tabulation of the Programming Parameters used in each level transmitter so that the initial calibration can be reproduced if a spare transmitter is installed.
- E. Level transmitters shall be four wire type and provided with analog signal isolation as part of the transmitter assembly. Signal analog output shall be provided for level applications. Dual analog outputs shall be provided for flow/level or differential level applications. All conduit connections shall be sealed to prevent damage or corrosion due to vapors or wetness.
- F. In cases where the transducer is used for hazardous areas, sensors shall be hermetically welded PVDF pulse time of flight, rated for NEMA 6P submergence and Class 1, Division 2 classification.
- G. In cases where the transducer is used to monitor a covered wet well, channel or tank, the transducer shall be installed using a hinged protective enclosure, or an enclosure that is designed to work in conjunction with the tank cover. The enclosure shall be a special corrosion resistant instrument enclosure made of polyurethane or fiberglass with stainless steel hardware. Enclosures shall be model C-6, as provided by O'Brien Corp, St. Louis, Missouri. The case shall be secured to the slab using heavy anchors over an appropriately sized hole cored through the slab. The enclosure shall also have a hole in the bottom to match the hole in the slab so that the transducer can be easily installed from above. The transducer shall be installed on a heavy aluminum plate which would lie in the bottom of the enclosure and allow the transducer to extend into the cored hole.
- H. In cases where the transducer is used to monitor a water storage tank or other type of location, the CSI shall provide a mounting design and mounting hardware to provide an installation which is appropriate for the operation of the device and easily maintained. The transducer shall be mounted above the location on a suitable bracket extending out far enough from the tank sides or other obstructions to receive a strong signal over the entire level range without reflections. The transmitter shall be mounted outside of the wall at a convenient ground-level working height.
- I. In cases where the transducer is used in a turbulent area, the sensor shall be flange mounted to a stilling well to minimize incorrect responses to wave action in the liquid. The

stilling well shall be a six (6) inch PVC pipe which shall extend the entire depth of the measured range and to below the normal low liquid level. The stilling well shall have holes drilled periodically along the length or include an air gap between the sensor and the well, sufficient to allow adequate response to changes in liquid level. The stilling well shall be supported in a manner which produces a rigid installation minimizing the movement due to the turbulent liquid.

- J. In cases where the transmitter is used in potentially hazardous locations and/or for differential level measurements across a screen, two hazardous area rated sensors shall be utilized. The transmitter shall provide a 4-20 mA dc output signal based on the differential level.
- K. In cases where the transmitter is used for open channel flow measurement, the transmitter shall use internal standard algorithms for the appropriate flume type to calculate and provide a 4-20 mA dc output signal in terms of flow based on the flume conditions. The unit shall also totalize the flow value for display.
- L. Ultrasonic Level Transmitters shall be Siemens transmitter/sensor with local display or equal by Endress + Hauser. Refer to contract drawings for mounting requirements. Transmitters shall be installed using the appropriate transducer, suitable for the range and process connection of the installation. The cable provided with the transducer shall be of sufficient length to provide installation without splicing the cable at any point.

2.8 CHECK VALVE LIMIT SWITCH:

- A. Limit switches shall sense the position of a pump discharge check valve to determine pump flow and operate a SPDT switch to actuate alarms or control circuits. The switch contacts shall be rated for up to 10-ampere maximum load at 120 VAC, 60 Hz. The limit switch shall consist of a lever sensor and operating head. The lever sensor shall be 316 stainless steel or other material suitable for the application.
- B. The lever sensor shall be a roller type or pushpin arm to allow reaction to the movement of the check valve arm and as required based on the specific requirements of the installation. The operating head shall be housed in a NEMA 4 enclosure with an electrical conduit connection.
- C. The switch shall be field adjusted for correct operation. Repeatability of sensing shall be within 1.0 percent ($\pm 1.0\%$) of full switch range.
- D. Lever type limit switches shall be model 802T type as manufactured by Allen Bradley or valve manufacturer's equal as approved by engineer. Coordinate switch requirements with valve manufacturer.
- E. Also see Specification 15110 – Check Valves.

2.9 VACUUM HIGH AND LOW SWITCH

- A. The vacuum switch shall include a sensor wired to an electronic monitor and transmitter with a digital readout and three (3) alarm relays: one Low Alarm relay, one High Alarm relay and one Latch Alarm relay. All relays shall be general purpose NO/NC type, 120V @ 5 Amps. Include a 1-100 second adjustable alarm delay timer and LED indicators for all alarm trip points. Switch and monitor shall come standard with analog output, for future use.

- B. Vacuum sensor shall come standard with an oil based protection device that allows direct contact with many gases and liquids, including ammonia, chlorine and sulfur dioxide.
- C. Unit power requirements include allowable voltage input of 120 VAC, +/- 25%.
- D. Provide NEMA 4X rated enclosure with clear chemically resistant cover, to allow operator full view of digital readout and LED alarm indicators without opening cover.
- E. Vacuum Switch shall be VAC-1000 by Reim Electronics, or engineer approved equal.

2.10 SUNSHIELDS

- A. All outdoor mounted transmitters shall be provided with sunshields, constructed of 316 stainless steel with a white epoxy coating finish, both inside and outside of sunshield. Sunshields are to be sized so that the sunshield will extend a minimum of three (3) inches beyond the transmitter enclosure on all sides.
- B. The sunshield shall be sized to include protection for the transmitter and the surge arresting device.
- C. All sunshield and instrument mounting hardware shall be 316 stainless steel.
- D. Sunshields and related installations shall be designed to withstand regional wind loading.

PART 3 – EXECUTION

3.01 REQUIREMENTS

- A. In addition to the requirements specified in this section, refer to Section 13100: Instrumentation and Control, General Requirements.

END OF SECTION

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

13120 ATTACHMENT A -- INSTRUMENT SCHEDULE

TAG	SPECIFICATION	DESCRIPTION	SERVICE	RANGE
FE/FIT-010	13120-2.6; 15155	Magnetic Flow Meter	Aeration South Raw Water Intake Flow	GPM
FE/FIT-020	13120-2.6; 15155	Magnetic Flow Meter	Aeration North Raw Water Intake Flow	GPM
FE/FIT-210	13120-2.6; 15155	Magnetic Flow Meter	Claricone Softener No. 1 Flow	GPM
FE/FIT-220	13120-2.6; 15155	Magnetic Flow Meter	Claricone Softener No. 2 Flow	GPM
LIT-100	13120-2.7	Ultrasonic Level Transducer	Aeration Tank Wet Well Level	Lead, Lag & Low Level Alarms, FT
MOV-130	15103-2.01,A,14	Motorized Butterfly Valve Actuator	Valve	Open/Closed
MOV-140	15103-2.01,A,14	Motorized Butterfly Valve Actuator	Valve	Open/Closed
MOV-150	15103-2.01,A,14	Motorized Butterfly Valve Actuator	Valve	Open/Closed
MOV-310	15103-2.01,A,14	Motorized Butterfly Valve Actuator	Recarb to Splitter Box Isolation Valve	Open/Closed
MOV-320	15103-2.01,A,14	Motorized Butterfly Valve Actuator	Splitter Box to Filters 1 - 4 Isolation Valve	Open/Closed
PE/PI-130	13120-2.5, 15130	Pressure Gauge w/ Diaphragm Seal	Aerator Transfer Pump No. 1 Discharge Pressure	PSI
PE/PI-140	13120-2.5, 15130	Pressure Gauge w/ Diaphragm Seal	Aerator Transfer Pump No. 2 Discharge Pressure	PSI
PE/PI-150	13120-2.5, 15130	Pressure Gauge w/ Diaphragm Seal	Aerator Transfer Pump No. 3 Discharge Pressure	PSI
PI-400	13120-2.5, 11340	Pressure Gauge w/ Diaphragm Seal	Ammonia Feed PRV Discharge Pressure	PSI
PRV-402	15095	Pressure Reducing Valve	Ammonia Feed Pressure Reducing Valve No. 2 (Manual)	PSI
PSV-300	15106	Pressure Sustaining/Electronic Metering and Flow Control Valve	Recarb Tank Level Control & Discharge Flow Status	FT, GPM
PVS/PI-401	13120-2.9, 11340	Pressure Vacuum Switch and Digital Indicator	Ammonia Feed Pressure Vacuum Switch No.1	High & Low Pressure Alarms, PSI
PVS/PI-402	13120-2.9, 11340	Pressure Vacuum Switch and Digital Indicator	Ammonia Feed Pressure Vacuum Switch No.2	High & Low Pressure Alarms, PSI
ZSC-130	13120-2.8, 15110-2.01,A,6	Check Valve Limit Switch	Aerator Transfer Pump No. 1 Check Valve Status	Open/Closed
ZSC-140	13120-2.8, 15110-2.01,A,6	Check Valve Limit Switch	Aerator Transfer Pump No. 2 Check Valve Status	Open/Closed
ZSC-150	13120-2.8, 15110-2.01,A,6	Check Valve Limit Switch	Aerator Transfer Pump No. 3 Check Valve Status	Open/Closed

SECTION 13130 – I&C CONTROL ENCLOSURES

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The CONTRACTOR, through the services of a single Control Systems Integrator (CSI), shall furnish, modify, test, install and place into satisfactory operation all control enclosures (i.e. field panels, control panels, cabinets, consoles, boxes, etc.) required to provide a complete and operable Instrumentation and Control System (ICS) as specified herein and as shown on the Contract Drawings.
- B. The Contractor shall be responsible to provide modifications to existing control panels as described herein or as indicated in the SCADA Network Diagram or PLC Input/Output Schedule Attachment. Modifications to existing control panels shall also conform to the requirements of these specifications.
- C. New control enclosures and/or subpanels shall be assembled, wired and tested in the CSI's own facilities, unless specified otherwise.
- D. All components and all necessary accessories (e.g. mounting hardware, conditioning equipment, SPD, fuses, circuit breakers, terminals, ground bars, relays, contactors, starters, indicators, control operators, power supplies, signal conditioning, connectors, digital hardware, etc.) that may be required to complete the system, shall be provided.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of specification Section 13100: Instrumentation and Control, General Requirements, and the sections referenced therein shall be applied.
- B. The Instrumentation drawings and Attachment A of this section provide a summary of the inputs and outputs, both discrete and analog, which shall be included for the PLC referenced and in the SCADA system implementation.

1.03 SUBMITTALS

- A. All submittals shall be in accordance with Division 1 and as specified in Section 13100: Instrumentation and Control, General Requirements. In addition, the following specific submittal items shall be provided:
 - 1. Cabinet sizing in relation to heat dissipation and cooling/heating system sizing calculations shall be submitted for all cabinets containing PLCs, UPSs, VFDs, SCRs and, at the request of the ENGINEER, for all cabinets containing sensitive electronic equipment or chemicals.
 - 2. Battery Backup and UPS sizing calculations.

1.04 DESCRIPTION OF MAJOR CONTROL PANELS

A. AERATION PLC CONTROL PANEL (SP-020)

1. Furnish and install an Aeration system main control panel. Aeration PLC Control Panel shall be PLC-based, and shall include one (1) operator interface terminal (OIT) mounted on the front door of the cabinet as specified and shown on the drawings. The control panel and SCADA OIT shall be interfaced with all site status, processes, and control signals and equipment, providing a complete and fully functional control package.

B. GENERATOR BUILDING PLC CONTROL PANEL (SP-030)

1. Furnish and install a Generator building main control panel. The control panel shall be PLC-based, and shall include one (1) operator interface terminal (OIT) mounted on the front door of the cabinet as specified and shown on the drawings. The control panel and SCADA OIT shall be interfaced with all site status, processes, and control signals and equipment, providing a complete and fully functional control package.

C. TYPICAL PANEL REQUIREMENTS

1. The SCADA OIT shall be configured to include interface screens and configuration settings to provide the facility operators with real-time information regarding process signals, equipment status, and alarms. In addition, the SCADA OIT shall provide the ability to enter local supervisory control commands and set points.
2. SCADA software, licensing and associated configuration and development will be provided by others, separate from the scope of this contract.
3. Refer to the design drawings for signal and cabinet layout details.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All enclosures shall fit within the allocated space shown on the Drawings. The CONTRACTOR shall examine plans and/or field inspect new and existing structures as required to determine installation requirements and shall coordinate the installation of all enclosures with the OWNER, other equipment suppliers, and all affected subcontractors. The CONTRACTOR shall be responsible for all costs associated with installation of enclosures, including enclosures provided by the other equipment suppliers and all costs associated with the repair of damage to structures (incidental, accidental or unavoidable).
- B. Minimum estimated control panel size is shown on the Drawings. The CONTRACTOR shall furnish enclosures of the size and quantity required to house the manufacturers' equipment supplied and all other electrical components installed in the enclosure. In addition, provide useful space and power supply capacity as spare for future expandability to a minimum of one (1) item per item type installed or twenty percent (20%) of quantity of each type of item installed, whichever yields the greater spare space.
- C. Enclosures (cabinets, panels, boxes, etc.) shall be formed or welded construction, reinforced with Unistrut, Powerstrut or equal to facilitate mounting of internal components or equipment. Sufficient access plates and doors shall be provided to facilitate maintenance and testing of the supplier's equipment. Doors shall be removable. Enclosures with any dimension thirty-six (36) inches or greater, or where assembled

enclosure system weight warrants, shall be provided with removable lifting lugs designed to facilitate safe moving and lifting of the panel during installation. No screws or bolts shall protrude through from the enclosure interior.

- D. All steel enclosures shall be free from dirt, grease and burrs, and shall be treated with a phosphatizing metal conditioner (phosphate conversion coating) before painting. All surfaces shall be filled, sanded, and finish coated by spraying a 1-2 mil epoxy prime coat and smooth, level, high grade textured finish between flat and semi-gloss shine. The colors shall be selected by the OWNER from a minimum of six (6) color samples provided. All stainless steel enclosures shall be polished to a No. 4 finish.
- E. Enclosures shall be prefabricated cabinets and panels by Hoffman, Shaefer or approved equal. The CONTRACTOR may optionally provide enclosures custom fabricated by a reputable panel fabrication shop acceptable to the OWNER.
- F. Each panel shall incorporate a removable back panel on which control components shall be mounted. Back panels shall be secured to the enclosures with collar studs. All components shall be of the highest industrial quality and securely mounted to the removable back panels with screw and lock washers. Back panels shall be tapped to accept all mounting screws. Self-tapping screws shall not be used to mount any component.
- G. All enclosures with any dimension twenty-four (24) inches or larger shall be provided with drawing pockets for as-built panel drawings. One (1) laminated copy of the appropriate panel as-built drawings shall be furnished and left in the pocket of each panel.
- H. All enclosures shall be protected from internal corrosion by the use of corrosion-inhibiting vapor capsules as manufactured by Northern Instruments Model Zerust VC, Hoffman Engineering Model A-HCI, or equal.
- I. All metallic enclosures with door mounted equipment shall have the door grounded by means of flexible ground strap.
- J. The enclosure and all interior and exterior equipment shall be identified with nameplates. The equipment shall be mounted such that service can occur without removal of other equipment. Panel mounted equipment shall be flush or semi-flush mounted. Where component installation would leave cabinet cut-out exposed, install escutcheon. All equipment shall be accessible such that adjustments can be made while the equipment is in service and operating. All enclosures shall fit within the allocated space as shown on the Contract Drawings.
- K. Enclosures shall provide mounting for UPS, power supplies, control equipment, input/output subsystems, panel mounted equipment and appurtenances. Ample space shall be provided between equipment to facilitate servicing and cooling. Enclosures shall be sized to adequately dissipate heat generated by equipment mounted inside the panel. Louvered openings fitted with dust filters near the bottom and top of the cabinet shall be provided for NEMA 12 enclosures. Where specifically called-out, or where required by heat-loading study, cabinets shall be provided with filtered fans. All cooling provisions shall be thermostatically controlled and adjustable.
- L. Each PLC control panel internal temperature shall be monitored by a temperature controller thermostat, providing a high temperature alarm contact input to the PLC. Thermostat controller shall be Hoffman ATEMNO, or approved equal.

- M. Enclosures shall be provided with a main circuit breaker and a circuit breaker on each individual branch circuit distributed from the panel. Main breaker and branch breaker sizes shall be coordinated such that an overload in a branch circuit will trip only the branch breaker but not the main breaker. In addition, circuit breakers shall be provided for the following internal branch circuits distributed within the panel:
1. Receptacles and power strips.
 2. Lighting.
 3. UPS.
 4. HVAC equipment.
- N. Enclosures shall be provided with LED internal cabinet lighting. Size and count as required to provide adequate lighting for inspecting and servicing internal components. Cabinet lighting system(s) shall include rigidly installed, heavy-duty, door-activated actuation switch(es). Typical lighting installations shall be at top-center of cabinet interior. Alternate locations and/or configurations shall be submitted for ENGINEER approval.
- O. Enclosures containing PLC, OPI or SCADA equipment shall be provided with 120 volt duplex "programming" receptacle, for use with a laptop in servicing the equipment. Programming receptacle shall be identified by an equipment nameplate reading "Programming Receptacle Only". Programming receptacle shall be installed in a dedicated branch-circuit within the enclosure. Receptacle shall be Phoenix Contact 15A, GFCI receptacle EM-DUO/120/15/GFI-5600462, or approved equal.
- P. Cabinet loads not requiring a surge protection device (i.e. receptacles, lighting, HVAC, etc.) shall be connected ahead of the enclosure primary power SPD device.
- Q. Locate equipment, devices, hardware, power supplies, instrumentation and controls, electrical equipment and wiring to be installed inside the enclosures and/or as facial features on the enclosures, so that connections can be easily made and so that there is ample room for servicing each item. Every component in and on the enclosures shall be able to be removed individually without affecting the other components and without the need to move other components. Support and restrain all internally, as well as panel mounted components, to prevent any movement.
- R. All cabinets and/or enclosures shall be NEMA rated for the environment in which it is to be installed and as noted in the Drawings.
- S. Materials and equipment used shall be U.L. approved wherever such approved equipment and materials are available.
- T. Control panels shall be built in accordance with UL508A Industrial Control Panels and NEC Article 409 Industrial Control Panels. Control panels for areas classified as Hazardous shall be built in accordance with UL698 Industrial Control Equipment for Use in Hazardous Locations. Control panels shall be UL508A and/or UL698 labeled and marked as defined in NEC 409.110 with the following:
1. Manufacturer's name and contact information (i.e. address, phone, website, email, etc.).
 2. Supply voltage, phase, frequency and full-load current.
 3. Short-circuit current rating of the industrial panel based on one of the following:
 - a. Short-circuit current rating of a listed and labeled assembly.

- b. Short-circuit current rating established utilizing an approved method.
 - 4. Electrical wiring diagram numbers or the index sheet to the electrical wiring diagrams.
 - 5. The enclosure type number (i.e. NEMA 1A, 3R, 12, 4X, 7, 9, etc.)
 - 6. If the industrial control panel is intended as service equipment, it shall be marked to identify it as being suitable for use as service equipment.
- U. All work shall be performed in a professional manner and in consideration of allowing ease of future troubleshooting and maintenance. All equipment should be mounted so as to minimize crowding within the panel. All devices shall be mounted and wired in a neat and workmanlike manner. Each component shall be prominently identified with the use of permanent engraved legend plates.
- V. Grounding: All suppressors shall be grounded per the suppressor manufacturer's recommendations. Furnish control panels with an integral copper grounding bus for connection of suppressors and other required instrumentation. Provide single-point connection of all grounds to grounding bus using the shortest possible path. Each grounded object shall have a separate connection to the ground bus. Do not connect cable shields to suppressor ground terminal or daisy-chain ground connections. Provide 1-inch wide by 1/8-inch thick copper ground bus as a minimum.

2.02 PANEL ENCLOSURE MATERIAL AND CONSTRUCTION

A. OUTDOOR ENCLOSURES

- 1. All outdoor enclosures shall be rated NEMA 4X, constructed of 316 stainless steel with a white powder epoxy coating finish unless specified otherwise. Outdoor enclosures shall have a hinged and gasketed door. Door latches shall be all stainless steel, fast operating clamp assemblies (quick release), which do not require bolts or screws to secure. Gaskets shall be polyurethane.
- 2. Outdoor panels shall be fitted with pad-lockable latch kits.
- 3. Outdoor enclosures with internal digital electronics, exterior indicators, or exterior indicator lights shall have external sun shields or sun shades, constructed of the same materials as the associated enclosure, unless otherwise specified.
- 4. Outdoor enclosures shall be designed for ambient conditions of -15 to 50°C and twenty to ninety-five percent (20% - 95%) relative humidity, unless otherwise specified. Outdoor enclosures shall be provided with thermostatically controlled space heaters to provide condensation protection.

B. INDOOR ENCLOSURES

- 1. Indoor enclosures located in the same area (i.e. room, etc.) as open process tanks, open process channels, closed process piping or process equipment containing wet liquids or possible airborne powders, shall be rated NEMA 4X, constructed of 316 stainless steel. Enclosures shall have a hinged and gasketed door. Door latches shall be all stainless steel, fast operating clamp assemblies (quick release) which do not require bolts or screws to secure. Gaskets shall be polyurethane.
- 2. Indoor enclosures located in a dry or environmentally controlled area (i.e. electrical room, etc.) shall be NEMA 12 steel, unless specified otherwise. Enclosures shall have a hinged and gasketed door. Door latches shall be 3 point door latch with handle for all enclosures with a dimension of 24 inches or larger,

or otherwise shall be fast operating clamp assemblies (quick release) which do not require bolts or screws to secure. Gaskets shall be polyurethane.

3. Indoor enclosures in a non-air conditioned space shall be designed for ambient conditions of 0 to 40°C and twenty to ninety-five percent (20% - 95%) relative humidity, unless otherwise specified. Indoor enclosures in an air conditioned space shall be designed for ambient conditions of 20 to 30°C and twenty to eighty-five percent (20% - 85%) relative humidity, unless otherwise specified.

C. TERMINALS

1. Terminal blocks shall be assembled on 35mm DIN mounting rails, securely bolted to the cabinet sub-panel. Terminals shall be of the screw down pressure plate type as manufactured by Phoenix Contact, Allen Bradley, Wieland, Square D, or equal. Power terminal blocks shall be single tier with a minimum rating of 600 volts, 30 amps. Signal terminal blocks shall be single tier with a minimum rating of 600 volts, 20 amps.
2. Fused terminal blocks or miniature thermal circuit breaker terminal blocks shall be supplied for protection and isolation of enclosed equipment, or as specified in the Contract documents. Blown fuse indicators shall be provided and/or tripped breaker status shall be clearly visible. Fused or miniature thermal circuit breaker terminal blocks shall be provided for, but not limited to each of the following:
 - a. Each PLC module requiring external power.
 - b. Each piece of equipment provided with a power supply (integral, internal or external) with the exception of devices with internal fusing, plugged into a receptacle.
 - c. As required to logically and electrically group and/or segregate critical components or functions.
3. Terminals shall be marked with a black waterproof, permanent, continuous marking strip. One side of each terminal shall be reserved exclusively for field incoming conductors. Common connections and jumpers required for internal wiring shall not be made on the field side of the terminal.

D. WIRING

1. All wiring shall be bundled and run open or enclosed in vented plastic wireway, as required. All conductors run open shall be bundled and bound with nylon cable ties, at regular intervals, with intervals not to exceed 12 inches. Adequately support and restrain all wiring runs to prevent sagging or other movement. Care shall be taken to separate communication, network, electronic signal, AC discrete signal, DC discrete signal and power wiring. Wiring to equipment mounted on doors, or where movement of the equipment will take place, shall be installed in nylon spiral wrapping sheaths.
2. Wires shall be color coded as follows:

Equipment Ground	GREEN	
120 VAC Power Distribution		BLACK
120 VAC Neutral		WHITE
120 VAC Control (Internally Powered)		RED
120 VAC (Externally Powered)		YELLOW

24 VAC Control	ORANGE
24 VAC Neutral	ORANGE/WHITE
24 VDC (+)	BLUE
24 VDC (-)	BLUE/WHITE (BLUE)
Analog Signal (+)	BLACK
Analog Signal (-)	CLEAR/WHITE

3. All wiring shall comply with accepted standard instrumentation and electrical practices. Field wiring for power, control and signal wires shall comply with Division 16 of the specifications.
4. Internal panel wiring shall be as follows:
 - a. AC power wiring: 14 AWG minimum, stranded copper conductors, THHN/THHW wire rated for 600 volts and 90 °C. For conductors carrying more than 15 amps, size as required by NEC.
 - b. AC control and DC power and control wiring: 16 AWG minimum, stranded copper conductors, THHN/THHW wire rated for 600 volts and 90 °C.
 - c. Instrument signal wiring: 18 AWG stranded conductors, tinned copper, twisted pair or triad, overall one hundred percent (100%) aluminum foil shield with stranded drain wire, rated 300V/60°C, polyethylene insulated wire with PVC jacket. Instrument signal wire shall be equal to: Belden 8760, Carol C2534A, or approved equal. Where required by application and code, plenum-rated cable shall be used.
5. All stranded wire shall have a minimum of sixteen (16) strands, except for drain wires.

E. IDENTIFICATION

1. Provide nameplates on the front of all enclosures to identify each console, panel or cabinet. Nameplates shall be phenolic plate, white base, black laminate, with beveled edges and 1/2 inch engraved lettering (exposing base). Nameplates shall be located and sized for clear readability. Where specifically designated, provide as shown on the Drawings.
2. Provide legend plates and nameplates for each front panel mounted device. Nameplates shall be phenolic plate, white base, black laminate, with beveled edges and 1/4 inch engraved lettering (exposing base). Nameplates shall be located and sized for clear readability. Where specifically designated, provide as shown on the Drawings.
3. Provide equipment ID nameplates for each interior subpanel mounted device. Nameplates shall be phenolic plate, white base, black laminate, with beveled edges and 1/8 inch engraved lettering (exposing base). Nameplates shall be located and sized for clear readability, and shall be installed such that they are unaffected by equipment removal or replacement. Where specifically designated, provide as shown on the Drawings.
4. Provide equipment ID nameplates for each field mounted device. Nameplates shall be phenolic plate, white base, black laminate, with beveled edges and 1/8 inch engraved lettering (exposing base). Nameplates shall be located and sized for clear readability, and shall be installed such that they are unaffected by equipment removal or replacement.

5. Caution/Warning nameplates shall be white base with red laminate.
6. Nameplates shall be attached using stainless steel machine screws into tapped holes. Attach front panel nameplates with both a permanent adhesive and stainless steel machine screws into tapped holes. Where necessary to avoid altering equipment rating (ex. NEMA 4X enclosures), attach nameplate utilizing permanent adhesive or stainless steel wire.
7. Number and label each wire in the systems. Every unique wiring circuit segment (electrically) shall have its own individual unique number. Numbers shall be shown on all submitted drawings. All wire segments shall be labeled at each end termination. All multi-conductor cables shall be labeled at each jacket end with cable ID number "CBL-XXX", and at each termination point the individual conductors shall be labeled with their respective wire number. Labeling shall be self-laminating, white with transparent over-laminate end section, self-extinguishing vinyl strips (Brady DAT 7 292 or equal). Length shall be sufficient to provide at least two and one-half (2 ½) wraps. All labels shall be machine-printed with wire and/or cable numbers.

F. ACCESSORIES

1. Control operators for all equipment shall be as specified herein and of the same type and manufacturer unless otherwise specified or indicated on the Contract Drawings.
2. Control operators such as pushbuttons (PB), selector switches (SS), and pilot lights (PL) shall be Allen Bradley 800H, Square D Company Type SK or equal. Control operators shall be 30.5 mm, round, heavy-duty, oil tight NEMA 4X corrosion resistant.
3. Pushbuttons and selector switches shall be non-illuminated, spring release type. Pushbuttons shall include a full guard. Panic stop/alarm pushbuttons shall be red mushroom type with manual-pull release. Pilot lights shall be of the proper control voltage, LED type (indoor) and lamp type (outdoor).
4. Where required to interface between motor control centers, equipment controls, and control panels, interposing relays and associated control wiring circuitry shall be furnished and installed to provide the monitoring and/or control functions specified herein. Interposing relays shall be miniature type with DPDT contacts rated a minimum 10 amp @ 120 VAC, push-to-test button, and status indicator. Relay coils shall be 120/240 VAC or 24 VDC as required. Relays shall be as manufactured by Idec, Square D, Omron, Allen-Bradley or approved equal.
5. Digital Indicators shall be provided to indicate rates and readings in digital format and true engineering units. Indicators shall accept a 4-20 mA input signal and shall be programmable through the front panel to provide scaling, calibration, options and accessories. Units shall be 4 digit minimum with red LED indication, 120 VAC power. Digital Indicators shall be Precision Digital, Red Lion or approved equal.

G. POWER SUPPLIES

1. Each control panel requiring 24 VDC shall be provided with a 24 VDC power supply. Power supplies shall be DIN rail mounted, enclosed type, 24 VDC, 5 Amp (minimum), with operating temperature range of minus 20 to 70 degrees C. Power supply shall provide a dry-contact alarm output. Power supplies shall be sized to support the connected loads plus 25% spare capacity.
2. Power supplies external to the PLC, provided for loop and/or PLC power shall be redundant and each shall alarm to the PLC upon failure.

H. SURGE PROTECTIVE DEVICES (SPDs)

1. Surge protective devices for all equipment shall be as specified herein and of the same type and manufacturer unless otherwise specified or indicated on the Contract Drawings.
2. Surge protective devices shall be provided at the following minimum locations:
 - a. At any connections between AC power and electrical and electronic equipment, including panels, assemblies and field mounted instruments.
 - b. At both ends of all analog signal circuits that have any portion of the circuit extending outside of the control panel.
 - c. At the control panel for all discrete signal circuits that have any portion of the circuit extending outside of the control panel.
 - d. At both ends of all copper-based communications cables that extend outside of a building.
 - e. At all specified spare analog inputs and outputs and spare discrete signal inputs in PLCs and RTUs.
3. SPDs shall be listed/recognized by UL 1449 latest edition, Standard for Safety Surge Protective Devices.
4. These protective devices shall be external to, and installed in addition to, any protective devices built into the equipment. Power and signal protection shall be installed in either in a NEMA 4X enclosure or in the enclosure that houses the equipment to be protected.
5. All surge protective devices shall be mounted and wired per the manufacturer's recommendations, including local grounding for surge energy dissipation. For surge suppressors use No. 8 cable for ground connection or install suppressor directly on ground bus using grounding screw.
6. Panel-mounted power circuit protectors shall be provided in all enclosures powered by 120 VAC. The protector shall be DIN rail mount plug-in type surge protection with a 3-stage hybrid, solid-state power line protector with noise filtering, common mode and normal mode suppression and nanosecond reaction time. The unit shall include fault signaling and remote indication contact. SPD devices shall be EDCO HSP121BT, Phoenix Contact PT-2-PE/S-120VAC (2856812) or approved equal.
7. Panel-mounted signal circuit protectors shall be DIN rail mount type. Each SPD shall include a moveable grounding link to allow each signal cable shield to be individually grounded to the panel via the mounting rail through the SPD for that cable without the use of any additional grounding wire or to be isolated from ground at the SPD. Each mounting rail shall be grounded to the panel by the use of rail mounting screws at approximately one-foot intervals. Protection shall be from line to line and from each line to ground. Protection shall also be from shield to ground where the shield is not grounded at the protector. Each SPD shall have the ability to protect against surge currents greater than 10,000 amperes. Each SPD shall add no more than 22 ohms per signal wire to the total signal loop resistance of the analog signal loop in which it is installed. SPDs shall not introduce error-producing ground loop currents into the instrumentation signal circuits.

- a. For analog signal surge protection: The surge protection controller module shall be connected to the protection modules via pluggable bus connectors. The controller module shall provide dry-contact outputs representing 1) common module warning and 2) common module failure. The warning and failure alarms shall be wired into the PLC. Protection devices shall be Phoenix Contact PlugTrab-PT Series, or approved equal.
- 8. Signal circuit SPDs for 2-wire field instruments shall be a conduit connected/pipe nipple type and shall have characteristics equal to the panel mounted devices. Units shall be mounted to a transmitter conduit entry point where available. When not available or practical, these devices shall be mounted utilizing a T-style conduit body, located at the field devices. SPD devices shall be Phoenix Contact PipeTrab S-PT1-2PE-24DC (2818122) or approved equal.
- 9. Signal circuit SPDs for 4-wire field instruments shall be a separate enclosure unit capable of providing protection on both the power and signal side. The unit shall contain the characteristics of the line power protector and signal circuit protectors discussed above. Units shall be enclosed in a manufacturer assembled wall-mount, NEMA 4X enclosure. SPD devices shall be Phoenix Contact BoxTrab, BXT-N4X 4-WIRE (5603514) or approved equal.
- 10. SPD devices for CAT 5 or 6 Ethernet cable data signal protection shall be DIN-rail mount type with RJ45 plug connection to the device it is protecting. Surge suppressor type shall be gas-filled surge arrester and diodes with a total surge current of 10kA. SPD shall be Phoenix Contact, DT-LAN-CAT.6+ (281007), or approved equal.
- 11. SPD device specifications and ratings for signal or communication types not defined herein shall be as specified elsewhere or of a type recommended by the manufacturer of the device being protected. SPD devices shall be Phoenix Contact or approved equal.

2.03 PROGRAMMABLE LOGIC CONTROLLER (PLC), GENERAL

- A. The control system hardware configuration as specified herein, in other related sections, and as shown on the Contract Drawings depicts overall system configuration requirements. Unless otherwise specified, designs which vary from this concept will be rejected.
- B. All discrete and analog data acquisition, pre-processing, storage and process control functions shall be performed at the PLC level.
- C. PLC-to-PLC communication protocols shall be Ethernet-based.
- D. The Controls System Integrator (CSI) shall provide all software, operating systems, network interface, special drivers and network integrations required and shall perform all configurations, commissioning, troubleshooting and diagnostics required for a complete and functional system.
- E. The equipment specifications included herein define a level of performance based on current technology to establish a basis of bid. However, it is recognized that computer technology changes rapidly and that this technology level, while leading edge today, will be surpassed by the time equipment will be purchased. It is therefore expected that a comparable, leading edge value in technology will be provided at the time of purchase.

- F. Cable systems shall be provided for various requirements, including but not limited to data network, fiber optic, printer, power cables, and others as required. Cables shall be routed in suitable conduits, cable ducts, channels and wire ducts to provide a clean, safe, non-obtrusive and workmanlike installation.
- I. The Control System Integrator shall furnish programmable controllers (PLCs) as specified herein and as shown on the Drawings. PLCs shall be provided complete with rack, power supply, Input/Output (I/O) modules, special function cards, instructions, memory, input/output capacity and appurtenances to provide all features and functions as described herein.
- J. All components of the PLC system shall be of the same manufacturer; who shall have fully tested units similar to those being furnished, in an industrial environment with associated electrical noise. The PLC system shall have been tested to meet the requirements of NEMA Standard ICS 2-230 (Arc Test) and IEEE C37.90.1 (SWC). The processing unit shall perform the operations functionally described herein, based on the program stored in memory and the status of the inputs and outputs.
- K. The programmable controller shall be designed to operate in an industrial environment. The PLC shall operate in an ambient temperature range of 0°-60°C and a relative humidity of five to ninety-five percent (5% - 95%), non-condensing. The PLC shall operate on supply voltages of 90-132 VAC at 47-63 Hz, or 24 VDC if provided with a battery backup system. Overcurrent and under-voltage protection shall be provided on the power supply.
- L. System configuration shall be as shown on the Contract Drawings. PLC types shall be designated on the system block diagram and correspond to the specifications herein. Only a single type of processor shall be supplied for all PLCs of a designated type. Memory, processor and PLC type shall be adequate for all control functions specified
- M. The processor and its associated memory shall be enclosed in a modular component package. A multiple-position selector switch or equivalent shall be used to select processor operating mode. LED-type indicating lights shall be provided to indicate processor, memory and battery status. Errors in memory shall be recognized, and shall activate the memory error indicating lights. The PLC processor shall monitor the internal operation of the PLC for failure, and provide an alarm. Memory shall consist of battery-backed RAM or EEPROM, which shall retain the configuration, logic program and current operating parameters/addresses for at least one (1) year, in the event of power loss. Visual indication shall be provided if battery charge is insufficient to maintain the program in RAM memory for at least two (2) weeks.
- N. The instruction set for the PLC shall include the following, as a minimum.
1. Relay type instructions.
 2. Counter and timer instructions.
 3. Comparison instructions (equal, greater than, limit tests, etc.).
 4. Integer, long integer and floating point mathematical instructions.
 5. Advanced math and trigonometric functions.
 6. Matrix and array instructions.
 7. Logical instructions (and, not, or, etc.).
 8. Bit modification, moving and shift instructions.
 9. Diagnostic instructions.
 10. Sequencer instructions.

11. Program control instructions (jump, goto, subroutine, etc.).
 12. PID control loops.
 13. Block read and write capability.
 14. Master and slave communications capabilities.
 15. Immediate I/O and communications update instructions.
 16. Real-time clock and date.
- O. In addition to a port for communications as shown on the Contract Documents, additional communication ports shall be provided for any other devices as required (i.e., operator interface unit, connection to a laptop computer for programming and configuration.)

2.04 PLC TYPE

- A. The PLC furnished under this contract shall be provided as specified or shown in the Contract Documents, and shall meet but not be limited to the following requirements:
1. Two (2) 10/100 Mbps Ethernet IP communication ports, one (1) USB serial port.
 2. I/O Module Expansion Capacity: Up to sixteen (16) modules, not to include processor or power supply.
 3. One power supply for each I/O module bank.
 4. I/O modules shall be of a dedicated type, i.e. AI, AO, DI, DO.
 5. No mixed I/O modules shall be acceptable.
 6. 3MB of user memory, and 1GB SD memory card for memory backup.
- B. The PLC input/output hardware shall be modular DIN-rail mounted units mechanically locked together with a tongue and groove design. Modules shall include an integral communications bus that is connected from module to module with a moveable bus connector. Additional I/O module banks shall be connected with an expansion cable in a horizontal or vertical configuration, up to three banks, one local bank which includes the controller and two additional banks.
- C. Modules shall be placed to ensure adequate power supply voltage to all modules with a maximum of three (3) modules on the left of the power supply and eight (8) on the right side of the power supply, for the bank with the controller, and maximum of eight (8) modules on both sides of the power supply for additional I/O module banks.
- D. Power supply shall be compatible with the Allen Bradley PLC. Input shall be 120VAC and shall supply power to the PLC, Communication and I/O Modules. Shall be Allen-Bradley 1769-PA4. Provide redundant power supply module.
- E. PLCs shall be Allen Bradley CompactLogix, 5370 L3 Controller: Type-2 manufacturer number 1769-L36ERM.

2.05 PLC INPUTS/OUTPUTS

- A. Input/output hardware shall be either plug-in modules in associated I/O rack assemblies or add-on modules for remote station type PLCs. Each PLC within an enclosure shall handle the required number of process inputs and outputs, plus a minimum of ten percent (10%) pre-wired spares for each I/O type furnished except discrete inputs which shall have a minimum of twenty percent (20%) pre-wired spares, plus a minimum of twenty percent (20%) spare I/O rack expansion space for the addition of future circuit cards or modules, except as listed below.

1. Generator Building PLC Control Panel SP-030 shall include a minimum of fifty percent (50%) spare I/O rack expansion space for the addition of future circuit cards or modules.
- B. PLC input/output systems and processing modules shall be of the same model series. No third party manufacturer models will be accepted.
- C. Discrete inputs (DI) shall be 16-point module, 24VDC developed from dry field contacts, for Allen Bradley 1769-IQ16.
- D. Discrete outputs (DO) shall be 16-point, 120 VAC / 28 VDC 5A relay contact modules. Output contacts may be powered from the field equipment or powered from 24 VDC / 120 VAC sourced from PLC control panel's power system, as required to interface with field equipment. Outputs to solenoid valves shall be 120 VAC, powered from the PLC or control panel unless specified or shown otherwise. Provide interposing relays as required to meet dry contact rating. CompactLogix – 1769-OW16.
- E. Analog input (AI) circuits shall be isolated, 12-bit (minimum) resolution type. Analog input hardware shall be provided as required for all types of analog inputs being transmitted to the PLC. In general, analog input modules shall be capable of receiving 4-20 mA signals. Each input circuit shall have optical isolation to protect the equipment against high voltage transients. CompactLogix – 1769-IF4I.
- F. Analog outputs (AO) shall be coordinated with the receivers but shall generally be isolated 24 VDC, 4-20mA outputs powered from the PLC. Each output circuit shall have optical isolation to protect the equipment against high voltage transients. CompactLogix – 1769-OF4CI.
- G. Network interface modules shall be provided where specified to communicate with equipment and devices utilizing Modbus/TCP Protocol. The module shall include a single Ethernet port for diagnostic and application data. Communication module shall support Allen Bradley processors and occupy one (1) slot on the PLC backplane.
- H. Input/output modules shall be configured for ease of wiring and maintenance. The modules shall be connected to wiring arms which can be disconnected to permit removal of a module without disturbing field wiring. Covers shall be provided to prevent operator personnel from inadvertently touching the terminals. The process interface modules shall be provided with screw-type terminal blocks with barriers between adjacent terminals for connection of field inputs. Terminals shall be suitable for accepting up to and including No. #22...#12 AWG (0.2...4 mm²) wire.
- I. Output failure mode shall be selectable so that upon station or communication system failure, all outputs shall be placed in the non-conducting mode or remain as they were prior to failure. Light-emitting diodes shall be provided for status indication for each input and output point.
- J. Signal and control circuitry to individual input/output modules shall be arranged such that module failure shall not disable more than one half (½) of the control loops within any group of controlled equipment (e.g., one pump out of a group of three pumps, two pumps out of four, etc.). Where possible, individual control loops and equipment shall be assigned to individual modules such that failure of the module will disable only one (1) loop or piece of equipment.

2.06 PLC PROGRAMMING SOFTWARE

- A. The PLC programming and configuration software shall be the manufacturer's latest version. The software package shall consist of all programming, configuration, and documentation software needed to place the control and information system in satisfactory operation. The software shall allow on-line and off-line program development and documentation. Programming shall be accomplished through the use of ladder logic. PLC programming software shall include CD-ROM documentation.
- B. The existing VTScada License for the City of Ormond Beach Water is a 25,000 I/O tag system with unlimited Clients. Control Systems Integrator (CSI) shall coordinate with City IT staff as needed for the addition of all new and modified I/O points into the City's VTSCADA system. Control System Integrator shall be ultimately responsible for the programming and implementation of all SCADA system modifications.
- C. All software licensing, support contracts, etc., shall be registered to the City of Ormond Beach, Florida. The particular contact person and address shall be coordinated with the OWNER prior to purchasing of any equipment or software.

2.07 OPERATOR INTERFACE TERMINAL (OIT)

- A. Operator Interface Terminal (OIT) shall be provided as specified herein and shown on drawings.
- B. The OIT shall be an industrial panel PC, with 19" LCD touchscreen supporting 1920 x1080 resolution (minimum), 1.7GHz processor (minimum), 8GB DDR3 SODIMM, 160GB SSD and two (2) open PCI slots. The OIT shall have two (2) RJ45 Ethernet (10/100/1000 Mbps) network ports, one (1) RS-232/422/285 port, three (3) USB 2.0 ports and one (1) USB 3.0 port.
- C. Input power for OIT shall be 24VDC.
- D. OIT operating system shall be MS Windows 10 IoT Enterprise64-bit, including latest service packs.
- E. The OIT shall be manufactured by Phoenix Contact, VL2 PPC 3000 Industrial Panel PC, Model 2400498/D37/A20/I35/R26/RD00/M57/M00/OS71/T00/S00/EF09/PS01.

2.08 INDUSTRIAL ETHERNET SWITCH, UNMANAGED

- A. Provide an industrial, DIN rail mount type unmanaged Ethernet switch inside the PLC cabinet, as required, for communications over the plant Ethernet network. Refer to the design drawings for specific instances of utilization.
- B. The switch shall provide a minimum of six (6) copper Ethernet 10/100 RJ-45 network ports, where each port includes an LED light to indicate communication activity and data rate. The switch shall also provide a minimum of two (2) FO Ports. Coordinate port format with City.
- C. Input voltage shall be 10-30 VDC, with temperature range of minus 40 to 75 degrees C.
- D. Redundant power supply capable with local (LED) and remote (dry contact) alarm to indicate failure of one or both power supplies.
- E. Switch shall be Phoenix Contact FL Switch SFNT 6TX/2FX (2891314), or approved equal.

2.09 UNINTERRUPTIBLE POWER SUPPLY (UPS)

- A. UPS units shall be line interactive units, provided for new PLC control panels as specified herein or shown elsewhere within the Contract Documents.
- B. The capacity of each UPS shall be sized to support the maximum power requirements of the equipment intended to be connected to it, plus twenty (20) percent spare capacity, and to maintain this combined load for a minimum of forty (40) minutes following loss of primary power.
- C. UPS units provided for PLC cabinets shall be provided with dry contact outputs to indicate UPS failure and UPS low battery condition. UPS alarm outputs shall be wired into the PLC I/O to represent UPS status.
- D. Where located in a control or PLC enclosure, the UPS shall be located at the bottom of the enclosure but mounted on a raised shelf or platform.
- E. Provide a network interface card for alarms, network management support and power management over Modbus TCP protocol. The interface card shall be configured and connected to the network switch at each location.
- F. Each UPS shall meet the following requirements:
 - 1. Input voltage shall be 120 VAC, single phase, 60 Hz.
 - 2. Operating temperature range shall be 0 to 40 degree C.
 - 3. Voltage regulation shall be plus or minus five percent (+/-5%) for line and load changes.
 - 4. The output frequency shall be phase-locked to the input AC line on AC operation and shall be 60 hertz (+/-0.5%) when on battery operation.
 - 5. The batteries shall be replaceable and of the sealed, lead acid or lead calcium gelled electrolyte type, suitable for high temperatures.
Note - Where UPS is to be installed inside a non-ventilated cabinet, batteries and/or UPS system shall be rated for such application.
 - 6. Sound absorbing enclosure.
 - 7. EMI/RF noise filtering.
 - 8. Surge protection shall be provided on the AC input circuit, which shall have a UL SPD clamping voltage rating of 400 V with a <5 ns response time.
- G. UPS systems shall be Eaton or approved equal.

2.010 TOOLS, SUPPLIES, AND SPARE PARTS

- A. Tools, supplies, and spare parts shall be provided as specified in Section 13100: Instrumentation and Control, General Requirements and as specified for each equipment item. In addition, the following items shall be provided:
 - 1. One (1) of each type of panel mounted device (i.e., indicators, signal converters, etc.) provided under this Contract (excluding OIT).
 - 2. Three (3) of each type of interposing relay provided under this Contract.
 - 3. One (1) of each type of power SPD device used.
 - 4. Five (5) of each type of signal SPD device used.
 - 5. Two (2) of each type of communication SPD device used.

6. One (1) of each type of power supply used.
7. One year supply of corrosion-inhibiting vapor capsules.

PART 3 – EXECUTION

3.01 REQUIREMENTS

- A. In addition to the requirements specified in this section, refer to Section 13100: Instrumentation and Control, General Requirements.
- B. Floor and concrete equipment pad mounted enclosures shall be installed on 1/4 inch thick rubber mat. Mats shall be sized to completely cover the base of the enclosure.
- C. Keep enclosures clean at all times. Keep enclosure doors closed except when actually working in the enclosure. Protect all equipment during installation, including hole punching for conduit connection. Remove all filings and thread cuttings from enclosures. Careful attention must be paid to provide installations which are both functional and esthetically acceptable.
- D. All conduits used in conjunction with control panels or instrumentation of any kind shall be sealed using a suitable duct-sealing compound to minimize the possible damage caused by vapors or wetness. It shall be the responsibility of the CSI to verify that this is accomplished early in the project, so that corrosion damage does not occur during the time of construction.
- E. The CONTRACTOR shall provide the ENGINEER a periodic written report detailing construction progress. This report shall include specific tabulations of equipment on which construction/installation has been completed.
- F. Equipment shall be located so that it is accessible for operation and maintenance. The CSI shall examine the Contract Drawings and Shop Drawings for various items of equipment in order to determine the best arrangement for the work as a whole and shall supervise the installation of all equipment.

3.02 WIRING AND GROUNDING

- A. The following wiring practice guidelines shall be used in order to minimize ground loops, minimize the effects of electromagnetic interference/radio frequency interference (EMI/RFI) and to provide maximum practical immunity from damage resulting from lightning-induced transients.
- B. Common wires or conductors shall not be utilized (either within panels or external to panels, or for grounding of field devices) for signal shielding, signal grounding, or safety grounds.
- C. Exposed wire lengths extending from within shielded signal cables shall be minimized to reduce pick-up of EMI/RFI by signal circuits. Exposed lengths of less than one inch is preferred with a maximum exposed length of 2 inches only permitted where necessary. No splicing of signal wires shall be permitted.
- D. The shield on each process instrumentation cable shall be continuous from source to destination and grounded at one end only. In general, grounding of signal cable shields shall be done at the control panel end. No signal cable shall share a common cable shield grounding wire with any other signal cable or other circuit. The exposed length of cable

shield grounding wires shall not exceed two inches prior to termination with less than one-inch maximum length preferred.

- E. All outdoor instruments and all outdoor enclosures shall be grounded using the practice defined in Section 800.100 of the National Electric Code.

END OF SECTION

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

AERATION PLC CONTROL PANEL (SP-020)
13130 ATTACHMENT A -- PLC INPUT/OUTPUT SCHEDULE

TAG NAME	DESCRIPTION	TYPE	INACTIVE	ACTIVE	UNITS
FIT-010	SOUTH RAW WATER AERATION TANK INFLUENT FLOW	AI	0	XXX	GPM
FIT-020	NORTH RAW WATER AERATION TANK INFLUENT FLOW	AI	0	XXX	GPM
LSHH-100	AERATOR CONTACT CHAMBER WET WELL HIGH HIGH LEVEL	DI	NORMAL	ALARM	
LIT-100	AERATOR CONTACT CHAMBER WET WELL LEVEL	AI	0	XXX	FT
HS-110	AERATOR BLOWER NO. 1 RVSS CALL TO RUN	DO	OFF	ON	
PB-110	AERATOR BLOWER NO. 1 RVSS RESET COMMAND	DO	OFF	RESET	
OA-110-1	AERATOR BLOWER NO. 1 RVSS FAULT STATUS	DI	NORMAL	ALARM	
OA-110-2	AERATOR BLOWER NO. 1 MOTOR HIGH TEMP	DI	NORMAL	ALARM	
OL-110-1	AERATOR BLOWER NO. 1 RVSS IN REMOTE	DI	OFF	REMOTE	
OL-110-2	AERATOR BLOWER NO. 1 RVSS RUN STATUS	DI	OFF	ON	
HS-120	AERATOR BLOWER NO. 2 RVSS CALL TO RUN	DO	OFF	ON	
PB-120	AERATOR BLOWER NO. 2 RVSS RESET COMMAND	DO	OFF	RESET	
OA-120-1	AERATOR BLOWER NO. 2 RVSS FAULT STATUS	DI	NORMAL	ALARM	
OA-120-2	AERATOR BLOWER NO. 2 MOTOR HIGH TEMP	DI	NORMAL	ALARM	
OL-120-1	AERATOR BLOWER NO. 2 RVSS IN REMOTE	DI	OFF	REMOTE	
OL-120-2	AERATOR BLOWER NO.2 RVSS RUN STATUS	DI	OFF	ON	
SC-130	AERATION TRANSFER PUMP NO. 1 VFD SPEED CONTROL	AO	0	100	%
SI-130	AERATION TRANSFER PUMP NO. 1 VFD SPEED FEEDBACK	AI	0	100	%
HS-130	AERATION TRANSFER PUMP NO. 1 VFD CALL TO RUN	DO	STOP	START	
PB-130	AERATION TRANSFER PUMP NO. 1 VFD RESET COMMAND	DO	OFF	RESET	
OA-130-1	AERATION TRANSFER PUMP NO. 1 VFD FAULT STATUS	DI	NORMAL	ALARM	
OA-130-2	AERATION TRANSFER PUMP NO. 1 MOTOR HIGH TEMP	DI	NORMAL	ALARM	
OA-130-3	AERATION TRANSFER PUMP NO. 1 CHECK VALVE FAIL TO OPEN	DI	NORMAL	ALARM	
OA-130-4	AERATION TRANSFER PUMP NO. 1 HIGH LEVEL	DI	NORMAL	ALARM	
OL-130-1	AERATION TRANSFER PUMP NO. 1 VFD IN REMOTE	DI	OFF	REMOTE	
OL-130-2	AERATION TRANSFER PUMP NO. 1 VFD RUN STATUS	DI	OFF	ON	
HS-131-1	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE OPEN COMMAND	DO	OFF	OPEN	
HS-131-2	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE STOP COMMAND	DO	OFF	STOP	
HS-131-3	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE CLOSE COMMAND	DO	OFF	CLOSE	
OA-131	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE FAULT STATUS	DI	NORMAL	ALARM	
OL-131-1	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE OPENED STATUS	DI	OFF	OPEN	

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

AERATION PLC CONTROL PANEL (SP-020)
13130 ATTACHMENT A -- PLC INPUT/OUTPUT SCHEDULE

TAG NAME	DESCRIPTION	TYPE	INACTIVE	ACTIVE	UNITS
OL-131-2	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE CLOSED STATUS	DI	OFF	CLOSED	
OL-131-3	AERATION TRANSFER PUMP NO. 1 ISOLATION VALVE REMOTE STATUS	DI	OFF	REMOTE	
SC-140	AERATION TRANSFER PUMP NO. 2 VFD SPEED CONTROL	AO	0	100	%
SI-140	AERATION TRANSFER PUMP NO. 2 VFD SPEED FEEDBACK	AI	0	100	%
HS-140	AERATION TRANSFER PUMP NO. 2 VFD CALL TO RUN	DO	STOP	START	
PB-140	AERATION TRANSFER PUMP NO. 2 VFD RESET COMMAND	DO	OFF	RESET	
OA-140-1	AERATION TRANSFER PUMP NO. 2 VFD FAULT STATUS	DI	NORMAL	ALARM	
OA-140-2	AERATION TRANSFER PUMP NO. 2 MOTOR HIGH TEMP	DI	NORMAL	ALARM	
OA-140-3	AERATION TRANSFER PUMP NO. 2 CHECK VALVE FAIL TO OPEN	DI	NORMAL	ALARM	
OA-140-4	AERATION TRANSFER PUMP NO. 2 HIGH LEVEL	DI	NORMAL	ALARM	
OL-140-1	AERATION TRANSFER PUMP NO. 2 VFD IN REMOTE	DI	OFF	REMOTE	
OL-140-2	AERATION TRANSFER PUMP NO. 2 VFD RUN STATUS	DI	OFF	ON	
HS-141-1	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE OPEN COMMAND	DO	OFF	OPEN	
HS-141-2	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE STOP COMMAND	DO	OFF	STOP	
HS-141-3	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE CLOSE COMMAND	DO	OFF	CLOSE	
OA-141	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE FAULT STATUS	DI	NORMAL	ALARM	
OL-141-1	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE OPENED STATUS	DI	OFF	OPEN	
OL-141-2	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE CLOSED STATUS	DI	OFF	CLOSED	
OL-141-3	AERATION TRANSFER PUMP NO. 2 ISOLATION VALVE REMOTE STATUS	DI	OFF	REMOTE	
SC-150	AERATION TRANSFER PUMP NO. 3 VFD SPEED CONTROL	AO	0	100	%
SI-150	AERATION TRANSFER PUMP NO. 3 VFD SPEED FEEDBACK	AI	0	100	%
HS-150	AERATION TRANSFER PUMP NO. 3 VFD CALL TO RUN	DO	STOP	START	
PB-150	AERATION TRANSFER PUMP NO. 3 VFD RESET COMMAND	DO	OFF	RESET	
OA-150-1	AERATION TRANSFER PUMP NO. 3 VFD FAULT STATUS	DI	NORMAL	ALARM	
OA-150-2	AERATION TRANSFER PUMP NO. 3 MOTOR HIGH TEMP	DI	NORMAL	ALARM	
OA-150-3	AERATION TRANSFER PUMP NO. 3 CHECK VALVE FAIL TO OPEN	DI	NORMAL	ALARM	
OL-150-1	AERATION TRANSFER PUMP NO. 3 VFD IN REMOTE	DI	OFF	REMOTE	
OL-150-2	AERATION TRANSFER PUMP NO. 3 VFD RUN STATUS	DI	OFF	ON	
HS-151-1	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE OPEN COMMAND	DO	OFF	OPEN	
HS-151-2	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE STOP COMMAND	DO	OFF	STOP	
HS-151-3	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE CLOSE COMMAND	DO	OFF	CLOSE	

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

AERATION PLC CONTROL PANEL (SP-020)
13130 ATTACHMENT A -- PLC INPUT/OUTPUT SCHEDULE

TAG NAME	DESCRIPTION	TYPE	INACTIVE	ACTIVE	UNITS
OA-151	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE FAULT STATUS	DI	NORMAL	ALARM	
OL-151-1	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE OPENED STATUS	DI	OFF	OPEN	
OL-151-2	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE CLOSED STATUS	DI	OFF	CLOSED	
OL-151-3	AERATION TRANSFER PUMP NO. 3 ISOLATION VALVE REMOTE STATUS	DI	OFF	REMOTE	
FIT-210	CLARICONE NO. 1 INFLUENT FLOW	AI	0	XXX	GPM
FIT-220	CLARICONE NO. 2 INFLUENT FLOW	AI	0	XXX	GPM
TAH-330	SP-020 HIGH TEMPERATURE ALARM	DI	NORMAL	ALARM	
OA-350-1B	SP-020 UPS LOW BATTERY ALARM	DI	NORMAL	ALARM	
OA-3502B	SP-020 UPS FAILURE ALARM	DI	NORMAL	ALARM	
OA-360B	SP-020 24VDC POWER SUPPLY FAILURE ALARM	DI	NORMAL	ALARM	
OA-370-1B	SP-020 ANALOG SURGE ARRESTOR COMMON WARNING	DI	NORMAL	ALARM	
OA-370-2B	SP-020 ANALOG SURGE ARRESTOR COMMON ALARM	DI	NORMAL	ALARM	
OA-370-3B	SP-020 DIGITAL SURGE ARRESTOR COMMON ALARM	DI	NORMAL	ALARM	
OA-380	SP-020 ETHERNET SWITCH COMMON ALARM	DI	NORMAL	ALARM	

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

GENERATOR BUILDING CONTROL PANEL (SP-030)
13130 ATTACHMENT B -- PLC INPUT/OUTPUT SCHEDULE

TAG NAME	DESCRIPTION	TYPE	INACTIVE	ACTIVE	UNITS
LC-300	RECARBONATION TANK PRESSURE SUSTAINING VALVE TANK LEVEL SET POINT	AO	0	XXX	FT
LI-300	RECARBONATION TANK PRESSURE SUSTAINING VALVE TANK LEVEL FEEDBACK	AI	0	XXX	FT
FI-300	RECARBONATION TANK PRESSURE SUSTAINING VALVE FLOW FEEDBACK	AI	0	XXX	GPM
HS-300-1	RECARBONATION TANK PRESSURE SUSTAINING VALVE CLOSE COMMAND	DO	OFF	CLOSE	
HS-300-2	RECARBONATION TANK PRESSURE SUSTAINING VALVE IN AUTO STATUS	DI	ALARM	NORMAL	
OA-300	RECARBONATION TANK PRESSURE SUSTAINING VALVE FAULT STATUS	DI	NORMAL	ALARM	
HS-310-1	RECARBONATION TANK ISOLATION VALVE OPEN COMMAND	DO	OFF	OPEN	
HS-310-2	RECARBONATION TANK ISOLATION VALVE STOP COMMAND	DO	OFF	STOP	
HS-310-3	RECARBONATION TANK ISOLATION VALVE CLOSE COMMAND	DO	OFF	CLOSE	
PB-310	RECARBONATION TANK ISOLATION VALVE RESET COMMAND	DO	OFF	RESET	
OA-310	RECARBONATION TANK ISOLATION VALVE FAULT STATUS	DI	NORMAL	ALARM	
OL-310-1	RECARBONATION TANK ISOLATION VALVE OPENED STATUS	DI	OFF	OPEN	
OL-310-2	RECARBONATION TANK ISOLATION VALVE CLOSED STATUS	DI	OFF	CLOSED	
OL-310-3	RECARBONATION TANK ISOLATION VALVE IN REMOTE	DI	OFF	REMOTE	
HS-320-1	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 OPEN COMMAND	DO	OFF	OPEN	
HS-320-2	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 STOP COMMAND	DO	OFF	STOP	
HS-320-3	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 CLOSE COMMAND	DO	OFF	CLOSE	
PB-320	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 RESET COMMAND	DO	OFF	RESET	
OA-320	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 FAULT STATUS	DI	NORMAL	ALARM	
OL-320-1	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 OPENED STATUS	DI	OFF	OPEN	
OL-320-2	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 CLOSED STATUS	DI	OFF	CLOSED	
OL-320-3	DISTRIBUTION BOX ISOLATION VALVE TO FILTERS 1-4 IN REMOTE	DI	OFF	REMOTE	
PAH-401	AMMONIA GAS FEED LINE VACUUM SWITCH 1 HIGH PRESSURE ALARM	DI	NORMAL	ALARM	
PAL-401	AMMONIA GAS FEED LINE VACUUM SWITCH 1 LOW PRESSURE ALARM	DI	NORMAL	ALARM	
PAH-402	AMMONIA GAS FEED LINE VACUUM SWITCH 2 HIGH PRESSURE ALARM	DI	NORMAL	ALARM	
PAL-402	AMMONIA GAS FEED LINE VACUUM SWITCH 2 LOW PRESSURE ALARM	DI	NORMAL	ALARM	
FC-410	AMMONIATOR 1 GAS FLOW PACING COMMAND	AO	0	XXX	
FI-410	AMMONIATOR 1 GAS FLOW PACING FEEDBACK	AI	0	XXX	
HS-410	AMMONIATOR 1 RUN COMMAND	DO	OFF	RUN	
OA-410	AMMONIATOR 1 FAULT STATUS	DI	NORMAL	ALARM	
OL-410	AMMONIATOR 1 IN AUTO STATUS	DI	OFF	AUTO	

2022 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF ORMOND BEACH, FLORIDA

GENERATOR BUILDING CONTROL PANEL (SP-030)
13130 ATTACHMENT B -- PLC INPUT/OUTPUT SCHEDULE

TAG NAME	DESCRIPTION	TYPE	INACTIVE	ACTIVE	UNITS
FC-420	AMMONIATOR 2 GAS FLOW PACING COMMAND	AO	0	XXX	
FI-420	AMMONIATOR 2 GAS FLOW PACING FEEDBACK	AI	0	XXX	
HS-420	AMMONIATOR 2 RUN COMMAND	DO	OFF	RUN	
OA-420	AMMONIATOR 2 FAULT STATUS	DI	NORMAL	ALARM	
OL-420	AMMONIATOR 2 IN AUTO STATUS	DI	OFF	AUTO	
TAH-330	SP-030 HIGH TEMPERATURE ALARM	DI	NORMAL	ALARM	
OA-350-1B	SP-030 UPS LOW BATTERY ALARM	DI	NORMAL	ALARM	
OA-3502B	SP-030 UPS FAILURE ALARM	DI	NORMAL	ALARM	
OA-360B	SP-030 24VDC POWER SUPPLY FAILURE ALARM	DI	NORMAL	ALARM	
OA-370-1B	SP-030 ANALOG SURGE ARRESTOR COMMON WARNING	DI	NORMAL	ALARM	
OA-370-2B	SP-030 ANALOG SURGE ARRESTOR COMMON ALARM	DI	NORMAL	ALARM	
OA-370-3B	SP-030 DIGITAL SURGE ARRESTOR COMMON ALARM	DI	NORMAL	ALARM	
OA-380	SP-030 ETHERNET SWITCH COMMON ALARM	DI	NORMAL	ALARM	

SECTION 13360 – I&C FIBER OPTIC COMMUNICATION SYSTEMS

PART 1 – GENERAL

1.01 GENERAL

- A. The Control System Integrator (CSI) shall provide additions and modifications to the existing fiber optic communications system for the transmission of SCADA related and other network communications through the facility, as noted in the project herein and the project drawings.
- B. The CSI shall provide an approved professional Fiber Optic Cable System Installer to have total system responsibility for all installation, termination, testing, and commissioning of the fiber optic systems as indicated in the contract drawings and described herein.
- C. As an alternative, the CSI can request the self-performance of the fiber optic system provided that the requirements of training, certification and compliance with the specifications can be demonstrated.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. The CSI shall coordinate the work of this section as it relates to other sections of the specification. Particularly:
 - 1. 13100 – I&C GENERAL REQUIREMENTS
- B. The Instrumentation drawings and Attachment A of section 13130 provide a summary of the inputs and outputs, both discrete and analog, which shall be included for the PLC and in the SCADA system implementation.

1.03 SUBMITTALS

- A. The Fiber Optic Communication Submittal shall be in accordance with Division 1 and as specified in Section 13100 – Instrumentation and Control, General Requirements.

1.04 DESCRIPTION OF WORK

- A. The CSI shall provide all equipment, materials, labor, installation, troubleshooting, testing, and training, required to provide for all fiber optic communications links as shown in the contract drawings and as described herein.
- B. Installed cable shall follow routes as shown on Contract Drawings and shall be terminated as directed.

1.05 QUALITY ASSURANCE

- A. The CSI shall select and oversee the services of an appropriate, well established, contracting firm, which is experienced in all facets of fiber-optic cable installation.
- B. This subcontractor, designated herein as the Fiber Optic Installer, shall provide installation technicians who are trained, experienced, qualified, and who shall provide all of the appropriate installation, termination, testing, and maintenance of the fiber optic

communications medium and appurtenances. These technicians shall install the cable and related equipment in accordance with the best-recommended standards and practices of the manufacturer and the fiber-optic cable industry.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. The fiber optic cable system as specified herein, as specified in related sections and as shown on the Contract Drawings depicts overall system configuration requirements. Adjustments shall be made as needed to support the installation requirements and provide a fully functional fiber optic communications system.
- B. The Contractor shall provide all cable, hardware, hand holes, vaults, patch panels, etc. with the approval of the Owner and Engineer. Approval of equipment and locations shall be obtained prior to purchasing or installation of any equipment.

2.02 FIBER OPTIC CABLE – OUTDOOR INSTALLATION

- A. Fiber optic cable shall be heavy-duty, flame-retardant, UV-resistance, gel-free, multi-fiber, water-blocked, loose tube, distribution style cable designed for high tensile strength and durability. Cable shall be designed for installation in buried duct, aerial, and outdoor environments
- B. Cable shall be suitable for installation with a rated pull strength capability in excess of 200 lb. The CSI shall use procedures, measurements and precautions so that no more than 50% of the maximum rated pull strength capability of the cable is ever applied during any point in the installation procedure.
- C. Cable shall be suitable for installation with a minimum bend radius installation of 6.2 inches for a maximum fiber count of 12 strands or as shown on the contract drawings. The contractor shall use procedures, measurements and precautions so that the cable is never exposed to a bend radius of greater than that specified by the manufacturer during any point in the installation procedure.
- D. Jacketing shall be Polyethylene, providing high abrasion and cut-through resistance. Outer jacket shall be flame-retardant, UV-resistant stabilized for outdoor use and overall ruggedness. Jackets shall have low friction resistance and high strength so that long pulls will not cause damage.
- E. Cable shall be rated and approved for building interior and plenum installations.
- F. Fibers shall have a 62.5-micron core, with a 0.275 numerical aperture. Multimode fiber shall utilize low loss core, with a typical maximum attenuation of 3.4 dB/km @850 nm.
- G. Fibers shall have a glass core, surrounded by a layer of glass cladding. Core and cladding shall be buffered to 900-microns.
- H. Cable shall have Kevlar ripcord, inner and outer jacket, with gel-free water-blocking materials that swell to absorb water to protect against water penetration.
- I. All cable elements shall be helically stranded, with a lay length not to exceed 30 times the finished cable diameter.

- J. All strands of each cable shall be individually color-coded.
- K. Cables shall have a minimum of twelve (12) fibers or as shown on Contract Drawings.
- L. Fiber-optic cable shall be as supplied by Corning Altos cables, Optical Cable Corporation, or approved equal.

2.03 FIBER OPTIC CABLE – INDOOR INSTALLATION

- A. Fiber optic cable shall be dielectric armor, flame-retardant, crush-resistant, multi-fiber, tight-buffer, distribution style cable designed for high tensile strength and durability. Cable shall be designed for installation indoor environments.
- B. Cable shall be suitable for installation with a rated pull strength capability in excess of 100 lbs. The CSI shall use procedures, measurements and precautions so that no more than 50% of the maximum rated pull strength capability of the cable is ever applied during any point in the installation procedure.
- C. Cable shall be suitable for installation with a minimum bend radius of 6.2 inches for a maximum fiber count of 6. The contractor shall use procedures, measurements and precautions so that the cable is never exposed to a bend radius greater than that specified by the manufacturer during any point in the installation procedure.
- D. Jacketing shall be PVC, providing flexibility and crush resistance. The outer jacket shall be flame-retardant. Jackets shall have low friction resistance and high strength so that long pulls will not cause damage.
- E. Cable shall be rated and approved for building interior and plenum installations.
- F. Fibers shall have a 62.5-micron core, with a 0.275 numerical aperture. Multimode fiber shall utilize low loss core, with a typical maximum attenuation of 3.4 dB/km @850 nm.
- G. Fibers shall have a glass core, surrounded by a layer of glass cladding. Core and cladding shall be buffered to 900-microns.
- H. All strands of each cable shall be individually color-coded.
- I. Cables shall have a minimum of six (6) fibers or as shown on Contract Drawings.
- J. Fiber-optic cable shall be as supplied by Corning MIC DX Tight-Buffered Armored cables, Optical Cable Corporation, or approved equal.

2.04 FIBER OPTIC PATCH PANELS, GENERAL

- A. Patch Panels supplied shall consist of the following:
 - 1. Each patch panel shall have termination plates or slide-hinged faceplate installed, with sufficient termination connectors for the application. Termination plates and slide-hinged faceplates shall have SC-style connectors. Connectors are to remain individually booted until used.

B. Cable and Termination Landing.

1. Provide documentation listing: termination number, cable number, fiber strand color, and destination description.
2. Documentation sheet shall be laminated in clear plastic.
3. Documentation sheet shall be securely attached using appropriate adhesive, no screws shall be allowed.
4. For building/structure interior installations, documentation sheet shall be secured to patch panel interior door or control panel enclosure where the patch panel is installed in.

2.05 FIBER OPTIC PATCH PANEL, TYPE 1

- A. Provide and install patch panels inside the PLC control panel. Patch panels shall be suitably sized to accommodate the fiber optic cable requirements while providing protection to fiber strands and terminations.
- B. Patch panels shall have provisions for future cable installations and a minimum of twenty-four (24) terminations. Provide SC connection termination panel inserts for all fiber strands.
- C. The fiber optic patch panel(s) shall be manufactured by Corning, Model WCH-02P, Fiber Instrument Sales, Inc., Model F1-EW24 or approved equal.

2.06 FIBER OPTIC PATCH PANEL, TYPE 2

- A. Provide and install patch panels external to the PLC control panel. Mount patch panel within an enclosure suitable for the environment and adequate to manipulate fiber cables and strands without damage.
- B. Patch panels shall have provisions for future cable installation and a minimum of seventy-two (72) terminations. Provide SC connection termination panel inserts for all finer strands.
- C. The fiber optic patch panel(s) shall be manufactured by Corning, Model WCH-06P with Hoffman CSD242410 enclosure or approved equal.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION

- A. The Contractor shall provide all labor, materials, equipment, and expertise required to carry out the installation, calibration, termination, testing and start-up of all cables, connectors, patch panels and related equipment, in a manner in keeping with the best standard practices available and in accordance with the manufacturer's recommendations.
- B. Where cable must be routed above ground, install cable in conduit. Conduit shall be as specified in the electrical sections of these specifications.
- C. Where cable must pass under existing slab or paving to gain access to structures, install cable in conduit. Conduit shall extend a minimum of three (3) feet beyond the existing slab or paving and shall be terminated in an appropriate pull box.

- D. Existing slab or paving may be cut to facilitate the installation of conduit and cable. However, all modifications to existing slab or paving and structures shall be patched and repaired in accordance with the other sections of this specification.
- E. Careful attention should be paid to provide installations at each location, which are both functional and aesthetically acceptable.
- F. Provide pre-manufactured fiber optic patch cords at each fiber optic patch panel, as specified on the Contract Drawings or a minimum of (6) six per patch panel. Patch cords shall be; multi-mode fiber, compatible with the installed fiber optic cable, dual channel, and terminated with SC-style connectors. Length shall be six (6) feet or as needed to provide the connection to transmission components.
- G. All strands of each cable installed shall be terminated and connected to a patch panel connector.
- H. All fiber optic patch panel connectors and patch cord termination connectors that are not used shall be booted and secured to prevent contamination or damage.
- I. All work shall be scheduled in accordance with the Owner's staff, to minimize down time of any system. All modifications to existing and proposed systems shall be carefully documented and included in the as-built documentation to be delivered at the end of the project.

3.02 CABLE ROUTE AND CONTINUITY

- A. Fiber optic cable shall be installed un-broken and un-spliced for the entire distance from one designated termination point to the next, unless otherwise noted. The designated termination points shall be as shown on the Contract Drawings and/or listed in these specifications.
- B. Where the cable run length exceeds the maximum continuous on-roll length available from the cable manufacturer, the installed cable may be spliced. In this circumstance, the Contractor shall notify the Engineer, in writing, before proceeding with the installation of the run.
- C. All cables shall be fully tested after installation and the cable system loss shall not exceed the theoretically calculated optical budget.
- D. Each installed cable shall be terminated in a fiber optic patch panel. Every strand of each cable entering a patch panel shall be terminated and connected.

3.03 FIBER AND TERMINATION TESTING

- A. Terminations shall be made in a manner in keeping with the recommended practices of the fiber optic cable manufacturer.
- B. All terminations shall be neatly and properly made, tested and immediately booted, or placed in their final termination, so that they are fully protected from damage. Each fiber, including those designated as spares, shall be terminated and tested.
- C. All cables entering patch panel, and all patch panel termination connectors, shall be clearly marked to indicate their respective routing.

- D. The technician(s) who are designated to perform the termination and testing, shall be fully familiar, trained, and qualified to service the items which are being provided.
- E. Accurate and appropriate test equipment, and industry standard test procedures shall be used to demonstrate that the cabling and associated equipment operate within the expected tolerance of accuracy. The operation shall be verified at various points throughout the designed operating range. Fiber testing shall be in accordance with TIA/EIA 568, latest edition, minimum.
- F. All finished cables shall be fully tested under actual loading conditions, utilizing a light source and calibrated power meter, or OTDR. The theoretical power loss for the cable system, including all terminating connectors, shall be calculated and compared to the actual field measurements. Any significant visual defects or any power loss in excess of 2 dB over the theoretical calculation shall be reason to fail the test.
- G. Failed terminators shall be cut off and re-terminated. If any fiber of a cable fails, the entire cable shall be replaced in its full length, to the next termination point.
- H. The Owner's Project Representative shall be given the opportunity to witness the testing. The notice shall be in writing and shall be delivered a minimum of three (3) days in advance of the testing.
- I. A written, dated, report shall be prepared by the technician for each fiber test, troubleshooting, or maintenance event, which identifies the fiber serviced, defines procedures, describes the results of the testing including measured values, identifies witnesses, and provides conclusions. The report shall contain OTDR Trace Report which includes a graph of the signal over a distance for each fiber run. Each test report, as a minimum, shall include a table which includes columns each with the following information:
 - 1. Test Date
 - 2. Cable ID
 - 3. Fiber Number
 - 4. Wavelength (nm)
 - 5. Quantity of Connectors
 - 6. Beginning of Fiber Testing Location
 - 7. End of Fiber Testing Location
 - 8. A-B Distance (Meters)
 - 9. Actual A-B Loss (dB)
 - 10. Max Attenuation (dB/km) @ 850/1300 nm
 - 11. Calculated A-B Loss
 - 12. Splice Loss
 - 13. Pass or Fail

The report shall also include the serial number and calibration number, for all equipment used in performing the testing.
- J. All reports shall be distributed to the Owner's Project Representative, and a copy shall be kept on-site for the duration of the project for reference. Copies of all reports shall be included in the final O&M manual.
- K. Final signed test reports, indicating successful testing, for each fiber, of every cable, shall be delivered to the Engineer and Owner for review, before final completion will be approved.

3.04 TRAINING AND MAINTENANCE EQUIPMENT

- A. TRAINING: The Fiber Optic Installer shall provide training, to the OWNER's designated maintenance staff, on the installation, operation, maintenance, and troubleshooting, of the fiber optic system.
 - 1. The classes shall include but not be limited to the following:
 - a. Installing SC connectors on fibers
 - b. Calculation of optical budgets
 - c. Testing fibers cable strands
 - d. Installation techniques
 - e. Maintenance and troubleshooting
 - f. Field splicing and emergency repairs
- B. Course format shall be hands-on and shall include special emphasis on information and techniques particularly applicable to the respective project.
- C. Training shall be performed using the test and repair equipment which is to be provided to the Owner as part of the project.
- D. Training location shall be at the discretion of the Owner and shall be coordinated through the Owner's Project Representative.
- E. Courses shall be formally prepared, scheduled, and tailored to the appropriate personnel. Provide one (1) session of four (4) hour duration.

3.05 WARRANTY

- A. The CSI / Fiber Optic Installer shall provide a three (3) year warranty minimum. Warranty shall cover all parts, components, installations and system performance.

END OF SECTION

SECTION 14630 – BRIDGE CRANE SYSTEM

PART 1 - GENERAL

1.01 SCOPE

- A. The new 2-ton bridge crane system is intended to pick up/drop off the pumps and motors in the existing Aerator Pump Room.
- B. The new crane system shall be a complete installation above the crane rail, runway beams, runway beam supports shown on the design drawings. The new crane system shall include powered hoist, powered bridge, end trucks with a 2-ton hoist capacity.
- C. The new crane system shall adhere to the minimum clearances and lifting height shown on the design drawings.
- D. The crane electrification is to have a central power source along with control pendant/remote in accordance with applicable codes.

1.02 DESIGN REQUIREMENTS

- A. Codes and Standards: The Contractor shall comply with the following codes and standards unless specifically directed otherwise:
 - 1. AISC "Manual of Steel Construction Allowable Stress Design", Fourteenth Edition.
 - 2. AISC "Code of Standard Practice for Steel Buildings and Bridges.
 - 3. AISC "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts".
 - 4. AWS D1.1 "Structural Welding Code", Latest Edition.
 - 5. Florida Building Code (FBC), 2020 Edition.
- B. Performance Requirements: Design, fabricate, and erect the crane system to withstand loads from gravity, and structural movement, and resist in-service use without failure. Design members to withstand stresses resulting from combinations of loads that produce maximum allowable stresses.
- C. Design Live Loads: Lifted loads of crane system. The minimum hoist capacity for the crane system shall be 2-ton minimum.
- D. Design Dead Loads: Weight of the crane system.

1.03 SUBMITTALS

- A. The contractor shall submit the following for review and acceptance:
 - 1. Crane system layout: Include plan layout and vertical layout of crane system. Do not proceed with preparation of Shop Drawings or Fabrication prior to acceptance of this information.
 - 2. Structural Calculations: Include design criteria, referenced design codes and standards, structural member calculations and structural connection calculations.
 - 3. Product Data: Include manufacturer's product information for manufactured components of crane system.
 - 4. Shop Drawings: Provide shop drawings for manufactured components of crane system.

1.04 QUALITY ASSURANCE

Manufacturers services. A manufacturer's representative for the equipment specified shall be present at the jobsite for inspection, certification, testing, startup, and training.

PART 2 - PRODUCTS

2.01 Metals - Provide the following:

- A. Hot-Rolled Structural Steel Shapes: ASTM A36 or A529.
- B. Steel Tubing or Pipe: ASTM A500, Grade B, ASTM A501, or ASTM A53.
- C. Steel Members Fabricated from Plate or Bar Stock: ASTM A529, A570, or A572. Provide 42,000-psi minimum yield strength.
- D. Hot-Rolled Carbon Steel Sheet: ASTM A568 or ASTM A569.
- E. Structural Quality Zinc-Coated (Galvanized) Steel Sheet: ASTM A446 with G90 coating complying with ASTM A525.
- F. Bolts for Structural Framing: ASTM A307 or ASTM A325 as necessary for design loads and connection details.

2.02 Paint Materials: Comply with performance requirements of federal specifications indicated.

- A. Shop Primer for Ferrous Metal: Fast-curing, lead-free, universal primer. Comply with FS TT-P-645.
- B. Shop Primer for Galvanized Metal Surfaces: Zinc dust-zinc oxide primer. Comply with FS TT-P-641.

END OF SECTION

SECTION 15064 – STAINLESS STEEL PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials and installation of stainless steel pipe and fittings 30 inches in diameter and smaller conforming to ASTM A312.

1.02 SUBMITTALS

Submit shop drawings in accordance with Division 1 and the General Conditions.

PART 2 – MATERIALS

2.01 PIPE

- A. Pipe smaller than three (3) inches shall conform to ASTM A312, Grade TP 316L. Pipe 3 inches and larger shall conform to ASTM A312, Grade TP 316L.
- B. Pipe sizes and wall thicknesses shall conform to ASME B36.19 as follows unless noted otherwise in the drawings.

Pipe Size	Wall Thickness
All sizes	Schedule 40S

2.02 FITTINGS

- A. Fittings 3 inches and smaller shall be socket welded, conforming to ASME B16.11, 3,000-pound CWP. Material for socket welded fittings shall conform to ASTM A403, Class WP316L.
- B. Fittings for buried or submerged pipe larger than 3 inches through 24 inches shall be butt-welded, conforming to ASTM A403, Class WP, same material and wall thickness as the pipe, conforming to ASME 816.9. Elbows shall be long radius.
- C. Fittings for aboveground or exposed pipe larger than 3 inches through 24 inches shall be butt-welded, conforming to ASTM A403, Class WP, same material and wall thickness as the pipe, conforming to ASME B16.9. Elbows shall be long radius.
- D. Fittings for pipe larger than 24 inches shall conform to ASME 816.9. Material shall be the same as the pipe.
- E. Fabrication of stainless steel fittings 4 through 120 inches shall be in accordance with AWWA C226. Minimum wall thickness for fittings smaller than 12 inches shall be standard weight per ASME 836.19. Minimum wall thickness for fittings 12 inches and larger shall be the same as for the pipe cylinder. Additional reinforcement for fittings 42 inches and smaller at branches or openings shall be as determined by the procedure given in ASME 831.3, paragraph 304.3 and Appendix H.

2.03 PICKLING, PASSIVATING, AND FINAL CLEANING

Pipe and fittings shall be final cleaned, pickled, and passivated per ASTM A380. Passivation shall be the removal of exogenous (not inherent in the base metal) iron or iron compounds from the

surface of the stainless steel by means of a chemical dissolution, by a treatment with an acid solution that will completely remove the surface contamination but will not significantly affect the stainless steel itself. After final cleaning, wet surfaces with water and inspect for rust spots after 24 hours. Re-clean if there is any evidence of rusting.

2.04 QUALITY CONTROL

Include the "Hydrostatic Test" and "Flattening Test" requirements described in ASTM A999. A nondestructive electric test per ASTM A999 may be substituted for the hydrostatic test.

2.05 UNIONS

Unions shall be 3,000-pound WOG forged stainless steel, with dimensions conforming to MSS SP-83. Ends shall be socket-welded type. Material shall conform to ASTM A182, for threaded end Grade F316L for socket-welded type.

2.06 JOINTS

- A. Joints for pipes 3 inches and smaller shall be socket welded, same material as specified for fittings, 3,000-pound WOG, conforming to ASME 816.11.
- B. Joints for buried or submerged pipe larger than 3 inches shall be butt-welded.
- C. Joints for aboveground or exposed pipe larger than 3 inches shall be butt-welded.

2.07 OUTLETS AND NOZZLES

Outlets of size 3 inches and smaller in piping 4 inches and larger shall be of the Thredolet type, per MSS SP-97 and AWWA Manual M11 (1989 edition), Figure 13-23. Outlets shall be 3,000-pound WOG stainless steel per ASTM A403, Grade WP316L. Threads shall comply with ASME 81.20.1. Outlets shall be Bonney Forge Co. "Thredolet," Allied Piping Products Co. "Branchlet," or equal.

2.08 THREAD LUBRICANTS

Use Teflon thread lubricating compound or Teflon tape.

2.09 FLANGES

- A. Provide weld-neck flanges (conforming to ASME B16.5) for piping 3 inches and smaller to connect to flanged valves, fittings, or equipment. Provide weld-neck or Van Stone flanges (per ASTM F2015) for piping larger than 3 inches. Flanges shall be Class 150 per ASME B16.5. Flanges shall match the connecting flanges on the adjacent pipe of different material, fitting, valve, or piece of equipment. Flanges shall be flat face where connecting to another flat faced flange.
- B. Material for weld-neck flanges shall conform to ASTM A182, Grade F316L.
- C. Material for Van Stone flanges shall be as follows:

Application	Material	Specification
Exposed	Ductile iron or Carbon steel	ASTM A536, Grade 60-42-10 or Grade 65-45-12; ASTM A216, Grade WGA or WGB
Submerged, buried	Stainless steel	ASTM A351, Grade CF8M

2.10 BOLTS AND NUTS FOR FLANGES

- A. Bolts and nuts for flanges shall be Type 316 stainless steel conforming to ASTM A193, Grade B8M for bolts and ASTM A194, Grade 8M for nuts.
- B. Hex head machine bolt's for use with lugged valves shall comply with ASTM A193, Grade BBM, Class 2.
- C. Provide washer for each nut. Washers shall be of the same material as the nuts.

2.11 LUBRICANT FOR STAINLESS STEEL BOLTS AND NUTS

Lubricant shall be chloride free and shall be RAMCO TG-50, Anti-Seize by RAMCO, Specialty Lubricants Corporation Husky Lube O'Seal, or equal.

2.12 GASKETS FOR FLANGES

- A. Gaskets shall be suitable for a maximum pressure of 300 psi and a maximum temperature of 500 °F. Gaskets for shall be the following materials:
 - 1. Teflon.

2.13 PROTECTIVE END CAPS

Provide protective end caps on each piece of pipe or fabricated section, completely sealing the piece from contamination during shipment and storage. Provide the same type of seals on each fitting, or ship and store fittings in sealed boxes or containers.

2.14 OXYGEN INDICATOR FOR WELDING OPERATIONS

- A. Use an oxygen indicator to determine the oxygen level in the purged atmosphere (rest oxygen) in the welding area. The oxygen indicator shall be of the zirconium cell type having a range of 1-to 100-ppm oxygen. Products: Intercon Enterprises Pro-2 or equal.
- B. All materials that come into contact with the water being treated, treatment chemicals or potable water shall be on either the EPA or NSF lists of products approved for use in contact with potable water. Manufacturers shall submit an affidavit with the shop drawings indicating approval by the EPA or NSF for the materials used in products that come into contact with the water, in accordance with Rule 62-555.320(3) Florida Administrative Code.

PART 3 – EXECUTION

3.01 SHIPPING, STORAGE, AND HANDLING

- A. Ship, store, and handle piping (including both pipe and fittings) per AWWA C220, Section 6.2 and AWWA C226, Section 6.3 and the following.
- B. When loading piping for shipment to the project site, use spacers and other protective devices to separate pipes to prevent damaging the surfaces during transit and unloading. If wood spacers are used, remove wood splinters and particles from the pipe surfaces after separation. Use padded chains or ribbon binders to secure the loaded pipe and minimize damage.
- C. Cover piping 100% with protective coverings or tarpaulins to prevent deposition of road salts, fuel residue, and other contaminants in transit.
- D. Provide stulls, braces, and supports during shipping and storage such that out-of-roundness or deflection does not exceed 0.5% of the pipe diameter.
- E. Handle piping with care during unloading, installation, and erection operations to minimize damage. Do not place or store pipe on the ground or on top of other work unless ground or work is covered with a protective covering or tarpaulin. Place pipe above the ground upon platforms, skids, or other supports.
- F. Store piping at the site on pallets to prevent direct contact with ground or floor. Cover pipe during storage with protective coverings or tarpaulins to prevent deposition of rainwater, salt air, dirt, dust, and other contaminants.
- G. Do not allow piping to contact carbon steel surfaces during storage, handling, or installation and erection at the site.

3.02 FABRICATION, ASSEMBLY, AND ERECTION

- A. Use an inert or shielding gas welding method. Do not use oxygen fuel welding. Purge the interior of the pipe with inert gas prior to the root pass. The oxygen content in the purged atmosphere in the welded area shall not exceed 30 ppm during welding operations. Use an oxygen indicator to verify oxygen levels during welding. Provide written documentation of the welding procedure before and during the oxygen purging process, showing the oxygen levels attained during the purging and welding operations.
- B. Welded butt joints (both longitudinal and circumferential) shall comply with AWWA C220 and AWWA C226, Section 4. Do not use backing rings. Provide full penetration and smooth internal diameters for the root bead of welds. Grind the inside weld of socket welds flush with the pipe internal diameter. Welds shall be of smooth finish.
- C. Use anti-spatter compounds specifically formulated or designed for use with stainless steel. Do not allow heat tint to form in the heat-affected zone or remove heat tint completely from the heat-affected zone of the finished weld. The maximum depth of grinding or abrasive blasting to remove defects shall not exceed 10% of the wall thickness. Do not perform abrasive blasting with steel shot, grit, or sand.
- D. No iron or steel surfaces shall come into contact with the stainless steel. This includes placing on steel tables, racks, pipe supports, etc. Do not use carbon steel wire brushes or grinders.

- E. Welding electrodes shall comply with AWS A5.4. Bare wire shall comply with AWS A5.9. Use electrodes as follows:

Pipe Material	Welding Electrode Material
Type 304L	E 308
Type 304L	E 347
Type 316	E 316
Type 316L	E 318

3.03 INSTALLING THREADED PIPING

- A. Ream, clean, and remove burrs from threaded piping before making up joints. Apply thread lubricant to threaded ends before installing fittings, couplings, unions, or joints.
- B. Threaded piping shall only be used for connecting gauges and on piping 1 inch or less in diameter.

3.04 INSTALLING FLANGED PIPING

- A. Set pipe with the flange bolt holes straddling the pipe horizontal and vertical centerline. Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment. Before bolting up, align flange faces to the design plane within 1/16 inch per foot measured across any diameter. Align flange bolt holes within 1/8-inch maximum offset.
- B. Inspect each gasket to verify that it is the correct size, material, and type for the specified service and that it is clean and undamaged. Examine bolts or studs, nuts, and washers for defects such as burrs or cracks and rust and replace as needed.
- C. Clean flanges by wire brushing before installing flanged fittings. Clean flange bolts and nuts by wire brushing, lubricate carbon steel bolts with oil and graphite, and tighten nuts uniformly and progressively.
- D. Bolt lengths shall extend completely through their nuts. Any that fail to do so shall be considered acceptably engaged if the lack of complete engagement is not more than one thread.
- E. Do not use more than one gasket between contact faces in assembling a flanged joint.
- F. Tighten the bolts to the manufacturer's specifications, using the recommended cross bolt pattern in multiple steps of increasing torque, until the final torque requirements are achieved. Do not over torque.
- G. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.
- H. Install threaded nut and bolt thread protection caps after completing the bolt, nut, and gasket installation. Install on exposed and buried and submerged piping.

3.05 INSTALLATION OF STAINLESS STEEL BOLTS AND NUTS

Prior to assembly, coat threaded portions of stainless steel bolts and nuts with lubricant.

3.06 INSTALLING UNIONS

A. Provide unions on exposed piping 3 inches and smaller as follows:

1. Where shown in the drawings.

3.07 INSTALLING ABOVEGROUND OR EXPOSED PIPING

A. Provide pipe hangers and supports as detailed in the drawings and as specified in Section 15140.

B. Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment.

3.08 INSTALLING GROOVED-END PIPING

A. Install grooved-end pipe and fittings in accordance with the coupling manufacturer's recommendations and the following.

B. Clean loose scale, rust, oil, grease, and dirt from the pipe or fitting groove before installing coupling. Apply the coupling manufacturer's gasket lubricant to the gasket exterior including lips, pipe ends, and housing interiors.

C. Fasten coupling alternately and evenly until coupling halves are seated. Use torques as recommended by the coupling manufacturer.

D. Provide separate hangers and supports at both sides of flexible joints; see Section 15140.

3.09 FIELD HYDROSTATIC AND PNEUMATIC TESTING

A. See Section 02661.

B. Do not allow test water to remain in the pipe for more than five days. Drain and dry the piping after completing the testing.

END OF SECTION

SECTION 15065 – STAINLESS STEEL TUBING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section includes materials and installation of stainless steel tubing and fittings 1 inches in diameter and smaller.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with Division 1 and the General Conditions.
- B. Submit materials list showing material of pipe and fittings with ASTM reference and grade.
- C. Submit manufacturer's catalog data for swaged fittings and joints.
- D. Submit fitting manufacturer's instructions for assembling fittings and joints.

PART 2 – MATERIALS

2.01 TUBING

- A. Tubing shall conform to ASTM A269, Grade TP 316, seamless. Hardness shall not exceed Rockwell B80. Tube wall thicknesses shall be as follows:

Tube O.D. (inches)	Minimum Wall Thickness (inches)
1/8	0.035
3/16	0.035
1/4	0.065
5/16	0.065
3/8	0.065
1/2	0.083
5/8	0.083
3/4	0.109
1	0.120

- B. Tubing shall be free of scratches. Tubing shall be suitable for bending and flaring.
- C. Tubing shall be heat treated, which shall consist of quenching in water or rapidly cooling by other means at a rate sufficient to prevent precipitation of carbides, as demonstrated by the capability of passing practice ASTM A262, Practice E (Supplementary Requirement S4 in ASTM A269).

2.02 FITTINGS AND JOINTS

- A. Fittings and joints shall be of the SWAGELOK type as manufactured by Crawford Fitting Company, utilizing a nut and dual ferrule design to connect to tubing. Fitting and joint material shall comply with ASTM A479, Type 316, or ASTM A182, Grade F316. End connections shall be of the union type.
- B. Joints connecting two straight tubes together shall be of the nut and ferrule union type.

2.03 PROTECTIVE END CAPS

Provide protective end caps on each piece of tubing, completely sealing the piece from contamination during shipment and storage. Provide the same type of seals on each fitting, or ship and store fittings in sealed boxes or containers.

2.04 OUTLETS AND NOZZLES

Use a tee with nut and ferrule union ends to connect to the tubing and with an outlet to match the connecting valve or instrument.

2.05 CONNECTIONS TO THREADED-END VALVES

When connecting tubing to threaded-end valves, provide tube to male NPT connectors. Provide a threaded Schedule 80S Type 316 stainless steel nipple (ASTM A312, seamless) where required to make connections.

2.06 SPARE PARTS

- A. Provide the following spare parts:

Quantity	Description
6	Nuts of each size used on the project
2	Hydraulic swaging units

- B. Pack the spare parts in a wooden box; label with the manufacturer's name and local representative's name, address, and telephone number; and attach list of materials contained therein.
- C. All materials that come into contact with the water being treated or water treatment chemicals including gases shall be on either the EPA or NSF lists of products approved for use in contact with potable water. Manufacturers shall submit an affidavit with the shop drawings indicating approval by the EPA or NSF for the materials used in products that come into contact with the water, in accordance with Rule 62-555.320(3) Florida Administrative Code.

PART 3 – EXECUTION

3.01 INSTALLING TUBING

- A. Do not drag tubing out of tube racks. Do not drag tubing across any surface that could scratch it.

- B. Keep tube cutters and saws sharp. Do not cut too deeply with each turn of the cutter or motion of the saw.
- C. Deburr tube ends before inserting into fittings and joints. Clean both the inside and outside of fitting and pipe ends before making up joints. Do not miter joints for elbows or notch straight runs of pipe for tees. Do not kink tubing.
- D. Bends in tubing shall be long sweep. Provide the straight length of tubing recommended by the fitting and joint manufacturer to allow the tube to be inserted into the fitting. Shape bends with shaping tools. Form bends without flattening, buckling, or thinning the tubing wall at any point. Do not use bends to make turns greater than 45 degrees. Use fittings to make turns greater than 45 degrees.

3.02 INSTALLING EXPOSED TUBING

- A. Install tubing without springing, forcing, or stressing the tubing or any adjacent connecting valves or equipment.
- B. Provide pipe hangers and supports as specified in Section 15140.

3.03 Installing Fittings and Joints

- A. Follow the manufacturer's instructions for installing fittings and joints.
- B. For fittings and joints larger than 1 inch, use the manufacturer's hydraulic swaging unit to make up the connections.

3.04 Field Pressure Testing

- A. See Section 02661.
- B. Do not allow test water to remain in the tubing for more than five days. Drain and dry the tubing after completing the testing.

END OF SECTION

SECTION 15090 – AMMONIA FEED SYSTEM VACUUM PIPING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope or Work:

1. This section covers furnishing and installation of piping, tubing and accessories for the ammonia vacuum feed lines.
2. Double wall piping systems for use with ammonia gas (vacuum) consisting of polyethylene carrier tubing inside an outer SCH 40 PVC casing pipe are required for buried ammonia vacuum feed lines per the Piping Schedule. It is to be installed to allow replacement of tubing by the Owner.
3. Above grade process ammonia vacuum lines (downstream of the vacuum regulators) are to be SCH 80 PVC pipe and fittings, with solvent welded connections utilized to the greatest extent possible. For ammonia feed lines, in the event of conflict between this Section and Section 02623, requirements of this Section shall apply.
4. Piping/tubing shall be furnished and installed complete with all fittings, jointing materials, hangers, supports, anchors, and other necessary appurtenances.
5. Polymer piping or tubing shall not be pressurized. No polymer piping or tubing shall be used for pressurized gas lines.
6. Pipe Hangers and Supports: Section 15140.

B. Related Work Described Elsewhere: Other sections directly related to work covered in this section include the following:

1. Excavating, Backfilling, and Compacting: Division 2.
2. Painting: Section 09900.
3. PVC Pipe: Section 02623.

1.02 QUALITY ASSURANCE

A. Pull strength of tubing shall not be exceeded when it is pulled into the casing pipe.

B. No splicing of tubing is allowed. Tubing must be procured in sufficient roll lengths to ensure one continuous piece of tubing is used.

1.03 SUBMITTALS

A. Materials and Shop Drawings: Complete specifications, data, catalog cuts or drawings covering the following items furnished under this section shall be submitted in accordance with Division 1 and the General Conditions.

1. PVC pipe and fittings.
2. Polyethylene tubing and Polypropylene tubing adapters.
3. Pipe supports.

1.04 OPERATIONS AND MAINTENANCE DATA

A. Operating and Maintenance Manual: Furnish Operation and Maintenance Manuals in accordance with Section 01730: Operating and Maintenance Data.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Chemical feed pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a fork lift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.
- B. Chemical feed pipe stored for more than 30 days, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent excessive heat accumulation. Pipe shall not be stored close to heat sources or hot objects such as heaters, fires, boilers or engine exhaust. Pipe gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings and other appurtenances shall be kept clean and free of dirt and foreign matter.
- C. Care shall be taken in handling and laying pipe and fittings to avoid severe impact blows, crushing, abrasion damage, gouging or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged or defective pipe and fittings, or any length of pipe having a gouge, scratch or other permanent indentation of more than 10 percent of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

1.06 WARRANTY AND GUARANTEES

- A. Provide equipment warranty in accordance with General Conditions.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Inner carrier tubing inside outer casing piping shall be installed for buried ammonia vacuum feed line service shown on the Drawings.
- B. Outer casing pipe shall be SCH 40 PVC pipe. The interior vacuum gas carrier tubing is to be high density polyethylene semi-rigid tubing intended for use with polymer compression fittings. The carrier tubing shall be one continuous piece. No splices allowed in tubing.
- C. Above ground process ammonia vacuum piping is to be SCH 80 PVC pipe and fittings, using solvent cement welded PVC connections to the greatest extent possible.
- D. All carrier piping and tubing contacting ammonia gas is to meet the Chapter 62-555 Florida administrative code requirements for contact with drinking water treatment chemicals (must have NSF 61 certification or meet FDA requirements for indirect food additives).

2.02 MATERIALS AND EQUIPMENT

- A. PVC Casing Pipe and Fittings:
 - 1. Polyvinyl chloride casing pipe and fittings are to be SCH 40 PVC.

2. Joints and jointings shall be as specified in Section 02623.
3. Bends in the outer casing pipe shall be long radius sweeps (SCH 40 PVC).

B. Carrier Tubing:

1. Unless specified otherwise, vacuum gas tubing shall be HDPE semi-rigid tubing of the properties below:

Diameter (inches)		Approximate Min. Bend Radius (inches)	Maximum Vacuum Rating (in Hg) 73° F
ID	OD		
1/2	5/8	3	29

C. Above Grade Process Piping

1. Above ground process ammonia vacuum piping shall be SCH 80 PVC pipe and fittings, using solvent cement welded PVC connections to the greatest extent possible. Above grade exterior PVC pipe to be painted per Section 09900, color white and have labeling with flow direction arrows.

D. Pipe Supports

1. Pipe hangers and supports shall be provided as specified in Section 15140, Hangers and Supports.

2.03 QUALITY CONTROL

Contractor shall follow Manufacturer's and Supplier's recommended product quality control specifics as required for this project.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Pipe:

1. Pipe shall be cut from measurements taken at the site and not from the Drawings. Provisions shall be taken in laying out piping to provide throughout for expansion and contraction. Piping shall not obstruct openings or passageways.
2. Buried PVC piping shall be "snaked" in the trench and shall be kept as cool as possible during installation. PVC pipe shall be kept shaded and shall be covered with backfill immediately after installation and testing.

B. Pipe Joints: Pipe joints shall be carefully and neatly made in accordance with the requirements which follows.

1. Threaded:
 - a. Cutting threads on SCH PVC pipe is not allowed and where necessary to adapt to a threaded connection it shall be accomplished using prefabricated SCH 80 pipe or PP tubing adapters.

- b. Threaded joints shall be made up with teflon thread tape applied to all male threads.
- 2. Solvent Welded: All joint preparation, cutting and jointing operations shall comply with the pipe manufacturer's recommendations and ASTM D2855. Pipe ends shall be beveled or chamfered to the dimensions recommended by the manufacturer. Newly assembled joints shall be suitably blocked or restrained to prevent movement during the set time recommended by the manufacturer. Pressure testing of solvent welded piping systems shall not be performed until the applicable curing time, set forth in Table X2.1 of ASTM D2855, has elapsed.

3.02 INSPECTION AND TESTING

A. Pressure and Leakage Testing:

- 1. Carrier piping/tubing shall be pressure tested.
- 2. All specified tests shall be made by and at the expense of the Contractor in the presence, and to the satisfaction of, the inspector. Each piping system shall be tested in accordance with Section 02661 and at a minimum, must experience no loss of pressure for at least one hour.
- 3. Compressed air or pressure gas shall not be used to test plastic piping.
- 4. Leakage may be determined by loss of pressure, soap solution, chemical indicator, or other positive and accurate methods acceptable to the Engineer. All fixtures, devices, or other accessories which are to be connected to the lines and which would be damaged if subjected to the specified test pressure shall be disconnected and ends of the branch lines plugged or capped as required during the testing procedures.
- 6. All necessary testing equipment and materials, including tools, appliances and devices, shall be furnished and all tests shall be made by and at the expense of the Contractor and at such time as directed by the Engineer.
- 7. All joints in piping shall be tight and free from leaks. All joints which are found to leak by observation or during any specified test shall be repaired and tests repeated.

B. Cleaning:

- 1. The inside of all pipe, valves, and fittings shall be smooth, clean, and free from blisters, loose mill scale, sand, dirt, and other foreign matter when erected. The interior of all lines shall be thoroughly cleaned, to the satisfaction of the Engineer, before being placed in service.
- 2. Lines which have been tested with water shall be air dried with compressed air immediately following drainage.

END OF SECTION

SECTION 15095 – AMMONIA FEED SYSTEM PROCESS VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials, testing, and installation of process valves for use on the ammonia feed system.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with Division 1.
- B. Submit manufacturer's catalog data and detail construction sheets showing all valve parts. Describe each part by material of construction, specification (such as AISI, ASTM, SAE, or CDA), and grade or type. Identify each valve by tag number to which the catalog data and detail sheets pertain.
- C. Show valve dimensions including laying lengths. Show port sizes. Show dimensions and orientation of valve actuators, as installed on the valves. Show location of internal stops for gear actuators. State differential pressure and fluid velocity used to size actuators. For worm-gear actuators, state the radius of the gear sector in contact with the worm and state the handwheel diameter.
- D. Show valve linings and coatings. Submit manufacturer's catalog data and descriptive literature.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Valves are identified in the drawings by size and type number. For example, a callout in the drawings of 2" BV-1 refers to Type BV-1 valve in these specifications, which is a PVC ball valve.
- B. In addition, valves are further described by a suffix letter on the type number:

Suffix Letter	Description
M	Motorized actuator
P	Pneumatic actuator

- C. Install valves complete with operating handwheels or levers, chainwheels, extension stems, floor stands, gear actuators, operating nuts, chains, and wrenches required for operation.
- D. Valves shall have the name of the manufacturer and the size of the valve cast or molded onto the valve body or bonnet or shown on a permanently attached plate.

2.02 VALVE ACTUATORS

- A. Provide lever or wrench actuators for exposed valves 6 inches and smaller. For larger valves, provide handwheels.

- B. Valve actuators, handwheels, or levers shall open by turning counterclockwise.

2.03 BOLTS AND NUTS FOR FLANGED VALVES

Bolts and nuts for flanged valves shall be as described in Section 15064.

2.04 GASKETS FOR FLANGES

Gaskets for flanged end valves shall be as described in Section 15064.

2.05 PAINTING AND COATING OF IRON OR CARBON STEEL BODIED VALVES

- A. Coat the exterior of iron or carbon steel bodied valves located above ground or in vaults and structures the same as the adjacent piping. Apply the specified prime coat at the place of manufacture. Apply intermediate and finish coats in field. Finish coat shall match the color of the adjacent piping. Coat handwheels the same as the valves.
- B. Coat and line iron and carbon steel bodied valves at the place of manufacture.
- C. Line and coat valves with fusion-bonded epoxy.
- D. Test the valve interior linings and exterior coatings at the factory with a low-voltage (22.5 to 80 volts, with approximately 80,000-ohm resistance) holiday detector, using a sponge saturated with a 0.5% sodium chloride solution. The lining shall be holiday free.
- E. Measure the thickness of the valve interior linings per Section 09900. Repair areas having insufficient film thickness.

2.06 PACKING, O-RINGS, AND GASKETS

- A. Unless otherwise stated in the detailed valve specifications, packing, O-rings, and gaskets shall be one of the following non-asbestos materials:
 - 1. Teflon.
 - 2. Butyl.
 - 3. Neoprene.
 - 4. EPDM.

2.07 RUBBER SEATS

Rubber seats shall be made of a rubber compound that is resistant to ammonia gas or liquid.

2.08 CONTACT

All materials that come into contact with the water being treated, treatment chemicals, or potable water shall be on either the EPA or NSF lists of products approved for use in contact with potable water. Manufacturers shall submit an affidavit with the shop drawings indicating approval by the EPA or NSF for the materials used in products that come into contact with the water, in accordance with Rule 62-555.320(3) Florida Administrative Code.

2.09 VALVES

- A. Ball Valves:
 - 1. Type BV-1--Double Union PVC Ball Valves 3 Inches and Smaller:

Thermoplastic ball valves, 3 inches and smaller, for water and chemical service shall be rated at a pressure of 150 psi at a temperature of 105°F. Body, ball, and stem shall be PVC conforming to ASTM D1784, Type 1, Grade 1. Seats shall be Teflon. O-ring seals shall be Viton. Valve ends shall be of the double-union design. Ends shall be socket welded except where threaded or flanged-end valves are specifically shown in the drawings. Valves shall have handle for manual operation. Valves shall be as manufactured by Chemtrol, Hayward, R & G Sloan, Spears Manufacturing Company, Plast-O-Matic, IPEX Series VK or VKD, or equal.

2. Type BV-2-- Threaded Stainless Steel Ball Valves 2 Inches and Smaller for Use with Steel Piping:

Stainless steel ball valves, 2 inches and smaller, shall be rated at a minimum pressure of 1,500 psi WOG at a temperature of 100°F. Valve body, ball, and stem shall be Type 316 stainless steel, ASTM A276 or A351. Seat and seals shall be reinforced Teflon. Valves shall have lever actuators, plastic coated. Provide locking lever handle. Valves shall have threaded ends (ASME B1.20.1) and nonblowout stems. Valves shall be McCanna Figure M402, Worcester Series 48, Stockham Figure SD 2120-SSMO-R-T, Apollo 76-100 Series, or equal.

3. Type BV-3-- Stainless Steel Ball Valves 1 1/2 Inches and Smaller for Use with Steel Tubing:

Stainless steel ball valves 1/2 through 1 1/2 inches shall have nut and ferrule connections for use with steel tubing, Swagelok type. Pressure rating shall be at least 250 psi at a temperature of 100°F. Bodies shall be Type 316 stainless steel (ASTM A351, Type CF8M). Ball, stem, and compression ring shall be Type 316 stainless steel. Bonnet bolting shall be ASTM A193, Grade B8M. Seats and seals shall be Teflon or PTFE. Valves shall be Swagelok Series 60 3-piece or equal.

PART 3 - EXECUTION

3.01 VALVE SHIPMENT AND STORAGE

- A. Provide flanged openings with metal closures at least 3/16-inch thick, with elastomer gaskets and at least four full-diameter bolts. Install closures at the place of valve manufacture prior to shipping. For studed openings, use all the nuts needed for the intended service to secure closures. Alternatively, ship flanged valves 3 inches and smaller in separate sealed cartons or boxes.
- B. Provide threaded openings with steel caps or solid-shank steel plugs. Do not use nonmetallic (such as plastic) plugs or caps. Install caps or plugs at the place of valve manufacture prior to shipping. Alternatively, ship valves having threaded openings or end connections in separate sealed cartons or boxes.
- C. Store resilient seated valves in sealed polyethylene plastic enclosures with a minimum of one package of desiccant inside. Store resilient seated valves in the open or unseated position. Valves with adjustable packing glands shall have the packing gland loosened prior to storage. Inspect valves at least once per week, replace desiccant if required and repair damaged storage enclosures. Do not store valves with resilient seats near electric motors or other electrical equipment.
- D. Inspect valves on receipt for damage in shipment and conformance with quantity and description on the shipping notice and order. Unload valves carefully to the ground without dropping. Use forklifts or slings under skids. Do not lift valves with slings or chain around

operating shaft, actuator, or through waterway. Lift valves with eyebolts or rods through flange holes or chain hooks at ends of valve parts.

- E. Protect the valve and actuators from weather and the accumulation of dirt, rocks, and debris. Do not expose rubber seats to sunlight or ozone for more than 30 days. Also, see the manufacturer's specific storage instructions.
- F. Make sure flange faces, joint sealing surfaces, body seats, and disc seats are clean. Check the bolting attaching the actuator to the valve for loosening in transit and handling. If loose, tighten firmly. Open and close valves having manual or power actuators to make sure the valve operates properly and that stops or limit switches are correctly set so that the valve seats fully. Close valve before installing.

3.02 FACTORY PRESSURE TESTING

- A. Hydrostatically test the valve pressure-containing parts at the factory per the valve specification or per the referenced standard. If no testing requirement is otherwise specified or described in the referenced standards, then test with water for 30 minutes minimum at a pressure of 1.5 times the rated pressure but not less than 20 psig. Test shall show zero leakage. If leaks are observed, repair the valve and retest. If dismantling is necessary to correct valve deficiencies, then provide an additional operational test and verify that the valve components function.
- B. The chloride content of liquids used to test austenitic stainless steel materials shall not exceed 50 ppm. To prevent deposition of chlorides as a result of evaporative drying, remove residual liquid from tested parts at the conclusion of the test.

3.03 INSTALLING VALVES—GENERAL

- A. Remove covers over flanged openings and plugs from threaded openings, after valves have been placed at the point to which the valves will be connected to the adjacent piping. Do not remove valves from storage cartons or boxes until they are ready to be installed.
- B. Handle valves carefully when positioning, avoiding contact or impact with other equipment, vault or building walls, or trench walls.
- C. Clean valve interiors and adjacent piping of foreign material prior to making up valve to pipe joint connection. Prepare pipe ends and install valves in accordance with the pipe manufacturer's instructions for the joint used. Do not deflect pipe-valve joint. Do not use a valve as a jack to pull pipe into alignment. The installation procedure shall not result in bending of the valve/pipe connection with pipe loading.
- D. Make sure valve ends and seats are clean. Check exposed bolting for loosening in transit and handling and tighten to manufacturer's recommendations. Open and close the valve to make sure it operates properly and that stops or limit switches are correctly set so that the vane, ball, gate, needle, diaphragm, disc, plug, or other seating element seats fully.
- E. Close the valve before installing. Check coatings for damage and repair. Handle valves carefully when positioning, avoiding contact or impact with other equipment or structures.
- F. Prior to assembly, coat threaded portions of stainless steel bolts and nuts with lubricant.

3.04 INSTALLING EXPOSED VALVES

Unless otherwise indicated in the drawings, install valves with their operating stems horizontal, facing away from panel/cabinet or wall, oriented to facilitate valve operation.

3.05 ASSEMBLING JOINTS

- A. Bolt holes of flanged valves shall straddle the horizontal and vertical centerlines of the pipe run to which the valves are attached. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reseal or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.
- B. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.
- C. Install lug-type valves with separate hex head machine bolts at each bolt hole and each flange (two bolts per valve bolt hole).
- D. Install grooved-end couplings for valves in accordance with Section 15064.

3.06 VALVE FIELD TESTING

- A. Test valves for leakage at the same time that the connecting pipelines are hydrostatically tested. See Section 02661 for pressure testing requirements. Protect or isolate any parts of valves, actuators, or control and instrumentation systems whose pressure rating is less than the pressure test. Valves shall show zero leakage. Repair or replace any leaking valves and retest.
- B. Operate manual valves through three full cycles of opening and closing. Valves shall operate from full open to full close without sticking or binding. Do not backfill buried valves until after verifying that valves operate from full open to full closed. If valves stick or bind, or do not operate from full open to full closed, repair or replace the valve and repeat the tests.

END OF SECTION

SECTION 15100 - VALVES AND SPECIALTIES - GENERAL

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish, install, support, and test valves, gates, cocks, stops, and faucets, when applicable, (hereinafter referred to as ("valves")) in the location(s) and of the size(s) and quantities shown on the Drawings and/or as directed by the Owner/Engineer.
- B. Related Work Described Elsewhere:
 - 1. Mechanical - General Requirements: Section 15000
 - 2. Gate Valves and Appurtenances: Section 15101
 - 3. Butterfly Valves: Section 15103
 - 4. Pressure/Relief/Pressure Sustaining Valve: Section 15106
 - 5. Check Valves: Section 15110

1.02 QUALITY ASSURANCE

- A. Qualifications:
 - 1. All equipment furnished under this Specification shall be new and unused and shall be a standard product which has a successful record of reliable service in similar installations for a minimum of five (5) years.
 - 2. All valves of same type and duty shall be furnished by a single manufacturer.
- B. Standards:
 - 1. ANSI
 - 2. AISI
 - 3. SSPC
 - 4. AWWA

1.03 SUBMITTALS

- A. Materials and Shop Drawings: Copies of all materials required to establish compliance with the Specification shall be submitted in accordance with the provisions of Section 01310: Administrative Requirements. Submittals shall include at least the following:
 - 1. Certified shop drawings showing all important details of construction, dimensions (including laying length), and weight.
 - 2. Descriptive literature, bulletins, and/or catalogs showing all valve parts, and describing material of construction by material and specification (e.g., AISI).
 - 3. Valve coatings and linings, if any.
 - 4. A complete total bill of materials for all equipment.
 - 5. See individual sections for additional requirements.
- B. Operating Instructions: Copies of operating and maintenance instructions shall be furnished in accordance with Section 01730: Operation and Maintenance Data. These shall include equipment lists, descriptions, and information necessary to instruct operating and maintenance personnel unfamiliar with the valves.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Shipping:

1. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed.
2. Factory assembled parts and components shall be dismantled for shipment unless permission is received in writing from the Owner/Engineer.
3. Finished surfaces of all exposed openings shall be protected by wooden blanks, strongly built and securely bolted thereto.
4. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
5. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.
6. Each box or package shall be properly marked to show its net weight in addition to its contents.

B. Storage:

1. Store valves and accessories in an area on the construction site protected from weather, moisture, or possible damage.
2. Do not store valves or accessories directly on the ground.

C. Handling:

1. Handle valves and accessories to prevent damage of any nature.
2. Carefully inspect all materials for:
 - a. Defects in workmanship and materials.
 - b. Removal of debris and foreign material in valve openings and seats.
 - c. Proper functioning of all operating mechanisms.
 - d. Tightness of all nuts and bolts.

1.05 WARRANTY AND GUARANTEES (See Section 01740: Warranties and Bonds).

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials shall be as indicated in specific sections, or on the Drawings, and compatible with intended use.
- B. Valves shall have the name of the manufacturer and the size of the valve cast or molded onto the valve body or bonnet or shown on a permanently stainless steel attached plate.
- C. Bolts, washers, nuts, and gaskets for flanged valves shall be as described in the specific piping sections.
- D. Coat metal valves located above grade or in vaults and structures the same as the adjacent piping. Apply the specified prime coat at the place of manufacture. Apply finish coat in field. Finish coat shall match color of the adjacent piping.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Apply a shop coat finish of asphalt varnish to:
 - 1. Interior surfaces of all valves except corrosion resistant or specially coated valves as specified.
 - 2. Exterior surfaces of buried or submerged valves.
 - 3. Miscellaneous piping appurtenances.
- B. Apply coats of paint primer and enamel to parts customarily finished at the shop.
- C. Apply a shop coat of grease or other suitable rust resistant coating to ferrous surfaces obviously not to be painted.
- D. Do not apply any coatings to valves that have a factory-applied epoxy coating inside and out.

3.02 INSTALLATION

- A. Install valves and accessories in strict accordance with manufacturer's instruction and recommendations, as shown on the Drawings and/or as directed by the Owner/Engineer.
- B. Carefully erect all valves and support them in their respective positions free from distortion and strain.
- C. Bolt holes of flanged valves shall straddle the horizontal and vertical centerlines of the pipe run to which the valves are attached. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.
- D. Support all valves connected to pumps and equipment, and in piping systems that cannot support valves.
- E. Repair any scratches, marks and other types of surface damage etc., with original coating as supplied by the factory.

3.03 INSPECTION AND TESTING

- A. Check and adjust all valves and accessories for smooth operation.
- B. Test valves for leakage at the same time that connecting pipelines are tested. See Section 02661: Pressure Testing of Piping, for pressure testing requirements. Protect or isolate any parts of valves, operators, or control and instrument systems whose pressure rating is less than the pressure tests.
- C. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reseal or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints.

END OF SECTION

SECTION 15101 - GATE VALVES AND APPURTENANCES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The CONTRACTOR shall furnish and install all gate valves and appurtenances as shown on the Drawings and specified herein.

1.02 GENERAL REQUIREMENTS

- A. The CONTRACTOR'S attention is directed to the requirements of Section 15000 in regard to the general requirements for all equipment furnished and installed under this section of the specifications.
- B. The valves shall be furnished with end connections as shown on the Drawings. Flanged valves shall be faced and drilled to the ANSI B16.1-latest, Class 125 Standard. Mechanical joint and bell ends shall conform to ANSI A21.11 latest Standard. Threaded ends shall conform to ANSI B2.1-latest NPT Standard.
- C. All exposed nuts, bolts, springs, washers, etc., shall be 316 SS on above ground service and 316 SS on buried or submerged service.
- D. When extension stems are required, substantial, adjustable wall brackets and extension stems shall be furnished and located as directed. Extension stems shall be provided on all buried valves when the operating nut is deeper than 4 feet below the final grade.

PART 2 – PRODUCTS

2.01 GATE VALVES

- A. Gate valves 2 to 48 inches in diameter shall be designed for 250 psi maximum working pressure. When full open, gate valves shall have a clear waterway equal to the nominal diameter of the pipe. Valves, 2-inch to 48-inch shall be iron body, resilient-wedge gate valves with non-rising stems. All valves shall open by turning in a counter-clockwise direction. Valves shall have O-ring seals. Valves 2-inch to 48-inch shall conform to ANSI/AWWA C515. The operating nut or wheel shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's name, pressure rating, and year of manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by applying to it a hydraulic pressure equal to twice the specified working pressure.
- B. Gate valves smaller than 2 inches, unless otherwise noted on the Drawings, shall be all bronze/brass construction and shall conform to Federal Specification WW-V-54.
- C. All gate valves smaller than 2 inches shall be handwheel operated and if installed below ground shall have an adjustable valve box with cover. Minimum weight of valves shall be as follows:

VALVE SIZE IN INCHES	VALVE WEIGHT IN POUNDS
1/2	1.0
3/4	1.3
1	2.5
1-1/4	3.8
1-1/2	5.2

- D. Buried Valves: Gate valves larger than 2" in size shall be mechanical joint and equipped with a two-inch operating nut and adjustable valve box and cover.
- E. Above Grade Valves: Gate valves located above grade or inside structures shall be handwheel operated, non-rising stem type with flanged ends.
- F. Valve Joints: All gate valves shall have either mechanical joint ends, flanged ends, or screw joints to fit the pipe run in which they are to be used, except valves installed on slip joint pipe shall have mechanical joint ends, unless otherwise specified.
- G. Manufacturers shall be limited to the following:
 - 1. Mueller Models A-2360, A-2361.
 - 2. M&H Model 4067, 7000.
 - 3. Kennedy KS-FW, KS-RW, R/W.
 - 4. American Flow Control Series 2500

2.02 ACCESSORIES

A. Valve Boxes

- 1. General: The CONTRACTOR shall furnish, assemble and place a valve box for each buried valve.
- 2. Valve Boxes: Adjustable screw type valve boxes of suitable length shall be used, having cast iron base, 5-1/4" shaft, center section and top section with cover. Cover shall be marked "Water" or "Sewer" as appropriate. The top section shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade. The base shall be centered over the valve and shall be approximately on line with nut at top of valve stem and the entire assembly shall be plumb. The castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM Designation A48, Class 20B, Gray Iron Castings. The casting shall be smooth, true to pattern, free from blow holes, sand holes, projections, or other harmful defects. The valve boxes shall be coated with a single thin coat of coal tar pitch varnish before machining, so that machined seating surfaces will be free of any coating. The seating surfaces of both the cover and the jacket shall be machined to fit so that the cover will not rock after it has been seated in any position in its associated jacket.
- 3. The CONTRACTOR shall mount the valve box in a concrete collar with bronze disc giving the nomenclature of the valve. Refer to detail Drawings.

- B. Valve Coatings: All interior and exterior surfaces of valves for buried service shall have a factory-applied epoxy coating. The exterior of all above ground valves shall be shop painted with two coats of a primer compatible with the finish paint schedule.

PART 3 – EXECUTION

3.01 CLEANING AND FLUSHING

- A. All gate valves shall be thoroughly cleaned of all dirt, dust, oil, grease, and other foreign matter. This work shall be done with care to avoid damage to any inside coating.
- B. All gate valves shall be thoroughly flushed with clean water to clear the lines of foreign matter.
- C. After cleaning, gate valves shall be tested for pressure and leakage.

3.02 FIELD TESTING

- A. All gate valves shall be tested in accordance with the requirements of AWWA Standard C-515 and C-600.

3.03 DISINFECTION

- A. All gate valves within the potable water and raw water system(s) shall be disinfected in accordance with AWWA Standard C-651 and Section 02650: Disinfection.

END OF SECTION

SECTION 15103 - BUTTERFLY VALVES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish and install butterfly valves of the type(s) and size(s) and in the location(s) as shown on the Drawings and or specified herein.
- B. Related Work Described Elsewhere:
 - 1. Section 15100: Valves and Specialties - General

1.02 QUALITY ASSURANCE

- A. Qualifications:
 - 1. All butterfly valves of same type, class, and duty shall be manufactured by one (1) manufacturer.
 - 2. Acceptable Manufacturers are limited to the following:
 - a. Pratt
 - b. DeZurik
 - c. American
 - d. Keystone
 - e. Mueller

1.03 SUBMITTALS

- A. Materials and Shop Drawings: Copies of all materials required to establish compliance with the Specification shall be submitted in accordance with the provisions of the General Conditions and Section 15100: Valves and Specialties - General.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be delivered, stored and handled in accordance with Section 15100: Valves and Specialties - General.

1.05 WARRANTY AND GUARANTEES

- A. The manufacturer's written warranty shall be submitted for all major pieces of equipment, as specified in Section 01740: Warranties and Bonds. The manufacturer's warranty period shall be concurrent with the Contractor's correction period for 1 year after the time of completion and acceptance.

PART 2 – PRODUCTS

2.01 MATERIALS

A. AWWA Water Service:

1. Use where shown on the Drawings.
2. Equal or exceed requirements AWWA C-504, Class 150B for frequent operation.
3. Suitable for direct burial when required.
4. Bubble-tight shutoff at rated pressure.
5. Body: Cast or ductile iron ASTM A-126, Class B, with ANSI B-16.1 flanged drillings.
6. Disc: Stainless steel, cast iron, ductile iron, Ni-resist per manufacturer's standard and valve size.
7. Valve Shaft: Valve shafts shall be in compliance with AWWA C-504.
8. Valve Seat: Natural or synthetic rubber, or elastomer material as described in AWWA C-504.
9. Bearings: Shaft bearings shall be of self-lubricating corrosion resistant sleeve type as specified in AWWA C-504.
10. Valve connections shall be as shown on the Drawings or generally as follows:
 - a. Acceptable Valve Connections:
 - (1) Buried: Mechanical joint, restrained where shown on the Drawings.
 - (2) Above Grade: Flanged (125 lb. standard).
11. Testing: All valves shall be hydrostatic and leak tested in accordance with AWWA C-504.
12. Working pressure: 150 psi unless otherwise shown on the Drawings.
13. Operator:
 - a. Buried: Wrench nut (2 inch), T-handle wrench, valve box with cover for valves 6 inches in diameter or smaller. Worm gear or travel nut (AWWA C-504), wrench nut, T-handle wrench valve box with cover for valves 8 inches in diameter and greater.
 - b. Above Grade: Lever actuator with infinite lockable positioning capability standard on 6 inch and smaller valves, and worm gear or travel nut with handwheel for valves 8 inches in diameter or greater.
 - c. Gear driven chain wheel for all exposed valves, 4 inches in diameter and greater, mounted over 6 feet above finished floor or slab.
14. Motorized Valve Actuator
 - a. Electric motor operators shall meet the requirements of the latest edition of AWWA Electric Operators, except as specified herein. Provide electric motor actuators where shown on Drawings.
 - b. Electric operators shall include motor, motor controller with remote-local switch, associated gearing, torque switches, auxiliary hand wheel for manual operation, open-close-stop push buttons for local operation and open and closed indicator lights.

- c. Motor shall be totally enclosed non-ventilated (TENV), 230/460 volt, 3 phase, 60 HZ with Class F installation and Class B thermal overload protection. The motors shall be sized to operate the valves from full open to full close in 60 seconds and for modulating service. The actuator shall have a torque output capable of operating the valves at the specified working pressure.
- d. Motors shall be provided with space heaters to prevent build-up of moisture. For motors used in modulating service, they shall be capable of 100 starts per hour.
- e. Limit switches shall be provided at the extreme open and close position of the operator travel. At least two independent switches at each end of operator travel shall be provided.
- f. Torque switches shall be provided in both the open and closed circuits of the operators. The torque switches shall be field adjustable and designed to stop the operator motor when the torque exceeds the safe limits for either the operator or the valve.
- g. All electrical equipment shall be mounted in NEMA 4 enclosure, unless otherwise specified or shown on the Drawings, and wired to the motor controller enclosure. Terminal blocks shall be provided for, and all limit switches, etc., which are not required in the motor controller circuit, shall be wired to them. All connections for remote equipment shall be wired to terminal blocks. Open/Stop/Close and Local/Remote selector switches shall be prewired and factory tested before shipment.
- h. Mechanical emergency operation in event of power failure shall be provided by a clutchable handwheel drive mechanism completely independent from the motor gearing. Hand operation shall be direct drive permitting fast manual valve operation. Failure of motor gearing shall not prevent emergency handwheel operation. Manual operation shall prevent (disconnect) electrical operation.
- i. Electric motor actuators shall be manufactured by BETTIS, no equivalent.
- j. For buried valves the actuator shall have an extended bonnet consisting of a 316 stainless steel shaft and exterior ductile iron casing pipe of sufficient length to place the actuator three (3) feet above grade.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 15106 - PRESSURE SUSTAINING/ELECTRONIC METERING AND FLOW CONTROL VALVE

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to install complete and ready for operation, the pressure sustaining electronic metering and flow control valve and appurtenances of type and size shown on the Drawings and as specified herein.
- B. Related work described elsewhere:
 - 1. Section 15100: Valves and Specialties - General

1.02 QUALITY ASSURANCE

- A. Quality assurance of all material supplied shall be in accordance with Section 15100: Valves and Specialties - General.
- B. Acceptable Manufacturers
 - 1. Cla-Val

1.03 SUBMITTALS

- A. Submit Shop Drawings in accordance with Section 01310: Administrative Requirements.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All material shall be delivered, stored and handled in accordance with Section 15100: Valves and Specialties - General.

1.05 WARRANTY AND GUARANTEES

- A. All warranties and guarantees shall be in accordance with Section 15100: Valves and Specialties - General.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Function
 - 1. Valve will be designed as an electronic metering and flow control valve with hydraulic pressure sustaining backup. It will be supplied with an electronic proportional controller mounted in a prewired panel. This control will monitor valve position and differential pressure and meter the flow through the valve. The controller will accept a remote or local flow set point input from operations and position the 24" valve to control the flow. This controller will position the main valve using opening and closing solenoids. This valve will also have a CRA pilot to provide for pressure sustaining control to maintain a minimum upstream pressure while flowing. This control will be manually adjustable. In the event of a loss in power the closing solenoid will close and the opening solenoid will close, causing the main valve to remain in its last position. The object of the valve is to keep the

overflow pipe in the recarbonation tank submerged and prevent air from entering the downstream piping, while at the same time meter and control the amount of flow through the valve.

2. The electronic controller will be supplied inside of a stainless steel enclosure. This panel shall be mounted by the Contractor within close proximity to the valve. The panel will require a 120VAC power input,

2.02 MATERIALS AND EQUIPMENT

A. Valve

1. The main valve will be a 24" 100-01 ported valve and shall be constructed of ductile iron ASTM A-536. It consists of three different parts; the body with seat installed with flat head stainless machine screws, the cover with cover bearing and the disc and diaphragm assembly.
2. The diaphragm assembly will be the only moving part. It will be ductile iron with stainless steel trim. The main will have an NSF 61 fusion bonded epoxy coating on all internal and external ferrous metal surfaces.
3. The main valve shall also comply with NSF/ANSI Standard being certified as lead-free.
4. The cover of the main valve will have a locating lip for ease of maintenance and to maintain alignment of the stem within the disc/diaphragm assembly. There shall be no pins in the cover for alignment.
5. The main valve will be of the packless design and shall have no O-rings or packing anywhere within the main valve.
6. The valve shall be pressure Class 150.

B. Connections

1. Bolts and nuts for flanged connections shall be Type 316 stainless steel conforming to ASTM A-193 Grade B8 for bolts and ASTM A-194 Grade 8 for nuts. Provide washers for each nut; washers shall be of the same material as the nuts.

C. Pilot Control System

1. The pilot control system will consist of two separate controls systems.
2. There will be two solenoids mounted on the valve cover; one will open to exhaust water from the cover (opening) and one will open to admit water onto the cover (closing). These solenoids will be controlled by outputs from the controller.
3. The opening solenoid will be normally closed and the closing solenoid will be normally open. In the event of a loss of power the main valve will close drip tight.
4. There will also be a CRA hydraulic pilot designed to sustain a minimum upstream pressure. It will be manually adjustable and will have set points adjustable from 20-105psi; Other ranges are available. This is a backup pressure sustaining feature. It will remain closed unless the upstream pressure drops. At that point it will open and allow water to enter the cover of the main valve throttling to maintain a minimum upstream pressure.
5. There shall be opening and closing independent needle valves in the control loop.
6. The pilot control system will also contain a strainer to prevent any debris from entering the control loop. The system will also contain pilot isolation valves for maintenance and troubleshooting.
7. The pilot system will consist of all stainless steel solenoids, speed controls, strainers, tubing and fittings.

D. Panel Enclosure

1. The enclosure will be the prewired panel supplied with the valve; it will require a 120VAC power input.
2. It will have all power conversion for the 24VDC controller and all other components.
3. The electronic valve controller will be a 300mA @ 24VDC steady state unit that is manufactured by the control valve manufacturer.
4. The controller shall be provided in a stainless steel NEMA enclosure; IP-68. It is designed with M16/M20 Cable: IP-68 Cable Glands; IP-68 USB Type A and Type B Connections, IP-68 Ethernet Port.
5. The controller will accept 6 analog and 6 digital inputs while providing 4 analog outputs along with 2 solid state outputs to solenoids and 2 mechanical relays.
6. The controller will power and accept the valve position and differential pressure inputs. It will use these inputs to meter the flow through the 24" valve. It will use the solid state outputs to pulse solenoids to position the valve to control the flow to the operator supplied set point.
7. This controller will provide proportional control to allow for smooth operation of the valve through the normal flows. It will retransmit the flow reading and also the valve position.
8. The controller can accept a digital input to open/close the valve.

E. Services

1. The manufacturer shall be able to provide a computerized cavitation analysis illustrating valve position, differential pressure, flow and whether there will or will not be any cavitation damage. The manufacturer shall also be able to provide a noise/decibel analysis of the operation. The manufacturer shall provide a direct factory employee for start up and training.
2. The manufacturer shall warranty the valve for three (3) years from date of shipment.

F. Material/Equipment

1. The valve shall be a Model 24" 133-AK BCENPSYKC X117D UP-22D D.S. SSB 150 ANSI as manufactured by Cla-Val Co., Newport Beach, CA.
2. The electronic controller shall be a Model VC-22D as manufactured by Cla-Val Co.
3. The stainless steel enclosure to house the VC-22D shall be a Model UP -22D as manufactured by Cla-Val Co.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the location as shown on the Drawings.

3.02 INSPECTION AND TESTING

- A. Furnish the services of a factory representative for at least one (1) day who has complete knowledge of proper operation and maintenance to inspect the final installation and supervise a test run of the valve.

END OF SECTION

SECTION 15110 – CHECK VALVES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish all labor, materials, equipment and incidentals required, and install and test check valves including all appurtenances required as shown on the Drawings and specified herein.
- B. Related Work Described Elsewhere:
 - 1. Section 15100: Valves and Specialties – General.

1.02 QUALITY ASSURANCE

- A. Manufacturer shall have a minimum of ten (10) years' experience in the manufacture of air-cushioned swing check valves.
- B. Manufacturer shall have an ISO-9001 quality management system certified by an accredited body.

1.03 SUBMITTALS

- A. Materials and Shop Drawings: Copies of all materials required to establish compliance with the Specification shall be submitted in accordance with the provisions of the General Terms and Conditions; Section 01310: Administrative Requirements; and Section 15100: Valves and Specialties - General.
- B. See individual product types under PART 2 - PRODUCTS of this Section for additional requirements.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be delivered, stored and handled in accordance with Section 15100: Valves and Specialties - General.

1.05 WARRANTY AND GUARANTEES

- A. The manufacturer's written warranty shall be submitted for all major pieces of equipment, as specified in Section 01740: Warranties and Bonds. The manufacturer's warranty period shall be concurrent with the CONTRACTOR'S correction period for two (2) years after the time of completion and acceptance.

PART 2 – PRODUCTS

2.01 CHECK VALVES

- A. Air-Cushioned Lever and Weight Swing Check Valves:
 - 1. The swing check valve shall conform to the design, materials of construction and testing required by AWWA C508 (latest revision) plus be supplied with an outside lever, adjustable counterweight and adjustable air-cushion chamber to minimize slam and hammer caused by rapid flow reversal.

2. The valve flow area anyplace through the valve shall be no less than the area of the nominal inlet pipe size when the disc has swung no more than 25 degrees away from the seat
3. The swing check valve shall be NSF-61 certified for contact with drinking water and NSF-372 certified lead free.
4. The standard valve shall have the same size flanged inlet and outlet connections faced, drilled and of the thickness required by ANSI/ASME B16.1 Class 125 or Class 250, as shown on plans or in the valve schedule.
5. All air-cushioned swing check valves of same type and style shall be by one (1) manufacturer and shall be manufactured by:
 - a. GA Industries, GA250
6. The valve shall be equipped with a double pole, double throw NEMA 1, 4 and 13 limit switch to indicate valve closed position.

2.02 MATERIALS

- A. The valve body shall be made from cast iron conforming to ASTM A126 Class B with a bolted cover through which all internal parts can be removed for service. The body shall have a mechanically retained and replaceable Type 316 stainless steel seat ring.
- B. The hinge shaft shall be made from Type 303 stainless steel and be supported at both ends by non-corrosive, lead free bushings. The shaft shall be sealed where it passes through the body by compression packing retained by a packing gland, gland studs and nuts. Non-adjustable or O-ring shaft packing is not acceptable.
- C. A ductile iron disc arm shall be keyed to and suspended from the hinge shaft. A non-rotational, cast iron disc with replaceable Buna-N rubber disc seat ring shall be attached to the disc arm by means of a center pin and nut providing 360-degree oscillation. The disc seat ring shall be retained by a Type 316 stainless steel follower ring and stainless steel screws.
- D. Valve closure shall be cushioned by the action of a bronze piston in a bronze cushion cylinder. The cushion chamber assembly shall be non-pivoting and be mounted to the side of the valve body on machined pads without the need for brackets. The amount of cushioning shall be adjustable. Pivoting and/or commercial pneumatic cylinders are not acceptable.
- E. Cover bolts, nuts and studs shall be zinc plated carbon steel.

2.03 JOINTS

- A. Check valves shall be fitted with joints suitable for the pipe with which they are to be used.
- B. Gaskets for use with flanges shall be rubber, either ring or full face, 1/8-inch thick and shall conform to the dimensions shown in the Appendix to ANSI/AWWA C115/A21.15.
- C. Bolts and nuts for flanged joints shall be hex head with hex nuts and shall conform to the requirements of ANSI B18.2.1 and B18.2.2.
- D. Gaskets, bolts and nuts for mechanical joints shall conform to the requirements of ANSI/AWWA – A21.11/C111.
- E. Threaded joints shall conform to ANSI B2.1 Standards for Pipe Threads.

2.04 COATINGS AND LININGS

- A. The exterior of check valves in exposed locations, which are to be painted, shall receive a primer coat, which will be compatible with the finished paint to be applied.
- B. The exterior of check valves, which are to be installed in concealed locations, shall receive an epoxy coating conforming to the requirements of ANSI/AWWA C550.
- C. The interior ferrous surfaces, except stainless steel parts, of all check valves shall receive an epoxy coating conforming to the requirements of ANSI/AWWA C550, NSF-61.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install in accordance with Section 15100: Valves and Specialties - General.

END OF SECTION

SECTION 15122 - AIR RELEASE AND VACUUM RELIEF VALVES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: This work under this Section includes materials and installation of air and vacuum valves, air release valves, combination air release valves, slow-closing air and vacuum valves, and slow-closing combination air release valves for wastewater service.
- B. Related Work Described Elsewhere:
 - 1. Section 02661: Pressure Testing of Piping
 - 2. Section 15000: Mechanical - General Requirements

1.02 QUALITY ASSURANCE

- A. Qualifications:
 - 1. The specified equipment shall be the standard product of manufacturers who regularly engage in the production of this type of equipment and who are fully experienced, reputable, and qualified in the manufacture of the equipment to be furnished. The equipment shall be designed, constructed, delivered, and installed in accordance with the best practices and methods.
 - 2. Each component and ancillary equipment item furnished under this specification shall be new and unused, and the product of manufacturer having a successful record of operation, manufacturing and servicing the equipment for a minimum of five years.
- B. All air and vacuum release valves shall be manufactured by one (1) manufacturer.
- C. Acceptable Manufacturers:
 - 1. Val-Matic
 - 2. APCO
 - 3. A.R.I.

1.03 SUBMITTALS

- A. Materials and Shop Drawings: Copies of all materials required to establish compliance with the Specification shall be submitted in accordance with Section 01310: Administrative Requirements.

PART 2 – PRODUCTS

2.01 COMPONENTS

- A. Clean Water Service:
 - 1. Air Release Valves:
 - a. 3/4 inch and smaller:
 - (1) Simple-lever type.

- (2) Cast iron body ASTM A-48, Class 35, 316 stainless steel trim, viton orifice button.
- (3) Valves shall have a working pressure rating of at least 150 psi.
- (4) Val-Matic No. 22, 25; APCO Model 55, 65 or equal.

b. 1 inch or larger:

- (1) Valves to have heavy duty compound lever operating mechanism with stainless steel pivot pins and 316 stainless steel retaining rings.
- (2) Valves to be constructed of cast iron ASTM A-48, Class 35 with 316 stainless steel trim and float.
- (3) Valves to have an adjustable orifice button, constructed of 316 stainless steel with viton or Buna-N seating.
- (4) 1/2 inch threaded outlet and stainless steel plug for top cover and body drain.
- (5) Valves shall have a working pressure rating of at least 300 psi.
- (6) Val-Matic No. 38, 45; APCO Model 200; ARI D-040-C with one-way valve (for use on pipe exposed to atmosphere), ARI D-040 with one-way valve (for use on pipe in valve vaults).

B. Valve End Connections:

- 1. Valves smaller than 3 inches shall have threaded ends. Valves 3 inches or larger shall have flanged ends.
- 2. Flanges for Class 150 valves shall comply with ANSI B-16.1, Class 125.
- 3. Flanges for Class 300 valves shall comply with ANSI B-16.1, Class 250.
- 4. Threaded ends shall comply with ANSI B-2.1.

C. Bolts and Nuts for Flanged Valves:

- 1. Bolts and nuts for flanged valves located outdoors above ground shall be Type 316 stainless steel conforming to ASTM A-183, Grade B&M for bolts, and ASTM A-194, Grade 8M for nuts.

D. Gaskets: Gaskets for flanged end valves shall be described in the detail piping specifications.

2.02 ACCESSORIES

- A. All air release and vacuum release valves shall be isolated from the service line with a stainless steel ball valve for valves up to 2 inches, and a flanged body butterfly valve for valves greater than 2 inches (provide a spacer plate if required to clear the rotation of the butterfly disc).

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install valves in accordance with manufacturer's instructions and recommendations and as shown in the Drawings.
- B. Install all valves in the vertical position and allow sufficient clearance around valve for proper maintenance and removal.

- C. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. If flanges leak under pressure testing, loosen and remove the nuts and bolts, reseal or replace the gasket, reinstall or re-tighten the bolts and nuts, and retest the joints. Joints shall be watertight.
- D. Clean threaded joints by wire brushing and swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.
- E. Valve Pressure Testing: Test valves at the same time that the connecting pipelines are pressure tested. Refer to Section 02661: Pressure Testing of Piping for pressure testing requirements. Protect or isolate any parts of valves, operators, or control and instrumentation systems whose pressure rating is less than the test pressure.

3.02 STARTUP

- A. Check all air release valves for proper operation in the presence of the Owner/Engineer.

END OF SECTION

SECTION 15125 - WALL SLEEVES AND SEALS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish and install wall sleeves and seals of the types and sizes and in the locations shown on the Drawings and specified herein.

1.02 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Provide and install all sleeves of the types specified herein, as shown on the Drawings and as directed by the OWNER/ENGINEER.
 - 2. Provide sleeves that are airtight, gas-tight or water-tight as required.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT (Type per Location)

- A. Masonry Walls (Unless otherwise shown on the Drawings):
 - 1. 24-gauge, zinc coated (galvanized) steel tubes with wired or hemmed edges.
 - 2. Minimum 1/4 inch annular space between sleeve and pipe or insulation.
 - 3. Firmly pack with oakum and seal both ends with silicone sealant.
- B. Concrete Tank Wall Sleeves:
 - 1. High Density Polyethylene (HDPE) Sleeves:
 - a. Provide with integrally formed hollow water stop sized having a minimum of four (4) inches larger than the outside diameter of the sleeve.
 - b. Shall allow for 1/2-inch movement between wall forms to resist pour forces.
 - c. Each sleeve assembly shall have end caps manufactures of the same material as the sleeve and installed at each end of the sleeve to prevent deformation during concrete pour.
 - d. Sleeves shall be model CS Century-Line, as manufactured by Thunderline/Link-Seal or approved equal.
 - e. Each concrete tank wall sleeve shall include Model S-316 Link-Seal Modular Seal, as manufactured by Thunderline/Link-Seal or approved equal.
- C. Concrete foundation walls, pipe below grade and into interior space: Same as concrete tank walls.
- D. Other conditions shall be sleeved as shown on the Drawings or as approved by the OWNER/ ENGINEER.
- E. Wall Plates: Provide split type cast iron or brass wall plates on pipes penetrating walls in finished spaces such as labs and offices.

- F. Provide high temperature “link seals” where shown on the Drawings.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. New Construction:
 - 1. Concrete: Set sleeves in proper location prior to placing concrete.
 - 2. Masonry: Provide sleeves and locations to masonry trades for installation.
 - 3. Partitions: Cleanly cut partitions and patch prior to any finish work.
- B. Wall sleeves and Seals: Install as required and in strict accordance with the manufacturer's instruction and recommendations.

END OF SECTION

SECTION 15130 - PRESSURE GAUGES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: This section includes materials and installation of pressure gauges and accessories.
- B. Related Work Described Elsewhere:
 - 1. Section 15000: Mechanical - General Requirements
- C. General Design: Gauges and tools shall be as manufactured by Ashcroft, Crosby, Marshalltown, Marsh, or equal.

1.02 SUBMITTALS

- A. Materials and Shop Drawings:
 - 1. Submit Shop Drawings in accordance with Section 01310: Administrative Requirements.
 - 2. Submit manufacturer's catalog data and descriptive literature. Call out materials of construction by ASTM reference and grade. Submit manufacturer's certificate of compliance with the referenced ANSI standards.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Gauge Design: Gauges shall comply with ANSI B40.1, Grade 2A. Gauges shall incorporate the following features.
 - 1. Solid or open front with side or rear blowout relief.
 - 2. Pressure tight.
 - 3. 270 degree arc with adjustable pointer.
 - 4. Stem mounted.
 - 5. Liquid filled unless specified otherwise.
 - 6. Size of gauge shall be a minimum of 4 inches for all process liquid and 6 inches for process air unless otherwise indicated on the Drawings.
 - 7. Stem or connection size shall be 1/4-inch.
 - 8. For potable water, provide a gauge having a pressure range determined by the greater of the following two criteria:
 - a. Two times the normal operating pressure; and
 - b. One and one-third times the test pressure. (Test pressure is defined as the pressure shown in Section 15044: Pressure Testing of Piping).
 - 9. For sewage force mains, provide a gauge having a pressure range determined by the greater of the following two criteria:
 - a. Two times the normal operating pressure; and

- b. Two-thirds the test pressure. (Test pressure is defined as the pressure shown in Section 02661: Pressure Testing of Piping).

2.02 MATERIALS

- A. Materials of construction shall be as shown in the following table:

1. Case	Stainless steel	AISI 316
2. Bourdon tube	Stainless steel	AISI 316
3. Windows	Glass	-----
4. Ring	Stainless steel	AISI 316
5. Stem	Stainless steel	AISI 316
6. Dial face	Aluminum with clear baked-on acrylic coating	6061-T6, ASTM B 209

2.03 ACCESSORIES

- A. Pipe Nipples and Fittings: Nipples for connecting gauges to piping shall be Schedule 80S, Grade TP 316 seamless stainless steel, conforming to ASTM A 312. Fittings shall conform to ASTM A 403, Class WP316. Threads shall conform to ANSI B2.1. Size of pipe nipple shall be as shown on the Drawings.
- B. Tools for Gauges: Provide one gauge tool kit, containing a hand jack set, screwdriver, five reamers (minimum), two pin vise holders, wiggler, tweezer, and carrying case.
- C. Gauge Protectors (For use in process piping containing liquids having a solids concentration greater than 0.50 percent or on raw sewage lines).
1. Gauge protectors shall consist of an interchangeable top housing and diaphragm capsule.
 2. A fill / bleed connection shall be provided, which permits filling the seal and instrument simultaneously after evacuation.
 3. An O-ring, compatible with all standard fill liquids and a Teflon back-up ring shall provide a seal between the diaphragm capsule and the top housing.
 4. The diaphragm shall be Teflon coated, thus assuring a leak-tight connection between the diaphragm and bottom housing.
 5. Protector shall be Ashcroft Type 100 or approved equivalent.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install gauges before conducting pressure tests. Ream, clean, and remove burrs from threaded piping before making up joints. Apply thread lubricant to threaded ends before assembling.
- B. Gauges shall be installed on each pump suction and discharge line.
- C. Pump suction gauges shall be provided as compound, positive and negative scale.

3.02 INSPECTION AND TESTING

- A. Compare pressure readings of permanent gauges with hydrostatic test gauge.

END OF SECTION

SECTION 15140 – HANGERS AND SUPPORTS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish and install pipe hangers and supports to rigidly support pipes, maintain the necessary pitch, prevent vibration, and to allow expansion and contraction of the type(s) and in the location(s) shown on the Drawings and specified herein.
- B. Related Work Described Elsewhere:
 - 1. Section 09900: Painting and Special Coatings.
 - 2. Section 15000: Mechanical - General Requirements.

1.02 SUBMITTALS

- A. Submit Shop Drawings in accordance with Section 01310: Administrative Requirements.
- B. Show materials of construction by ASTM reference and grade.
- C. Submit catalog data with model or figure number and show dimensions.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Overhead hangers: (Unless otherwise indicated on the Drawings).
 - 1. For Pipes 8 Inches In Diameter And Smaller:
 - a. Clevis type.
 - b. Acceptable manufacturers:
 - 1) Anvil International, Fig. 65
 - 2) Or equal.
 - 2. Threaded Hanger Rods:
 - a. Right-hand and left-hand machine threads.
 - b. Suspended from pipe hanger flanges.
 - c. Acceptable manufacturers:
 - 1) Anvil International, Fig. 146
 - 2) Or equal.
 - 3. Pipe Hanger Flange
 - a. Attached to wood trusses or concrete.
 - b. Acceptable manufacturers:

- 1) Anvil International, Fig. 153
- 2) Or equal.

B. Wall and Column Supports: (Unless otherwise indicated on the Drawings).

1. Galvanized wall strap.
2. Acceptable manufacturers:
 - a. Anvil International, Fig. 262
 - b. Or equal.

C. Brick and Concrete Piers: (Unless otherwise shown on the Drawings).

1. Locate where shown on the Drawings and/or where required for proper support.
2. Construct piers to accurately conform to the bottom one-third to one-half of the pipe as shown on the Drawings.

D. Plastic and FRP Pipe Hangers: (Unless otherwise indicated on the Drawings).

1. UV stabilized nylon resin.
2. Acceptable manufacturers:
 - a. Snap-N-Strut, "Strut-N-Rod", "Handy-Snap".
 - b. Or equal.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General:

1. Install hangers or supports at all changes in direction and at the end of piping runs.
2. Install all hangers, supports, rods, inserts, clamps, bolts and other supporting devices of sizes and spacings to prevent loads from exceeding the manufacturer's maximum recommended loading with a safety factor of 5.00.
3. Secure hangers to beams, trusses, or approved concrete insert where possible.
4. When piping is installed on structural steel supports, provide blocking of pipe rolls to prevent lateral pipe movement.
5. Do not support piping from other pipes or from stairs and walkways.
6. Set all inserts before the concrete is placed.

B. Expansion and Contraction:

1. Rigidly support all piping with adequate provisions for expansion and contraction.
2. Firmly anchor horizontal runs over 50 feet in length at the midpoint of the runs to force expansion equally toward the ends.

C. Spacing:

1. Install hangers and supports at sufficiently close intervals to maintain alignment and prevent sagging.
2. Maximum spacing of hangers and supports shall be as specified in Tables 15140-A and 15140-B.

- D. Supporting Vertical Piping:
1. Support at each floor level.
 2. Support at all points necessary to insure rigid installation with adequate provisions to allow expansion and contraction and prevent vibration.
 3. Support by approved pipe collars, clamps, brackets, or wall rests.
- E. Supporting PVC And Fiberglass Piping:
1. Support in strict accordance with the manufacturer's instructions and recommendations for the conditions of operation temperature and size of pipe.
 2. Support in a manner which will prevent subsequent visible sagging of the pipe between supports due to plastic deformation.
- F. Drain, Waste, And Vent Piping: Support by adjustable hangers.
- G. Valves, Fittings & Specialties: Independently support pipe connected to pumps, equipment and piping systems.

TABLE 15140-A

HANGER AND SUPPORT SPACING FOR VARIOUS PIPE MATERIALS

Pipe Size (Inches)	Spacing Feet		
	Copper	Ductile Iron	Steel Pipe
1 & Smaller	4	N/A	6
1-1/4 to 2	6	N/A	9
2-1/2 to 3	10	8	11
4 and Larger	N/A	10-Note 3	14
Note: 1. PVC piping (all sizes) - Refer to Table 15140-B. 2. Fiberglass piping - See manufacturer's recommendations. 3. May increase depending on pipe size. Refer to AWWA standard of practice.			

TABLE 15140-B
SUPPORT SPACING (IN FEET) FOR SCHEDULE 80
THERMOPLASTIC PIPE
PVC

Nominal Pipe Size (Inches)	100 °F	140 °F
1/2	4-1/2	2-1/2
3/4	4-1/2	2-1/2
1	5	3
1-1/2	5-1/2	3-1/2
2	6	3-1/2
3	7	4
4	7-1/2	4-1/2
6	9	5

END OF SECTION

SECTION 15155 – MAGNETIC FLOW METER – (FULL BODY)

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall furnish and install, at the location(s) shown on the Contract Drawings, as specified or as directed, the metering equipment and other appurtenances, and furnish all labor, supervision, materials, tools, and incidentals.
- B. In general, this work shall include the furnishing and installation of the following:
 - 1. Four (4) magnetic flow meters – (full body) with ANSI CL-150 flange fittings and neoprene liner.
- C. This Section shall include the complete installation and responsibility for the proper operation of the various components of this Section. It shall also include painting, field testing and additional services of the equipment supplier.
- D. It is the intent of this Contract that the installation shall be complete in all respects and ready for use and operation. The CONTRACTOR will be responsible for all incidental details and for any special construction necessary to complete the work in an acceptable manner.

1.02 WORKMANSHIP AND MATERIALS

- A. All equipment and materials furnished under this Contract shall be new, suitable for the conditions of service to which they will be subject, and equal to the best of their respective classes. Grade and quality shall meet or exceed the applicable City of Ormond Beach's specifications and standards.
- B. Workmanship shall be the highest quality and shall be carried out by competent and experienced workmen.

1.03 SHOP DRAWINGS AND MANUALS

- A. Detailed, dimensioned shop drawings and data conforming to the requirements of Section 01310: Administrative Requirements, shall be submitted to the Owner/Engineer and approved before fabrication, shipment or work specified under this Section begins.
- B. The CONTRACTOR shall also furnish under this Section four (4) bound copies of the complete and detailed instructions for the operation, lubrication, and maintenance of all equipment furnished and installed hereunder. The manuals shall be furnished after final approval of all shop and working drawings but prior to shipment of equipment. Manuals shall be complete with lubrication schedules and recommended lubricants, drawings, cut parts lists, and other necessary data. All parts shall be numbered and otherwise clearly identified to facilitate ordering of replacements. Descriptions of all operational control devices and their specific functions shall also be included.

1.04 PATENTS AND CLAIMS

- A. Under this Section, the CONTRACTOR shall be responsible for all patents and licenses relating to the furnishing and use of the equipment supplied hereunder and to any special construction inherent to the installation of said equipment. The CONTRACTOR shall pay all patent fees and license costs and shall indemnify the OWNER and the OWNER/ENGINEER from all claims pertaining thereto in accordance with the General Terms and Conditions of these Specifications.

1.05 WARRANTY

- A. All equipment supplied under this Section shall be warranted by the CONTRACTOR and equipment manufacturers for a period of one (1) year. Warranty period shall commence on date of final payment as outlined in the General Conditions and the Contract.

PART 2 – PRODUCTS

2.01 GENERAL

- A. The CONTRACTOR shall furnish and install, at the location shown on the Contract Drawings, flow meter(s) and associated appurtenances.

2.02 ELECTROMAGNETIC FLOW METER – (FULL BODY-FLANGED)

A. Materials of Construction

1. The body shall be constructed of painted 304 stainless steel.
2. A neoprene liner shall be incorporated within the body of the meter.
3. Electrodes shall be self-cleaning and fabricated of 316 stainless steel.
4. A grounding ring, fabricated of 316 stainless steel, shall be incorporated into the meter.

B. Metering Tube

1. Keypad: 3-line, 16-character, backlit LED display for flow rate and two lines for engineering units, totalizers, alarm status, velocity and percent of range.
2. Internal Totalizer: Resettable 9-digit for forward, reverse and net totals. The totalizer shall be able to be programmed to reset from an external input.
3. Time Constant: Fully programmable from one to greater than 100 seconds.

C. Outputs

1. Analog: Fully programmable for zero, full scale, up to 21 mA and flow direction. Fully isolated. Output capability ≤ 16 (800 ohm, 4-20 mA).
2. Pulse / Frequency: One frequency / pulse output for forward and one for reverse flow. Forward and reverse flows 0 to 800 Hz square wave or fixed pulse width up to 2.5 sec. Fully programmable for pulse rate, pulse factor, low flow cut off, pulse width, etc. Hart protocol.
3. Dual Alarms: Two separate outputs. Fully programmable for high / low rates, percentage of range, empty-pipe zero, fault conditions, forward / reverse polarity, analog over-range, pulse over-range, pulse cutoff, etc.
4. RS-232C: 9-pin data connector for local hand-held configurator or any computer with several communications.

- D. Accuracy shall be ± 0.5 percent reliability durability, and shall accurately measure velocities between 1.0 ft. / sec. and 39 ft. / sec.

- E. Microprocessor-based signal converter shall be housed in a NEMA 4X IP 65 enclosure of polypropylene. 120VAC power. Transmitter shall include a process display with keypad for menu driven configuration.

- F. Mag meter shall be a 10-inch and 12-inch Rosemount.

PART 3 – EXECUTION

3.01 INSPECTION AND TESTING

- A. Meter shall be hydrostatically tested in place in accordance with AWWA standards.

END OF SECTION

SECTION 15465 - SUMP PUMP

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

This Section includes furnishing and installing a sump pump within the pipe trench of the aerator transfer pump room as specified.

1.2 QUALITY ASSURANCE

A. **Available Manufacturers.** Subject to compliance with requirements, provide from the following:

1. Goulds.
2. Approved equivalent.

1.3 SUBMITTALS

Submit manufacturers Certificate of Compliance for all items used in the sump system.

PART 2 – PRODUCTS

2.1 SUMP PUMP

- A. Provide a sump pump capable of pumping 30 GPM at 20-ft. TDH. Motor shall be 1/2 Hp, single phase, 120VAC, totally enclosed, submersible type.
- B. Discharge shall be into a common manifold.
- C. Provide an independent float switch mounted in the top of the motor housing for automatic operation of pump.
- D. A mechanical seal shall prohibit water from entering the motor housing and an enclosure shall surround the pump and motor.
- E. The sump pump shall include a heavy-duty, 6-foot long electrical cord.

2.2 PIPE AND VALVES

Discharge shall be a 1-1/2-inch PVC through one 1-1/2-inch check valve and one bronze gate valve.

PART 3 – EXECUTION

3.1 INSTALLATION

Install in accordance with the manufacturer's recommendations and with piping and valving shown on the Drawings.

END OF SECTION

SECTION 15860– AERATOR CENTRIFUGAL FAN & ENCLOSURE

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, and equipment and incidentals required to install complete and ready for operation, the aerator centrifugal fan assembly and a fan enclosure of the type and size shown on the Drawings and as specified herein.

1.02 SUBMITTALS

A. Acceptable Manufacturers

1. Verantis Environmental Solutions Group
7251 Engle Road, Suite 300
Middelburg Heights, OH 44130
1-800-554-8673
www.verantis.com

1.03 QUALITY ASSURANCE

- A. Submit Shop Drawings in accordance with Section 01310: Administrative Requirements.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Receiving & Inspection

1. Visually inspect for any signs of damage. Using the checklist below, look for breakage and abrasion which should be very easy to recognize. Impact damage would appear as whitening of the surface or star-shaped cracks or crazes. This damage, if confined to the exterior, may only be superficial.
 - a. Is the shipping media still intact? Check for loose banding or damaged shipping crates.
 - b. Is there any damage to the extremities of the fan? Check the ends, top and sides and any protruding parts such as flanges and/or nozzles.
 - c. Is the order received complete? Check P.O. and packing list for any missing items. If any parts are found to be damaged, a claim should be filed immediately against the freight carrier.

B. Handling

1. Do not remove the fan from its shipping crate before moving it to the point of installation.
2. The fan should be lifted by the steel base, mounting supports or lifting holes ONLY.
3. Lifting straps should be attached ONLY to the structural steel base or use clevis pins if the fan skid has "lifting holes" provided in all four (4) corners of the skid. Lifting lugs, if provided, on the fan housing are ONLY to be used in lifting the "pie section" of the housing and NOT the entire fan.

C. Storage

1. All fans shall be protected from the weather and stored in a protected, clean, dry, and warm area. If outdoor storage is necessary, protection should be provided.
2. Cover the inlet and outlet to prevent the accumulation of dirt and moisture in the housing. Cover the motors with waterproof material.
3. Rotate to impeller and motor several revolutions at least once a week to prevent bearing freeze up and/or avoid developing "flat spots" on fan and motor shafts.
4. For long term or outdoor storage, fan and motor bearings should be re-greased in accordance with bearing and motor lubrication instruction.
5. Documentation of regular maintenance record is required to maintain warranty.

1.05 WARRANTY & GUARANTEES

- A. All warranties and guarantees shall be in accordance with Section 00700: General Conditions.

PART 2 – MATERIALS

2.01 GENERAL

- A. Provide fans that have been factory assembled, wired and tested.
- B. Statically and dynamically balance the fans to eliminate vibration.
- C. Provide belt guards on belt-driven fans.
- D. Provide safety screen/guard where inlet or outlet is exposed.

2.02 MATERIALS AND EQUIPMENT

A. Housing:

1. Housing shall be fabricated from premium vinyl ester resin FRP with antimony as a flame retardant.
2. Discharge shall be bottom horizontal and shall match the existing discharge size and configuration.
3. The interior of the housing shall be C-Veil with gel coat.
4. The exterior finish of the housing shall be UV-protected standard with C-Veil.
5. Exterior color shall be white.
6. Access door of the housing detail shall be bolted with 316 stainless steel hardware.

B. Impeller:

1. The impeller shall be fabricated from premium vinyl ester resin FRP.
2. The impeller shall be a 100% width, backward curved centrifugal impeller design.
3. Impeller shaft shall be stainless steel.
4. Shaft seal shall be Teflon.
5. Bearings shall be heavy duty, grease lubricated, sealed, self-aligning bearings (rated L10 = 100,000 hours).

C. Base

1. Base shall be carbon steel furnished with a Type A urethane coating.
2. The base shall be AMCA with a 9H arrangement.

D. Inlet/Outlet Flanges

1. Both flanges shall be PS15-69 drilled.
2. Flanges shall be identical to the existing.
3. Inlet/outlet ductwork shall match existing.

2.03 PERFORMANCE CHARACTERISTICS

A. Fan model shall be CLUB-2550, CW, BH (Tag #: TBD-1).

B. Standard Conditions

- | | | |
|----|----------------------------|-------|
| 1. | Static Pressure (in W.C.) | 12.36 |
| 2. | Brake Horsepower | 24.68 |
| 3. | Outlet Velocity (ft./min.) | 2151 |
| 4. | Top Speed (ft./min.) | 14868 |
| 5. | Static Efficiency (%) | 63.05 |
| 6. | Class | 4 |
| 7. | Max RPM | 2696 |

C. Operating Conditions

- | | | |
|----|---------------------------|-------|
| 1. | Volume (ACFM) | 8000 |
| 2. | Static Pressure (in W.C.) | 12.00 |
| 3. | Brake Horsepower | 23.96 |
| 4. | RPM | 2227 |
| 5. | Sound Power (dBA) | 99 |

D. Sound Power Level

Octave Band	1	2	3	4	5	6	7	8	Weighted LwA
OB Center Frequency	63	125	250	500	1,000	2,000	4,000	8,000	
AMCA Lw	99	98	94	92	83	81	79	78	93
LwA Octave Band	74	83	86	89	83	82	80	77	

E. Fan Motor Data

1. 30 HP, 22.4 KW, 4-pole, 1,800 RPM
2. 230/460 volts, 3-phase, 286T frame size
3. TEFC enclosure, rated ambient 40 degrees Celsius, Class F insulation
4. Typical performance (efficiency)
 - a. Full Load: 93.6%; $\frac{3}{4}$ Load: 93.6%; $\frac{1}{2}$ Load: 93.6%
5. Motor manufacturer shall be Balder, US Motors or approved equal.
6. Refer to Section 16220 for additional requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Fan Inspection

1. Particular care must be taken when installing the fan to assure that the fan base is not twisted or misaligned when anchoring to the foundation.
2. Use shims as needed for proper alignment.
3. Check all bolts at locations listed below to assure that none have loosened.
 - a. Fan back plate.
 - b. Access door (where applicable).
 - c. Motor base.
 - d. Fan base.
 - e. Bearing mounting bolts.
 - f. Set screws on impeller taper lock bushing.
 - g. Set screws on bearing locking collar.

B. Ductwork

1. All ductwork and/or stacks connected to Verantis fans must be independently supported.
2. Use of flexible connector is recommended.

C. Motor

1. Wire the motor in accordance with the wiring diagram supplied with the motor.
2. Avoid contact with the energized circuits.
3. Disconnect all power sources before attempting work on the motor.

D. Bearings

1. Bearings are pre-lubricated at the factory so it is not necessary to add grease to new bearings.
2. If bearings have been stored or idle for a period of time or outside, fan and/or motor bearings should be re-greased in accordance with bearing and motor lubrication instructions. There should be a little grease showing at the seals.

E. Completing Installation

1. Install all accessory equipment that is not already pre-assembled with the fan, such as belt and shaft guards, motor and drive canopy and/or vibration isolators.

F. Start-Up

1. Refer to Vendor's manual for proper start-up procedures.

END OF SECTION

SECTION 15870 - FANS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Ceiling Exhaust/Ventilators

1.02 REFERENCES

- A. Air Movement and Control Association, Inc. (AMCA Requirements applicable to product Certified Ratings Seal.
- B. Underwriters Laboratories Inc. (UL) Requirements applicable to product listing and labeling.

1.03 QUALITY ASSURANCE

- A. Provide ceiling exhaust fans bearing AMCA Certified Ratings Seal.
- B. Provide fans which have been UL listed and labeled.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Provide fans that have been factory assembled, wired and tested.
- B. Provide fans in compliance with the performance and electrical requirements specified in Schedule at end of this Section.
- C. Fan Performance: Based on sea level conditions.
- D. Statically and dynamically balance fans to eliminate vibration or noise transmission to occupied areas of the building.
- E. Provide belt guards on belt driven fans.
- F. Provide safety screen/guard where inlet or outlet is exposed.

2.02 CHARACTERISTICS

- A. Motor shall be ½-hp, single phase, 120 volt.
- B. Exhaust fan shall produce 2,300 CFM @ 0.375 static pressure at 1,140 rpm.

2.03 CEILING EXHAUST/VENTILATOR FANS

- A. Acceptable Manufacturers:
 - 1. Greenheck AE-20-430-B5
 - 2. Approved equivalent
- B. Type: Axial exhaust fan, direct drive.

- C. Housing: One-piece, heavy gauge aluminum, with a rolled bead, specifically designed and manufactured for ceiling installation; integral backdraft damper fan discharge; removable inlet grille.
- D. Propeller: Fabricated aluminum propeller with steeply pitched blades designed for low rpm. Propeller shall be dynamically and statically balanced.
- E. Motor: Permanent split-capacitor, permanently lubricated; grounded, overload protected and vibration isolated.
- F. Electrical: Junction box for electrical connection on housing; receptacle for motor plug-in.
- G. Bird Screen: 1/2-inch square galvanized rigid wire mesh.
- H. Curb Cap: Curb cap and veturi inlet are constructed of aluminum. Cub cap to incorporate pre-punched mounting holes to ensure correct attachment to roof.
- I. Vibration Isolation: includes vibration isolators to support the motor and propeller.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install fans plumb, level, and firmly anchored.

END OF SECTION

SECTION 16000 – ELECTRICAL

PART 1 - GENERAL

3.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, equipment and incidentals required for a complete electrical installation for the scope of work required under this Contract as hereinafter specified and/or shown in the Contract Documents.
- B. Contractor shall read and examine all Contract Documents thoroughly to gain a complete understanding of the electrical scope of work.
- C. The electrical Scope Of Work (SOW) includes but not limited to the following:
 - 1. Temporary Electrical Power Systems and Equipment as required during construction.
 - 2. Existing Electrical Modifications
 - a. Demolition, removal and/or modifications of existing power and control raceways and conductors as required within the scope of work and as shown on the Contract Documents.
 - b. Extension and/or relocation of existing power and control circuitry with new to that new and/or existing equipment to include terminations and electrical testing.
 - c. Demolition, removal and/or modifications to existing electrical and control equipment, including MCC-7, motor disconnects, instrumentation and associated support structures.
 - 3. Duct-Bank Systems and required conductors, cabling and wires for power, control and data circuitries.
 - a. Reference Specification Sections:
 - 1) 16120 – CONDUCTORS AND CABLES
 - 2) 16060 – GROUNDING AND BONDING
 - 3) 16111 – CONDUIT AND RACEWAYS
 - 4) 16115 – UNDERGROUND CONDUIT DUCTS, MAN-HOLES, HAND-HOLES AND PULL-BOXES
 - 4. Switchboards to include required conductors, cabling and wires for power, control, data and grounding.
 - a. Reference Specification Sections:
 - 1) 16430 – SWITCHBOARDS
 - 5. Variable Frequency Drives (VFD) and Reduced Voltage Soft Starters (RVSS) to include required conductors, cabling and wires for power, control, data and grounding.
 - a. Reference Specification Sections:

- 1) 16260 – VARIABLE FREQUENCY CONTROLLERS
 - 2) 16291 – ENCLOSED CONTROLLERS
6. Feeders and Branch Circuits to include all required disconnects, pull-boxes, junction-boxes, terminal-boxes, conduit bodies, raceways, conductors, cabling and wires for power, control and data.
 - a. Reference Specification Sections:
 - 1) 16120 – CONDUCTORS AND CABLES
 - 2) 16060 – GROUNDING AND BONDING
 - 3) 16111 – CONDUIT AND RACEWAYS
 - 4) 16435 – PANELBOARDS
 - 5) 16410 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS
7. Wiring Devices to include switches, receptacles, devices, covers and plating and all required appurtenances.
 - a. Reference Specification Sections:
 - 1) 16140 – WIRING DEVICES
8. Electrical for Process Controls and Equipment, SCADA, Telemetry, Data and Network Systems to include power and control wiring, raceways and devices components (as provided under Division 13 for installation) as required to provide complete and fully operable Process Control Systems.
 - a. Reference Specification Sections:
 - 1) 13100 – INSTRUMENTATION AND CONTROL, GENERAL REQUIREMENTS
9. Electrical for Process Equipment and Systems to include power and control wiring, raceways and devices components (as provided under Divisions 11, 14, & 15 for installation) as required to provide complete and fully operable Process Systems.
 - a. Reference Specification Sections:
 - 1) 11001 – EQUIPMENT – GENERAL PROVISIONS
 - 2) 11215 – HORIZONTAL SPLIT CASE CENTRIFUGAL PUMPS
 - 3) 14630 - BRIDGE CRANE
 - 4) 15100 – VALVES AND SPECIALTIES GENERAL
 - 5) 15103 – BUTTERFLY VALVES
 - 6) 15110 – CHECK VALVES
 - 7) 15155 – MAGNETIC FLOW METER
10. Concrete foundations and/or structural elements to include but not limited to house-keeping pads, equipment rack anchorage, light-pole bases, etc. to securely mount and install Electrical Equipment and Systems. These concrete foundation and/or structural element designs shall be prepared by a Florida licensed professional engineer for Engineer review prior to installation.
 - a. Reference Specification Sections:

1) DIVISION 3 – CONCRETE

- D. Provide complete and functioning systems in compliance with manufacturer's instructions, performance requirements specified or shown on the Contract Documents and modifications resulting from reviewed and approved submittals and field coordinated drawings.
- E. Contractor shall immediately notify the Engineer, if there are discrepancies between the Contract Documents and any related Specification Sections.
- F. Electrical Scope Of Work, apparatus and materials which shall be furnished under these Specifications and accompanying Contract Documents shall include all items listed hereinafter and/or shown on the Contract Documents. Certain equipment will be furnished as specified in other sections of these Specifications which will require wiring thereto and/or complete installation as indicated. All materials necessary for the complete installation shall be furnished and installed by the Contractor to provide complete power, control instrumentation, wiring, and ancillary systems as indicated on the Contract Documents and/or as specified herein.
- G. It is the intent of these Specifications and Contract Documents that the electrical and control system(s) be suitable in every way for the service and functionality design intent. All material and all work which may be reasonably implied as being incidental to the work of this Section shall be furnished at no extra cost to the Owner.
- H. The scheduling and duration of any power or control interruption for the removal of existing equipment or the installation of new equipment shall be coordinated with the Owner.

3.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Documents referenced herein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. Division 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - 2. Division 1 – GENERAL CONDITIONS
 - 3. Division 2 – SITE CONTRUCTION

3.03 ENVIRONMENTAL CONDITIONS

- A. Outdoor locations may contain wet and corrosive areas:
 - 1. Corrosive areas are identified on the Contract Documents. Areas not identified as such shall be considered wet.
- B. Indoor locations may contain unclassified, damp, wet and corrosive areas:
 - 1. Damp, wet and corrosive areas are identified on the Contract Documents. Areas not identified as such, but provided with heating shall be considered unclassified. Areas not identified as such, but provided without heating shall be considered damp.

3.04 DEFINITIONS

A. Outdoor Areas:

1. Those locations on the Project site where the equipment is normally exposed to wind, dust, rain, snow, etc. Outdoor areas include areas protected by a roof or rain/sun shields but not enclosed within a structure.

B. Indoor Areas:

1. Those locations on the Project site where the equipment is normally protected from wind, dust, rain, snow, etc.

3.05 REFERENCES

A. Codes and Standards:

1. American Iron and Steel Institute (AISI):
2. American National Standards Institute (ANSI):
 - a. C2, National Electrical Safety Code.
3. American Society for Testing and Materials (ASTM):
4. Factory Mutual System (FM):
 - a. A Guide to Equipment, Materials and Services.
5. Institute of Electrical and Electronics Engineers (IEEE):
 - a. 141, Recommended Practice for Electrical Power Distribution for Industrial Plants
 - b. 142, Recommended Practice for Grounding of Industrial and Commercial Power Systems
 - c. 242, Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
6. National Electrical Contractors Association (NECA):
 - a. NECA 1, Good Workmanship in Electrical Construction
 - b. NECA 200, Recommended Practice for Installing and Maintaining Temporary Electrical Power at Construction Sites
 - c. All Project applicable NECA standards and recommendations
7. National Electrical Installation Standards (NEiS):
 - a. Project applicable standards and recommendations
8. National Electrical Manufacturers Association (NEMA):

- a. 250, Enclosures for Electrical Equipment (1000V Maximum)
 - b. ICS 6, Enclosures for Industrial Control and Systems
- 9. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC)
 - b. 70E, Standard for Electric Safety in the Workplace
 - c. 79, Electrical Standard for Industrial Machinery
 - d. 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities
- 10. Underwriters Laboratories, Inc (UL):
 - a. 96A, Installation Requirements for Lightning Protection Systems
 - b. 508, Industrial Control Equipment
 - c. 508A, Industrial Control
 - d. 698, Industrial Control Equipment for Use in Hazardous Locations
- B. When a specific code or standard has not been cited, the applicable codes and standards of the following code making authorities and standards organizations shall apply:
 - 1. American Association of State Highway and Transportation Officials (AASHTO).
 - 2. American Iron and Steel Institute (AISI)
 - 3. American National Standard Institute (ANSI)
 - 4. American Society for Testing and Materials (ASTM)
 - 5. ETL Testing Laboratories, Inc (ETL)
 - 6. Insulated Cable Engineers Association (ICEA)
 - 7. Institute of Electrical and Electronic Engineers (IEEE)
 - 8. Illuminating Engineering Society of North America (IES)
 - 9. Instrument Society of America (ISA)
 - 10. Lightning Protection Institute (LPI)
 - 11. National Electrical Manufacturers Association (NEMA)
 - 12. National Fire Protection Association (NFPA)
 - 13. Occupational, Health and Safety Administration (OSHA)
 - 14. Underwriters Laboratories Inc (UL)
- C. In case of conflict or disagreement between codes, standards, laws, ordinances, rules, regulations, drawings and specifications, or within either document itself, the more stringent condition shall govern.

3.06 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS

B. Shop Drawings:

1. Shop drawings shall be arranged and labeled according to specification section and Contract Drawing.
2. Submit shop drawings prior to purchase or fabrication of equipment. See individual Division 16 Sections for additional specific requirements.
3. Prior to submittals of shop drawings, coordinate electrical equipment, particularly motor control equipment, control panels, and instrumentation, with all applicable equipment and systems interfacing with that equipment.
4. Submittals shall be made in the following combinations:
 - a. Low Voltage Electrical Equipment (less than 1kV)
 - 1) Metal-Enclosed Switchgear, Switchboards, Panelboards, Load Centers, (lighting panels), Motor Control Centers (MCC), Disconnect Switches, Transformers, Power Factor correction equipment.
 - b. Raceways
 - 1) Conduits, Cable Trays, Duct-Bank details, Manholes, Handholes, Pull-Boxes, Junction Boxes, Conduit Bodies and Fittings.
 - 2) Raceway layout drawings for major and/or complex raceway routings
 - 3) Duct-Bank section layout drawings for all duct-banks with more than three (3) raceways
 - c. Wire and Cables
 - 1) Feeder Circuitry power cables and conductors
 - 2) Branch Circuitry cables and conductors
 - 3) Control/Signal Circuitry
 - 4) Low Voltage Systems: Tele/Com, Data, Security, Video
 - d. Wiring Devices
 - 1) Receptacles, Switches
 - e. Lighting
 - 1) Interior/Exterior Lighting Fixtures, Site Lighting Fixtures
 - a) Lighting Contactors and Controllers
 - f. Supports and Hardware
 - 1) Strut-Channel, Equipment Racks and Stanchions, Fasteners, Concrete Bases, Anchorage, etc.
 - a) Installation Detail Sketches, Layouts, BOM
 - g. Wire/Cable Raceway Schedule

- 1) Provide a wire or cable identification schedule for all power, control, signal, process and protective circuits. The schedule shall be submitted in an electronic spreadsheet type Excel compatible file format and include the following information at a minimum:
 - a) Wire or Cable tag number.
 - b) Number of conductors.
 - c) Conductor size and type.
 - d) Wire or Cable usage description.
 - e) Conduit tag number
 - f) Conduit routing (to and from).
 - g) Conduit size and type.
 - h) Additional notes
5. For each product, clearly identify manufacturer by name. When general data sheets are provided as part of the submittal, specifically identify the products to be used on this Project. Provide manufacturer's technical information on products to be used, including:
 - a. Product descriptive bulletin.
 - b. Electrical data pertinent to the Project and necessary to assure compliance with Specifications and Contract Documents.
 - c. Equipment dimensions, where applicable.
 - d. Evidence that the products submitted meet the requirements of the standards referenced.
 - e. Specify part number with explanation of options selected.
6. Ensure that all submittals clearly indicate the equipment is UL or ETL listed.
7. For all equipment, provide manufacturer's installation instructions.
- C. When a quality standard has been established by identification of a specific manufacturer or catalog number, submittals for proposed alternates and substitutions shall include:
 1. Alternate and substitute equipment cross referenced to the equipment it is replacing. Submittal shall be marked to show how differences will be accommodated.
 2. Calculations and other detail data to allow determination of alternate and substitute equipment equivalency to the equipment it is replacing. Data supplied shall allow detailed comparison of all significant characteristics upon which the design equipment is based.

3. Dimensioned drawings, of the same or larger scale as the Contract Documents, for all alternate and substitute equipment, which differs in size, configuration, service accessibility or in any significant way from the equipment it is replacing.
 - a. Complete system layout, except that portion which is identical to the Contract Documents.
 - b. Redesign and modifications to all work required by the alternate or substitute equipment.

D. Operation and Maintenance Manuals.

3.07 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall unload and handle materials using methods, rigging, and equipment that will prevent damage to the materials. Care shall be used to prevent damage to painted and galvanized surfaces.
 1. Bare wire rope slings shall not be used for unloading and handling materials and equipment, except with the specific written permission of the Engineer.
- B. Equipment and materials, in accordance with the manufacturer's recommendations, shall be stored, supported and protected to prevent damage.
 1. Stored materials and equipment shall not be allowed to contact the ground.
 2. Equipment and materials which incorporate electrical equipment or which have finished painted surfaces, and other items which would be damaged by outdoor exposure, shall be stored indoors.
 - a. Provide covering and shielding for all equipment to protect from damage.
 - b. When such storage would present an unreasonable building space or volume requirement, the equipment or materials may, when acceptable to the Engineer, be stored under weatherproof coverings on shoring or platforms.
 3. All small loose items that could be easily lost, stolen, broken, or misused shall not be stored on open platforms or shoring.
 4. All storage methods and schedules shall be acceptable to the Engineer.
- C. Ensure that equipment is not used as steps, ladders, scaffolds, platforms, or for storage either inside or on top of enclosures.
- D. Protect nameplates on electrical equipment to prevent defacing.
- E. Repair, restore or replace damaged, corroded and rejected items at no additional cost to the Owner.
- F. Record Drawings:
 1. Contractor shall maintain a marked up set of Document Drawings showing actual installed circuit numbers, conduit sizes, cable tray routing, number of conductors, conductor sizes (other than 12AWG) and all other deviations from the design drawings.

2. All underground conduit and concealed items shall be dimensioned on the Document Drawings from permanent, visible, building features.
3. Provide actual motor size, starter size, and heater size, along with all other protective equipment for all motor circuits as part of the one-line record drawings.
4. Revise all wire/cable identification schedules to indicate as installed conditions.
5. Revise all panelboard schedules to indicate as installed conditions.

PART 2 - PRODUCTS

3.01 MANUFACTURERS

- A. Refer to related Division 16 Sections. All equipment of a similar type shall be by one manufacturer unless otherwise noted in the Specifications.
- B. Subject to compliance with the Contract Documents all electrical equipment and materials shall be acceptable as specified in the Owner's Approved Products List

3.02 MATERIALS

- A. Trade names and catalog numbers may be used in the Contract Documents or Specifications to establish quality standards and basics of design.
 1. Other listed manufacturers in the applicable specification sections with equal equipment may be acceptable.
 2. If no other manufacturer is listed then any manufacturer of equal equipment may be acceptable.
- B. Listed: Where UL test procedures have been established for the product type, electrical equipment shall be approved by UL or ETL and shall be provided with the UL or ETL label.

3.03 FABRICATION

- A. When equipment is shop fabricated for the Project, the electrical devices and enclosures utilized shall be UL or ETL listed and labeled or shall be UL recognized.
 1. Contractor shall submit for Engineer review all fabricated electrical and control equipment assemblies, enclosures including but not limited to: equipment racks or support systems.
- B. Shop or Factory Finishes: Interiors of other painted equipment shall be white.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Equipment shall be installed in accordance with the requirements of the NEC.
- B. Enclosures for use with electrical equipment unless specifically shown or specified elsewhere in the Contract Documents:
 1. NEMA 1G/12:
 - a. Acceptable for use in the Electrical Building or those interior spaces that are provided with temperature and humidity controlled conditioned air.

2. NEMA 4X:
 - a. Acceptable for use in all exterior and interior areas or spaces.
 - b. Enclosures shall be 304-Stainless-Steel minimum.
 - c. Nonmetallic enclosures are not acceptable.
3. NEMA 6P:
 - a. Acceptable for use in those spaces prone to flooding and/or submersion.
 - b. Enclosures and/or devices shall be cast aluminum or malleable-iron.
 - c. Exception: Those spaces identified as Class-I Division 2 shall be NEMA 9 minimum.
4. NEMA 9:
 - a. Acceptable for use in those spaces and/or areas identified as Hazardous Class-I Division 2.
 - b. Enclosures and/or devices shall be cast aluminum or malleable-iron.
5. Exceptions:
 - a. As required in other Division 16 Sections.
 - b. As otherwise indicated in the Contract Documents.
- C. Coordinate the installation of electrical equipment with other trades.
 1. Arrange for the building in of equipment during structure construction.
 2. Where equipment cannot be built in during construction, arrange for sleeves, box outs, openings, etc., as required to allow installation of equipment after structure construction is complete.
- D. Verify that equipment will fit support layouts indicated.
- E. Equipment Dimensions and Clearances:
 1. Equipment shall fit in the locations shown in the Contract Documents.
 2. Do not use equipment or arrangements of equipment that reduce required clearances or exceed the space allocation.
- F. Install equipment in accordance with the manufacturer's instructions.
- G. Equipment Access:
 1. Install equipment so it is readily accessible for operation and maintenance.
 2. Equipment shall not be blocked or concealed.
 3. Do not install electrical equipment such that it interferes with normal maintenance requirements of other equipment.

- H. Equipment shall be installed plumbed, square and true with the building construction and shall be securely fastened.
- I. Outdoor wall mounted equipment and indoor equipment mounted on earth or water bearing walls shall be provided with corrosion resistant spacers to maintain 1/4IN separation between the equipment and the wall.
- J. Screen or seal all openings into outdoor equipment to prevent the entrance of rodents and insects.
- K. Equipment fabricated from aluminum shall not be placed in direct contact with earth or concrete.
- L. Provide all necessary anchoring devices and supports.
 - 1. Reference Specification Section 16070 – HANGERS AND SUPPORTS
 - 2. Use supports as detailed in the Contract Drawings and as specified.
 - 3. Where not detailed on the Contract Drawings or specified, use supports and anchoring devices rated for the equipment load and as recommended by the manufacturer.
- M. Contractor shall verify exact rough in locations and dimensions for connection to electrical items to be installed under this Contract.
 - 1. Shop drawings shall be secured from those furnishing the equipment.
 - 2. Proceeding without proper information may require the Contractor to remove and replace work that does not meet the conditions imposed by the equipment supplied.
 - 3. Provide sleeves wherever openings are required through new concrete or masonry members. Place sleeves accurately and coordinate locations with the Engineer.
 - 4. Should any cutting and patching be required on account of failure of the Contractor to coordinate penetrations, such cutting and patching shall be done at the expense of the Contractor.
 - a. Contractor shall not endanger the stability of any structural member by cutting, digging, chasing, or drilling and shall not, at any time, cut or alter the work without the Engineer's written consent.
 - 1) Provide additional reinforcing if required.
 - 2) Cutting shall be done neatly using proper tools and methods.
 - b. Subsequent patching to restore walls, ceilings, or floors to their original condition shall be done by workmen skilled in their particular field.
- N. Provide concrete foundations or pads required for electrical equipment as indicated or specified.
 - 1. Floor mounted equipment shall be mounted on a 4IN high concrete housekeeping pad. Pad shall be poured on top of the finished floor or slab.
- O. Material that may cause rusting or streaking on a building surface shall not be used.
- P. Contractor shall coordinate the installation of the conduit and wire associated with the HVAC equipment supplied under this Contract.

3.02 IDENTIFICATION

- A. Contractor shall reference and provide all identification, tagging and labeling for electrical and control systems as required per Specification Section:

- 1. 16075 – ELECTRICAL IDENTIFICATION

3.03 FIELD QUALITY CONTROL

- A. Contractor shall reference and provide all testing procedures, reports and data for Engineer review and approval for electrical systems as required per Specification Section:

- 1. 16080 – ELECTRICAL TESTING

- B. Verify all components are operational.
- C. Perform ground fault performance testing as required by NEC Article 230 95(c).
- D. Test Equipment Interface:
- E. Verify systems coordination and operation.
 - 1. Set all adjustable trip protective devices as required for system protection and coordination.
- F. Verify all system and equipment ground continuity.
- G. Adjust installed equipment for proper operation of all electrical and mechanical components.
- H. Replace equipment and systems found inoperative or defective and re test.
 - 1. If equipment or system fails re test, replace it with products that conform to Contract Documents.
 - 2. Continue remedial measures and re tests until satisfactory results are obtained.
 - 3. Remedial measures and re tests will be done at no cost to the Owner.
- I. The Engineer shall be notified of tests and Engineer may witness individual tests at their discretion.
- J. Required certificates of testing and test reports shall be presented to the Engineer upon completion of the tests.
- K. At Completion of Installation:
 - 1. Test to ensure all equipment is free of short circuits and improper grounds.
 - 2. Test to ensure all equipment is operational.
- L. After installation, all equipment shall be tested as recommended by the manufacturer.

3.04 STRUCTURAL COORDINATION

- A. Contractor shall reference all structural and building requirements prior to installing work and shall not interfere with any structural foundation component such as footings, bearing

walls, etc. Contractor shall identify any structural interference and notify the Engineer immediately prior to continuation of work.

- B. Do not remove or damage fireproofing materials.
 - 1. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.
 - 2. Repair or replace fireproofing removed or damaged.
- C. Make all penetrations through roofs prior to installation of roofing.
- D. All penetrations required after installation of roofing, shall be completed by an authorized roofer to maintain the roof warranty.
- E. Make all penetrations of electrical work through walls water and weather tight.
- F. Equipment furnished under this Contract for use on future work and all concealed equipment, including conduits, shall be dimensioned, on the Record Drawings, from visible and permanent building features.

3.05 PROJECT CLOSEOUT

- A. Cleaning
 - 1. Clean dirt and debris from all interior and exterior surfaces.
 - 2. Exterior surfaces shall be cleaned with manufacturer approved cleaning agents.
 - 3. Apply touch up paint as required to repair scratches, etc.
 - 4. Replace nameplates or wire and cable markers damaged during installation.
 - 5. Thoroughly vacuum the interior of all enclosures to remove dirt and debris. Do not use pressurized air systems to blow out dirt and debris.
- B. Demonstration
 - 1. Demonstrate equipment has been installed and operational in accordance with Contract Requirements and Project Specifications.

END OF SECTION

SECTION 16010 – ELECTRICAL POWER STUDIES

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish short-circuit and protective device coordination studies as prepared by the electrical equipment supplier or an approved engineering firm.
- B. Contractor shall furnish an Arc Flash Hazard Analysis Study per the requirements set forth in NFPA 70E - Standard for Electrical Safety in the Workplace. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E-2004, Annex D.
- C. The scope of work for the studies shall include all new distribution equipment supplied by the electrical equipment supplier under this Contract as well as all the applicable existing electrical equipment at the Project site.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Documents referenced herein shall be applied.

1.03 REFERENCES

- A. Codes and Standards
 - 1. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems
 - b. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
 - c. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis
 - d. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings
 - e. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.
 - f. IEEE 1584 - Guide for Performing Arc-Flash Hazard Calculations
 - 2. American National Standards Institute (ANSI):
 - a. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
 - b. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures

- c. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis
- d. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.
- 3. The National Fire Protection Association (NFPA)
 - a. NFPA 70 - National Electrical Code, latest edition
 - b. NFPA 70E – Standard for Electrical Safety in the Workplace

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. For Engineer Review
 - 1. The short-circuit and protective device coordination studies shall be submitted to the Engineer prior to receiving final approval of the distribution equipment shop drawings and/or prior to release of equipment drawings for production. If formal completion of the studies may cause delay in equipment manufacturing, approval from the Engineer may be obtained for preliminary submittal of sufficient study data to ensure that the selection of device and characteristics will be satisfactory.
- C. For Construction
 - 1. The results of the short-circuit, protective device coordination and arc flash hazard analysis studies shall be summarized in a final report. No more than five (5) bound hard copies of the complete final report shall be submitted. Electronic copies of the resultant computer analysis software study(ies) shall be included and compatible with the latest version of SKM® Systems software.
 - 2. The report shall include the following sections:
 - a. Executive Summary
 - b. Descriptions, purpose, basis and scope of the study
 - c. Tabulations of circuit breaker, fuse and other protective device ratings versus calculated short circuit duties
 - d. Protective device time versus current coordination curves, tabulations of relay and circuit breaker trip unit settings, fuse selection
 - e. Fault current calculations including a definition of terms and guide for interpretation of the computer printout
 - f. Details of the incident energy and flash protection boundary calculations
 - g. Recommendations for system improvements, where needed

- h. One-line diagram
- 3. Arc flash labels shall be provided and installed by the Contractor in accordance with Specification Section:
 - a. 16075 – ELECTRICAL IDENTIFICATION

1.05 QUALIFICATIONS

- A. The short-circuit, protective device coordination and arc flash hazard analysis studies shall be conducted under the supervision and approval of a Registered Professional Electrical Engineer in the State of North Carolina skilled in performing and interpreting the power system studies.
- B. The Registered Professional Electrical Engineer shall be a full-time employee of the equipment manufacturer or an approved engineering firm
- C. The Registered Professional Electrical Engineer shall have a minimum of five (5) years of experience in performing power system studies.
- D. The equipment manufacturer or approved engineering firm shall demonstrate experience with Arc Flash Hazard Analysis by submitting names of at least ten actual arc flash hazard analysis it has performed in the past year.

1.06 COMPUTER ANALYSIS SOFTWARE

- A. The studies shall be performed using the latest version of SKM® Systems software program or approved equal.

PART 2 - PRODUCTS

2.01 STUDIES

- A. Contractor shall furnish short-circuit and protective device coordination studies as prepared by equipment supplier or an approved engineering firm.
- B. The contractor shall furnish an Arc Flash Hazard Analysis Study per NFPA 70E - Standard for Electrical Safety in the Workplace, reference Article 130.3 and Annex D.

2.02 DATA COLLECTION

- A. Contractor shall furnish all data as required by the power system studies. The engineer performing the short-circuit, protective device coordination and arc flash hazard analysis studies shall furnish the Contractor with a listing of required data immediately after award of the contract. Contractor shall expedite collection of the data to assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to the release of the equipment for manufacturing.
- B. Source combination may include present and future motors and generators.
- C. Load data utilized may include existing, new and proposed loads obtained from the Contract Documents, Engineer or Owner.

- D. If applicable, include fault contribution of existing motors in the study. The Contractor shall obtain required existing equipment data, if necessary, to satisfy the study requirements.

2.03 SHORT-CIRCUIT AND PROTECTIVE DEVICE EVALUATION STUDY

- A. Use actual conductor impedances if known. If unknown, use typical conductor impedances based on IEEE Standard 141-1993.
- B. Transformer design impedances shall be used when test impedances are not available.
- C. Provide the following:
 - 1. Calculation methods and assumptions
 - 2. Selected base per unit quantities
 - 3. One-line diagram of the system being evaluated
 - 4. Source impedance data, including electric utility system and motor fault contribution characteristics
 - 5. Tabulations of calculated quantities
 - 6. Results, conclusions, and recommendations.
- D. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault at each:
 - 1. Electric utility's supply termination point
 - 2. Incoming switchgear
 - 3. Motor control centers
 - 4. Standby generators
 - 5. Branch circuit panelboards
 - 6. Other significant locations throughout the system.
- E. For grounded systems, provide a bolted line-to-ground fault current study for areas as defined for the three-phase bolted fault short-circuit study.
- F. Protective Device Evaluation:
 - 1. Evaluate equipment and protective devices and compare to short circuit ratings
 - 2. Adequacy of switchgear, motor control centers, and panelboard bus bars to withstand short-circuit stresses
 - 3. Notify Engineer in writing, of existing, circuit protective devices improperly rated for the calculated available fault current.

2.04 PROTECTIVE DEVICE COORDINATION STUDY

- A. Proposed protective device coordination time-current curves (TCC) shall be displayed on log-log scale graphs.
- B. Include on each TCC graph, a complete title and one-line diagram with legend identifying the specific portion of the system covered.
- C. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
- D. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.

- E. Plot the following characteristics on the TCC graphs, where applicable:
1. Electric utility's overcurrent protective device
 2. Medium voltage equipment overcurrent relays
 3. Medium and low voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands
 4. Low voltage equipment circuit breaker trip devices, including manufacturer's tolerance bands
 5. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves
 6. Conductor damage curves
 7. Ground fault protective devices, as applicable
 8. Pertinent motor starting characteristics and motor damage points, where applicable
 9. Pertinent generator short-circuit decrement curve and generator damage point
 10. The largest feeder circuit breaker in each motor control center and applicable panelboard.
- F. Provide adequate time margins between device characteristics such that selective operation is provided, while providing proper protection.

2.05 ARC FLASH HAZARD ANALYSIS

- A. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E-2004, Annex D.
- B. The flash protection boundary and the incident energy shall be calculated at all significant locations in the electrical distribution system (switchboards, switchgear, motor-control centers, panelboards, busway and splitters) where work could be performed on energized parts.
- C. The Arc-Flash Hazard Analysis shall include all significant locations in 240V and 208V systems fed from transformers equal to or greater than 125kVA where work could be performed on energized parts.
- D. Safe working distances shall be based upon the calculated arc flash boundary considering an incident energy of 1.2 cal/cm².
- E. When appropriate, the short circuit calculations and the clearing times of the phase overcurrent devices will be retrieved from the short-circuit and coordination study model. Ground overcurrent relays should not be taken into consideration when determining the clearing time when performing incident energy calculations
- F. The short-circuit calculations and the corresponding incident energy calculations for multiple system scenarios must be compared and the greatest incident energy must be uniquely reported for each equipment location. Calculations must be performed to represent the maximum and minimum contributions of fault current magnitude for all normal and emergency operating conditions. The minimum calculation will assume that the utility contribution is at a minimum and will assume a minimum motor contribution (all motors off). Conversely, the maximum calculation will assume a maximum contribution from the utility and will assume the maximum amount of motors to be operating. Calculations shall take into consideration the parallel operation of synchronous generators with the electric utility, where applicable.

- G. The incident energy calculations must consider the accumulation of energy over time when performing arc flash calculations on buses with multiple sources. Iterative calculations must take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors and generators should be decremented as follows:
1. Fault contribution from induction motors should not be considered beyond 3-5 cycles.
 2. Fault contribution from synchronous motors and generators should be decayed to match the actual decrement of each as closely as possible (e.g. contributions from permanent magnet generators will typically decay from 10 per unit to 3 per unit after 10 cycles).
- H. For each equipment location with a separately enclosed main device (where there is adequate separation between the line side terminals of the main protective device and the work location), calculations for incident energy and flash protection boundary shall include both the line and load side of the main breaker.
- I. When performing incident energy calculations on the line side of a main breaker (as required per above), the line side and load side contributions must be included in the fault calculation.
- J. Mis-Coordination should be checked amongst all devices within the branch containing the immediate protective device upstream of the calculation location and the calculation should utilize the fastest device to compute the incident energy for the corresponding location.
- K. Arc Flash calculations shall be based on actual overcurrent protective device clearing time. Maximum clearing time will be capped at 2SEC based on IEEE 1584-2002 section B.1.2. Where it is not physically possible to move outside of the flash protection boundary in less than 2SEC during an arc flash event, a maximum clearing time based on the specific location shall be utilized.

2.06 REPORT SECTIONS

- A. Input data shall include, but not be limited to the following:
1. Feeder input data including feeder type (cable or bus), size, length, number per phase, conduit type (magnetic or non-magnetic) and conductor material (copper or aluminum).
 2. Transformer input data, including winding connections, secondary neutral-ground connection, primary and secondary voltage ratings, kVA rating, impedance, % taps and phase shift.
 3. Reactor data, including voltage rating, and impedance.
 4. Generation contribution data, (synchronous generators and Utility), including short-circuit reactance (X''_d), rated MVA, rated voltage, three-phase and single line-ground contribution (for Utility sources) and X/R ratio.
 5. Motor contribution data (induction motors and synchronous motors), including short-circuit reactance, rated horsepower or kVA, rated voltage, and X/R ratio.
- B. Short-Circuit Output Data shall include, but not be limited to the following reports:
1. Low Voltage Fault Report shall include a section for three-phase and unbalanced fault calculations and shall show the following information for each applicable location:

- a. Voltage
 - b. Calculated fault current magnitude and angle
 - c. Fault point X/R ratio
 - d. Equivalent impedance
- 2. Momentary Duty Report shall include a section for three-phase and unbalanced fault calculations and shall show the following information for each applicable location:
 - a. Voltage
 - b. Calculated symmetrical fault current magnitude and angle
 - c. Fault point X/R ratio
 - d. Calculated asymmetrical fault currents
 - 1) Based on fault point X/R ratio
 - 2) Based on calculated symmetrical value multiplied by 1.6
 - 3) Based on calculated symmetrical value multiplied by 2.7
 - e. Equivalent impedance
- 3. Interrupting Duty Report shall include a section for three-phase and unbalanced fault calculations and shall show the following information for each applicable location:
 - a. Voltage
 - b. Calculated symmetrical fault current magnitude and angle
 - c. Fault point X/R ratio
 - d. No AC Decrement (NACD) Ratio
 - e. Equivalent impedance
 - f. Multiplying factors for 2, 3, 5 and 8 cycle circuit breakers rated on a symmetrical basis
 - g. Multiplying factors for 2, 3, 5 and 8 cycle circuit breakers rated on a total basis
- C. Recommended Protective Device Settings:
 - 1. Phase and Ground Relays:
 - a. Current transformer ratio

- b. Current setting
 - c. Time setting
 - d. Instantaneous setting
 - e. Recommendations on improved relaying systems, if applicable.
- 2. Circuit Breakers:
 - a. Adjustable pickups and time delays (long time, short time, ground)
 - b. Adjustable time-current characteristic
 - c. Adjustable instantaneous pickup
 - d. Recommendations on improved trip systems, if applicable.
- D. Incident energy and flash protection boundary calculations
 - 1. Arcing fault magnitude
 - 2. Protective device clearing time
 - 3. Duration of arc
 - 4. Arc flash boundary
 - 5. Working distance
 - 6. Incident energy
 - 7. Hazard Risk Category
 - 8. Recommendations for arc flash energy reduction

PART 3 - EXECUTION

3.01 FIELD ADJUSTMENT

- A. Adjust relay and protective device settings according to the recommended settings table provided by the coordination study. Field adjustments to be completed by the start-up and commissioning technician of the electrical equipment manufacturer under the Startup and Acceptance Testing contract portion.
- B. Make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.
- C. Notify Engineer in writing of any required major equipment modifications.

3.02 ARC FLASH WARNING LABELS

- A. The Contractor shall provide and install labels in accordance Specification Section:
 - 1. 16075 – ELECTRICAL IDENTIFICATION
- B. All labels will be based on recommended overcurrent device settings and will be provided after the results of the analysis have been presented to the Engineer for review and after any system changes, upgrades or modifications have been incorporated in the system.

END OF SECTION

SECTION 16050 – ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, equipment and incidentals required to complete electrical systems that require excavation and/or concrete work as required under this Contract as hereinafter specified and/or shown in the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. DIVISION 3 – CONCRETE

1.03 REFERENCES – NOT USED

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Contractor shall obtain from the equipment manufacturer and submit shop drawings. Each submittal shall be identified by the applicable Specification Section.
- C. Shop drawings shall include but not be limited to:
 - 1. Equipment specifications and product data sheets identifying all materials used and methods of fabrication.
 - 2. Complete assembly, layout, installation, and foundation drawings with clearly marked dimensions.

1.05 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of products for electrical related work of sizes, types, ratings, and materials required, whose products have been in satisfactory use in similar service for not less than three (3) years.

1.06 PROJECT CONDITIONS

- A. Protect property from any and all damage that might result from excavating and backfilling.
- B. Protect persons from injury at excavations, by barricades, warnings and illumination.
- C. Coordinate excavations with weather conditions, to minimize possibility of washouts, settlements and other damages and hazards.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 EXCAVATIONS

- A. General: Do not excavate for electrical work until the work is ready to proceed without delay, so that total time lapse from excavation to completion of backfilling will be minimized.
- B. Excavate with vertical-sided excavations to greatest extent possible, except where otherwise indicated. Where necessary, provide sheeting and cross-bracing to sustain sides of excavations. Remove sheeting and cross-bracing during backfilling wherever such removal would not endanger the work or other property. Where not removed, cut sheeting off at sufficient distance below finished grade to not interfere with other work.
- C. Excavations shall not interfere or adversely compromise structural foundations, elements or features. Excavations that encroach structural foundations, elements or features shall be coordinated with structural Engineer of Record prior to commencing work.
- D. Depth for sub-base Support: Unless otherwise noted, provide installation of sub-base material(s). Excavate for installation of sub-base material in depth indicated or, if not otherwise indicated, 6IN below bottom of work to be supported.
- E. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
 - 1. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
 - 2. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- F. Excavate trenches to the uniform dimensions required for the particular item(s) to be installed and provide sufficient working clearances. Dig trenches to approximate depth and hand grade bottom to accurate elevation as required.
- G. Where rock is encountered, carry excavation 6IN below required elevation and backfill with a 6IN layer of sand prior to installation of conduit.
- H. Where soil conditions at bottom of indicated excavation are unsatisfactory, excavate additional depth as directed to reach satisfactory soil-bearing condition. Backfill with sub-base material compacted as directed, to indicated excavation depth.
- I. Unless otherwise noted in the Contract Drawings, store excavated material (temporarily) near excavation, in manner that will not interfere with or damage excavation or other work. Do not store under trees (within drip-line).
- J. Retain excavated material that complies with requirements for backfill material.
- K. Dispose of excess or unsatisfactory excavated material(s) as directed by the Contract requirements and site conditions.
- L. Refer to the Contract requirements and site conditions for removal of large subsurface materials.

3.02 DEWATERING

- A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
- B. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.
- C. Maintain dry excavations for electrical work, by removing water. Protect excavations from inflow of surface water. Pump minor inflow of ground water from excavations; protect excavations from major inflow of ground water, by installing temporary sheeting and waterproofing. Provide adequate barriers that will protect other excavations and below-grade property from being damaged by water, sediment or erosion from or through electrical work excavations.

3.03 BASE PREPARATION

- A. Install sub-base material to receive electrical work, and compact by tamping to form a firm base for the work.
- B. Provide finely-graded sub-base material for equipment to be buried.
- C. Tamp fill to uniform compacted density.
- D. Where conduit crosses over areas which have been previously excavated to depths greater than required for conduit installation, provide suitable support that comply with details shown and Contract requirements.

3.04 BACKFILLING

- A. Backfill with approved backfill materials.
- B. Backfill with finely-graded subbase material to 6IN above equipment to be buried. Backfill materials shall be soil materials free of clay, rock or gravel larger than 3/4IN, debris, waste, frozen materials, vegetation and other deleterious matter.
- C. Condition backfill material by either drying or adding water uniformly, to whatever extent may be necessary to facilitate compaction to required densities. Do not backfill with frozen soil materials.
- D. Backfill simultaneously on opposite sides of electrical work, and compact simultaneously; do not dislocate the work from installed positions.
- E. Backfill excavations in 8IN high courses of backfill material, uniformly compacted to the following densities (% of maximum density, ASTM D 1557), using power-driven hand-operated compaction equipment.
- F. When backfilling excavations for electrical work, backfill to elevations matching finished grades.
- G. Backfill trenches with concrete where trench excavations pass within 18IN of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

- H. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the Engineer. Use care in backfilling to avoid damage or displacement of conduit systems.

3.05 INSTALLATION OF CONCRETE

- A. Refer to Specification Section 03300 – CAST – IN – PLACE CONCRETE
- B. Miscellaneous Concrete Work
 - 1. Concrete Grouting: Grout openings and recesses as indicated on the Contract Drawings and around all electrical work and other work that penetrates or adjoins all concrete work. Provide formwork where required, and tamp, screed and trowel surfaces. Cure grout as specified for concrete work.
 - 2. Refer to Specification Sections for grouting of equipment base plates on foundations (with high-strength, non-shrinking grout), and similar grouting requirements not defined herein.
- C. Clean-Up: Upon completion of work, clean excess concrete and grout from adjacent areas and surfaces. Remove excess concrete and grout by proper methods of removal, using care not to scratch or otherwise damage finished surfaces.

3.06 SUPPORT AND FASTENERS

- A. Contractor shall reference and provide all hangers, supports, equipment racks, etc. for all electrical equipment components and devices as required per Specification Section:
 - 1. 16070 – HANGERS AND SUPPORTS
- B. Concrete or Masonry Inserts
 - 1. Contractor shall be responsible for the furnishing and installation of all conduit sleeves, anchor bolts, masonry inserts, and similar devices required for installation of equipment furnished under this Contract.
 - 2. Contractor shall furnish leveling channels for all switchgear, switchboards, motor control centers, and similar equipment spanning 60IN, in any direction, along the floor. The leveling channels shall be provided for installation into the equipment supporting pads. Coordination of the installation of these channels within the concrete pad is essential and required. Pad height shall be as required to maintain coverage of the reinforcement bars while not exceeding the maximum mounting heights requirements of the NEC.
 - 3. Aluminum support members shall not be installed in direct contact with concrete. Stainless steel or non-metallic ABS plastic spacers shall be used to prevent contact of aluminum with concrete.
 - 4. Contractor is responsible for the design of supporting structures and shall submit design details to the Engineer for acceptance before proceeding with the fabrication and installation.
 - 5. Wherever dissimilar metals come into contact, the Contractor shall isolate these metals as required with UV resistant nylon washers or 9MIL polyethylene tape or gaskets.

END OF SECTION

SECTION 16060 – GROUNDING AND BONDING

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install grounding systems complete in accordance with the minimum requirements established by Article 250 of the NEC. Article 250 of the NEC shall be considered as a minimum requirement for compliance with this Specification Section.
- B. Grounding of all instrumentation and control systems shall be furnished and installed in accordance with the manufacturer/system requirements and IEEE 1100-92, Powering and Grounding of Sensitive Electronic Equipment. Conflicts shall be promptly brought to the attention of the Engineer.
- C. In addition to the NEC requirements, building structural steel columns shall be permanently and effectively grounded:
- D. Additional requirements for grounding and bonding as shown on the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.

1.03 REFERENCES

- A. All grounding components and the completed system shall comply with the following codes and standards as well as within the Specifications or as shown in the Contract Documents:
- B. Codes and Standards:
 - 1. American National Standards Institute (ANSI/IEEE):
 - a. C2, National Electrical Safety Code (NESC)
 - 2. Institute of Electrical and Electronic Engineers (IEEE):
 - a. IEEE 81, Guide for Measuring Earth Resistivity.
 - b. IEEE 142, Recommended Practice for Grounding of Industrial and Commercial Power Systems.
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 70, National Electric Code (NEC)
 - 4. Underwriters Laboratories Inc (UL):
 - a. 588, Grounding Equipment

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Contractor shall obtain from the equipment manufacturer and submit the following:
 - 1. Shop Drawings
 - 2. Reports of certified field tests. Each submittal shall be identified by the applicable Specification Section.
 - 3. Equipment specifications and product data sheets identifying all materials used and methods of fabrication.
- C. Contractor shall provide drawings and written description(s) of how the grounding/bonding system will be installed for Engineer review prior to commencing work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The equipment covered by these specifications shall be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Contract Drawings.

2.02 GROUNDING CONDUCTOR

- A. A green, insulated equipment grounding conductor, which shall be separate from the electrical system neutral conductor, shall be furnished and installed for all circuits. Equipment grounding conductors shall be furnished and installed in all conduits. Use of conduits as the NEC required equipment grounding conductor is not acceptable.
- B. Where specified or shown a 3IN strap shall be furnished and installed as the grounding conductor.

2.03 EQUIPMENT GROUND CONDUCTOR

- A. Equipment ground conductors shall be solid and continuous from a connection at earth to all distribution panelboards. Ground connections at panelboards, outlets, equipment, and apparatus shall be made in an approved and permanent manner.

2.04 BONDING FITTINGS

- A. Grounding connections to equipment shall be bolted. Cable end connections may be made by use of the crucible weld process or bolted type connectors. Bolted type connectors for this application shall consist of corrosion resistant copper alloy with silicone bronze bolts, nuts and lock-washers which are designed for this purpose.

2.05 GROUND RODS

- A. Ground rods shall be rolled to a commercially round shape from copper clad steel manufactured by the molten welding process or by the electro formed process (molecularly

bonded). They shall have an ultimate tensile strength of 75kPSI and an elastic limit of 49kPSI. The rods shall be not less than 3/4IN diameter by 10FT in length; and the proportion of copper shall be uniform throughout the length of the rod. The copper shall have a minimum wall thickness of 0.013IN at any point on the rod.

- B. The maximum resistance to ground of a driven ground rod shall not exceed 25OHM under normally dry conditions. Where the resistance obtained with one (1) ground rod exceeds 25OHM, additional ground rods shall be coupled, by exothermic welds. Except where specifically indicated otherwise, all exposed non-current carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductors in non-metallic raceways and neutral conductors of wiring systems shall be grounded.
- C. The ground connection shall be made at the main service equipment and shall be extended to the point of entrance of the metallic water service. Connection to the water pipe shall be made by a suitable ground clamp or lug connection to a plugged tee. If flanged pipes are encountered, connection shall be made with the lug bolted to the street side of the flanged connection. If there is not suitable metallic water service to the facility, the ground connection shall be made to the driven ground rods on the exterior of the building.
- D. Where ground fault protection is employed, care shall be taken so that the connection of the ground and neutral does not interfere with the correct operation of the ground fault protection system.

2.06 GROUNDING GRID

- A. A grounding grid shall be provided for each structure and interconnected between structures. The grounding grid shall be installed such that the ground resistance does not exceed 5OHM. The grounding grid shall be interconnected by bare copper conductors sized to the largest service entrance ground, spliced and connected to ground rods by exothermic welds. The grounding conductors shall be installed after the excavations for the building have been completed and prior to the pouring of concrete for the footings, mats, etc. Copper "pigtailes" shall be connected to the grounding grid system and shall enter the buildings and structure from the outside and shall be connected to steel structures, and equipment as described in this Section and as shown in the Contract Documents.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Metal surfaces where grounding connections are to be made shall be clean and dry. Steel surfaces shall be ground or filed to remove all scale, rust, grease, and dirt. Copper and galvanized steel shall be cleaned with emery cloth to remove oxide before making connections.
- B. Grounding conductors shall be continuous between points of connection; splices shall not be permitted.
- C. Where conductors are exposed and subject to damage from personnel, traffic, etc., conductors shall be installed in PVC SCH-80 raceway.
- D. Mechanical connections shall be permitted to ground rods in "Ground Test Wells" and shall be exposed to permit maintenance and inspection for continuity and effectiveness of grounding system.

- E. Where subsurface conditions do not permit use of driven ground rods to obtain proper ground resistance, rods shall be installed in a trench or plate electrodes shall be provided, as applicable and necessary to obtain proper values of resistance.
- F. Conduit:
 - 1. Conduit that enters equipment such as motor control centers, switchboards, switchgear, variable frequency drives, instrument and control panels, and similar equipment shall be bonded to the ground bus, where provided, and as otherwise required by the NEC.

3.02 TESTING

- A. All testing shall be performed in accordance with the requirements of Specification Section(s):
 - 1. 16070 – ELECTRICAL TESTING
- B. If tests reveal defects or deficiencies, the Contractor shall make the necessary repairs or shall replace the cable as directed by the Engineer, without additional cost to the Owner.
- C. All tests shall be made by and at the expense of the Contractor who shall supply all testing equipment.
- D. Field Tests:
 - 1. Ground resistance shall be measured with a three-point, fall of potential instrument.
 - 2. All ground rods shall be tested after being driven and prior to connection to the grounding system. Where test results show resistance-to-ground is greater-than 25OHM, additional ground rods shall be driven by coupling with exothermic welds. The compliance shall be demonstrated by retesting ground rod.
 - 3. Upon completion of installation of the grounding and bonding system, the entire system shall be tested at the ground test well(s), as indicated in the Contract Documents. The completed system shall have less-than 5OHM of ground resistance.

END OF SECTION

SECTION 16070 – HANGERS AND SUPPORTS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish, install and place in satisfactory condition all conduit, cable-tray, raceway and equipment hangers and/or supports as required for proper installation of those systems per equipment manufacturer installation instructions and applicable codes and standards. All hardware and fasteners required for the installation shall be furnished and installed by the Contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 15103 – BUTTERFLY VALVES
 - 2. 15110 – CHECK VALVES
 - 3. 15140 – HANGERS AND SUPPORTS
 - 4. 15155 – MAGNETIC FLOW METER

1.03 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. American Society for Testing and Materials (ASTM)
 - 2. National Electric Code (NEC)
 - 3. National Electric Manufacturers Association (NEMA)
 - 4. National Fire Protection Agency (NFPA)
 - 5. Nationally Recognized Testing Laboratories (NRTL)
 - 6. Polyvinyl Chloride (PVC)
 - 7. Underwriters Laboratories, Inc. (UL)
- B. Codes and Standards:
 - 1. ASTM A1011 – Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
 - 2. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
 - 3. ASTM F1136 – Standard Specification for Zinc/Aluminum Corrosion Protective Coatings for Fasteners
 - 4. ASTM A1018 – Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
 - 5. ASTM B633 – Specification for Electrodeposited Coatings of Zinc on Iron and Steel
 - 6. NEMA Standards Publication VE-2 – Cable Tray Installation Guidelines
 - 7. NFPA 70 – National Electrical Code

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Product data shall be submitted for each support system component and accessory; including clamps, brackets, hanger rods and fittings. The information shall include, but not be limited to, types, materials, finishes, gauge thickness and mounting-hole patterns.

1.05 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Electrical components shall be listed and labeled by UL, CSA or other NRTL testing and listing agencies that provide third-party certification follow-up services.
 - 2. Strut-Channel and fittings shall have a unique identifying number that trace the product back to material test reports. Stainless steel items shall have a part number that contains a material designator or a separate stamp that includes a reference to the type of material used.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Acceptable manufacturers:
 - 1. Allied Power-Strut Products
 - 2. B Line Systems
 - 3. Rob-Roy Industries
 - 4. Thomas & Betts
 - 5. Unistrut Building Systems
- B. All strut, clamps, fittings and fastener materials shall conform to the following unless otherwise noted on the Contract Drawings.
 - 1. Indoor/Wet Areas: Aluminum 6063-T6
 - 2. Indoor/Corrosive Areas: Fiberglass (ASTM D-4385)
 - 3. Outdoor Areas:
 - a. Stainless Steel Type-316 (ASTM A240)
- C. Strut-Channel shall not be bent, drilled, cut or otherwise modified to produce fittings, braces or brackets for conduit and equipment supports.
- D. Manufactured strut-channel braces, brackets, fittings and post-bases shall be provided and installed with associated hardware and fasteners as a complete system for conduit and equipment supports.

2.02 COMPONENTS

- A. Materials:

1. Strut-Channel systems shall be furnished with fittings and accessories designed for use with the manufacturers strut system and made by the same manufacturer.
2. Contractor shall furnish all necessary locknuts, bushings, pipe clamps, ground clamps, supports, pull boxes, mounting bolts, inserts, lugs and any other materials necessary and proper in the execution of the work.
3. All fasteners and hardware materials shall be:
 - a. Stainless-Steel Type 316 (ASTM A276).
4. Anti-Vibratory type fasteners and hardware shall be utilized on all equipment subject to movement and/or vibration or as indicated on the Contract Documents.
5. Hanger rods shall be that as listed in Section 2.2A.3 or as noted in the Contract Documents and 3/8IN minimum diameter for conduit supports and 1/2IN minimum for cable tray supports.
6. Material types other than those listed in Section 2.2A.3, are not acceptable and considered rejected work by the Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Systems Integration

1. Contractor shall coordinate with other trades and craft to ensure electrical, plumbing and HVAC systems utilize common support and hanger systems to minimize individual support systems for each trade.
 - a. Hanger and support installed for multiple systems shall be designed and installed in accordance with the loading requirements.
 - b. Multiple individual support and hanger systems installed within common areas and spaces for electrical, plumbing and HVAC systems are not acceptable and considered rejected work by Engineer.

B. General

1. Boxes, wall brackets, cabinets and hangers shall be secured by means of toggle bolts in hollow masonry and gyp-board, preset inserts or expansion bolts in solid masonry and concrete, machine screws or bolts on metal surfaces and wood or sheet metal screws in wood construction. Brackets and hangers may also be welded to metal surfaces. Boxes and cabinets shall not be welded to metal surfaces.
2. Electrical cabinets, panelboards, transformers, boxes, disconnect switches, etc., and their supporting hardware, shall be fastened securely to the building structure, bolted strut or fabricated structure.
3. Metal strut shall be installed for surface-mounted cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers and any other electrical devices.
 - a. Fiberglass materials where indicated in the Contract Documents
4. In open overhead spaces, cast boxes threaded to raceways need not be supported separately, except where used for fixture support. Sheet metal boxes shall be supported directly from the building structure.

5. Hanger rods shall be fastened to structural steel members with heavy duty beam clamps. Under concrete floors, rods shall be fastened to concrete inserts set flush to the surface. When a hanger is required with no structural steel member directly above, the Contractor shall span between steel members with strut-channel and attach the rod to the strut.
6. Raceway supports shall be selected and installed in accordance with the manufacturer's recommendations. Raceways shall be supported within 1FT of an unsupported box or fitting. Individual horizontal raceways shall be supported with separate conduit hangers. Horizontal conduit racks shall be trapeze-type hangers utilizing strut and all-thread hanger rods. Each conduit on the rack shall be clamped with conduit clamps designed for use with strut. Trapeze hangers shall be used for all RAC, PVC-RAC and PVC conduits. In vertical applications, raceways shall be supported so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the raceway supports, with no load on the raceway fittings. Vertical conduit racks shall utilize strut attached to walls with conduits attached with pipe clamps.
7. Vertical conductor supports and conductors shall be installed simultaneously.
8. Conduits, fittings, enclosures, conduit straps and clamps shall not be welded.
9. Supporting devices and raceways shall be installed plumb, horizontal, or parallel to building lines, finished floors and each other.
10. Cable tray supports shall conform to NEMA Standards Publication VE-2, and the cable tray support detail drawings.
11. All electrical equipment shall not be mounted or supported in any manner to hand-rails, stair-wells, ladder-wells, or safety railing systems unless approved by structural Engineer of record
12. Residential and/or Commercial supports and hanger methods and materials are not acceptable and considered rejected work by Engineer. Example: plumber's perforated strap, "caddy" clips, "push-in" conduit fittings, etc.

END OF SECTION

SECTION 16075 – ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install but not limited to the following equipment and warning labels:
 - 1. Equipment nameplates
 - 2. Conduit/Raceway markers
 - 3. Wire markers and Color Coding
 - 4. Voltage markers
 - 5. Warning signs
 - 6. Arc-Flash and shock hazard warning labels
 - 7. Working space markers
 - 8. Duct-Bank Systems Warning Tape

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. Division 13 – INSTRUMENTATION AND CONTROLS

1.03 REFERENCES

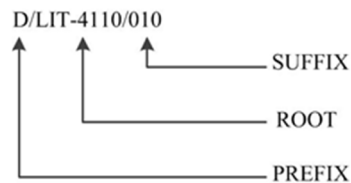
- A. Conform to requirements of the National Electrical Code (NEC), NFPA 70E, and OSHA.
- B. Codes and Standards
 - 1. Conform to applicable requirements of the following ANSI Standards:
 - a. Z535.1 Safety Color Code.
 - b. Z535.2 Environmental and Facility Safety Signs.
 - c. Z535.3 Criteria for Safety Symbols and Labels.
 - d. Z535.4 Product Safety Signs and Labels.
 - e. Z535.5 Safety Tags and Barricade Tapes (for Temporary Hazards).

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Contractor shall submit the following:

1. Catalog Data: Submit manufacturer's catalog literature for each product.
2. Submit electrical identification schedule including list of wording, symbols, letter size, color coding, tag number, location, and function.
3. Samples:
 - a. Submit two (2) samples of each type of printed identification products applicable to the Project.
 - b. Submit two (2) nameplates illustrating materials and engraving quality.
4. Submit an Electrical Wire and Conductor Termination Schedule that aligns with the Raceway Identification Schedule as required in Section 16120 – CONDUCTORS AND CABLES for all power, control, signal, process, data and protective circuits. The schedule shall be submitted for Engineer review in an electronic spreadsheet type Excel compatible file format. The schedule shall include but not limited to the following data:
 - a. Raceway ID Tag
 - b. Cable/Conductor/Wire ID Tag
 - c. Cable/Conductor/Wire type, size and number
 - d. Terminations
 - 1) supply, origin, source, etc.
 - 2) intermediate terminations and/or splices, e.g. marshaling and termination cabinets
 - 3) utilization and/or field device, spares, etc.
 - 4) line, load, lug, terminal block or connection identification
 - e. Routing
 - 1) ductbank sections, pull-boxes, marshaling and termination cabinets, etc.
 - f. Contractor additional notes
5. Submit a Cable/Wire marker schedule for all power, control, signal, process and tele/comm/data circuits. The schedule shall be submitted for Engineer review in an electronic spreadsheet type Excel compatible file format. The marker schedule shall incorporate the following alpha-numeric scheme:
 - a. Prefix, first letter shall indicate the associated system

- | | |
|----------------------------------|--|
| A – Analogue | (PLC/DCS variable signals <90V) |
| C – Control | (Motor/Control signals >90V) |
| D – Discrete | (PLC/DCS step signals <90V) |
| E – Data Communications | (Data Systems, EtherNet, WiFi, etc.) |
| F – Fire Alarm/Annunciation | (Fire Alarm Systems and Devices) |
| H – PLC/DCS Communications | (ModBus, Profibus, ControlNet, etc.) |
| P – Power | (Power feeder, branch circuits >115V) |
| T – Telephone/Voice
or fiber) | (Telephone/Voice Systems copper
or fiber) |
| V – Video | (CCTV/Video Monitoring Systems) |
| Z – Security | (Security Systems) |
- b. Prefix, second letter (if applicable or used)
- | | |
|--------------------------------|--|
| C – Copper Media | (Copper signal conductors) |
| F – Fiber Optic Media
etc.) | (Fiber single-mode, multi-mode,
etc.) |
| K – High Voltage | (Power feeder, branch circuits
>600V) |
- c. Prefix, third letter (if applicable or used)
- | | |
|-------------------------------|--|
| N – Non-Secured/Un-Classified | (Open, non-secured/un-classified
systems) |
| F – Secured/Classified | (Closed, secured/classified systems) |
- d. Root, alpha-numeric lettering as required and in accordance with the P&ID unique identifiers to reflect the equipment/device; examples:
FIT-20, PLC-1, VFD-4500, FCV-5010
- e. Suffix, numeric indexed as required to coincide with the number of cables and/or conductors used; examples:
0100, 0110, 0120...0900
6. Sample Cable/Wire marker format should resemble the following:



1.05 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, and manufacturer's wiring diagrams, with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

- B. Verify electrical equipment designations and unique equipment identifiers with Engineer, Engineer's Representative and/or Owner.

PART 2 - PRODUCTS

2.01 EQUIPMENT NAMEPLATES

- A. Furnish equipment nameplates as specified and as shown on the Contract Drawings to indicate the unique equipment identifiers.
 - 1. UV stabilized phenolic material for outdoor applications and rated for 200F.
 - 2. White letters on Black background.
 - 3. 6IN by 1.5IN minimum.

2.02 CONDUIT/RACEWAY IDENTIFICATION

- A. Furnish conduit and raceway identification markers for all conduit, raceway, wire-way, cable-tray and wire-through, etc.
- B. Provide and install flexible pressure sensitive vinyl markers with minimum 1IN by 4IN, minimum orange background and black letters that wrap around the circumference of the conduit.
- C. Provide and install typewritten vinyl raceway markers as follows but not limited to:
 - 1. Power Systems
 - 2. PLC/DCS Control Systems
 - 3. Telephone/Voice/Data Systems
 - 4. Fire Alarm and Security Systems
 - 5. Video/CCTV Systems
- D. Reference previous Section 1.4A 4.
- E. Manufacturer: LEM Products, Inc., Brady, Panduit or Approved.

2.03 WIRE MARKERS

- A. Provide wire markers for but not limited to; power, control, instrumentation, fire alarm, tele/comm, video, security and video circuit wires.
- B. Furnish polyolefin whole and/or split sleeve, heat-shrinkable wire markers, size as required per wire, conductor, cable, etc.
- C. Locate a wire marker on each and every cable, conductor or wire at switchgear, MCC, panelboards, pull boxes, outlet and junction boxes, and at each landed termination.
- D. Provide and install typewritten black lettering on white label markers as follows but not limited to:
 - 1. Power and lighting circuits: as-built branch circuit or feeder circuit number.
 - 2. Motor control circuits: as-built control wire number or equipment manufacturer's wiring diagrams.
 - 3. PLC/DCS signals
 - 4. Telephone/Data Communications circuits

- 5. Fire Alarm and Security circuits
- 6. Video/CCTV circuits

E. Reference previous Section 1.4A 5.

F. Manufacturer: LEM Products, Inc., Brady, Panduit or Approved.

2.04 WIRE/CABLE COLOR CODING

A. Color Coding

- 1. Unless otherwise noted on the Contract Documents, conductor insulation shall be color coded as follows:

- a. 480V AC Power:

- Phase A - BROWN

- Phase B - ORANGE

- Phase C - YELLOW

- Neutral – GREY

- b. 120/208V or 120/240V AC Power:

- Phase A - BLACK

- Phase B – RED (ORANGE for Delta High-Leg)

- Phase C - BLUE

- Neutral – WHITE

- c. 120VAC Control:

- Ungrounded conductors – RED

- Ungrounded conductors, foreign source - YELLOW.

- d. 24VAC Control:

- All wiring – ORANGE

- e. 24VDC Power:

- Positive Lead – RED

- Negative Lead – BLACK

- f. 24VDC Control:

- Ungrounded conductors – BLUE

Grounded conductors – BLUE w/ WHITE stripe

g. Equipment Grounding Conductor:

All wiring – GREEN

2. Conductors #4AWG and smaller shall be factory color coded with a separate color for each phase and neutral, which shall be used consistently throughout the system. Larger cables shall be coded by the use of colored heat-shrinkable tubing.

2.05 VOLTAGE MARKERS

- A. Furnish voltage markers for transformers, switchgear, panelboards, starters, motor control centers, safety switches, pull boxes, cabinets, and conduits.
- B. Provide and install flexible pressure sensitive vinyl markers with minimum 1IN by 4IN orange background and black letters.
- C. Provide voltage markers with lettering indicating the highest voltage present:
 1. 120V system: 120 VOLTS
 2. 208/120V system: 208 VOLTS
 3. 120/240V and 240V systems: 240 VOLTS
 4. 480/277V and 480V systems: 480 VOLTS
- D. Manufacturer: LEM Products, Inc., Brady, Panduit or Approved.

2.06 WARNING SIGNS

- A. Furnish warning signs for low-voltage and medium-voltage transformers, switchgear, switchboards, panelboards, motor starters, motor control centers, safety switches, pull boxes, and cabinets.
- B. Use warning signs that conform to ANSI Z535.4 and OSHA Danger and Caution specifications.
- C. Provide minimum 2IN by 4IN warning signs.
- D. Provide warning signs with format and lettering as follows:
 1. Signal word: DANGER
 2. Signal word panel color: red with safety alert symbol.
 3. Word message: HAZARDOUS VOLTAGE SHOCK, BURN OR DEATH
 4. Safety symbol: ISO 3864 "lightning bolt" in yellow triangle.
- E. Materials:
 1. For indoor applications use flexible, pressure sensitive, polyester base with polyester overlamine.
 2. For outdoor applications use aluminum signs.
- F. Manufacturer: Seton Name Plate Co., Safety Label Solutions, Hazard Communication Systems, Electromark or Approved.

2.07 ARC FLASH AND SHOCK HAZARD WARNING LABELS

- A. Furnish arc flash and shock hazard warning labels for switchgear, transformers, panelboards, industrial control panels, motor controllers (including those furnished with mechanical equipment), motor control centers, safety switches, and other equipment as required by the NEC or NFPA 70E.
- B. Provide warning labels that comply with ANSI Z535.4. Color in top part of WARNING sign shall be ANSI "safety orange." Color in top part of DANGER sign shall be red. All lettering on labels shall be black.
- C. Provide either machine-produced custom labels or manually filled-in pre-printed labels similar in design to those below.
 - 1. Label dimensions shall be approximately 4IN height by 5IN width.
 - 2. Outdoor labels shall be suitable for a high-UV environment.
 - 3. Machine-produced custom labels:
 - a. Use polyester label stock that is NRTL-recognized to UL969, Marking and Labeling Systems, and has a high adhesion adhesive back.
 - b. Use printing ribbon recommended by the label stock manufacturer.
 - c. Use a suitable thermal transfer process label-printing machine to generate labels and enter the application-specific information indicated in the installation sub-paragraphs.
 - 4. Pre-printed labels:
 - a. Use labels printed on self-adhesive UV-resistant polyester with pressure-sensitive adhesive back. Provide labels with a clear polyester overlay film to protect manually-entered information.
 - b. Use a black, UV-resistant, industrial permanent marker pen to legibly hand letter the application-specific information indicated in the installation sub-paragraphs.
- D. Use the following warning label design for this scope of work:
 - 1. Sample label design

 WARNING	
Arc Flash and Shock Hazard. Appropriate PPE Required.	
## inches	Arc-Flash Protection Boundary (from exposed live parts).
### cal/sq cm	Arc Flash incident energy at ## inches working distance; use approved PPE with Arc Thermal Performance Value $\geq$ incident energy; use additional PPE on body parts that may be closer.
#	NFPA 70E Hazard/Risk Category for operations with doors closed
### Vac	Shock Hazard exists when <i>door is open or cover is off</i> _____ .
## inches	Limited Approach Boundary
## inches	Restricted Approach Boundary
# inch	Prohibited Approach Boundary
	Glass ## Gloves, } ##### V-Rated Tools
Equipment I.D.: #####-##-####-# Date: MM/DD/YYYY .	
Served From: #####-# Location: ## ### Ckt: ## Volts/Ph/W: ####/##/## .	
Serves: #####-# Location: ## ### Ckt: ## Volts/Ph/W: ####/##/## .	

- E. Manufacturer: Summit Electric Supply, Seton Name Plate Co., Safety Label Solutions, Hazard Communication Systems, Electromark, Brady or Approved.

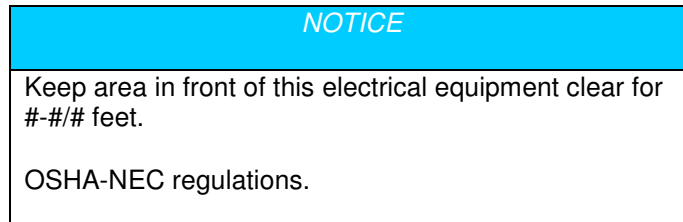
2.08 WORKING SPACE FLOOR MARKING

- A. Provide black paint and white paint to mark the NEC-required working space on the floor at electrical equipment that is likely to require examination, adjustment, servicing, or maintenance while energized.

2.09 WORKING SPACE LABELS

- A. Provide labels indicating required working clearance at electrical equipment that is likely to require examination, adjustment, servicing, or maintenance while energized and it is impractical mark the NEC-required working space on the floor.
- B. Material:

1. Use polyester label stock that is NRTL-recognized to UL969, Marking and Labeling Systems, and has a high adhesion adhesive back.
 2. Use printing ribbon recommended by the label stock manufacturer.
 3. Use a suitable thermal transfer process label-printing machine to generate labels and enter the application-specific information
 4. Outdoor labels shall be suitable for a high-UV environment.
- C. Minimum dimensions: 3.5IN by 1.25IN.
- D. Use the following label design:



1. Signal word: "NOTICE" in 24-point minimum white italic letters on safety blue panel.
 2. Word message: 16-point minimum black or safety blue letters on white background.
 - a. Word message for 120/240V and 208/120V equipment: "Keep area in front of this electrical equipment clear for 3FT. OSHA-NEC regulations."
 - b. Word message for 480V and 480/277V equipment with exposed live parts on one side of the working space and no live parts on the other side of the working space: "Keep area in front of this electrical equipment clear for 3.5FT OSHA-NEC regulations."
 - c. Word message for 480V and 480/277V equipment with exposed live parts on both sides of the working space: "Keep area in front of this electrical equipment clear for 4FT OSHA-NEC regulations."
- E. Manufacturer: Brother, Seton, Brady or Approved

2.10 DUCT-BANK SYSTEMS WARNING TAPE

- A. Provide detectable underground warning tape for underground electrical systems as required and in accordance with the NEC and the Contract Documents.
1. Reference Specification Section: 16115 – UNDERGROUND CONDUIT DUCTS, HANDHOLES AND PULL-BOXES
- B. Material:
1. 5-MIL tape thickness with aluminum backing and 2-MIL clear laminated finished over lettering
 2. Warning tape shall comply with APWA approved colors
- C. Dimensions: 6IN by 1000FT

- D. Manufacturer: Seton or Approved

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive identification products for compliance with installation tolerances and other conditions affecting performance of the identification products. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION - GENERAL

- A. Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.
- B. Install labels at locations for best convenience of viewing without interference with operation and maintenance of equipment.
 - 1. Coordinate installation of identifying devices with location of access panels and doors.
 - 2. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Install electrical identification products only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.
- D. Prepare, clean and/or de-grease surfaces where electrical identification product is to be placed.
- E. Place electrical identification products centered and parallel to equipment lines.

3.03 EQUIPMENT NAMEPLATES

- A. Install equipment nameplates on the front of each piece of new electrical equipment to include but not limited to switchgear, switchboards, motor control centers, control equipment, transformers, panelboards, lighting panelboards, safety switches, enclosed circuit breakers, etc.
- B. Position equipment nameplates so they can be read from the front of the enclosure, cabinet, etc.
- C. Use manufacturer's recommended adhesive for engraved tags and nameplates.
 - 1. Additionally, equipment nameplates shall be fastened with stainless-steel machine screws; self-tapping fasteners are not acceptable and will be rejected to include re-placement of enclosure.

3.04 RACEWAY IDENTIFICATION

- A. Install conduit and raceway identification in accordance with the approved Conduit/Raceway identification schedule on all but not limited to; power, control, data, fire, tele/comm, video and security systems.

- B. Position Conduit/Raceway identification so they can be read from finished floor/grade visible and easily read vertically or horizontally.
 - 1. Engineer reserves the right during project close-out procedures that Contractor re-position and/or supplement conduit and raceway identification as Engineer and/or Owner requires at no additional cost.
- C. Furnish Conduit/Raceway identification for all conduit, raceway, wire-way, cable-tray and wire-through, etc. at no less than 10FT intervals.

3.05 WIRE MARKERS

- A. Install wire markers on all but not limited to; power, control, data, fire, tele/comm, video and security system conductors within all termination, splicing, marshalling, junction-box, devices, cabinets and enclosures.
- B. Install wire markers within all switchgear, switchboards, motor control centers, panelboards, lighting panelboards, safety switches, etc.
 - 1. Wire markers shall be installed on all terminated/spliced wire, cable and conductor ends regardless of the number of enclosures that they are routed through.
 - 2. Contractor shall inspect and ensure that all wire markers match on all terminated/spliced ends and correspond with the approved Cable/Wire marker schedule.
 - 3. Engineer reserves the right during project close-out procedures that Contractor re-install wire markers as Engineer and/or Owner requires at no additional cost.
- C. Position wire markers so they can be read when opening the enclosure door and without rotating the wire/conductor when landed on terminal strips.
- D. Contractor shall re-install wire markers that are blurred, smudged, ill-legible, mis-printed, damaged or soiled at no additional cost.

3.06 VOLTAGE MARKERS

- A. Install voltage markers at the following locations and position markers so they can be read from floor or ground:
 - 1. Front and rear of each free-standing low- voltage switchgear or switchboard section.
 - 2. Front of each low-voltage transformer, panelboard, industrial control panel, motor control center, enclosed circuit breaker, safety switch, and motor controller enclosure, including those furnished with mechanical equipment.
 - 3. Cover of each pull box containing low-voltage or medium-voltage conductors.

3.07 WARNING SIGNS

- A. Install warning signs at the following locations and position signs so they can be read from floor or ground:
 - 1. Front and rear of each low-voltage switchgear or switchboard section.
 - 2. Front of each low-voltage transformer, switchboard, panelboard, industrial control panel, motor control center, enclosed circuit breaker, safety switch, and motor starter enclosure including those furnished with mechanical equipment.

3.08 ARC FLASH AND SHOCK HAZARD WARNING LABELS

- A. Install arc flash and shock hazard warning labels at the following locations and position signs so they can be read from floor or ground:
1. Front and rear of each freestanding low-voltage switchgear or switchboard section.
 2. Front of each low-voltage transformer, panelboard, industrial control panel, motor control center, enclosed circuit breaker, safety switch, and motor controller enclosure, including those furnished with mechanical equipment.
 3. Cover of each pull box containing exposed low conductors.
- B. Enter the following application-specific information in arc-flash and shock hazard warning labels as required under Specification Section 16010:
1. Arc-Flash Protection Boundary (inches) calculated in accordance with IEEE Std 1584 or NFPA 70E.
 2. Arc-flash incident energy (cal/cm²) calculated in accordance with IEEE Std 1584 or NFPA 70E.
 3. Working distance (inches) selected from IEEE Std 1584 or NFPA 70E (Annex D) based on equipment type.
 4. Hazard/risk category number from NFPA 70E Table 130.7(C)(9) for operations with doors closed and covers on.
 5. System phase-to-phase voltage.
 6. Condition that exposes worker to an electrical shock hazard.
 7. Limited Approach Boundary from NFPA 70E Table 130.2(C) based on nominal system phase-to-phase voltage.
 8. Restricted Approach Boundary from NFPA 70E Table 130.2(C) based on nominal system phase-to-phase voltage.
 9. Prohibited Approach Boundary from NFPA 70E Table 130.2(C) based on nominal system phase-to-phase voltage.
 10. Class for insulating gloves based on system voltage (e.g. Class 00 for up to 500 volts).
 11. Voltage rating for insulated or insulating tools based on system voltage (e.g. 1000 volts).
 12. Equipment ID code based on Drawings and including TA number, building number, and system identifier.
 13. Date that hazard analysis was performed.
 14. "Served from" circuit directory information including the serving equipment ID code, location (e.g. room number), circuit number, and circuit voltage/phases/wires.
 15. If applicable, "serves" circuit directory information including the served equipment ID code, location (e.g. room number), circuit number, and circuit voltage/phases/wires.

3.09 WORKING SPACE FLOOR MARKERS

- A. Install floor marking paint on the floor at the locations listed below to indicate the working space required by the NEC.
1. Front and rear of each free-standing low-voltage switchgear or switchboard section.
 2. Front of each low-voltage transformer, switchboard, panelboard, industrial control panel, motor control center, enclosed circuit breaker, safety switch, and motor controller enclosure including those furnished with mechanical equipment.
 3. Any other equipment likely to require examination, adjustment, servicing, or maintenance while energized.

- B. Dimensions of working space area shall be as follows:
1. Width: the greater of the width of the equipment or 30IN.
 2. Depth:
 - a. 120/240V and 208/120V equipment: 3FT
 - b. 480V and 480/277V equipment with exposed live parts on one side of the working space and no live parts on the other side of the working space: 3.5FT.
 - c. 480V and 480/277V equipment with exposed live parts on both sides of the working space: 4FT.
- C. Thoroughly prepare floor surface to receive paint.
- D. Paint the NEC-required working space area with alternating 3 to 6IN wide black and white diagonal stripes.

3.010 WORKING SPACE LABELS

- A. Install working space labels at the following locations only in cases where it is impractical to mark the NEC-required working space on the floor (e.g. carpeted areas).
1. Front of each low-voltage switchgear or switchboard section and rear of each freestanding low-voltage switchgear or switchboard section.
 2. Front of each meter enclosure, low-voltage transformer, panelboard, industrial control panel, motor control center, enclosed circuit breaker, safety switch, and motor controller enclosure, including those furnished with mechanical equipment.
 3. Any other equipment likely to require examination, adjustment, servicing, or maintenance while energized.
- B. Position labels so they can be read from floor or ground.

3.011 DUCT-BANK SYSTEMS WARNING TAPE

- A. Provide warning tape(s) as follows:
1. Electrical duct-bank systems, trenches and raceways:
 - a. Legend: "CAUTION CAUTION CAUTION" (1st line), "BURIED ELECTRIC LINE" (2nd line).
 - b. Letters: 1 1/4IN minimum.
 - c. Interval: Continuous.
 - d. Color: BLACK lettering on RED background.
 2. Tele-Communication duct-bank systems, trenches and raceways:
 - a. Legend: "CAUTION CAUTION CAUTION" (1st line), "BURIED TELEPHONE LINE" (2nd line).

- b. Letters: 1 1/4IN minimum.
 - c. Interval: Continuous.
 - d. Color: BLACK lettering on ORANGE background.
3. SCADA duct-bank systems, trenches and raceways:
- a. Legend: "CAUTION CAUTION CAUTION" (1st line), "BURIED COMPUTER LINE" (2nd line).
 - b. Letters: 1 1/4IN minimum.
 - c. Interval: Continuous.
 - d. Color: BLACK lettering on ORANGE background.

END OF SECTION

SECTION 16080 – ELECTRICAL TESTING

PART 1 - GENERAL

3.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, equipment and incidentals required to providing standard electrical inspections, testing and commissioning services and required reports required under this Contract as hereinafter specified and/or in the Contract Documents.
- B. Specification Section Includes:
 - 1. Contractor responsibilities that are a part of, or are related to the testing and commissioning process for the all the electrical systems under this scope of work and as related in the Contract Documents.
 - 2. Engineer will review and approve, prior to use, all test procedures and forms used and will witness, at their discretion initial checks and testing performed by the Contractor. Engineer will review the completed check and test documentation of the Contractor.
 - 3. It is not the intent of the Specifications to duplicate Contractor efforts or to require the Contractor to perform any check or test more than twice. Electrical checks and testing by the Contractor are expected to occur once in the normal sequence of installation, testing and placing equipment into service, if appropriate coordination has occurred allowing the Engineer and/or Owner to witness Contractor efforts.
 - 4. The test requirements listed in this section do not release the Contractor from the obligation to perform all other appropriate, industry standard, manufacturer-recommended or code-required checks and tests.

3.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include:
 - 1. Division 2 – SITE CONTRUCTION

3.03 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. American Society for Testing & Materials (ASTM)
 - 2. American National Standards Institute (ANSI)
 - 3. Institute of Electrical and Electronic Engineers (IEEE)
 - 4. International Electrical Testing Association (NETA)
 - 5. National Electrical Manufacturers Association (NEMA)
 - 6. North American Electric Reliability Corporation (NERC)
 - 7. National Fire Protection Association (NFPA)
 - 8. Uninterruptible Power Supply (UPS)
 - 9. Variable Speed Drive/Controller (VFD)
- B. Codes and Standards:

1. ANSI/NETA ATS – Acceptance Testing Specifications for Electric Power Distribution Equipment and Systems
2. ANSI/NETA ETT – Standard for Certification of Electrical Testing Technicians
3. ANSI/NEMA AB4 – Guidelines for Inspection and Preventive Maintenance of Molded-Case Circuit Breakers Used in Commercial and Industrial Applications
4. IEEE C37.233 – Guide for Power System Protection Testing
5. IEEE C57.13.1 – Guide for Field Testing of Relaying Current Transformers
6. IEEE C57.13.3 – Guide for Grounding of Instrument Transformer Secondary Circuits and Cases
7. IEEE C57.104 – Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers
8. IEEE 43 – Recommended Practice for Testing Insulation Resistance of Rotating Machinery
9. IEEE 450 – Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications
10. IEEE 519 – Recommended Practices and Requirements for Harmonics Control in Electrical Power Systems
11. NEMA MG1 – Motors and Generators
12. NERC PRC-005-2 – Protection System Maintenance
13. NFPA 70 – National Electrical Code
14. NFPA 72 – National Fire Alarm and Signaling Code
15. NFPA 110 – Emergency and Standby Power Systems

3.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Contractor shall submit written copies of all inspection and test reports to the Engineer for review and acceptance.
- C. Sixty (60) days before any testing is conducted, submit an overall testing plan and schedule for electrical systems that lists the equipment, modes to be tested, dates of testing and parties conducting the tests. Contractor shall place these tests into the master construction schedule and update as needed.

3.05 QUALITY ASSURANCE

- A. Qualifications:
 1. Contractor shall provide a listing of testing personnel stating their experience in testing of low-voltage (600V) equipment for Engineer approval. All personnel involved in testing major electrical equipment, protective relays and meters shall be certified per ANSI/NETA ETT and have a minimum of five (5) years experience in testing of this type of equipment; each electrical testing crew leader shall have a current certification of Level III or higher.
 2. Contractor shall provide a listing of testing equipment that will be used and provide verification of calibration as applicable within the last year, prior to use and shall have dated calibration labels visible on all test equipment. Test equipment and calibration shall be in accordance with ANSI/NETA ATS Sections 5.2 and 5.3.
- B. Test Equipment:

1. Contractor shall provide all test equipment necessary to fulfill the checks and testing requirements. Test equipment shall have been calibrated within one (1) year of its use on the project.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Engineer reserves the right to inspect the Contractor's work at any time during the contract period. Contractor shall make all work available to the Owner and/or the Engineer, upon request.
- B. Contractor shall request Engineer review and approval at least twenty-four (24) hours prior to covering of any concealed work; pulling of wires and cables; or placing covers over outlets, cabinets, panel boards, switchboards, or switchgear.
- C. Perform additional tests required under other Specification Sections required under Division 16. Written reports of all test results shall be submitted to Engineer for review.
- D. Notify Engineer of any deficiencies that are found during the tests; after deficiencies are corrected, repeat tests until the system is approved. When applicable, electrical work shall not be covered or concealed until satisfactory tests are made and approved.
- E. Upon request from the Owner and/or Engineer, place the entire electrical installation or any portion thereof, in operation to demonstrate satisfactory operation.
- F. Contractor shall inspect and test all materials and equipment, including all furnished major equipment under this Contract, using the latest edition of the ANSI/NETA ATS – Acceptance Testing Specifications for Electric Power Distribution Equipment and Systems as a guide. The ANSI/NETA ATS specifications apply to testing of all electrical equipment and cabling installed and/or modified under this Project prior to placing into service.

3.02 INSPECTION AND TESTING

- A. Cables, Low-Voltage 600V Maximum:
 1. In accordance with ANSI/NETA ATS Section 7.3.2
- B. Metal Enclosed Switchgear and Switchboards:
 1. In accordance with ANSI/NETA ATS Section 7.1
 2. Verify positive mechanical interlocking between normal and alternate sources to include back-up power modifications as required under this Contract.
- C. Low-Voltage Motor Control Centers:
 1. In accordance with ANSI/NETA ATS Section 7.16.1.1
 2. Verify positive mechanical interlocking between normal and alternate sources to include back-up power modifications as required under this Contract.
- D. Engine Driven Generator:

1. In accordance with ANSI/NETA ATS Section 7.22.

E. Test Reports: All testing results, evaluations and operational/functionality reports for all equipment and cabling installed and/or modified under this Contract shall be recorded in a formal report and submitted to the Engineer for review.

3.03 COMMISSIONING

A. The following are Contractor responsibilities applicable to all electrical systems being commissioned and/or placed into service.

1. Document all electrical testing and commissioning forms submitted to and approved by the Engineer prior to placing equipment into service.
2. Notify the Engineer immediately when commissioning activities not yet performed or not yet scheduled will delay construction.
3. Respond to deficiencies identified during the commissioning process, making required corrections or clarifications and returning prompt notification to the Engineer.
4. When completion of a task or other issue has been identified as holding up any commissioning process, particularly functional testing, the Contractor shall, within two (2) days notify the Engineer in writing providing an expected date of completion.
5. Develop check and testing procedures with start-up and/or commissioning plan for Engineer review.
6. Review design documents, shop drawings and O&M manuals along with manufacturer recommended installation and testing procedures.
7. Develop test procedures and forms and execute and document testing.
8. Tests of energized equipment shall be conducted when the equipment is operating at its normal capacity. This may require some tests to be conducted after occupancy.

3.04 TRAINING AND ORIENTATION

A. Contractor shall provide orientation and training to facility personnel as required in Division 16 and those Project Specification Sections.

3.05 PROJECT CLOSE-OUT

A. Contractor shall provide Operation and Maintenance (O&M) Manuals as required in Division 16 and those Project Specification Sections.

END OF SECTION

SECTION 16111 – CONDUIT AND RACEWAYS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, tools and equipment necessary for furnishing, installing, connecting, testing and placing into service all raceway systems to include all conduits, conduit fittings, wireway, supports, etc. as required for a complete electric installation as specified herein and indicated on the Contract Documents.
- B. Conduit home runs for lighting, receptacle and other misc. circuits are not necessarily depicted on the Contract Documents; however, the circuit numbers are shown. Conduit shall be furnished and installed for these circuits.
- C. Additional conduit and raceway from what is shown on the Contract Documents may be required. Contractor shall coordinate with the requirements of equipment provided under other Divisions.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Documents referenced herein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. Division 2 – SITE CONSTRUCTION
 - 2. 16120 – CONDUCTORS AND CABLES
 - 3. 16130 – ENCLOSURES

1.03 REFERENCES

- A. Raceways shall comply with the following applicable codes and standards as well as any others within the specifications and drawings. In the event of any conflict between these codes, regulations, standards, and Contract Documents, the most restrictive shall apply.
- B. Codes and Standards
 - 1. American National Standards Institute (ANSI)
 - a. C80.1, Rigid Steel Conduit Zinc Coated.
 - b. C80.3, Electrical Metallic Tubing Zinc Coated.
 - c. C80.4 Fittings for Rigid Metal Conduit and Electrical Metallic Tubing.
 - d. C80.5 Electrical Rigid Aluminum Conduit.
 - e. C80.6 Electrical Intermediate Metal Conduit.
 - 2. American Society for Testing and Materials (ASTM)
 - a. A36, Standard Specification for Structural Steel.

- b. A153, Zinc Coating (Hot Dip) on Iron and Steel Hardware.
 - c. A307, Carbon Steel Externally Threaded Standard Fasteners.
 - d. A563, Standard Specification for Carbon Steel Nuts.
 - e. A569, Steel Carbon, Hot Rolled Sheet and Strip, Commercial Quality.
 - f. A570, Hot Rolled Sheet and Strip, Structural Quality.
 - g. A575, Merchant Quality Hot Rolled Carbon Steel Bars.
 - h. A635, Standard Specification for Steel, Sheet and Strip, Heavy Thickness Coils, Carbon, Hot Rolled.
 - i. D1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - j. D1788, Standard Specification for Rigid Acrylonitrile Butadiene Styrene (ABS) Plastics.
 - k. D2564, Solvent Cements for (PVC) Plastic Pipe, Tubing, and Fittings.
 - l. F512, Standard Specification for Smooth Wall Poly (Vinyl Chloride) (PVC) Conduit and Fittings for Underground Installation.
- 3. ETL Testing Laboratories, Inc (ETL)
 - 4. National Electric Manufacturers Association (NEMA)
 - a. RN 1, Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
 - b. TC 2, Electrical Plastic Tubing (EPT) and Conduit (EPC 40 and EPC 80).
 - c. TC 6, PVC and ABS Plastic Utilities Duct for Underground Installation.
 - 5. National Electric Contractors Association (NECA)
 - a. NECA 1: Standard Practices for Good Workmanship in Electrical Construction.
 - b. Project applicable standards and recommendations
 - 6. National Electric Installation Standards (NEIS)
 - a. Project applicable standards and recommendations
 - 7. National Fire Protection Association (NFPA)
 - a. 70, National Electric Code (NEC).
 - b. 79, Electrical Standard for Industrial Machinery

8. Underwriters Laboratories Inc (UL)
 - a. 1, Flexible Metal Conduit.
 - b. 6, Rigid Metal Conduit.
 - c. 6A, Electrical Rigid Metal Conduit – Aluminum.
 - d. 209, Cellular Metal Floor Raceways and Fittings.
 - e. 360, Liquid Tight Flexible Steel Conduit.
 - f. 467, Grounding and Bonding Equipment.
 - g. 514, Nonmetallic Outlet Boxes, Flush Device Boxes, and Covers.
 - h. 514B, Conduit, Tubing and Cable Fittings.
 - i. 651, Schedule 40 and 80 Rigid PVC Conduit.
 - j. 797, Electrical Metallic Tubing.
 - k. 870, Wireways, Auxiliary Gutters, and Associated Fittings.
 - l. 886, Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations.
 - m. 1242, Intermediate Metal Conduit.
 - n. 1660, Liquid-Tight Flexible Non-Metallic Conduit.

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Shop Drawings
 1. Proposed routing of all site conduits including direct buried, concrete encased, and long run above ground conduits.
 2. Proposed routing of conduits buried under floor slabs.
 3. Proposed routing and details of construction, including conduit and rebar, of conduits embedded in floor slabs, columns, etc.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials covered by under this Section is intended to be standard material of proven performance as manufactured by reputable firms. Raceways and appurtenances shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Contract Documents.

- B. All equipment shall be UL listed and labeled for its intended service.
- C. Subject to compliance with the Contract Documents, the listed manufacturers are acceptable.

2.02 RIGID ALUMINUM CONDUIT (RAC)

- A. Acceptable Manufacturers
 - 1. Allied Tube and Conduit Corporation
 - 2. Western Tube and Conduit Corporation
 - 3. Wheatland Tube Company
- B. RAC and associated fittings shall be manufactured from 6063 aluminum alloy in temper designation T-1.
- C. Standards
 - 1. ANSI C80.5

2.03 PVC COATED RIGID ALUMINUM CONDUIT (PVC-RAC)

- A. Acceptable Manufacturers:
 - 1. Thomas & Betts
 - 2. Perma-Cote
 - 3. Rob Roy Ind.
- B. PVC-RAC shall have a minimum 40MIL polyvinyl chloride exterior coating. The coating shall be bonded to hot dipped galvanized rigid steel conduit conforming to ANSI C80.1. The bond between the polyvinyl chloride coating and the conduit surface shall be greater than the tensile strength of the coating. PVC-RAC shall have a nominal 2MIL, minimum, urethane interior coating and a urethane coating on threads. RAC conduit: shall have an epoxy prime coating prior to application of polyvinyl chloride and urethane coatings.
- C. Female ends shall have a plastic sleeve extending a minimum of 1 pipe diameter or 2IN, whichever is less beyond the opening. The inside diameter of the sleeve shall be the same as the outside diameter of the conduit to be used with it.
- D. Standards:
 - 1. ANSI C80.1
 - 2. NEMA RN 1

2.04 RIGID POLYVINYL CHLORIDE CONDUIT (PVC)

- A. Acceptable Manufacturers:
 - 1. Allied Tube and Conduit Corporation
 - 2. Carlon
 - 3. Cantex
- B. PVC shall be either Schedule-40 or Schedule-80. The polyvinyl chloride plastic compound shall meet, as a minimum, ASTM D1784 cell classification PVC 12233 A, B, or C. PVC

shall be rated for direct sunlight exposure, 90C wire, and fire retardant with low smoke emission.

C. Standards:

1. ANSI C33.91
2. NEMA TC 2
3. UL 651

2.05 LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Acceptable Manufacturers:

1. Anamet, Inc.
2. Electri Flex Company
3. International Metal Hose Company

B. LFMC shall have a core formed of continuous, spiral wound, aluminum strip with successive convolutions securely interlocked, contain an interwoven copper strip suitable as a grounding means, and have an extruded vapor and liquid tight polyvinyl chloride outer jacket positively locked to the steel core.

C. Standard:

1. UL 360

2.06 WIREWAY

A. Acceptable Manufacturers:

1. E.M. Wiegmann and Company, Inc.
2. Hoffman Engineering Company
3. Stahlin
4. Square D

B. Wireway shall have a minimum wall thickness of 0.040IN, be furnished without knockouts, be designed for continuous grounding, and suitable for lay in conductors. Provide Solid and non-removable covers when passing through partitions and solid hinged covers with captive screw fasteners when accessible.

C. Wireway shall not be smaller than 4 x 4IN unless otherwise indicated on the Contract Documents.

D. Types

1. NEMA-3/3R/12: Wireway shall be steel, finished with rust inhibiting phosphatizing coating and gray baked enamel finish on interior and exterior surfaces. Cover shall be fully gasketed and provided with captive clamp type latches.
2. NEMA- 4/4X: Wireway shall be type 304 stainless steel for interior or exterior corrosive areas. Cover shall be fully gasketed and provided with captive external screw type clamps.

E. Standards

1. NFPA 79
2. UL 870

2.07 CONDUIT FITTINGS AND ACCESSORIES

A. Acceptable Manufacturers:

1. Appleton
2. Carlon
3. Crouse Hinds
4. Killark
5. OZ Gedney Company
6. Perma Cote
7. RACO
8. Rob Roy Ind.
9. Steel City
10. Thomas and Betts
11. Western Plastics Company

B. Fittings for Use with RAC

1. Materials: Following minimum requirements unless otherwise noted.
 - a. Body: Copper-free aluminum with aluminum lacquer or aluminum enamel finish
 - b. Covers: Copper-free aluminum and gasketed
 - c. Gaskets: Neoprene or PVC
 - d. Insulators phenolic, thermosetting: minimum 105C UL rating
 - e. Grounding saddles tin plated copper or bronze suitable for use with copper and aluminum conductors
 - f. Bonding jumpers: Tinned copper flexible braid
 - g. Locknuts: Malleable iron, zinc plated
2. All fittings: Threaded unless otherwise noted
3. Conduit Hubs shall be cast aluminum with insulated throat or grounding type with insulated throat
4. Straight couplings: Same material and finish as the conduit with which they are used
5. Mogul pulling elbows and tees:
 - a. Die cast copper free aluminum
 - b. Rain tight
6. Conduit seals

- a. Drain and breather: Stainless steel or brass
 - b. Fiber and sealing compound: UL listed for use with the sealing fitting
- 7. Standards
 - a. UL 467
 - b. UL 514B
- C. Fittings for Use with PVC-RAC
 - 1. The same material and construction as those fittings listed under paragraph "Fittings for Use with RAC"; and coated as defined under paragraph "PVC-RAC."
- D. Fittings for Use with PVC
 - 1. Fittings shall be of the same material, thickness, and construction as the conduits with which they are used.
 - a. Standards:
 - 1) UL 651
 - 2) NEMA TC 2 1978
 - 2. Solvent cement for welding fittings shall be supplied by the same manufacturer as the conduit and fittings.
 - a. Shall be heavy-body, grey
 - b. Shall not be more than one (1) year past date of manufacture.
 - c. Standard: ASTM D2564
- E. Conduit Bodies
 - 1. Conduit Bodies shall be of the same material as the conduits with which they are used and sized in accordance with the conductors installed and in compliance with applicable NEC Articles.
 - a. Standards:
 - 1) UL 514B
- F. Fittings for Use with LFMC
 - 1. Fittings shall meet the following minimum requirements unless otherwise noted:
 - a. Body: Copper-Free Aluminum
 - b. Ferrule: Aluminum
 - c. Locknuts and compression nuts: Malleable iron, zinc plated

- d. Sealing ring: Neoprene
- 2. Fittings shall be compression type
- 3. Standard: UL 514
- 4. Where LFMC is subject to vibration and/or tension, Contractor shall provide and install LFMC fittings strain-relief with stainless-steel wire mesh assembly as required.

2.08 HANGERS AND SUPPORTS

- A. See Specification Section 16070 – HANGERS AND SUPPORTS

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

- A. All conduit, raceway, wireway and associated fittings shall be stored in accordance with the manufacturer recommendations and shall not be stored exposed to sunlight or other UV radiation.

3.02 INSTALLATION

- B. Contractor shall plan the layout of conduit and raceway systems so that when the work is complete it will exhibit good workmanship practices in accordance with NECA-1.
 - 1. Exposed raceway groupings three (3) or more shall use a common support/hanger systems with standard radius bends and be arranged such that no cross-overs and saddle bending is required.
 - 2. Exposed raceway groupings twenty (20) or more shall use a common support/hanger systems with concentric radii bends and be arranged such that no cross-overs and saddle bending is required.
 - 3. Exposed raceways and raceway systems that are not organized and grouped in a logical manner are consider rejected work by the Engineer.
- C. Exposed Work
 - 1. Wherever practical all conduit and raceway for power and control circuitry designated for process related equipment shall be installed exposed.
- D. Concealed Work
 - 1. All conduit and raceway for power and control circuitry designated for non-process related equipment shall be installed concealed within structures and/or buildings.
 - 2. All conduit and raceway for branch, receptacle, lighting and/or ancillary systems shall be installed concealed within structures and/or buildings.
- E. Installation of Conduit and Raceway
 - 1. Conduit and Raceway embedded in concrete slabs shall be installed in the middle third of the slab thickness with at least 2IN concrete cover. Raceways shall be secured to reinforcing steel to prevent sagging or shifting during concrete

placement. Raceways shall be spaced laterally to prevent voids in the concrete. Reference installation details as shown in the Contract Documents.

2. Conduit and Raceway runs, where shown in the Contract Documents, indicate the preferred location. Site conditions may affect actual routing. Contractor shall coordinate routing and measurement with other trades and with equipment suppliers.
3. Shall not interfere with, or prevent access to, piping, valves, ductwork, or other equipment for operation, maintenance and repair.
4. Wherever possible avoid routing conduits and raceways through areas of high ambient temperature or radiant heat.

F. Size of Conduits and Raceways

1. The size of conduit and raceway are normally shown on the Contract Documents. If a size is not shown on the Contract Documents, or if a minimum size is not stated in the Specifications, then the size of conduits and raceways shall be in accordance with the NEC.
2. Conduits shall not be smaller than 1IN for underground installations and 3/4IN elsewhere, unless otherwise shown on the Contract Documents.

G. Types of Conduits and Raceways

1. Shall be installed as defined in the Contract Documents.
2. As required by NFPA.
3. Flexible Conduit:
 - a. Install as the final conduit to motors, electrically operated valves, primary elements (instrumentation), and electrical equipment that is liable to vibrate.
 - b. Shall not be used as a conduit run:
 - c. Maximum length shall not exceed:
 - 1) 60IN to motors.
 - 2) 48IN to all other equipment.
4. PVC-RAC
 - a. Contractor shall use tools, clamps, dies, equipment, etc. designed specifically for the cutting, bending and threading of PVC-RAC.
 - b. Contractor shall follow the recommendations and methods of the manufacturer for installing PVC-RAC.
 - c. Contractor shall repair small (less than 1IN) nicks and cuts to the outer PVC coating per the manufacturer's instructions. If the damaged area is larger (greater than 1IN), the conduit section shall be replaced.

H. Provide openings in walls, floors, and ceilings for all required raceway penetrations.

1. Sleeves and block outs: Set in masonry walls during erection.
2. Sleeves and block outs: Set in concrete during forming.

- a. Material: Not harmful to the concrete.
- b. Not considered to replace structurally the displaced concrete.

I. Conduit Runs

- 1. All conduits within a structure shall be installed concealed unless otherwise noted on the Contract Documents.
- 2. Total of Bends in a Conduit Run:
 - a. Less than 270 degrees.
 - b. Provide pull boxes, conduit bodies, condulets, or pulling elbows or tees as needed.
- 3. Run in straight lines parallel to or at right angles to structural members or building lines.
- 4. Maintain minimum 2IN separation between all conduits.
- 5. Maintain minimum 6IN separation between instrumentation and power conduits.
- 6. Maintain minimum 12IN separation from process, gas, air and water pipes.
- 7. Conduits and accessories embedded in concrete:
 - a. Shall not be larger in outside diameter than one third the thickness of the slab, column or beam.
 - b. Place conduit and accessories after reinforcing steel has been laid.
 - c. Shall not displace the reinforcement steel.
 - d. Provide a minimum of 1 1/2IN of concrete cover around conduit.
 - e. Do not run against reinforcing steel.
 - f. Provide 2IN minimum of spacing between conduits.
 - g. Install expansion/deflection fittings wherever conduit spans structural or expansion joint.

J. Field Bending of Conduits

- 1. Utilize tools, equipment, methods and recommendations by the manufacturer to make all field bends.
- 2. The internal diameter of conduit shall not be reduced or distorted.

K. Field Cutting and Threading Conduits

- 1. Utilize tools, equipment, methods and recommendations by the manufacturer to field cut and thread conduit.
- 2. All field cut conduit shall be cut perpendicular, smooth and evenly chamfered on the inside.
- 3. All field threaded conduit shall be wire-brushed, cleaned and degreased before applying a zinc rich paint.

L. Terminating Conduits

1. NEMA 2/12/12K enclosures:
 - a. Top: Double sealing locknuts and insulated or grounding bushings.
 - b. Side: Double locknuts and insulated or grounding bushings.
 - c. Bottom: Double locknuts and insulated or grounding bushings.
2. NEMA 3/3R/3S/13 enclosures:
 - a. Top: Not allowable on new work and considered rejected work by Engineer.
 - b. Side: Threaded conduit hubs with insulated throats, threaded grounding conduit hubs with insulated throats or approved cable gland fittings Double sealing locknuts and insulated or grounding bushings.
 - c. Bottom: Double locknuts and insulated or grounding bushings.
3. NEMA 4/4X enclosures
 - a. Top: Not allowable on new work and considered rejected work by Engineer.
 - b. Side: Not allowable on new work and considered rejected work by Engineer.
 - c. Bottom: Threaded conduit hubs with insulated throats, threaded grounding conduit hubs with insulated throats or approved cable gland fittings.
4. NEMA 6/6P enclosures
 - a. Top: Threaded conduit hubs with insulated throats, threaded grounding conduit hubs with insulated throats or approved cable gland fittings.
 - b. Side: Threaded conduit hubs with insulated throats, threaded grounding conduit hubs with insulated throats or approved cable gland fittings.
 - c. Bottom: Threaded conduit hubs with insulated throats, threaded grounding conduit hubs with insulated throats or approved cable gland fittings.
5. NEMA 7/8/9 enclosures
 - a. Enclosures shall be provided with integral conduit hubs

M. Conduit Bodies

1. Conduit bodies shall be installed such that access to covers are maximized and exceed the intent of "Readily Accessible" as described in NEC Article 100. Contractor shall provide and install those conduit body types/models as required to facilitate this requirement in the installation of the completed raceway system(s).
2. Conduit bodies containing conductors #4/0AWG and larger shall be "Mogul" type with domed covers and integral rollers.

N. Conduit Seal Installation

1. In each conduit entering or leaving a Class I area.
2. In each conduit in a Class I Division 1 area entering or leaving an enclosure containing switches, circuit breakers, fuses, relays, resistors or other apparatus which may produce arcs, sparks or high temperature.
3. In each conduit 2IN or larger in a Class I Division 1 area entering or leaving an enclosure containing terminals, splices and taps.
4. In each conduit in a Class I Division 2 area entering or leaving an enclosure required to be approved for use in Class I environments.
5. In each conduit in a Class II location between an enclosure required to be dust ignition proof and an enclosure that is not required to be dust ignition proof.
6. In each conduit in a corrosive area entering or leaving that area and entering or leaving an electrical equipment enclosure in that area.
7. So that the filler plug and drain is accessible.
8. Complete with approved sealing fiber and compound.

O. Conduit Moisture Sealing

1. All exposed enclosures located outdoors with conduits routed underground or conduits routed from interior to exterior locations shall have:
 - a. Conduit sealing foam filled within each conduit opening.
 - 1) Polywater P/N FST-205KIT1 or approved equal

P. Conduit Coatings

1. The protective coating of metallic conduits, fittings, and accessories shall be maintained.
 - a. Repair PVC-RAC utilizing a patching compound, of the same material as the coating, provided by the manufacturer of the conduit.
 - 1) The total nominal thickness: 40MIL.
 - b. Repair surfaces that will be inaccessible after installation prior to installation.
2. All metallic raceways installed in direct contact with concrete, masonry or soils shall be:
 - a. PVC-RAC
 - b. Installed with heavy-wall heat-shrink polyolefin tubing.
 - c. Two (2) spiral half-lapped layers of 3M (or approved equal) Type-50 all-weather corrosion protection tape.
 - d. Installed with 40MIL minimum coating of cured coal-tar bitumastic paint.
3. All metallic raceway transitions through concrete, masonry or soils shall be:
 - a. PVC-RAC

- b. Installed with heavy-wall heat-shrink polyolefin tubing extending 6IN minimum on each side of transition.
- c. Two (2) spiral half-lapped layers of 3M (or approved equal) Type-50 all-weather corrosion protection tape extending 6IN above finished concrete and below.
- d. Installed with 40MIL minimum coating of cured coal-tar bitumastic paint.

Q. Power Feeder Cable Pulling Preparation

- 1. The following preparation procedures are required for but not limited to service-entrance, critical systems, emergency power, legally required and process critical equipment raceways larger than 3IN.
 - a. Pull conduit wire brush sized for raceway and draw within to remove larger debris.
 - b. Swab raceway by pulling a clean, tight fitting rag through the raceway as many times as required to remove smaller debris, dirt, sand, mud, etc.
 - c. Pull mandrel with diameter nominally 1/4IN smaller than the internal diameter of the raceway, to ensure circular cross-section and removal of any obstructions.
 - d. Remove water debris from raceway prior to installation of power cables.
 - e. Tightly plug ends of conduit with manufactured pipe plugs or plastic conduit inserts until power cables are pulled.
 - f. Only nylon or polyethylene rope shall be used to pull power cables in rigid nonmetallic conduit systems.

END OF SECTION

SECTION 16115 – UNDERGROUND CONDUIT DUCTS, MAN-HOLES, HAND-HOLES & PULL-BOXES

PART 1 - GENERAL

1.1 REQUIREMENT SUMMARY

- A. Specification Section includes requirements for providing and installing underground raceways, raceway systems, duct-bank systems, manholes, handholes and pull-boxes for power, control, instrumentation, data and communications circuitries.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. Division 2 – SITE CONSTRUCTION
 - 2. 03300 – CAST – IN – PLACE CONCRETE

1.3 REFERENCES

- A. Definitions:
 - 1. Direct buried conduit refers to an individual (single) underground conduits without concrete encasement.
 - 2. Direct buried duct-bank refers to multiple three (3) or more underground conduits, in a common trench, without concrete encasement.
 - 3. Concrete encased duct-bank refers to multiple three (3) or more underground conduits or combination of underground raceways encased in a common concrete envelope.
 - 4. Interpretations of duct-bank and/or duct-bank systems and what constitutes these definitions as they relate to the Project Scope Of Work are at the discretion of the Engineer.
- B. Codes and Standards:
 - 1. American Association of State Highway & Transportation Officials (AASHTO).
 - 2. American Society for Testing Materials (ASTM):
 - a. A536, Standard Specification for Ductile Iron Castings.
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 70, National Electrical Code (NEC), 2008 Edition.
- C. Additional:
 - 1. Contract Documents indicate the minimum size of manholes, hand-holes and pull-boxes. Field conditions and/or Contractor raceway groupings may affect NEC cable, conductor or wire minimum fill. Contractor shall notify Engineer of any condition that may require upsized or additional manholes, hand-holes and pull-boxes.

2. Contract Documents indicate the intended location of manholes, hand-holes and pull-boxes; and routing of duct-banks and direct buried conduit. Field conditions may affect actual routing.

1.4 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:

1. 01310 – ADMINISTRATIVE REQUIREMENTS

- B. Contractor shall provide duct-bank fabrication and layout drawings for Engineer review prior to commencing, pre-fabrication and/or placing work.

1. Cross sectioned sketch of each duct-bank.

- a. Dimension spacing between conduits
- b. Dimension concrete envelope and reinforcing, where applicable
- c. Identify all raceways with approved ID scheme and nomenclatures

2. Duct-bank and direct buried conduit profile.

- a. Dimension from grade to duct-bank and direct buried conduit
- b. Dimension from duct-bank and direct buried conduit to other utilities in the route

3. Raceways within duct-bank sections shall be arranged and grouped in a logical manner in accordance with voltage and/or signal type circuitries to minimize induced electro-motive force (EMF) from current-carrying conductors and to include the requirements as shown in the Contract Documents.

- a. 24V analogue, discrete and control circuits along with fiber optic cabling shall be located nearest the top of the duct-bank section and arranged in horizontal layers
- b. 90V and less limited-power signal and control circuits shall be located the top-middle of the duct-bank section and arranged in horizontal layers
- c. 120V up to 240V single and three-phase power circuits shall be located the lower-middle of the duct-bank section and arranged in horizontal layers
- d. 480V up to 600V single and three-phase power circuits shall be located the lower-bottom of the duct-bank section and arranged in horizontal layers.
- e. Spare and future raceways for all voltage and/or signal type circuitries all shall located towards the center of the duct-bank section

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Precast manholes, handholes and pull-boxes:
 - a. Carolina Precast Concrete, Inc.
 - b. Oldcastle Precast
 - c. Utility Vault Co
 2. Manhole and handhole covers:
 - a. Neenah
 - b. Utility Vault Co.
 3. Cable racks:
 - a. Unistrut
 - b. B Line
 - c. Condux International, Inc.
 - d. Underground Devices, Inc.
 4. Cable pulling irons:
 - a. Condux International, Inc.
 5. Ground wire, rods and grounding equipment:
 - a. Reference Specification Section: 16060 – GROUNDING AND BONDING.
 6. Duct terminators:
 - a. Carlon
 - b. Condux International, Inc.
 7. Raceways:
 - a. Reference Specification Section: 16130 – ENCLOSURES
 8. Duct spacers:
 - a. Underground Devices, Inc.

- b. Condux International, Inc.
- 9. Precast cable trench:
 - a. Concast
 - b. Trenwa

2.2 MATERIALS

A. Hand-holes and Pull-Boxes:

- 1. Fiberglass reinforced polymer concrete:
 - a. Boxes and covers are required to conform to all test provisions of ANSI/SCTE 77 "Specification For Underground Enclosure Integrity" for Tier 15 applications at a minimum unless otherwise noted in the Contract Documents.
 - b. In no assembly can the cover design load exceed the design load of the box.
 - c. All components in an assembly (box and cover) are manufactured using matched surface tooling.
 - d. All covers are required to have a minimum 0.50 coefficient of friction in accordance with ASTM C 1028.
- 2. Precast steel-reinforced concrete:
 - a. Boxes are required to meet ASTM C 858 with 4000PSI minimum compressive strength concrete and designed for AASHTO H-20 loading unless otherwise noted in the Contract Documents.
 - b. Tongue-and-groove double sealed joints on mating edges of pre-cast components. The joints shall firmly interlock adjoining components and provide waterproof junctions and adequate shear transfer. Joints shall be sealed with approved watertight joint sealant as prescribed in the manufacturer's installation specifications and conforming to AASHTO M198, Type B. Sealing material shall be installed in strict accordance with manufacturer's printed instructions.
 - c. Knockout panels or pre-cast individual conduit openings may be used. Block-out panels are not acceptable and considered rejected work by the Engineer.
 - d. Cover:
 - 1) Heavy-duty type frames and covers made of cast iron, suitable for AASHTO H-20 loading, and having machined bearing surfaces shall be used.
 - 2) Covers shall be of indented type with solid top design.

- 3) Upper side of each cover shall have the letters "Electrical", "Control", or "Communication" cast in integral letters no less than 2IN high as indicated in the Contract Documents.

3. Cast-In-Place concrete:

- a. Reference Specification Section: 03300 – CAST – IN – PLACE CONCRETE.
- b. Constructed as detailed on the Contract Documents.
- c. Cover:
 - 1) Heavy-duty type frames and covers made of cast iron, suitable for AASHTO H-20 loading, and having machined bearing surfaces shall be used.
 - 2) Covers shall be of indented type with solid top design.
 - 3) Upper side of each cover shall have the letters "Electrical", "Control", or "Communication" cast in integral letters no less than 2IN high as indicated in the Contract Documents.
- d. Shall have an AASHTO live load rating of H-20, unless otherwise noted in the Contract Documents.

B. Manholes:

1. Precast steel-reinforced concrete:

- a. Boxes are required to meet ASTM C 858 with 4000PSI minimum compressive strength concrete and designed for AASHTO H-20 loading unless otherwise noted in the Contract Documents.
- b. Tongue-and-groove double sealed joints on mating edges of pre-cast components. The joints shall firmly interlock adjoining components and provide waterproof junctions and adequate shear transfer. Joints shall be sealed with approved watertight joint sealant as prescribed in the manufacturer's installation specifications and conforming to AASHTO M198, Type B. Sealing material shall be installed in strict accordance with manufacturer's printed instructions.
- c. Knockout panels or pre-cast individual conduit openings may be used. Block-out panels are not acceptable and considered rejected work by the Engineer.
- d. Minimum interior dimensions shall be 6FT Wide x 6FT Long x 6FT Tall.
- e. Cover:
 - 1) Minimum access opening dimensions:
 - a) Rectangular – 48IN x 48IN minimum
 - b) Round – 36IN diameter minimum

- 2) Heavy-duty type frames and covers made of cast iron, suitable for AASHTO H-20 loading, and having machined bearing surfaces shall be used.
- 3) The covers shall be of indented type with solid top design.
- 4) The upper side of each cover shall have the letters "Electrical", "Control", or "Communication" cast in integral letters no less than 2IN high as indicated in the Contract Documents.

2. Cast-In-Place concrete:

- a. Reference Specification Section: 03300 – CAST – IN – PLACE CONCRETE
- b. Constructed as detailed in the Contract Documents
- c. Shall have an AASHTO live load rating of H-20, unless otherwise noted in the Contract Documents.
- d. Minimum interior dimensions shall be 6FT Wide x 6FT Long x 6FT Tall.
- e. Cover:
 - 1) Minimum access opening dimensions:
 - a) Rectangular – 48IN x 48IN minimum
 - b) Round – 36IN diameter minimum
 - 2) Heavy-duty type frames and covers made of cast iron, suitable for AASHTO H-20 loading, and having machined bearing surfaces shall be used.
 - 3) Covers shall be of indented type with solid top design.
 - 4) Upper side of each cover shall have the letters "Electrical", "Control", or "Communication" cast in integral letters no less than 2IN high as indicated in the Contract Documents.
- f. Cable Racks:
 - 1) ABS Plastic.
 - 2) 120LBS minimum loading capacity.
 - 3) Three-point locking to resist twisting.
- g. Cable Pulling Irons:
 - 1) Hot dipped galvanized steel.
 - 2) 6000LBS minimum pulling load.
- h. Ground wire, rods and Grounding Equipment:
 - 1) Reference Specification Section: 16060 – GROUNDING AND BONDING
- i. Duct Terminators:

- 1) Window type
- 2) PVC or ABS plastic
- 3) Provide for conduit entrance
- 4) Designed for installation into manhole, handhole or pull-box walls for a watertight seal.
- 5) Sufficient space between terminator walls to allow for placement of rebar and concrete.

j. Raceways:

- 1) Reference Specification Section: 16111 – CONDUITS AND RACEWAYS

k. Duct Spacers:

- 1) High density polyethylene or high impact polystyrene.
- 2) Interlocking
- 3) Provide 2IN minimum spacing between conduits.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation shall comply with manufacturer's instructions and Contract Documents.
- B. Excavation, trenching, backfilling and compacting shall comply Specification Sections:
 1. Division 2 – SITE CONSTRUCTION
 2. 16050 – ELECTRICAL MATERIALS AND METHODS

3.2 INSTALLATION

A. General:

1. Underground ducts and raceway systems shall be applied in accordance with NFPA 70. Electrical raceways, ducts, components, manholes, handholes and pull boxes shall be installed in accordance with the manufacturer's instructions. Ducts and raceways shall be installed to prevent the accumulation of debris and moisture and shall provide the highest degree of reliability.

B. Excavation:

1. Prior to excavation, Contractor shall verify the routing and termination locations of underground duct-bank systems, verify the intended locations of manholes and locate existing underground utilities.
 - a. Reference Specification Section: 16000 – ELECTRICAL, subsection 1.6,B,4,g, Wire/Cable Raceway Schedule.
2. Installer shall exercise caution to prevent the interruption of existing services and utilities.
3. Trenches shall be excavated to the appropriate depth, width and slope required for the installation of underground duct-bank systems, pull boxes and manholes as indicated in the Contract Documents.

4. Trench walls shall be less than 6IN from the edge of duct-bank systems. Trench walls shall be sloped, terraced, shored and/or braced in accordance with any applicable OSHA Standards and guidelines, Owner Safety Standards and Specification Sections:
 - a. 16050 – ELECTRICAL MATERIALS AND METHODS
 5. Trench bottoms shall be undisturbed earth, crushed rock or compacted sand. Trench bottoms shall be evenly graded, level and free of loose or sharp materials larger than 3/4IN. Trench bottoms shall have a minimum slope of 3IN per 100FT.
- C. Reinforced Concrete Encased Underground Duct-Bank:
1. Reinforced, concrete encased, underground duct-bank assemblies shall be installed as indicated in the Contract Documents.
 2. Unless indicated otherwise shown in the Contract Documents, the minimum depth of duct-banks shall not be less than 24IN as measured from the top of the concrete encasement to final grade.
 3. Electrical Duct Spacers:
 - a. Spacers shall be utilized in the fabrication of duct-bank systems.
 - b. Spacers shall be installed no more than 6FT intervals. Spacers may be staggered to accommodate sweeping bends with a large radius. Additional, non-metallic banding shall be utilized as required to prevent shifting or floating during concrete placement.
 - c. Spacers shall rest on concrete blocks or bricks to reduce sinking and allow for proper, bottom concrete coverage.
 - d. Duct-bank systems shall be securely anchored through reinforcing steel; to prevent floating during concrete placement.
 4. Reinforcing Steel:
 - a. Reinforcing steel shall be utilized as indicated in the Contract Documents.
 - b. Reinforcing steel of the duct-bank shall be securely bonded to the reinforcing steel of the attached manhole, building or equipment foundation to protect against vertical shearing. When terminating to an existing structure, dowel reinforcements shall be drilled into the existing wall and secured with epoxy adhesive, providing a permanent connection. Dowels shall then be tied into the reinforcing steel of the duct-bank.
 - c. When a continuous pour is impractical, additional #4 steel reinforcing bars shall be utilized at the corners of the duct-bank, extending at least 6FT through the first and second pour.
 5. Concrete:
 - a. Loose dirt and debris shall be completely removed from the trench and electrical ducts and raceways prior to the installation of concrete.

- b. In general, concrete placement shall utilize one monolithic pour. Sequential depth pours may be allowed to minimize hydraulic pressure on duct-banks of extreme depths or with a large number of rows.
- c. Raceways shall be protected against heavy masses of concrete by directing the concrete flow down the sides of the duct-bank assembly and through the tiers to the center of the assembly. Open spaces shall be filled uniformly. Concrete shall be thoroughly vibrated and spaded to ensure complete coverage and the absence of voids.
- d. Concrete coverage shall be a minimum of 3IN over the top and sides of the duct-bank.
- e. Top of the duct-bank shall be troweled to a slight crown to prevent the accumulation and pooling of water.
 - 1) Application of powered red dye shall be applied to the troweled finish, un-cured surface of the duct-bank concrete.

D. Concrete Encased Underground Duct-Bank:

- 1. Non-reinforced, concrete encased, underground duct-bank assemblies shall be installed as indicated in the Contract Documents.
- 2. Unless indicated otherwise shown in the Contract Documents, the minimum depth of duct-banks shall not be less than 24IN as measured from the top of the concrete encasement to final grade.
- 3. Electrical Duct Spacers:
 - a. Spacers shall be utilized in the fabrication of duct-bank systems.
 - b. Spacers shall be installed no more than 6FT apart. Spacers may be staggered to accommodate sweeping bends with a large radius. Additional, non-metallic banding shall be utilized as required to prevent shifting or floating during concrete placement.
 - c. Spacers shall rest on concrete blocks or bricks to reduce sinking and allow for proper, bottom concrete coverage.
 - d. Duct-bank systems shall be securely anchored to prevent floating during concrete placement.
- 4. Concrete:
 - a. Loose dirt and debris shall be completely removed from the trench and electrical ducts and raceways prior to the installation of concrete.
 - b. In general, concrete placement shall utilize one monolithic pour. Sequential depth pours may be allowed to minimize hydraulic pressure on duct-banks of extreme depths or with a large number of rows.
 - c. Raceways shall be protected against heavy masses of concrete by directing the concrete flow down the sides of the duct-bank assembly and through the tiers to the center of the assembly. Open spaces shall be filled

uniformly. Concrete shall be thoroughly vibrated and spaded to ensure complete coverage and the absence of voids.

- d. Concrete coverage shall be a minimum of 3IN over the top and sides of the duct-bank.
- e. Top of the duct-bank shall be troweled to a slight crown to prevent the accumulation and pooling of water.
 - 1) Application of powered red dye shall be applied to the troweled finish, un-cured surface of the duct-bank concrete.

E. Direct-Buried Underground Duct-Bank:

- 1. Direct-Buried, underground duct-bank assemblies shall be installed as indicated in the Contract Documents.
- 2. Install duct-bank system consisting of raceways directly buried in earth.
 - a. Lay conduits on minimum 2IN sand base completely encased by 2IN of selected backfill containing no stones or other hard material larger than 1/2IN diameter.
- 3. Circuits 600V and below, install so that the top selected backfill at any point, is not less than the minimum depths established by the NEC (Table 300 5 and exceptions).
 - a. PVC SCH-80 conduit: 24IN.
 - b. Under areas subject to vehicular traffic:
 - 1) All applications: 24IN.
 - 2) Unless a greater depth is detailed in the Contract Documents.
- 4. Unless indicated otherwise shown in the Contract Documents, the minimum depth of duct-banks shall not be less than 24IN as measured from the top of the concrete encasement to final grade.
- 5. Electrical Duct Spacers:
 - a. Spacers shall be utilized in the fabrication of duct-bank systems.
 - b. Spacers shall be installed no more than 6FT apart. Spacers may be staggered to accommodate sweeping bends with a large radius.

F. Precast Electrical Manholes:

- 1. Precast electrical manholes shall be installed in accordance with ASTM C891.
- 2. Precast electrical manholes shall be installed plumb and level on over a 12IN minimum layer of #57 stone. Concrete leveling pads may be required for large manholes.
- 3. Set frames and covers:
- 4. Manholes, handholes and pull-boxes located in roadways, paint with two coats asphaltic paint before setting and set top of covers flush with finished surface of paving.

- a. Manholes, handholes and pull-boxes not located in roadways, set top of covers 2IN above finished grade. Slope surrounding grade away from edge to insure water drains away from opening.
 - b. Install sufficient number of concrete extensions between top of manhole, handhole or pull-box frame as required to elevate cover to existing grade level.
- 5. Grout or seal all joints:
 - a. For precast construction, comply with the manufacturer's instructions.
 - b. For cast in place construction, comply with Section 03300 – CAST – IN – PLACE CONCRETE.
- 6. Cable trays, support racks, cable insulators, saddles, strut and other accessories shall be installed as required and as indicated in the Contract Documents. Cable supports shall be installed no less than 3FT apart and within 2FT of each corner and cable entrance. Accessory attachments shall utilize stainless steel hardware.
- 7. Support cables on walls by cable racks:
 - a. Install cable racks with adjustable arms/hooks:
 - 1) Quantity of arms/hooks as required by the number of conductors.
 - 2) Minimum of (2) cable arms/hooks per rack.
 - b. Install a minimum of (2) racks on each wall in each manhole, handhole and pull-box.
 - c. Space cable racks so that both ends of cable splices will be supported horizontally.
 - d. In manholes, install (1) spare arm/hook on each rack.
 - e. Install a cable pulling iron in each wall opposite each duct-bank entrance.
- 8. Grounding:
 - a. In each manhole, drive copper ground rod into the earth and extend ground rod approximately 6IN above finished floor.
 - b. In precast structures, drill openings in floor to install ground rod.
 - c. Connect all metallic conduits, racks, and other metallic components to ground rod by means of 2AWG tinned copper wire and approved grounding clamps.
 - d. 4/0AWG grounding conductors shall terminate into the manhole on those walls that duct-bank is routed. The grounding ring shall be electrically bonded to the incoming duct-bank grounding conductor, insulated grounding bushings on metal conduits, steel cable racks, steel ladders and other exposed metal hardware. Bonding conductors shall be a minimum of 2AWG tinned copper.

G. Backfilling and Compacting:

1. Prior to backfilling, grounding conductors shall be installed as indicated on the Contract Documents.
2. Prior to backfilling, warning tape shall be installed as indicated in the Contract Documents and in accordance with Specification Sections:
 - a. 16075 – ELECTRICAL IDENTIFICATION
3. Excavated trenches shall be backfilled and compacted to 95% of the maximum density. Additional backfilling and compacting shall be performed as required to compensate for further settlement.

H. Raceways:

1. Preparation
 - a. Raceways shall be cut-off square with a hacksaw or power saw designed for the purpose. All field cut ends shall be properly reamed and filed to remove sharp edges. Pipe cutters shall not be used for cutting raceways and considered rejected work by Engineer. All field threaded raceways shall have National Standard Pipe threads. Threads shall be clean cut and pipe ends shall butt inside couplings when turned up with a wrench, but shall not butt when turned hand tight. After cleaning all cutting oil and filings, threads shall be coated with a suitable thread compound before installing any couplings or fittings.
2. Materials
 - a. Raceway materials shall be PVC or PVC-RAC. Bends, elbows and conduits rising above-ground shall be PVC-RAC.
3. Installation
 - a. Raceways shall be installed in duct-bank section(s) in those arrangements as submitted by Contractor for Engineer review in accordance with Section 1.5B.
 - b. Raceways shall be installed such that the curved portion of the bend is not visible above the finished slab or final grade. PVC threaded caps shall be installed prior to pouring concrete to prevent the entrance of concrete and other debris. Raceways stubbed up beneath motor control centers, switchgear, etc., shall extend above the finished concrete a minimum of 2IN; if PVC-RAC is used the installation of an insulated throat grounding bushings shall be installed and bonded as required by NFPA 70.
 - c. Contractor shall route/locate new duct-bank systems to avoid underground utilities and piping to include structural features such as foundations, footings, piles, etc.
 - d. Prior to installation of field-routed raceways and duct-bank systems that may contain numerous changes in direction, Contractor shall provide cable pulling and side-wall tension calculations for Engineer review to ensure that no damage will occur during the cable installation. Difficult

raceway and duct-bank routing shall be brought to the Engineer's attention.

- 1) Continuous raceways, ducts and/or conduit shall have no more than 270-degrees of bend
- e. Field bends and offsets shall be with equipment designed for such use such that the inside diameter of the raceway is not effectively reduced.
- f. Raceways shall be joined with fittings and couplings designed for the purpose. Suitable fittings shall be utilized to accommodate expansion and deflection. Couplings shall be staggered horizontally and vertically such that no two couplings are side by side. Joints and terminations shall be properly tightened.
 - 1) PVC raceways shall be joined using heavy-bodied grey cement
- g. PVC caps shall be installed on all exposed raceway ends to prevent the entry of debris.
- h. Electrical ducts and raceways shall enter manholes perpendicular.
- i. Furnish and install manufactured bends at end of runs.
 - 1) Minimum radius of 18IN for conduits less than 3IN trade size and 36IN for conduits 3IN trade size and larger.
- j. Transition from PVC to PVC-RAC conduit with a minimum of 3FT prior to entering a structure or going above ground.
 - 1) Unless otherwise indicated on the Contract Documents.
 - 2) PVC conduit may be extended directly to pull, junction and transformer boxes; manholes and hand-holes.
- k. Where conduits enter transformer boxes; manholes and hand-holes:
 - 1) Terminate PVC conduits in end bells.
 - 2) Terminate PVC-RAC conduits in insulated bushings.

I. Wire/Cable Installation

1. Preparation

- a. Upon completion of installation, interiors of electrical ducts and raceways shall be inspected, all blockages cleared, and burrs, dirt and construction debris removed.
- b. After raceways have been installed complete, pull a standard flexible mandrel having a length of not less than 12IN and a diameter approximately 1/4IN less than the inside diameter of the raceway through each. Afterward, pull a brush with stiff bristles through each raceway to remove any foreign material left in conduit.

- c. Pull-cords shall be installed in all raceways. Pull-cords for 6IN trade size raceway shall be NEPTCO P/N RP6000N or approved. Pull-cords for 4IN trade size raceway and smaller shall be NEPTCO P/N WP2500P or approved. Leave a minimum of 24IN of slack at each end of raceways.

- 1) Pneumatic rodding may be used to draw in pull-cords.

2. Installation

- a. Installation of drawing wiring, cabling and conductors into duct-bank systems shall be in accordance with manufacturer's installation instructions and recommendations, best industry practices using equipment designed for this purpose to include Engineer directives to ensure wiring, cabling and conductors are not damaged.
- b. Damaged wiring, cabling and conductors drawn into duct-bank systems shall be removed and placed with new without no additional cost to Owner.
- c. Reference Specification Sections:
 - 1) 16080 – ELECTRICAL TESTING
 - 2) 16111 – CONDUIT AND RACEWAYS

3. Training / Management

- a. Wiring, cabling and conductors shall be organized, arranged and grouped by voltage and/or signal type circuitries within manholes, handholes, pull-boxes etc. and as required in the Contract Documents.
- b. Groups shall be bundled and secured to rack arms/hooks within all manholes, handholes, pull-boxes, etc.
 - 1) Use heavy-duty, black, ultra violet-resistant cable ty-wraps
- c. Wiring, cabling and conductors shall be installed within manholes, handholes, pull-boxes, etc. with sufficient slack to prevent mechanical stress and facilitate removal or splicing.
- d. Straight-through, multiple cross-over, un-managed/un-trained and/or "birds nest" wire and cable training is considered rejected work by Engineer.

J. Warning Tape:

- 1. Warning Tape(s) shall be installed for all duct-bank systems as indicated in the Contract Documents to include those critical underground utilities and in accordance with Specification Sections:
 - a. 16075 – ELECTRICAL IDENTIFICATION
- 2. Place warning tape(s) in trench directly over all duct-bank systems, direct buried raceways and direct buried wire and cable.

- a. 6IN below finished grade where conduit or duct-bank is 12IN or more below finished grade.
- b. 3IN below finished grade where conduit or duct-bank is less than 12IN below finished grade.

3.3 PROJECT CLOSE OUT

- A. All manholes, handholes, pull-boxes shall be pumped dry and all debris removed to include using vacuum equipment to provide clean interior surfaces. The use of compressed air systems are not acceptable.
- B. Provide Owner with (2) sets of manhole cover, underground pull-box cover or precast cable trench cover removal tools.

END OF SECTION

SECTION 16120 – CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish, install, connect, test, and place in satisfactory operating condition, ready for service, all cables and wires indicated on the Contract Drawings and as specified herein or required for proper operation of the installation, with the exception of internal wiring provided by electrical equipment manufacturers. The work of connecting cables to equipment, machinery, and devices shall be considered a part of this Section. All hardware, junction boxes, bolts, clamps, insulators, and fittings required for the installation of cable and wires system shall be furnished and installed by the Contractor
- B. The wire and cable to be furnished and installed for this Project shall be the product of manufacturers who have been in the business of manufacturing wire and cable for a minimum of ten (10) years.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 16080 – ELECTRICAL TESTING
 - 2. 16111 – CONDUIT AND RACEWAYS
 - 3. 13100 – INSTRUMENTATION AND CONTROL, GENERAL REQUIREMENTS

1.03 REFERENCES – NOT USED

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 013100 – SUBMITTAL PROCEDURES
- B. Contractor shall obtain from the wire and cable manufacturer and submit the following:
 - 1. Shop Drawings
 - a. Drawings shall include, but not limited to, detailed specifications and product data sheets for all cabling required for this Project.
 - b. Material specifications and product data sheets identifying all materials used and methods of fabrication.
 - c. Cable and wire identification methods and materials.
 - d. Reports of Certified Shop and Field Tests
 - 2. Electrical Raceway and Cable Schedule

- a. Reference Section 3.5 - ATTACHMENTS
 - 1) Electrical Raceway and Cable Schedule
- b. Submit an Electrical Raceway and Cable Schedule that aligns with the Raceway Identification Schedule as required in Section 16075 – ELECTRICAL IDENTIFICATION for all power, control, signal, process, data and protective circuits. The schedule shall be submitted for Engineer review in an electronic spreadsheet type Excel compatible file format. The schedule shall include but not limited to the following data:
 - 1) Raceway ID Tag
 - 2) From Description and ID Tag
 - 3) To Description and ID Tag
 - 4) Cable/Conductor/Wire type, size and number
 - 5) Raceway type and size
 - 6) Service, e.g. voltage, data, communications
 - 7) Ductbank Call-Outs, if installed and/or routed
 - 8) Contractor additional notes

C. Submittals shall be identified by the applicable Specification Section.

1.05 IDENTIFICATION

- A. All cable, wires and conductors shall be identified as specified in Section PART 3, EXECUTION.

PART 2 - PRODUCTS

2.01 POWER WIRE

- A. All 600V rated power wire shall consist of stranded, copper conductor with insulation type XHHW-2, 90C
- B. Circuits within the interior spaces of buildings may utilize 600V rated insulation, type THHN/THWN, 75C.
- C. Conductors shall be stranded copper per ASTM-B8, B-33 and B-189, Class B or C stranding contingent on the size unless otherwise specified. Minimum size wire shall be 12AWG.
- D. 600V rated individual or multi-conductor power wire and cable shall be manufactured by the Okonite Company, BICC Industrial Cable Company or Approved.

2.02 CONTROL WIRE

- A. All 600V rated control wire shall consist of stranded, copper conductor with insulation type XHHW-2, 90C.
- B. Control circuits within the interior spaces of buildings may utilize 600V rated insulation, type THHN/THWN, 75C.

- C. Conductors shall be stranded copper per ASTM B-8, B 33 and B-189, Class B or C stranding contingent on the size unless otherwise specified. Minimum wire size shall be 14AWG.
- D. 600V rated individual or multi-conductor control wire shall be manufactured by the Okonite Company, BICC Industrial Cable Company or Approved.

2.03 SHIELDED MOTOR FEEDER CABLE (SMFC) - VARIABLE FREQUENCY DRIVES

- A. Where indicated in the Contract Documents, the power connection between the variable frequency drive (VFD) and the associated motor shall utilize a shielded three-conductor plus ground conductor VFD output cable.
- B. SMFC cables with 2AWG and smaller conductors shall have an overall polyvinyl chloride jacket, utilize XLPE conductor insulation with 100 percent rated ground conductor, overall foil shield, 85% TC braid and drain wire.
- C. SMFC cables with 1AWG and larger conductors shall have an overall polyvinyl chloride jacket, utilize XLPE conductor insulation with three-symmetrical BC grounds, two spiral copper tape shields.
- D. SMFC cables shall meet the following requirements.
 - 1. Utilize high-strand tined copper conductors.
 - 2. Lower capacitance suitable for longer runs
 - 3. Sunlight and oil resistant.
 - 4. Suitable for Class I and II; Division 2 hazardous locations.
 - 5. Rated for 90C temperature for wet or dry locations.
 - 6. UL 1685 vertical tray flame test
- E. All SMFC cables shall be terminated with manufacturer approved cable connectors and/or termination kits.
- F. SMFC cable rated less than 1000V shall be:
 - 1. Belden: 29500 Series Cable
 - 2. General Cable: CVTC VFD Cable
 - 3. Service Wire Company: Service Drive ASD/VFD Cable
 - 4. Southwire Armor-X VFD Cable

2.04 LIGHTING AND RECEPTACLE WIRE

- A. All exterior lighting and receptacle branch circuit wire shall consist of stranded, copper conductors with 600V rated insulation, type XHHW-2, 90C.
- B. Interior lighting and receptacle branch circuit wire may utilize stranded, copper conductors with 600V rated insulation, type THHN/THWN 75C.
- C. Conductors shall be stranded copper per ASTM-B8, B-33 and B-189, Class B or C stranding contingent on the size unless otherwise specified. Minimum size wire shall be 12AWG.
- D. Lighting and receptacle wire shall be manufactured by the General Cable Company, Southwire Cable Company or Approved.

2.05 CONTROL SIGNAL CABLE (F/UT)

- A. Control cable for discrete signals shall be unshielded twisted individual conductors (F/UT) or twisted multi-paired conductors with an overall foil shield (F/UTP), unless otherwise noted on the Contract Documents. Conductors shall be tin or alloy coated, soft, annealed stranded 14AWG copper with 600V rated insulation for 75C. All twisted pairs shall have an overall foil shield with a 18AWG tinned copper drain wire. Outer jackets shall be lead-free, cross-linked chlorinated polyethylene.
- B. Typical notation as shown on the Contract Documents:
 - 1. 1[9C#14F/UT] denotes one (1) cable of nine (9) twisted 14AWG conductors wrapped within an overall foil shielded outer jacket
- C. The individual conductors of the multi-conductor control cable shall be color coded for proper identification. Color coding shall be equal to ICEA S-68-514, Table K-1. Cables shall meet requirements of IEEE-383.
- D. Control cable shall be
 - 1. Southwire Product Series: 367120 or Approved.

2.06 INSTRUMENTATION SIGNAL CABLE (F/FTP)

- A. Instrumentation cable for analog signals shall be individually shielded twisted paired conductors (F/FTP) or individually shielded twisted multi-pair conductors within an overall foil shield (F/FTP), unless otherwise shown on the Contract Documents. Conductors shall be tin or alloy coated, soft, annealed stranded 16AWG copper with 600V rated insulation for 75C. All cable assemblies shall have a 18AWG tinned copper drain wire. Outer jackets shall be lead-free, cross-linked chlorinated polyethylene.
- B. Typical notation as shown on the Contract Documents:
 - 1. 2[2C#16F/FTP] denotes two (2) cables of two (2) twisted 16AWG paired conductors within individual foil shield and wrapped with an overall foil shielded outer jacket
- C. Instrumentation cable shall be
 - 1. Southwire Product Series: 337630 or Approved.

2.07 INDUSTRIAL ETHERNET TCP/IP CABLE (F/UTP)

- A. All industrial EtherNet data cables shall be TIA/EIA-568-B.2-1 Category 6 compliant, non-plenum rated with black PVC outer jacket rated for 600V. The industrial EtherNet data cable shall be eight (8) individually twisted, bonded paired conductors with splined center member and wrapped within an overall foil shield (F/UTP). Signal conductors shall be soft, annealed solid #23AWG copper with a 24AWG tinned copper drain wire.
- B. Typical notation as shown on the Contract Documents:
 - 1. 1[8C#23F/UTP] denotes one (1) cable of eight (8) twisted 23AWG paired conductors within a PVC inner jacket and wrapped within an overall foil shielded outer jacket.

- C. Industrial EtherNet cable shall be
 - 1. Belden Product Series 7953A or Approved.

2.08 FIBER OPTIC CABLE (FO)

- A. All fiber optic cables, cable assemblies, patch cables, jumpers, etc. shall be provided under the following Specification Sections:
 - 1. 13100 – I&C GENERAL REQUIREMENTS
 - 2. 13360 – ICS Fiber Optic Communication System
- B. Contractor shall provide labor and equipment as required to install all fiber optic cables as required in the above listed Section(s) under Division 16.
 - 1. Fiber optic cable testing and terminations shall be completed under Division 40 by the Control Systems Integrator (CSI).
 - 2. Ensure and follow all fiber optic manufacturer installation instructions are met to include but not limited to pulling tensions, side-wall pressures, etc.
 - 3. Protect fiber optic cable cut ends with water-tight, heat-shrinkable end-caps to protect interior cable assembly from damage and/or water/moisture ingress.
 - 4. Identify and label all fiber optic cable(s) in accordance with Specification Section(s): 16075 – ELECTRICAL IDENTIFICATION

2.09 CABLE FITTINGS AND CONNECTORS

- A. Where shown in the Contract Documents, Contractor shall provide and install all required cable glands, fittings and connectors with those manufacturer approvals, UL listing and/or NEMA rating to match enclosures and/or devices to which the cable is terminated.
- B. Where cables are subject to vibration and/or tension, Contractor shall provide and install cable glands, fittings and connectors with strain-relief assembly to include supplemental cable strain-reliefs were required.

PART 3 - EXECUTION

3.01 GENERAL

- A. Power Feeder and Branch Circuitry
 - 1. All power feeder and branch circuit cables, wires and/or conductors shall be terminated in accordance with the applicable Specification Sections throughout all power distribution equipment to include all utilization equipment and/or devices.
 - a. Splices within pull-boxes and junction boxes are not acceptable unless approved by Engineer.
- B. Control, Signal and Data Circuitries
 - 1. All control, signal and data cables, wires and/or conductors shall be terminated in accordance with the applicable Project Specification Sections throughout all terminal, marshalling cabinets to include all control and/or utilization devices.

- a. Splices within pull-boxes and junction boxes are not acceptable unless approved by Engineer
- 2. All control and data cabling routed to Programmable Logic Controllers (PLC) and/or SCADA equipment shall be identified and neatly bound in coils, secured with white nylon cable ties
 - a. Sufficient cable and/or wire slack shall be provided such that no splicing is required within PLC and SCADA cabinets.
- C. Contractor shall ensure all power, control, signal and data cables, wires and/or conductors are terminated correctly throughout the entire circuit and shall provide labor and materials as required to make all corrections necessary without any additional cost to Owner.
- D. Engineer and/or Owner Representative reserves the right to witness and inspect all power, control, signal and data terminations.

3.02 600V CABLE INSTALLATION

- A. Cable and wires shall be installed as specified herein and shown on the Contract Drawings.
- B. Cables shall be terminated in accordance with the cable and/or termination product manufacturer's instructions for the particular type of cable.
- C. To minimize oxidation and corrosion, wire and cable shall be terminated using an oxide-inhibiting joint compound recommended for "copper-to-copper" connections. The compound shall be Penetrox-E as manufactured by Burndy Electrical, or approved equal.
- D. Splices are normally not permitted in the underground duct, manhole and handhole systems. If splices are required, Contractor shall obtain approval in writing from the Engineer prior to splicing.
 - 1. Splicing material shall be a two-part insulating and encapsulating resin.
- E. Sizing
 - 1. Sizes of cable and wire shall be as shown in the Contract Documents, or if not shown, as approved by the Engineer. If required due to field routing, the size of conductors and respective conduit shall be coordinated with and approved by the Engineer.
 - 2. Minimum wire size within control panels, motor control centers, switchboards and similar equipment shall be 12AWG for power and 14AWG for control.
- F. Quantity
 - 1. The number of wires indicated in the Contract Documents for the various control, indication, and metering circuits were determined for general schemes of control and for particular indication and metering systems.
 - 2. The actual number of wires installed for each circuit shall, in no case, be less than the number required; however, the Contractor shall add as many wires as may be required for control and indication of the actual equipment selected for installation at no additional cost to the Owner. The addition of conductors shall be coordinated with and approved by the Engineer.

G. Identification

1. Provide and install cable, conductor and wiring identification in accordance with the procedures and requirements Specification Section(s):
 - a. 16075 – ELECTRICAL IDENTIFICATION

H. Installation

1. All interior cable not protected by a compartment enclosure shall be run in conduit.

I. Training

1. Furnish all labor and material required to train wire, conductors and cables in all electrical and control enclosures to include but not limited to cable vaults within buildings, manholes, hand-holes and pull-boxes.
 - a. Sufficient length of cable shall be provided in each cable vault, manhole, handhole or underground pull-box such that the wire, conductors or cable can be trained and racked in an approved manner. In training or racking, the radius of bend of any wire, conductors or cable shall be not less than the manufacturer's recommendation. The training shall be done in such a manner as to minimize chaffing.
 - b. Slack coils of wire, conductors or cables shall be provided in all pull-boxes, junction boxes, etc. and secured with approved UV resistant cable ties.
 - c. Power and control wire, conductors or cables shall be neatly routed, trained and secured with approved UV resistant cable ties within all electrical enclosures to include but not limited to switchboards, transformers, transfer switches, power panels, lighting panels, disconnects, control cabinets such as PLCs.

J. Terminations and Connections

1. Where stranded wires are terminated at panels, and/or devices, connections shall be made by solderless lug, crimp type ferrule or solder dipped.
2. Where enclosure sizes and sizes of terminals at limit switches, solenoid valves, float switches, pressure switches, temperature switches, and other devices make seven-strand, 12AWG, wire terminations impractical, the Contractor shall terminate external circuits in an adjacent junction box of proper size and shall install 14AWG stranded wires from the device to the junction box in a conduit. The 12 AWG field wiring shall also be terminated in the same junction box to complete the circuit.

K. Temperature

1. Cable shall not be flexed or pulled when the temperature of the insulation or of the jacket is such that damage will occur due to low temperature embrittlement. When cable will be pulled with an ambient temperature within a three-day period prior to pulling of 40F or lower, cable reels shall be stored during the three-day period prior to pulling in a protected storage area with an ambient temperature not lower than 55F and pulling shall be completed during the work day for which the cable is removed from the protected storage.

L. Color Coding

1. Unless otherwise noted in the Contract Documents, conductor insulation shall be color coded as follows:
 - a. 480V AC Power:
 - 1) Phase A - BROWN
 - 2) Phase B - ORANGE
 - 3) Phase C - YELLOW
 - 4) Neutral – GREY
 - b. 120/208V or 120/240V AC Power:
 - 1) Phase A - BLACK
 - 2) Phase B - RED / (ORANGE for High Leg Delta)
 - 3) Phase C - BLUE
 - 4) Neutral – WHITE
 - c. 120VAC Control:
 - 1) Ungrounded conductors – RED
 - 2) Ungrounded conductors, foreign source - YELLOW.
 - d. 24VAC Control:
 - 1) All wiring – ORANGE
 - e. 24VDC Power:
 - 1) Positive Lead – RED
 - 2) Negative Lead – BLACK
 - f. 24VDC Control:
 - 1) Ungrounded conductors – BLUE
 - 2) Grounded conductors – BLUE w/ WHITE stripe
 - g. Equipment Grounding Conductor:
 - 1) All wiring – GREEN
2. Conductors 4AWG and smaller shall be factory color coded with a separate color for each phase and neutral, which shall be used consistently throughout the system. Larger cables shall be coded by the use of colored tape.

3.03 INSTRUMENTATION / TELEPHONE / DATA CABLE INSTALLATION

- A. Grounding of cable shield shall be accomplished at one end point only.
- B. Raceways exceeding 5FT and containing instrumentation / telephone / data cable shall be installed to provide the following clearances:

1. Raceway installed parallel to raceway conductors energized at 480 through 208V shall be 18IN and 208/120V shall be 12IN.
 2. Raceway installed at right angles to conductors energized at 480V or 120/208V shall be 6IN.
- C. Where practical, raceways containing instrumentation / telephone / data cable shall cross raceway containing conductors of other systems at right angles.
- D. Where instrumentation / telephone / data cables are installed in panels, etc., the Contractor shall arrange wiring to provide maximum clearance between cables and other conductors. Instrumentation / telephone / data cables shall not be installed in same bundle with conductors of other circuits.
- E. Additional pullboxes shall be furnished and installed for ease of cable pulling and the cable manufacturer's recommended conduit fill factor shall be followed.
- F. All cable, insulation and jacket shall have adequate strength to allow for it to be pulled through the conduit systems. Sufficient conductors shall be installed to provide space and serve future equipment where shown and specified. All conductors shall be color coded and all wires shall be suitably tagged with permanent markers at each end.

3.04 TESTING

- A. All wire and cable testing shall be performed in accordance with the requirements of Specification Section(s):
1. 16080 – ELECTRICAL TESTING
- B. If tests reveal defects or deficiencies, the Contractor shall make the necessary repairs or shall replace the cable as directed by the Engineer, without additional cost to the Owner.
- C. All tests shall be made by and at the expense of the Contractor who shall supply all testing equipment.

3.05 ATTACHMENTS

- A. Electrical Raceway and Cable Schedule
1. The information is intended as a basis of design to be utilized by the Contractor to facilitate installation requirements under the Project Scope of Work.
 2. The information and/or data may not be all-inclusive and subject to change in accordance with approved shop drawings, equipment supplier requirements, Engineer submittal responses and/or Contractor means and methods and as such should be considered a working document until Project close-out.

END OF SECTION

SECTION 16130 - ENCLOSURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

Section includes requirements for boxes, cabinets and enclosures used in electrical systems. Types of boxes, cabinets and enclosures specified in this section include the following:

1. Junction Boxes and Pull Boxes
2. Device Boxes
3. Flush Mounted Floor Boxes
4. Cabinets and Enclosures
5. Hazardous Locations

B. Related Requirements:

1. Section 01310 – ADMINISTRATIVE REQUIREMENTS
2. Section 16060 – GROUNDING & BONDING
3. Section 16070 – HANGERS AND SUPPORTS
4. Section 16075 – ELECTRICAL IDENTIFICATION
5. Section 16111 – CONDUITS AND RACEWAYS
6. Section 16120 – CONDUCTORS AND CABLES

1.02 REFERENCES

A. Abbreviations and Acronyms:

1. American Society of Testing and Materials (ASTM)
2. National Electrical Manufacturers Association (NEMA)
3. National Fire Protection Agency (NFPA)
4. Polyvinyl Chloride (PVC)
5. Underwriters Laboratories, Inc. (UL)

B. Definitions:

1. Cabinet – An enclosure designed for surface mounting or flush mounting with a frame, mat or trim in which a swinging door or doors may be hung.
2. Contractor – The Company that has a contract with the Owner to perform the work.
3. Device Box – A box designed to house a unit that carries or controls electric energy as its principal function; such as a receptacle or light switch.
4. Enclosure – A case or housing for electrical wiring and/or components which is utilized to either prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage.
5. Floor Box – A device box designed to be installed in a poured concrete floor.
6. Installer – The Contractor or Subcontractor physically installing the electrical equipment or system specified.
7. Junction Box – An enclosure with a screw-fastened cover utilized for splicing or terminating wires.

8. Pull Box – An enclosure with a screw-fastened cover utilized in facilitating the pulling of cable.
9. Subcontractor – The Company that has a contract with the Contractor to perform certain portions of the work.

C. Reference Standards:

1. ASTM A167 – Standard Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
2. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum)
3. NEMA ICS6 – Enclosures for Industrial Controls and Systems
4. NEMA OS 1 – Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
5. NEMA OS 2 – Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports
6. NFPA 70 – National Electrical Code
7. UL 50 & 50E – Enclosures for Electrical Equipment
8. UL 508A – Industrial Control Panels
9. UL 514A – Metallic Outlet Boxes
10. UL 514B – Conduit, Tubing, and Cable Fittings
11. UL 514C – Nonmetallic Outlet Boxes, Flush Device Boxes and Covers
12. UL 886 – Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations
13. UL 1203 – Explosion Proof and Dust Ignition Proof Electrical Equipment for Use in Hazardous (Classified) Locations
14. UL 1773 – Termination Boxes
15. NFPA 496 – Purged and Pressurized Enclosures for Electrical Equipment

1.03 SUBMITTALS

Product data shall be submitted in accordance with Section 01310 – ADMINISTRATIVE REQUIREMENTS for each type of box, cabinet or enclosure with a classification greater than NEMA 1. Shop drawings for NEMA 1 boxes, cabinets and enclosures that are non-stock items shall also be submitted.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Each box, cabinet and enclosure shall be listed and labeled by UL, ETL or other recognized testing agency that provides third-party certification follow-up services.
2. Each metallic box, cabinet and enclosure shall have a unique identifying number that traces the product back to material mill test reports. Stainless steel items shall have a part number that contains a material designator or a separate stamp that includes a reference to the type of material used.

PART 2 - PRODUCTS

2.01 BOXES, CABINETS AND ENCLOSURES

Boxes, cabinets and enclosures shall be of the NEMA Class and of the types and sizes shown on the raceway plans, sections and details. Sizes not indicated in the project documents or electrical drawings shall be sized and applied in accordance with the requirements of NFPA 70 (National Electrical Code). Unless specified in the project documents or shown on the raceway plans, sections and details, minimum classifications shall be either NEMA 1 or NEMA 12 for

dry indoor applications and either NEMA 3R, NEMA 4 or NEMA 4X for outdoor locations, depending on the surrounding environment. Unless indicated otherwise, metallic boxes, cabinets and enclosures shall be 316 stainless steel. Corrosion-resistant screws and hardware, including cadmium and zinc plated items, shall be utilized for dry indoor locations. Stainless-steel screws and hardware shall be utilized for exterior or wet locations. Boxes, cabinets and enclosures shall be complete with covers, gaskets and any other accessories required for the intended use. Fittings for boxes, cabinets and enclosures shall conform to UL 514B. Malleable iron or zinc plated steel shall be used for conduit hubs, bushings and box connectors.

2.02 PRODUCT TYPES

A. Performance Criteria:

1. Junction Boxes and Pull Boxes: Junction boxes and pull boxes shall be manufactured and applied in accordance with UL 50. Boxes shall have bolted-on, screwed or hinged covers manufactured from the same material as the boxes. Covers shall be of the size and shape to suit the application.
2. Device Boxes: Device Boxes shall be complete with features and accessories suitable for each location; including mounting brackets, cable clamps, closure plugs, exterior rings and threaded screw holes for devices and covers.
 - a. Metallic: Metallic device boxes shall be manufactured from sheet-steel in accordance with NEMA OS 1 and UL 514A. Metallic boxes shall be galvanized, enameled or otherwise corrosion resistant.
 - b. Nonmetallic: Nonmetallic device boxes shall be manufactured and applied in accordance with NEMA OS 2 and UL 514C.
3. Flush Mounted Floor Boxes: Flush mounted floor boxes shall be manufactured and applied in accordance with UL 514C. Boxes shall be concrete tight and fully adjustable vertically and angularly before and after concrete is poured. Metallic boxes utilized for power wiring shall have a grounding terminal consisting of a washer-in-head machine screw, not smaller than No. 10-32, screwed into a tapped hole in the box. Boxes requiring multiple sections shall have hinged section covers with provisions under a common floor plate for a duplex receptacle, telephone or data device as required. Floor boxes shall have a flange, cover, carpet trim plate, extension collar, gaskets, brass floor plates and other various service fittings as needed to form a complete unit for the required application.
4. Cabinets and Enclosures: Cabinets and enclosures shall be selected, manufactured and applied in accordance with UL 50. Cabinets and enclosures shall consist of a one-piece frame box and front with hinged door or doors. Cabinets and enclosures greater than 36 inches wide shall have double doors. Door(s) shall be constructed to close against a rabbet placed around the inside edge of the frame, with a uniformly close fit between door and frame. Solid neoprene gaskets shall be utilized if required for the application. Door hinges may be flush or concealed and shall be bolted and installed less than 24 inches apart and less than 6 inches from either the top or the bottom of the door.

Flush mounted cabinets and enclosures shall have a front that is 3/4-inch larger than the box all around. Surface mounted cabinets and enclosures shall have a front that is the same height and width as the box.

Cabinets and enclosures not installed in dedicated wiring closets or mechanical/electrical rooms shall have key locks. Cabinets and enclosures for

the same system shall be keyed alike and have spare keys. Locks shall allow doors to latch closed without locking.

If required, cabinets and enclosures shall have adequate ventilation, filtration, fans and ducting to compensate for internal heat generation. Cabinets and enclosures shall also have a mounting panel constructed of the same material.

5. Hazardous Locations: Boxes, cabinets and enclosures installed in hazardous locations shall be listed and labeled for use according to NFPA 70 (National Electrical Code) for the specific class and division of the location. Conduit entrances shall be threaded and suitable for the installation of conduit seals.

B. Materials:

1. Sheet Steel: Sheet steel boxes, cabinets and enclosures shall be constructed of flat-rolled, code-gauge, galvanized steel with stamped knockouts for raceway entries.
2. Hot-Dipped Galvanized Steel: Hot-dipped galvanized steel junction boxes and pull boxes shall be constructed of sheet steel with welded seams. Internal stiffeners shall be provided when necessary to ensure a rigid assembly. Boxes shall be hot-dip galvanized after fabrication.
3. Stainless-Steel: Stainless-steel junction boxes, pull boxes, cabinets and enclosures shall be fabricated of stainless steel conforming to Type 302 of ASTM A167. Internal stiffeners shall be provided when necessary to ensure a rigid and structurally sound assembly.
4. Cast-Aluminum: Cast-aluminum boxes, cabinets and enclosures shall be molded of copper-free aluminum with integral threaded raceway entries.
5. Cast-Iron: Cast-iron boxes shall be waterproof and molded of an iron alloy with integral threaded raceway entries.
6. Nonmetallic (PVC): Nonmetallic boxes, cabinets and enclosures shall be molded from gray, nonconductive, glass fiber-reinforced, ultra-violet stabilized, high impact-resistance strength polyvinyl chloride (PVC) with integral mounting flanges and raceway entries.

- C. Finishes:** Metallic boxes, cabinets and enclosures shall have an exterior finish of gray baked enamel and an interior finish of white baked enamel. Mounting panels shall be primed and painted white.

PART 3 EXECUTION

3.01 INSTALLATION

Installation of boxes, cabinets and enclosures shall be in accordance with the electrical plans and details and Article 314 of NFPA 70 (National Electrical Code). Boxes, cabinets and enclosures shall be installed such that the box is supported independently of raceways and cable trays and does not interfere with any other equipment or equipment access. Caps and plugs shall be installed in any raceway entry not utilized. Knockouts on boxes, cabinets and enclosures shall only be removed if required for raceway installation. All burrs and sharp edges shall be removed from knockouts prior to the connection of raceways. Isolation barriers shall be installed between adjacent devices or cables of dissimilar voltage. Boxes, cabinets and enclosures installed in concrete walls shall be deep enough to avoid interference with reinforcing steel, with a maximum depth of six inches.

A. Systems Integration:

1. Junction Boxes and Pull Boxes: Junction boxes shall be installed as required to terminate or tap multiple circuits. Pull boxes or conduit bodies shall be installed on any field routed conduit installation that exceeds 360 degrees of bending and as required to eliminate jamming, excessive sidewall pressures and excessive pulling tensions during cable installation.
2. Device Boxes: Unless shown otherwise on the lighting and power plans, device boxes shall be installed at the following heights (inches):

Outdoor Receptacle 24

Indoor Receptacle 18

Mechanical Room Receptacle 24

Light Switch 48

Outdoor Telephone Device 48

Indoor Telephone Device 18

Computer/Data Devices 18

Fire Alarm Pull Switches 48

Welding Receptacles 48

Device boxes for light switches and receptacles shall be installed with the long axis of the box in the vertical position. Device boxes for light switches shall be installed at doors on the side opposite the hinges.

Through wall boxes shall not be installed. Device boxes installed back-to-back on common walls shall be installed on opposite sides of a stud to minimize sound transmission. Device boxes installed on columns or pilasters shall be located such that the centers are clear for the future installation of partitions.

Device boxes installed in fire-rated walls or partitions shall have a maximum of 16 square inches of surface area exposed through the wall at one location, unless additional fireproofing material is added. Metallic device boxes installed in fire-rated walls or partitions shall have a minimum of 24 inches of separation.

Device boxes for fixtures installed in finished areas with concealed wiring shall be a minimum of 4 inches square by 1-1/2 inches deep.

Extension rings installed on existing device boxes shall have mounting holes drilled to align the extension ring with the existing device box.

3. Flush Mounted Floor Boxes: Floor boxes shall be installed in concrete slabs such that the box is completely flush with the concrete surface. Boxes installed prior to the placement of concrete shall be secured to prevent movement during the concrete pour. Floor boxes utilized for power receptacles shall be listed specifically for this application.

4. Cabinets and Enclosures: Unless otherwise shown on the electrical details, cabinets and enclosures shall be installed such that the tops of the boxes are 78 inches above the finished floor. Cabinets and enclosures installed in finished locations shall be plumb and flush with the finished wall. Pad mounted cabinets and enclosures shall be mounted on concrete surfaces as indicated on either the electrical details or foundation plans. As a minimum, clearances around cabinets and enclosures shall be in accordance with Article 110 of NFPA 70 (National Electrical Code).
5. Hazardous Locations: Boxes, cabinets and enclosures located in hazardous locations shall utilize expanded fill sealed fittings as required and shall be installed in accordance with NFPA 70 (National Electrical Code). If the Installer encounters a box, cabinet or enclosure that is to be installed outside the limits of the area classification drawings, or if the Installer believes the location may be located within a hazardous area not shown on the area classifications drawings, then the Installer shall immediately stop work and advise the Contractor so that a check and/or inspection may be made. Conduits, fittings and couplings connecting to boxes, cabinets and enclosures shall have at least five full threads engaged.

3.02 GROUNDING AND BONDING

Metallic boxes, cabinets and enclosures shall be electrically grounded in accordance with Article 250 of NFPA 70 (National Electrical Code) and Section 16060 – GROUNDING & BONDING.

3.03 CLEANING

Upon completion of installation, interiors of boxes, cabinets and enclosures shall be inspected, all blockages cleared, and burrs, dirt and construction debris removed. Damaged finishes, including chips, scratches and abrasions, shall be repaired. Damaged galvanized finishes shall be repaired with zinc-rich paint recommended by the manufacturer. Precautions shall be taken to prevent the future entrance of plaster, dirt and debris.

END OF SECTION

SECTION 16140 – WIRING DEVICES

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install all Wiring Devices as required, such as: light switches, motor-rated switches, receptacles, GFCI devices, device plates, covers, dimmers, plug-in strips with those voltage and current ratings as shown in the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 16120 – CONDUCTORS AND CABLES
 - 2. 16111 – CONDUITS AND RACEWAYS

1.03 REFERENCES

- A. Wiring Devices shall conform to all applicable Federal, UL, and NEMA standards. Materials and components shall be new and conform to grades, qualities and standards as specified herein and shown in the Contract Documents.
- B. Codes and Standards:
 - 1. UL Listing/ Approval
 - 2. UL 20 – General-Use Snap Switches
 - 3. UL 943 – Ground-Fault Circuit-Interruptioners
 - 4. UL 1681 – Standard for Wiring Device Configurations
 - 5. NFPA 70 – National Electrical Code

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Qualifications
 - 1. For approval, manufacturer shall have specialized in the manufacturing and assembly of Wiring Devices for at least twenty-five (25) years.
 - 2. Furnish products listed by Underwriters Laboratories Incorporated and in accordance with standards listed in Section 1.3.

1.05 IDENTIFICATION

- A. Wiring Devices shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplates shall be furnished and installed as required Specification Section(s):
 - 1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Light switches (except explosionproof):
 - a. Hubbell
 - b. Pass & Seymour
 - c. Leviton
 2. Explosionproof light switches:
 - a. Appleton Electric Co
 - b. Crouse Hinds
 - c. Killark
 3. Door switches:
 - a. Arrow Hart
 - b. General Electric
 - c. Pass & Seymour
 - d. Slater
 4. Receptacles (except explosionproof):
 - a. Arrow Hart
 - b. Hubbell
 - c. General Electric
 - d. Pass & Seymour
 - e. Slater
 - f. Leviton
 5. Explosionproof receptacles:
 - a. Appleton Electric Co
 - b. Crouse Hinds
 - c. Killark

6. Dimmers:
 - a. General Electric
 - b. Lutron
 - c. Pass & Seymour
7. Plug in strip:
 - a. Walker
 - b. Wiremold

2.02 MATERIALS

A. Light Switches for Indoor Unclassified Areas:

1. Toggle type, quiet action, and specification grade with grounding terminal
2. Back and side wired
3. Solid silver cadmium oxide contacts
4. One-piece switch arm rated 20A, 120/277VAC
5. UL listed
6. Color: GREY
7. Wall Plate: Type 304 stainless steel
8. LED Pilot Light as required in Contract Documents
9. Type: As indicated in Contract Documents

B. Receptacles for Indoor Unclassified Areas:

1. Straight blade, grounding type, specification grade
2. Back and side wired with wrap around bridge
3. Rated 20A, 125 VAC
4. UL listed
5. Color:
 - a. For use on normal power: GREY
 - b. For use on UPS systems: RED
 - c. For use on isolated ground systems: ORANGE
6. Wall Plate: Type 304 stainless steel
7. Type: As indicated in Contract Documents

C. Light Switches for Wet Areas:

1. Toggle type, quiet action, and specification grade with grounding terminal
2. Back and side wired
3. Solid silver cadmium oxide contacts
4. One-piece switch arm rated 20A, 120/277VAC
5. UL listed
6. Color: GREY
7. Wall Plate: Die-Cast AL weatherproof, lever-switch type
8. Type: As indicated in Contract Documents

- D. Receptacles for Wet Areas:
1. Reference Section 2.2E
- E. Ground Fault Circuit Interrupter (GFCI) Receptacles:
1. Straight blade, grounding type, Class-A GFCI specification grade
 2. Rated 20A, 125VAC
 3. TEST and RESET buttons
 4. Power On LED indicating light
 5. UL listed
 6. Color: GREY
 7. Wall Plate: Die-Cast AL weatherproof, "IN USE"
 8. Type: As indicated in Contract Documents
- F. Light Switches for Corrosive Areas:
1. Corrosion resistant NEMA 4X enclosure with switch consisting of:
 - a. Fiberglass Reinforced Polyester (FRP) enclosure.
 - b. Toggle type, quiet action, and specification grade with grounding terminal
 - c. Rated 20A, 125VAC with solid silver cadmium oxide contacts
 - d. Grounding bushing
 - e. UL listed
 - f. Gasket: Butyl Rubber or chemical resistant
 - g. Wall Plate/Cover: FRP gasketed wall plate with built in toggle lever-switch with stainless steel shaft
 - h. Color: YELLOW
 - i. Type: As indicated in Contract Documents
 2. Optional: Corrosion resistant enclosure and switch consisting of:
 - a. Cast copper free aluminum "FS" or "FD" ridge type hub box
 - b. Toggle type, quiet action, and specification grade with grounding terminal
 - c. Rated 20A, 125VAC with solid silver cadmium oxide contacts
 - d. UL listed
 - e. Gaskets: Butyl Rubber or chemical resistant
 - f. Wall Plate/Cover: Die-Cast AL lever-switch with stainless steel screws
 - g. Color: YELLOW.
 - h. Type: As indicated in Contract Documents

G. Receptacles for Corrosive Areas:

1. Box: "FS" or "FD" ridge type cast hub box of copper free aluminum
2. Corrosion resistant straight blade, grounding type, specification grade
3. Back and side wired with wrap around bridge
4. Rated 20A, 125VAC
5. Gaskets: Butyl Rubber or chemical resistant
6. UL listed
7. Color: YELLOW.
8. Wall Plate/Cover: Die-Cast AL, weatherproof, UL listed "IN USE" cover.
9. Type: As indicated in Contract Documents

H. Explosion-Proof Light Switches for Use in Hazardous Areas:

1. Explosionproof, UL listed for Class I, Division 1 and 2, Groups B, C, and D; and Class II, Division 1 and 2 areas, Groups E, F, and G
2. EDS factory sealed
3. Malleable iron body and cover
4. Aluminum sealing chamber
5. Front operated handle with stainless steel shaft
6. Rated 20A, 125VAC
7. With grounding screw
8. Type: As indicated in Contract Documents

I. Explosion-proof Receptacles for Use in Hazardous Areas:

1. Explosion proof, UL listed for Class I, Division 1 and 2, Groups B, C, and D; and Class II, Division 1 and 2, Groups F and G
2. Factory sealed malleable iron receptacle with spring loaded cover
3. Malleable iron mounting box
4. Rated 20A, 125VAC
5. "Dead front" construction requiring plug to be inserted and rotated to activate receptacle
6. Type: As indicated in Contract Documents

J. Plug In Strip: Surface steel raceway plug in strip with single 15A, 125VAC, 3-wire grounding type receptacles spaced 18IN on center

1. Pre-wired with two 12AWG and one 12AWG green insulated ground
2. Minimum 1 1/4IN wide x 3/4IN deep
3. Suitable fittings and snap in cover
4. Finish:
 - a. Stainless steel
5. Receptacle color:
 - a. For use on normal power: GREY
 - b. For use on UPS systems: RED
 - c. For use on isolated ground systems: ORANGE

K. Door Switches:

1. Rated 5A, 120VAC.
2. Mode of operation: Door open lights on.
3. UL listed.

L. Lighting Dimmers:

1. Electronic solid-state type, rated for load, 120VAC and 277VAC
2. Circuit design: Silicon symmetrical gate to provide full wave dimming and withstand current and inverse voltage surges
3. Controls: Linear slide with positive off
4. Provide built in filter to minimize noise interference in nearby audio lines
5. Rated 100F maximum, ambient
6. UL listed
7. Finish: GREY or WHITE

M. Pedestal Type Floor Mounted or Counter Mounted Duplex Receptacles:

1. Straight blade, grounding type, specification grade
2. Back and side wired with wrap around bridge
3. Rated 15A, 125VAC
4. Horizontal design housing with threaded conduit fittings in base with satin chromium finish
5. Install on adjustable 4IN flush floor box.
6. Color:
 - a. For use on normal power: GREY
 - b. For use on UPS systems: RED
 - c. For use on isolated ground systems: ORANGE

N. Thermostats:

1. Contacts close on falling temperature to cycle unit heater on rising temperature to cycle exhaust fan motor
2. Rated 20A, 120VAC.
3. Range: 46 – 84F scale.
4. Switch: AUTO/OFF/ON
5. Provide subbase and mounting plate
6. Provide standard outlet box for mounting thermostat

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Wirings Devices shall be installed in accordance with the best practices of the trade along with manufacturer's installation instructions and shall operate satisfactorily when installed as shown in the Contract Documents.
- B. Mount Wiring Devices where indicated in the Contract Documents.
- C. Surface mount receptacles and light switches in concrete or pre-cast concrete construction.

- D. In masonry and metal stud construction, recess mount receptacles and light switches unless device precludes recessed mounting or unless otherwise noted in the Contract Documents.
- E. Where more than one receptacle is installed in a room and/or space, receptacles shall be symmetrically arranged.
- F. Set all Wiring Devices including covers plumb and vertical to the floor.
- G. Set recess mounted switches and receptacles flush with face of walls.
- H. Do not connect dimmers to loads in excess of 80% of the rating of the dimmer.
- I. Provide blank plates for empty outlets.
- J. Securely attach top to ceiling grid and base to mating surface.

3.02 PROJECT CLOSE OUT

- A. All exterior surfaces of the Wiring Devices to include wall plates and covers and shall be cleaned thoroughly to remove all dust, dirt and debris as a result from installation and personnel use during Construction duration. All scratched wall plates and covers will be re-placed by Contractor at no additional cost to Owner.
- B. All painted or coated surfaces near and around Wiring Devices to include wall plates and covers and shall be cleaned thoroughly to remove all dust, dirt and debris as a result from installation and personnel use during Construction duration. Scratched and/or marred surfaces will be re-finished or recoated in accordance with the Project Specifications as required to restore surfaces by Contractor no additional cost to Owner.

END OF SECTION

SECTION 16220 – MOTORS AND GENERATORS

PART 1 – GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, tools and equipment necessary for furnishing, installing, connecting, testing and placing into service all MOTORS as specified herein and indicated in the Contract Documents.
- B. MOTORS shall be sufficient size for the duty to be performed and shall not exceed their full rated load when the driven equipment is operating at specified capacity. Unless otherwise noted, MOTORS driving pumps shall not be overloaded at any head or discharge condition of the pump.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 11001 – EQUIPMENT
 - 2. 11215 – HORIZONTAL SPLIT CASE CENTRIFUGAL PUMPS
 - 3. 14630 – BRIDGE CRANE
 - 4. 15103 – BUTTERFLY VALVES
 - 5. 16260 – VARIABLE FREQUENCY CONTROLLERS
 - 6. 16291 – ENCLOSED CONTROLLERS

1.03 REFERENCES

- A. MOTORS shall comply with the following applicable codes and standards as well as any others within the Project Specifications and Contract Documents. In the event of any conflict between these codes, regulations, standards, and Contract Documents, the most restrictive shall apply.
- B. Codes and Standards:
 - 1. American National Standards Institute (ANSI/NEMA):
 - a. MG1-2006, REV 1 2007 – Motors and Generators
 - 2. National Fire Protection Association (NFPA):
 - a. 70, National Electric Code (NEC).
 - b. 79, Electrical Standard for Industrial Machinery

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS

B. For Engineer Review

1. The following information shall be submitted:
 - a. Master drawing index
 - b. Identification schedule(s)
 - c. Certified dimensional drawings
 - 1) Plan and Elevation view(s)
 - 2) Raceway termination locations
 - d. MOTORS data shall include but not limited to the following:
 - 1) Voltage
 - 2) Horsepower (hp) / Kilowatt (kW)
 - 3) Full-Load-Amperage (FLA)
 - 4) Frequency / Phase / Power Factor
 - 5) Full-Load Speed (RPM)
 - 6) Insulation Class and Ambient Temperature
 - 7) Duty and Time Ratings
 - 8) Service Factor
 - 9) Full-Load Efficiency
 - 10) Locked-Rotor Code Letter
 - 11) Frame Size / Design Letter
 - 12) Manufacturer Representative Contact Information
 - e. MOTORS accessories

C. Qualifications

1. For approval manufacturer shall have specialized in the manufacture and assembly of MOTORS for a minimum of twenty-five years (25YR).
2. Equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.

1.05 DELIVERY, STORAGE AND HANDLING

- A. MOTORS and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations as outlined in applicable Installation and Maintenance Manuals. Three (3) copies of these instructions shall be included with the equipment at time of shipment.
- B. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- C. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. MOTORS operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

- 1. Operation and Maintenance manuals, drawings etc. to be provided within the assemblies shall be water-proof and fire-resistant utilizing tear-resistant paper.

1.07 WARRANTY

- A. Manufacturer shall warrant MOTORS to be free from defects in materials and workmanship for the lesser of one year (1YR) from date of installation or eighteen months (18MTH) from date of purchase.

1.08 IDENTIFICATION

- A. MOTORS shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplate(s) shall be securely affixed in a conspicuous place on MOTORS. Nameplates shall be furnished and installed as required Specification Section(s):

- 1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. MOTORS less than 50HP in size shall be provided by one of the following manufacturers:

- 1. Baldor – Reliance Electric / ABB
 - 2. US Motors / NIDEC Motor Corp.
 - 3. WEG Electric Motors
 - 4. TECO Westinghouse
 - 5. Or Approved Equal

- B. MOTORS 50HP or greater in size shall be provided by one of the following manufacturers:

- 1. Baldor - Reliance Electric / ABB
 - 2. US Motors / NIDEC Motor Corp.
 - 3. Or Approved Equal

- C. Listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting the Specifications in their entirety.

- D. MOTORS shall be the same as the original manufacturer for model series still in production; otherwise, the original manufacturer or an above listed acceptable manufacturer may provide these modifications and assemblies with proof of prior experience furnishing these types of modifications.

2.02 RATINGS

- A. All three-phase MOTORS shall be NEMA "premium efficiency" type.

- B. Unless otherwise noted in the Contract Documents, all MOTORS shall be of the low voltage type (600V or less).
1. MOTORS 2HP through 100HP shall be rated 230/460VAC, 3-PH, 60Hz
 2. MOTORS less than 2HP shall be rated 115/230VAC, 1-PH, 60Hz
 3. MOTORS 125HP through 500HP shall be rated 460VAC, 3-PH, 60Hz
- C. MOTORS operated by a Variable Frequency Drives (VFD)s
1. Shall meet the requirements of ANSI/NEMA MG1 Class II Part 32 and indicate on the motor nameplate that it is suitable for the intended application "Inverter Duty Rating".
 2. Shall be equipped with maintenance free, conductive micro-fiber, shaft grounding ring(s) with a minimum of two (2) rows of circumferential micro-fibers to allow discharge of damaging shaft voltages away from bearing to earth.
 - a. MOTORS 2HP through 100HP shall be provided with one (1) shaft grounding ring installed either on the drive end or non-drive end.
 - b. MOTORS greater than 100HP shall be provided with an insulated bearing on the non-drive end and a shaft grounding ring on the drive end.
 - c. Insulated bearings and shaft grounding rings shall be installed by the MOTORS manufacturer.
 3. Shall be bonded from the MOTORS foot to the system ground with a high frequency ground strap of flat braided, tinned copper with approved terminations.
 4. MOTORS shall be provided with integral temperature sensing device(s) utilized through the VFD control circuitry to shut-down upon an adjustable threshold temperature event/state.

2.02 CONSTRUCTION

- A. General
1. MOTORS shall be totally enclosed fan cooled (TEFC) unless otherwise noted in the Contract Documents.
 2. TEFC MOTORS shall be provided with condensate drain hole and epoxy coated motor windings to protect against moisture.
 3. MOTORS shall have 1.15 service-factor (sf) unless otherwise noted in the Contract Documents.
 4. MOTORS wiring termination boxes shall be gasketed and rated NEMA-4. All power and control wires between MOTORS frame and termination box shall be gasketed.
- B. Three-Phase MOTORS
1. Space heaters shall be provided for moisture control for MOTORS equal to or greater than 50HP located within interior or exterior spaces. Space heaters shall operate at 120VAC, single-phase.
 2. High quality resistance temperature detectors (RTD)s shall be provided for MOTORS equal to or greater than 250HP and/or as shown in the Contract Documents.

- a. Wire-wound resistance temperature detectors RTDs shall be installed in the winding slots to continuously monitor winding temperature conditions and provide long term trending data to adjust operational parameters and insulation dielectric properties.
- b. Thin-film RTDs with dimensions to fit motor bearings shall be installed.
- c. RTD shall meet or exceed the following:
 - b. Temperature Limit: -50 to 180C (-58 to 356F) Class H
 - 1) Dielectric: 3.2kV RMS at 60Hz, 1mA current leakage
 - 2) (3) lead stranded copper #22AWG with TFE insulation
- 3. MOTORS shall be of the squirrel-cage induction type, NEMA Design B, horizontal, vertical solid shaft, vertical hollow shaft, normal thrust and high thrust types shall be furnished as specified herein. MOTORS shall be built in accordance with current NEMA, IEEE, ANSI and AFBMA standards where applicable. MOTORS shall be of the type and quality described by these Specifications, fully capable of performing in accordance with manufacturer nameplate rating, and free from defective material and workmanship.
- 4. Output shaft shall be suitable for mechanical connection as required.
- 5. MOTORS shall have normal or high starting torque as required, low starting current not to exceed 600% Full-Load-Amperage (FLA), and low slip.
- 6. MOTORS shall have a Class B non-hygroscopic, anti-fungus insulation system. Class F (80C) insulation may be used but shall be limited to Class B temperature rise.
- 7. All machine surfaces shall be coated with rust inhibitor for easy disassembly.
- 8. MOTORS shall have a final coating of chemical resistant corrosion and fungus protective epoxy fortified enamel finish sprayed over red primer over all interior and exterior surfaces. Stator bore and rotor of all MOTORS shall be epoxy coated.
- 9. MOTORS installed outdoors shall be mill and chemical duty suitable for operation in moist air with hydrogen sulfide gas present.
- 10. All fittings, bolts, nuts, and screws shall be 316 stainless-steel. Bolts and nuts shall have hex heads.
- 11. MOTORS nameplates and plaques shall be stainless-steel.
- 12. MOTORS shall be provided with a warning plaque, permanently fixed to the casing, with RED background and WHITE lettering which has the following legend:

WARNING-ELECTRICAL SHOCK HAZARD

Motor Equipped With Strip-Heaters

Strip-Heaters Remain Energized When Local Disconnect Is OFF

- 13. Lifting lugs or "O" type bolts shall be supplied on all frames 254T and larger; enclosures will have stainless steel screen and MOTORS shall be protected for corrosion, fungus and insects.

C. Fractional Horsepower MOTORS

- 1. Fractional Horsepower MOTORS shall be rigid, welded-steel, designed to maintain accurate alignment of MOTORS components and provide adequate protection. End shields shall be reinforced, lightweight die-cast aluminum. Windings shall be

of varnish-insulated wire with slot insulation of polyester film, baked-on bonding treatment to make the stator winding strongly resistant to heat, aging, moisture, electrical stresses and other hazards.

2. MOTORS shaft shall be made from high-grade, cold-rolled shaft steel with drive-shaft extensions carefully machined to standard NEMA dimensions for the particular drive connection.
3. For light to moderate loading, bearings shall be quiet all-angle sleeve type with large oil reservoir that prevents leakage and permits MOTORS operation in any position.
4. For heavy loading, bearings shall be carefully selected precision ball bearings with extra quality, long-life grease, and large reservoir providing ten-years (10YR) normal operation without relubrication.

D. Integral Horsepower MOTORS

1. MOTORS frames and end shields shall be cast iron or heavy fabricated steel of such design and proportions as to hold all MOTORS components rigidly in proper position and provide adequate protection for the type of enclosure employed.
2. Windings shall be adequately insulated and securely braced to resist failure due to electrical stresses and vibrations.
3. Shafts shall be made of high-grade machine steel or steel forging of size and design adequate to withstand the load stresses normally encountered in MOTORS of the particular rating. Bearing journals shall be ground and polished.
4. Rotors shall be made from high-grade steel laminations adequately fastened together, and to the shaft. Rotor squirrel-cage windings may be copper or bar-type construction with brazed end rings.
5. MOTORS shall be equipped with vacuum-degassed anti-friction bearings made to AFBMA Standards, and be of ample capacity for the MOTORS rating. Bearing housing shall be large enough to hold sufficient lubricant to minimize the need for frequent lubrication, but facilities shall be provided for adding new lubricant and draining out old lubricant without MOTORS disassembly. Bearing housing shall have long, tight, running fits or rotating seals to protect against the entrance of foreign matter into the bearings, or leakage of lubricant out of the bearing cavity.
6. Bearings of high thrust MOTORS will be locked for momentary up-thrust of 30% down-thrust. All bearings shall have a minimum B10 life rating of 100k-hours in accordance with AFBMA life and thrust values.
7. Vertical hollow-shaft motors will have non-reverse ratchets to prevent backspin.

E. Single-Phase MOTORS

1. Single-Phase MOTORS shall be split-phase and capacitor-start induction types rated for continuous horsepower at the RPM as called for in the Contract Documents. MOTORS shall be rated 115/230VAC, 1-PH, 60Hz, TEFC with temperature rise in accordance with NEMA Standards for Class B insulation.
2. TEFC MOTORS shall be designed for severe-duty.
3. MOTORS shall have corrosion and fungus protective finish on internal and external surfaces. All fittings shall have a corrosion protective plating.
4. Mechanical characteristics shall be the same as specified for Fractional Horsepower MOTORS.

PART 3 – EXECUTION

3.01 FACTORY ACCEPTANCE TESTING

- A. MOTORS shall go through a non-witnessed, Factory Acceptance Test (FAT) prior to shipment. Manufacturer shall use integral quality control checks throughout the manufacturing process to ensure that MOTORS meet operating Specifications.
- B. A certified test report of all standard manufacturer FAT procedures, tests, results and corrective actions shall be shipped with MOTORS.
- C. Manufacturer shall notify Engineer two weeks (2WK) prior to the date the tests are to be performed

3.02 EXAMINATION

- A. Contractor shall check MOTORS for correct clearances and alignment and for correct lubrication, and shall lubricate, if required, in accordance with manufacturer instructions.
- B. Contractor shall use a 1000V Meg-Ohmmeter to test MOTORS windings before energizing. If MOTORS insulation resistance is at or below the manufacturer allowable limit, Contractor shall notify the Engineer and shall not energize.

3.03 INSTALLATION

- A. Contractor shall plan the layout of the raceway systems so that when the work is complete it will exhibit good workmanship practices.
- B. MOTORS and their peripheral devices shall be connected to the raceway system by means of a short section of flexible conduit, 18IN minimum and 72IN maximum, unless otherwise indicated in the Contract Documents.
- C. Connections to MOTORS leads shall be made with high-compression type lugs with heat-shrinkable insulating boots.

3.04 ADJUSTMENTS

- A. Contractor shall check direction of rotation of MOTORS with a Phase Rotation Meter and reverse the connections, at MOTORS wiring termination box, if necessary.
- B. Phase Rotation corrections shall only be made at the MOTORS wiring termination box to ensure the entire MOTORS feeder circuitry remains A-B-C configuration through-out.

END OF SECTION

16260 – VARIABLE FREQUENCY CONTROLLERS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall provide and install Adjustable Frequency Drives, Variable Frequency Drives or herein identified as AC DRIVES for use with NEMA B design AC motors in accordance with the Contract Documents and specified herein.
- B. Contractor shall provide and install the AC DRIVES and all associated appurtenances for the equipment as referenced in the Contract Documents.
- C. AC DRIVES shall fit in those existing locations as shown in the Contract Drawings and not exceed the base dimensions for the equipment listed:
- D. All power and control wiring shall enter the bottom of the AC DRIVES.
 - 1. AC DRIVES shall operate with motor power conductors as shown on the Contract Documents.
- E. Any exceptions/deviations to this Specification Section shall be indicated in writing to the Engineer and submitted with the quotation.
- F. AC DRIVES shall operate auxiliary equipment such as seal water valves, motor space heaters, and include safety and equipment protection interlocks as shown in the Contract Documents.
- G. AC DRIVES manufacturer shall be responsible for providing all equipment specified under this section, and furnishing the equipment to the Contractor for installation.
- H. AC DRIVES manufacturer shall furnish, field test, adjust and certify all installed AC DRIVES for satisfactory operation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 11215 – HORIZONTAL SPLIT CASE CENTRIFUGAL PUMPS
 - 2. 16220 – MOTORS AND GENERATORS

1.03 REFERENCES

- A. Codes and Standards:
 - 1. NFPA-70 National Electric Code (NEC®)
 - 2. ANSI C84.1 Electric Power Systems and Equipment - Voltage Ratings (60Hz)
 - 3. CSA® C22.2 No.14-95 Industrial Control Equipment
 - 4. UL508A Standard for Safety for Industrial Control Panels
 - 5. UL508C Standard for Safety for Power Conversion Equipment
 - 6. NFPA 79 Electrical Equipment of Industrial Machines/Industrial Machinery

7. NEMA ICS7 Industrial Control and Systems: Adjustable Speed Drives
8. NEMA ICS7.1 Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable Speed Drive Systems
9. NEMA 250 Enclosures for Electrical Equipment (1000V maximum)
10. IEC 61800-2 Adjustable speed electrical power drive systems - Part 2: General requirements - rating specifications for low voltage adjustable frequency AC power drive systems
11. IEC 61800-3 Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test methods
12. IEC 61800-5-1 Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy
13. IEC 61800-6 Adjustable speed electrical power drive systems - Part 6: Guide for determination of types of load duty and corresponding current ratings.
14. EGSA 101P Engine Driven Generator Sets - Performance Standard
15. IEEE 519 Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Shop drawings shall be furnished for Engineer review prior to factory assembly of the AC DRIVES. These drawings shall consist of elementary power and control wiring diagrams and enclosure outline drawings. The enclosure drawings shall include front and side views of the enclosures with overall dimensions and weights shown, conduit entrance locations and nameplate legend details.
- C. Standard catalog sheets showing voltage, horsepower, maximum current ratings and recommended replacement parts with part numbers shall be furnished for each different horsepower rated AC DRIVES provided.
- D. Qualifications
 1. Manufacturer of the AC DRIVES shall be a certified ISO 9001 facility.
 2. AC DRIVES and all associated optional equipment shall be UL LISTED according to UL508C Power Conversion Equipment. A UL label shall be attached inside each enclosure as verification.
 3. AC DRIVES shall be designed constructed and tested in accordance with NEMA, NEC, VDE, IEC standards.
 4. All AC DRIVES shall be tested with an actual AC induction motor, 100% load and temperature cycled within an environmental chamber at 104F. Documentation shall be furnished to verify successful completion at the request of the Engineer.
 5. AC DRIVES door mounted pilot devices shall be tested to verify successful operation. Documentation shall be furnished upon written request of the Engineer.
 6. AC DRIVES shall undergo QA test procedures and be submitted to a hi-pot test with all enclosed devices mounted and wired, prior to shipment.

1.05 DELIVERY, STORAGE AND HANDLING

- A. AC DRIVES and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations as outlined in

applicable Installation and Maintenance Manuals. Three (3) copies of these instructions shall be included with the equipment at time of shipment.

- B. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- C. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. AC DRIVES operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

1.07 WARRANTY

- A. Manufacturer shall warrant AC DRIVES to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

1.08 IDENTIFICATION

- A. AC DRIVES shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplates shall be furnished and installed as required Specification Section(s):

- 1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. AC DRIVES shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown in the Contract Documents.
- B. Subject to compliance with the Contract Documents all AC DRIVES shall be of the same manufacturer and provided by:
 - 1. Square D / Schneider Electric USA
 - 2. No equivalent.
- C. Alternate control techniques other than Pulse Width Modulated (PWM) are not acceptable.

2.02 FEATURES

- A. Certifications
 - 1. Listed to UL508C and CAN/CSA-C22.2 No. 14-05

2. In conformity with EMC Directive (2004/108/EC) and Low Voltage Directive (2006/95/EC). Standards applied; EN 61800-3:2004, EN 61800-5-1:2007
3. Electric Power Research Institute. Certified compliant with standards SEMI F47 and IEC 61000-4-34

B. Hardware

1. Utilize latest SCR or IGBT technology on the input rectifier.
2. Utilize switching logic power supply operating from the DC bus.
3. Incorporate phase-to-phase and phase-to-ground MOV protection on the AC input line.
4. Microprocessor based inverter logic shall be isolated from power circuits.
5. Utilize latest generation IGBT technology on the inverter section.
6. Battery receptacle for Lithium battery power to the Real Time Clock.
7. Additional DPI port for handheld and remote Human Interface Module (HIM) options.
8. Dedicated Digital Input for hardware enable.
9. Conformal coated printed circuit boards.
10. Optional onboard 24VDC Auxiliary Control Power Supply.

C. Standard Control Functions

1. Ability to operate with motor disconnected "No Load Test".
2. Provide a controlled shut down, when properly protected, with no component failure in the event of an output phase to phase or phase to ground short circuit. Provide annunciation of the fault condition.
3. Provide multiple programmable stop modes including Ramp, Coast, DC-Brake, Ramp-to-Hold, Fast Braking, and Current Limit Stop.
4. Provide multiple acceleration and deceleration rates.
5. Adjustable output frequency up to 65Hz.

D. EtherNet/IP Control

1. Ability to provide ON-OFF control of the AC DRIVE.
2. Ability to control outputs and manage status information locally within the AC DRIVES.
3. Ability to function stand-alone or complimentary to supervisory control.
4. Ability to speed reaction time by processing in the AC DRIVES.
5. Ability to provide scaling, selector switches, or other data manipulations not already built into the AC DRIVES.
6. Ability to read inputs/write outputs and exclusively control the AC DRIVES.
7. Ability to provide an option for decision making if communication is lost with main controller.
8. Ability to control other AC DRIVES via a peer-to-peer EtherNet/IP network.
9. Ability to write programs off-line.

E. Motor Control

1. Selectable Sensorless Vector, Flux Vector, V/Hz, and Adjustable Voltage Control modes selectable through programming.
2. AC DRIVES shall be supplied with a Start-Up and Auto-Tune mode.
3. The V/Hz mode shall be programmable for fan curve or full custom patterns.
4. Capable of Open Loop V/Hz.

F. Current Limit

1. Programmable current limit from 20-160% of rated output current.
2. Current limit shall be active for all drive states: accelerating, constant speed and decelerating.
3. AC DRIVES shall employ PI regulation with an adjustable gain for smooth transition in and out of current limit.

G. Acceleration / Deceleration

1. Accel/Decel settings shall provide separate adjustments to allow either setting to be adjusted from 0-3600SEC.
2. A second set of remotely selectable accel/decel settings shall be accessible through digital inputs.

H. Speed Profiles

1. Programming capability shall allow the user to produce speed profiles with linear acceleration/deceleration or "S-Curve" profiles that provide changing accel/decel rates.
2. S-Curve profiles shall be adjustable.

I. PID Control

1. AC DRIVES shall incorporate an internal process PI regulator with proportional and integral gain adjustments as well as error inversion and output clamping functions.
2. The feedback shall be configurable for normal or square root functions. If the feedback indicates that the process is moving away from the set-point, the regulator shall adjust the drive output until the feedback equals the reference.
3. Process control shall be capable of being enabled or disabled with a hardware input. Transitioning in and out of process control shall be capable of being tuned for faster response by preloading the integrator.
4. Protection shall be provided for a loss of feedback or reference signal.

J. Skip Frequencies

1. Three adjustable set points that lock out continuous operation at frequencies which may produce mechanical resonance shall be provided.
2. The set points shall have a bandwidth adjustable from Maximum Reverse Speed to Maximum Forward Speed.

K. Fault Reset / Run

1. AC DRIVES provide up to nine (9) automatic fault reset and restarts following a fault condition before locking out and requiring manual restart.
2. The automatic mode shall not be applicable to a ground fault, shorted output faults and other internal microprocessor faults.
3. The time between restarts shall be adjustable from 0.5-30SEC.

L. Run on Power Up

1. A user programmable restart function shall be provided to allow restart of the equipment after restoration of power after long duration power outages. Restart time dependent on presence of incoming signal.

M. Fault Memory

1. The last thirty-two (32) fault codes shall be stored and time stamped in a fault buffer.
2. Information about the AC DRIVES condition at the time of the last fault such as operating frequency, output current, dc bus voltage and twenty-seven (27) other status conditions shall be stored.
3. A power-up marker shall be provided at each power-up time to aid in analyzing fault data.
4. The last thirty-two (32) alarm codes shall be stored and time stamped for additional troubleshooting reference.

N. Overload Protection

1. AC DRIVES shall provide internal overload protection.
2. Overload protection shall be speed sensitive and adjustable.
3. A viewable parameter shall store the overload usage.

O. Flying Start

1. AC DRIVES shall be capable of determining the speed and direction of a spinning motor and adjust its output to "pick-up" the motor at the rotating speed. This feature is disabled by default.

P. Input and Output

1. Input / Output modules shall consist of both analog and digital I/O.
 - a. No jumpers or switches shall be required to configure digital inputs and outputs.
 - b. All digital input and output functions shall be fully programmable.
 - c. The control terminal blocks shall be rated for 115VAC.
 - d. Inputs shall be optically isolated from the drive control logic.
 - e. The control interface card shall provide input terminals for access to fixed AC DRIVES functions that include start, stop, external fault, speed, and enable.
 - f. AC DRIVES shall be capable of supporting up to eight (8) analog inputs, eight (8) analog outputs, sixteen (16) digital inputs, eight (8) relay outputs, eight (8) transistor outputs, and three (3) Positive Temperature Coefficient (PTC) inputs.
2. Analog Inputs:
 - a. Minimum quantity of two (2) differentially isolated, $\pm 10V$ (bi-polar) / 11 bit plus sign, 88kOHM input impedance, 4-20mA or 1-5V.
 - b. Analog inputs shall be user programmable for a variety of uses including frequency command and process loop input. Analog inputs shall be user

programmable for function scaling (including invert), offset, signal loss detect and square root.

3. Analog Outputs:

- a. Minimum quantity of two (2) $\pm 10V$ (bi-polar) / 11 bit & sign, 2kOHM minimum load, 4-20mA, 11 bit plus sign, 400kOHM maximum load.
- b. The analog output shall be user programmable to be proportional to one of fourteen (14) process parameters including output frequency, output current, encoder feedback, output power.
- c. Programming shall be available to select either absolute or signed values of these parameters.

4. Digital Inputs:

- a. Minimum quantity of four (4) digital inputs rated 24VDC/115VAC.
- b. All inputs shall be individually programmable for multiple functions including: Start, Run, Stop, Auxiliary Fault, Speed Select, Jog and Process PI functions.

5. Digital Outputs:

- a. Minimum two (2) relay output (N.O. or N.C.).
- b. For 240VAC or 24VDC, N.O. contact output ratings shall be 2A max., general purpose (inductive)/resistive. N.C. contact output ratings shall be 2A max., resistive only.
- c. Relays shall be programmable to multiple conditions including: Fault, Alarm, At Speed, Drive Ready and PI Excess Error.
- d. Timers shall be available for each output to control the amount of time, after the occurring event, that the output relay actually changes state.
- e. Minimum one (1) transistor output.
- f. For 24VDC, transistor output rating shall be 1A max, Resistive.

6. Reference Signals:

- a. AC DRIVES shall be capable of using the following input reference signals:
 - 1) Analog inputs
 - 2) Preset speeds
 - 3) Remote potentiometer
 - 4) Digital MOP
 - 5) Human Interface Module
 - 6) Communication modules
- b. Loss of Reference

- 1) AC DRIVES shall be capable of sensing reference loss conditions.
- 2) In the event of loss of the reference signal, the AC DRIVE shall be user programmable to the following:
- 3) Fault AC DRIVES and coast to stop.
- 4) Issue a minor fault - allows the AC DRIVES to continue running while some types of faults are present.
- 5) Alarm and maintain last reference.
- 6) When using a communications network to control the AC DRIVES, the communications adapter shall have these configurable responses to network disruptions and controller idle (fault or program) conditions:
 - a) Fault
 - b) Stop
 - c) Zero Data
 - d) Hold Last State
 - e) Send Fault Configuration

Q. Metering

1. At a minimum, the following parameters shall be accessible through the Human Interface Module (HIM):
 - a. Output Current in Amps
 - b. Output Voltage in Volts
 - c. Output Power in kW
 - d. Elapsed MWh
 - e. DC Bus Voltage
 - f. Frequency
 - g. Heatsink Temperature
 - h. Last eight (32) faults
 - i. Elapsed Run Time
 - j. IGBT Temperature

R. Faults

1. At a minimum, the following faults shall be accessible through the HIM:
 - a. Power Loss

- b. Undervoltage
- c. Overvoltage
- d. Motor Overload
- e. Heat Sink Over-Temperature
- f. Maximum Retries
- g. Phase to Phase and Phase to Ground Faults

S. Predictive Diagnostics

- 1. At a minimum, the following predictive diagnostic features shall be provided:
 - a. Relay Output Life Cycles based on load type and amps.
 - b. Hours of Fan Life based on load and ambient temperature.
 - c. Motor Bearing life based on expected hours of use.
 - d. Motor Lubrication schedule based on hours of use.
 - e. Machine Bearing life based on expected hours of use.

T. Real-Time Clock

- 1. Shall be capable of providing time stamped events.
- 2. Shall have the ability to be set locally or via a remote controller.
- 3. Shall provide the ability to be programmable for date, MM:DD:YYYY and local time zones HH:MM:SS.

U. Terminal Blocks

- 1. Separate screw-cage terminal blocks shall be provided for control and power wiring.
- 2. I/O screw-cage terminal blocks shall be removable with wiring in place.

V. Adjustments

- 1. A digital interface can be used for all set-up, operation and adjustment settings.
- 2. All adjustments shall be stored in nonvolatile memory (EEPROM).
- 3. No potentiometer adjustments shall be required.
- 4. EEPROM memory for factory default values shall be provided.
- 5. Software must be available for trending and diagnostics, as well as online and offline programming functionality.

2.03 AC DRIVES SYSTEM

A. Voltage

- 1. Capable of accepting the nominal existing electrical power system of 480VAC 3PH @ 60Hz.

2. The supply input voltage tolerance shall be $\pm 10\%$ of nominal line voltage.
- B. Displacement Power Factor
1. AC DRIVES shall be capable of maintaining a minimum true Power Factor (Displacement P.F. X Distortion P.F.) of 0.97 lagging or better at rated load and nominal line voltage, over the entire speed range.
 2. AC DRIVES shall operate with the existing electrical power system to include the facility back-up generator. AC DRIVE shall not produce a leading power factor during any point in operation.
- C. Efficiency
1. A minimum of 96.5% (+/- 1%) at 100% speed and 100% motor load at nominal line voltage.
 2. Control power supplies, control circuits, and cooling fans shall be included in all loss calculations.
 3. Operating ambient temperature range without derating: 0°C-40°C (32°F-104°F)
 4. Operating relative humidity range shall be 5-95% non-condensing.
 5. Operating elevation shall be up to 1000M (3,300FT) without derating.
- D. Sizing
1. AC DRIVES shall be rated based on continuous output amps, and matched to meet or exceed the nameplate-rated Motor Full Load Amps (FLA) of those motors as shown in the Contract Documents.
 2. Overload current rating of each AC DRIVES System shall be rated appropriately for the application.
- E. Auto Reset/Run
1. For faults other than those caused by a loss of power or any other non-critical fault, AC DRIVES shall provide a means to automatically clear the fault and resume operation.
- F. Ride-Through
1. AC DRIVES System shall attempt to ride through power dips up to 20% of nominal. The duration of ride-through shall be inversely proportional to load. For outages greater than 20%, AC DRIVES shall stop the motor and issue a power loss alarm signal to a process controller, which may be forwarded to an external alarm signaling device.
- G. Run on Power Up
1. AC DRIVES shall provide circuitry to allow for remote restart of equipment after a power outage. Unless indicated in the Contact Documents, faults due to power outages shall be remotely resettable. AC DRIVES shall indicate a loss of power to a process controller, which may be forwarded to an external alarm signaling device. Upon indication of power restoration, the process controller will attempt to clear any faults and issue a run command, if desired.

H. Network Communications

1. AC DRIVES shall provide at a minimum one (1) Modbus and one (1) Ethernet Modbus TCP communications ports. In addition, the following communications options shall be provided as necessary for communications. Reference network communication requirements as specified elsewhere in the Project Specification Sections.
 - a. Ethernet IP and/or Modbus TCP, RJ45 dual port for daisy chain
2. Ethernet ports shall be IPv6 compliant, allow for web server access and provide network management via SNMP and clock synchronization.
3. AC DRIVES shall provide an embedded web server for enhanced diagnostic, configuration, parameter access, and energy management. There shall be the capability to create a user-defined custom dashboard for viewing drive and process status through tables, charts, and graphical views. It shall be possible to export data in standard table format using the webserver, for information around energy consumption as well as error and warning history.
4. AC DRIVES communications modules shall be capable of being remotely powered by a separate external 24VDC to allow for continued communications when AC DRIVES power supply is off.
5. AC DRIVES shall provide integration connectivity via
 - a. DHCP protocol for Fast Device Replacement
 - b. DTM library in compliance with standard FDT technology
6. Diagnostics and Configuration
 - a. AC DRIVES shall allow Windows based PC software for configuring and diagnosing the AC DRIVES. It shall be possible to set and modify parameters, control the AC DRIVES, read actual values and make trend analysis using the software. The PC-tools may be connected to the AC DRIVES by wired or wireless connection.
 - b. AC DRIVES shall display all faults in plain text and help screens shall be available to guide the user in the troubleshooting. Codes are not acceptable.
 - c. AC DRIVES shall provide a Real Time Clock management for time stamping of detected errors.
 - d. AC DRIVES shall display detected errors with QR codes to guide the user in the troubleshooting.
 - e. AC DRIVES must have the ability to dynamically display I/O status.
7. Isolation / Bypass Starters / Controllers
 - a. Where required in the Project Specifications and/or as shown in the Contract Documents, provide and install a Full Voltage Non-Reversing Starter (FVNR) or Reduced-Voltage Solid-State (RVSS) motor controller sized as required to start and control the motor load instead of the AC DRIVE.

- b. FVNR or RVSS shall be UL listed and shall include, but shall not be limited to, a contactor capable of carrying the motor inrush and motor full load current.
- c. An overload provision independent of the AC DRIVE shall be provided to protect the motor in the BYPASS mode.
- d. FVNR or RVSS motor starter/controller components shall be integrated inside the AC DRIVE with steel barriered construction, segregating the BYPASS motor controller from the AC DRIVE and shall be fully tested by the manufacturer.

I. Human Interface Module (HIM)

- 1. AC DRIVES shall provide a HIM with integral LCD display, operating keys and programming keys.
- 2. An enclosure door-mounted HIM, rated NEMA/UL Type 4/12, shall be provided.
- 3. The HIM shall have the following features:
 - a. An eight (8) line by (240 x 160) pixel backlit LCD display with graphics capability.
 - b. Shall indicate AC DRIVES operating conditions, adjustments and fault indications.
 - c. Shall be configured to display in the following three (3) distinct zones:
 - 1) The top zone shall display the status of direction, AC DRIVES condition, fault / alarm conditions and Auto/Manual mode.
 - 2) The middle zone shall display AC DRIVES output frequency.
 - 3) The bottom zone shall be configurable as a display for either programming menus / information or as a two (2) line user display for two additional values utilizing scaled units.
 - d. Shall provide digital speed control.
 - e. The keypad shall include programming keys, AC DRIVES operating keys (Start, Stop, Direction, Jog and Speed Control), and numeric keys for direct entry.

J. AC DRIVES Enclosure Input Disconnect

- 1. Provide an enclosure door interlocked disconnect with power-rated fuses.
- 2. AC DRIVES shall match the Available Interrupting Current (AIC) and Short Circuit Current Rating (SCCR) of the existing equipment as referenced in the Contract Documents.
- 3. Operator Handles
 - a. Provide externally operated main disconnect handle.
 - b. Handles shall be lockable with up to three (3) lockout/tagout padlock positions.

K. Control Power Transformer

1. Provide a control power transformer mounted and wired inside of the AC DRIVES enclosure.
2. The control power transformer shall be rated for the all AC DRIVES power requirements and control circuitry to include ancillary devices.

L. Harmonics

1. Mitigation

- a. AC DRIVES shall be compliant with IEEE519-1992 standards at the input AC DRIVES terminals based upon the input power phase imbalance within 0.5% of nominal line voltage and under full AC DRIVES output current ratings.

2. Equipment

- a. AC DRIVES shall include 3% effective impedance. If integral to the AC DRIVE, a DC choke shall be used.

b. Passive Harmonic Filter with Capacitor Cutout Contactor:

- 1) AC DRIVES shall utilize a Passive Harmonic Filter that is designed to limit harmonic distortion (current and voltage) to levels that allow the overall system to meet IEEE519-1992. The Passive Harmonic Filter shall include a capacitor cut-out contactor to disconnect the capacitor assembly under no-load, low-load and/or generator power conditions.

c. Load Filters:

- 1) AC DRIVES shall include, but not be limited to, a motor protection filter unit designed to limit peak voltages and reduce electrical stress on the motor insulation. This option shall be required for motor lead lengths longer than 200FT.

M. Auxiliary Relays

1. Provide relays for Drive Alarm, Drive Fault, Drive Run, and System Status Faults (as required).
2. The relays shall be (2 N.O. & 2 N.C.). The relay contacts shall be rated for 115VAC/30VDC, 5A resistive, 2.5A inductive.

N. Control Interface

1. The control terminals shall be rated for 115VAC.
2. The control interface shall provide input terminals for access to AC DRIVES functions that include start, stop, external fault, speed-select, and enable, as required.

- O. Motor Space Heater Control and auxiliary motor control loads
 - 1. AC DRIVES shall provide the control circuitry to energize motor space heaters whenever the motor is not running via internal power.
 - 2. The motor space heater control shall be interlocked with the AC DRIVES and shall be energized whenever the motor is not running
 - 3. An LED pilot light with shall be mounted on the AC DRIVES enclosure door for indication of Motor Heater On.
 - a. Reference Section 2.3 P
- P. Switch Operators and Pilot Lights
 - 1. E-Stop / Disable Mushroom Push Button
 - a. Provide and install a maintained mushroom style push button, mounted on the enclosure door that when pushed, will disable the AC DRIVE and immediately stop operation.
 - 2. Hand/Off/Auto Mode Selector Switch
 - a. Provide a HAND-OFF-AUTO selector switch, mounted on the enclosure door.
 - b. HAND-OFF-AUTO selector switch shall start the AC DRIVES in the HAND mode and stop the AC DRIVES in the OFF mode.
 - c. In the AUTO mode the AC DRIVES shall be started and stopped from a remote RUN contact.
 - d. In all modes, Auxiliary and Enable inputs to the AC DRIVES control interface board must be present before the AC DRIVES will start.
 - e. When a HIM is present, the stop function shall always be available to stop the AC DRIVES regardless of the selected mode (HAND or AUTO). The HIM will be non-functional (except for the display and programming) when the switch is in OFF mode. The HIM shall stop the AC DRIVES if the switch is in the AUTO mode with the remote start contact initiated.
 - f. AC DRIVES speed reference shall be controlled from the HIM, unless a separate door-mounted potentiometer is provided, when in HAND mode (factory default setting).
 - g. AC DRIVES speed reference shall be controlled by a remote 4-20mA input when in AUTO mode.
 - 3. AFD/Off/Bypass Selector Switch
 - a. Where required in the Project Specifications and/or shown in the Contract Documents, provide and install an AFD-OFF-BYPASS selector switch, mounted on the enclosure door.
 - b. In the AFD mode, the AC DRIVE shall operate the AFD controller and stop the AC DRIVE in the OFF mode.

- c. In BYPASS mode, the AC DRIVE shall operate the Full-Voltage Non-Reserving Starter or the Reduced Voltage Solid-State Starter (as required) motor controller in the BYPASS mode and stop the AC DRIVE in the OFF mode.
- d. The operator shall have full control of the bypass starter by operation of the door-mounted selector switch.
- e. When the AC DRIVES are supplied with a HAND-OFF-AUTO selector switch, the auto mode shall also control the RUN / STOP of the bypass operation.

4. Pilot Lights

- a. Provide LED pilot lights, mounted on the enclosure door, for indication of the following status:
 - a. Power ON / Controller READY pilot light, LED, BLUE
 - b. RUNNING pilot light, LED, GREEN, push-to-test
 - c. STOPPED pilot light, LED, RED, push-to-test.
 - d. HAND / AUTO pilot lights, LED, AMBER, push-to-test
 - e. FAULT(S) pilot light, LED, AMBER, push-to-test
 - f. Additional pilot lights shall be installed as required in accordance with the Contract Documents.

- 5. All operators and pilot lights shall be (30mm), NEMA Type 4/13, mounted on the enclosure door.

Q. Motor Run Time Meter

- 1. Provide a digital, non-resettable, door-mounted elapsed time meter.
- 2. The meter shall be electrically interlocked with the Drive Run relay to indicate actual motor operating hours.

R. Motor Thermal Protection

- 1. Motors equal to and greater than 250hp nameplate and/or as shown on the Contract Documents
 - a. Provide a door-mounted RTD module/interface and panel-mounted scanner for over-temperature and under-temperature protection.
 - b. RTD module shall monitor at least eight (8) motor mounted RTDs minimum and shall have at least three (3) output relays for alarm, trip and fault.
 - c. Customer contacts shall be rated 5A 250VAC resistive.

PART 3 - EXECUTION

3.01 FACTORY ACCEPTANCE TESTING

- A. AC DRIVES shall go through a non-witnessed, Factory Acceptance Test (FAT) prior to shipment. FAT shall include, but not limited to, the following:
 - 1. Physical Inspection of the following:
 - a. Structure
 - b. Electrical conductors, including, but not limited to, the following:
 - 1) Power and Control wiring
 - 2. Electrical Tests:
 - a. General electrical tests shall include, but shall not be limited to, the following:
 - 1) Power circuit phasing
 - 2) Control circuit wiring
 - 3) Device electrical operation
 - 4) No-load motor testing
 - 5) Forced faults
 - b. AC dielectric tests shall be performed on the power circuits.
 - 3. Markings/labels include, but shall not be limited to, the following:
 - a. Instructional type
 - b. UL/CSA
 - c. Inspector's stamps
 - 4. Each device shall be configured and addressed to correspond with software setting.
 - 5. A read/write test shall be performed prior to shipment on network devices.
 - 6. Testing shall be designed to verify system operation and shall include, but shall not be limited to, these verifications as a minimum:
 - a. Drawings and bill of materials
 - b. I/O addressing, hard-wired and digital
 - c. Correct device operation by I/O address
 - d. Host communications
 - e. Control network interface
- B. Manufacturer shall use integral quality control checks throughout the manufacturing process to ensure that AC DRIVES meet operating Specifications.

- C. A certified test report of all standard FAT procedures, tests, results and corrective actions shall be shipped with AC DRIVES.
- D. Manufacturer shall notify Engineer two (2) weeks prior to the date the tests are to be performed

3.02 EXAMINATION

- A. Examine concrete flooring and/or concrete equipment pad(s) to receive AC DRIVES for compliance with installation tolerances and other conditions affecting performance of the product as required by the manufacturers installation instructions and recommendations to include Engineer installation details. Do not proceed with installation until unsatisfactory conditions have been met or corrective action has been taken.

3.03 INSTALLATION

- A. Contractor shall install AC DRIVES per the manufacturer's recommendations and the Contract Documents.
- B. All necessary hardware to secure the assembly in place shall be provided by the Contractor.
- C. AC DRIVES shall be installed and checked in accordance with the manufacturer's recommendations. This shall include but not limited to:
 - 1. Checking to ensure that concrete flooring and/or concrete equipment pad(s) are level to within 0.125IN per 3FT feet of distance in any direction; reference Section 2.3B
 - 2. Checking to ensure that all bus bars are torqued to the manufacturer's recommendations
 - 3. Assembling all shipping sections, removing all shipping braces and connecting all shipping split mechanical and electrical connections
 - 4. Securing AC DRIVES to concrete flooring and/or concrete equipment pad(s).
 - 5. Inspecting and installing all circuit breakers in their proper compartments

3.04 FIELD QUALITY CONTROL

- A. Clean, inspect, test, and energize AC DRIVES in accordance with applicable NECA / NEIS standards and recommendations.
- B. Field testing shall be done in accordance with the requirements specified in Specification Sections:
 - 1. Division 2 – SITE CONSTRUCTION
 - 2. 16080 – ELECTRICAL TESTING
 - 3. Coordinate inspections and tests as required
- C. After completing installation, cleaning, and testing, touch up scratches and mars on finish to match original finish.
- D. Provide the services of a qualified factory-trained manufacturer's representative to provide start-up of the equipment specified under this Section for a period of one (1) working days.

- E. Contractor shall provide three (3) copies of the manufacturer's field startup report.

3.05 TRAINING

- A. Contractor shall provide a training session for up to five (5) Owner's representatives for one (1) normal workday at a job site location determined by the Owner.
- B. Training sessions shall be conducted by a manufacturer's qualified representative. The training program shall consist of the instruction on the operation of the assembly, circuit breakers, and major components within the assembly.

END OF SECTION

SECTION 16291 –ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes controllers mounted in a MCC or separately enclosed, rated 600V and less:

- 1. Full-voltage manual.
 - 2. Full-voltage magnetic.
 - 3. Reduced-voltage magnetic.
 - 4. Multispeed.

- B. Related Specification Sections include but not limited to:

- 1. 16260 – VARIABLE FREQUENCY DRIVES

1.3 DEFINITIONS

- A. CPT: Control power transformer.
- B. MCCB: Molded-case circuit breaker.
- C. N.C.: Normally closed.
- D. N.O.: Normally open.
- E. OCPD: Overcurrent protective device

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of enclosed controller. Include manufacturer's technical data on features, performance, electrical characteristics, ratings, and enclosure types and finishes.
- B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.
 - 1. Show tabulations of the following:
 - a. Each installed unit's type and details.
 - b. Factory-installed devices.
 - c. Nameplate legends.
 - d. Short-circuit current rating of integrated unit.

- e. Listed and labeled for integrated short-circuit current (withstand) rating of OCPD's in combination controllers by an NRTL acceptable to authorities having jurisdiction.
- a. Features, characteristics, ratings, and factory settings of individual OCPD's in combination controllers.

1.5 INFORMATIONAL SUBMITTALS

- A. Field quality control reports.
- B. Load-Current and Overload-Relay Heater List: Compile after motors have been installed, and arrange to demonstrate that selection of heaters suits actual motor nameplate full-load currents.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed controllers to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 01730 - Operation and Maintenance Data, include the following:
 - B. Routine maintenance requirements for enclosed controllers and installed components.
 - C. Manufacturer's written instructions for testing and adjusting circuit breaker and MCCB trip settings.
 - D. Manufacturer's written instructions for setting field-adjustable overload relays.

1.7 MATERIALS MAINTENANCE SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
 - 2. Control Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than two of each size and type.

1.8 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by UL and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Comply with OWNER Design Standards.
- D. IEEE Compliance: Fabricate and test enclosed controllers according to IEEE 344 to withstand seismic forces defined in Section 16600 - Vibration Seismic and Wind Controls for Electrical Systems.
- E. Use of IEC rated components is prohibited.
- F. Controllers shall be a minimum of NEMA size 1.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store enclosed controllers indoors in clean, dry space with uniform temperature to prevent condensation. Protect enclosed controllers from exposure to dirt, fumes, water, corrosive substances, and physical damage.
- B. If stored in areas subject to weather, cover enclosed controllers to protect them from weather, dirt, dust, corrosive substances, and physical damage. Remove loose packing and flammable materials from inside controllers.

1.10 PROJECT CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - 1. Ambient Temperature: Not less than minus 22 deg F (minus 30 deg C) and not exceeding 104 deg F (40 deg C).
 - 2. Altitude: Not exceeding 6600 feet (2010 m).
- B. Interruption of Existing Electrical Systems: Do not interrupt electrical systems in facilities unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:
 - 1. Notify OWNER no fewer than ten days in advance of proposed interruption of electrical systems.
 - 2. Indicate method of providing temporary utilities.
 - 3. Do not proceed with interruption of electrical systems without OWNER's written permission.
 - 4. OWNER Lock-out/Tag-out procedures shall be used with Contractor controlled locks and tags.
 - 5. Comply with NFPA 70E.

1.11 COORDINATION

- A. Coordinate layout and installation of enclosed controllers with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- C. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

- A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.
- B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following.
 - a. Eaton Corp. Electrical Group
 - b. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - c. Square D; a brand of Schneider Electric.
 2. Configuration: Non-reversing.
 3. Surface or flush mounting as indicated on drawings.
 4. Red "running" pilot light.
- C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 3. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 4. Square D; a brand of Schneider Electric.
 5. Configuration: Non-reversing.
 6. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
 7. Flush or Surface mounting as indicated on drawings.
 8. Red "running" pilot light
- D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Square D; a brand of Schneider Electric.
 2. Configuration: Non-reversing.
 3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 20 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
 4. Flush or Surface mounting as indicated on drawings.
 5. Red "running" pilot light.
 6. 1 N.O., 1 N.C. auxiliary contact.
- E. Magnetic Controllers: Full voltage, across the line, electrically held.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Eaton Corp. Electrical Group.
 - b. General Electric Company; GE Consumer & Industrial - Electrical Distribution.

- c. Square D; a brand of Schneider Electric.
- 2. Configuration: Non-reversing.
- 3. Contactor Coils: Pressure-encapsulated type with coil transient suppressors.
 - a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.
- 4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
- 5. Control Circuits 120 V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices.
 - a. CPT Spare Capacity: 100 VA.
- 6. Bi -Metallic Thermal Overload Relays:
 - a. Inverse-time-current characteristic.
 - b. Class 20 tripping characteristic.
 - c. Heaters in each phase matched to nameplate full-load current of actual protected motor and with appropriate adjustment for duty cycle.
 - d. Isolated alarm contact.
- 7. External overload reset push button.
- F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Square D; a brand of Schneider Electric.
 - 2. MCCB Disconnecting Means:
 - a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents; thermal-magnetic MCCB, with inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits.
 - b. Front-mounted, adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - c. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
 - d. Auxiliary contacts "a" and "b" arranged to activate with MCCB handle.

2.2 REDUCED-VOLTAGE CONTROLLERS

- A. General Requirements for Reduced-Voltage Magnetic Controllers: Comply with NEMA ICS 2, general purpose, Class A; closed-transition; adjustable time delay on transition.
- B. Reduced-Voltage Controllers:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Square D: a brand of Schneider Electric.
- C. Reduced-Voltage Solid State Controllers
 - 1. Reduced-Voltage Solid-State Controllers: An integrated unit with power SCRs, heat sink, microprocessor logic board, door-mounted digital display and keypad, bypass contactor, and overload relay; suitable for use with NEMA MG 1, Design B, polyphase, medium induction motors.
 - 2. Control Circuits: 120 -V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. CPT Spare Capacity: 100 VA.
 - 3. Solid-State Overload Relay:
 - a. Switch or dial selectable for motor running overload protection.
 - b. Sensors in each phase.
 - c. Switch or dial selectable for motor running overload protection.
 - d. Class 20 tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.
- D. Reduced-Voltage Magnetic Controllers: Reduced voltage electrically held.
 - 1. Configuration:
 - a. Part-Winding Controller: Separate START and RUN contactors, field-selectable for 1/2- or 2/3-winding start mode, with either six- or nine-lead motors; with separate overload relays for starting and running sequences.
 - b. Autotransformer Reduced-Voltage Controller: Medium-duty service, with integral over-temperature protection; taps for starting at 50, 65, and 80 percent of line voltage; two START and one RUN contactors.
 - 2. Contactor Coils: Pressure-encapsulated type with coil transient suppressors.
 - a. Operating Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
 - 3. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.

4. Control Circuits: 120 -V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices.
 - a. CPT Spare Capacity: 100VA.
 5. Bi-Metallic Overload Relays.
 - a. Inverse-time-current characteristic.
 - b. Class 20 tripping characteristic.
 - c. Heaters in each phase matched to nameplate full-load current of actual protected motor and with appropriate adjustment for duty cycle.
 - d. Isolated alarm contact.
 6. External overload reset push button.
- E. Combination Reduced-Voltage Controller: Factory-assembled combination of reduced-voltage magnetic controller, OCPD, and disconnecting means.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Square D; a brand of Schneider Electric.
 2. MCCB Disconnecting Means:
 - a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents; thermal-magnetic MCCB, with inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits.
 - b. Front-mounted, adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - c. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
 - d. Auxiliary contacts "a" and "b" arranged to activate with MCCB handle.

2.3 MULTISPEED MAGNETIC CONTROLLERS

- A. General Requirements for Multispeed Magnetic Controllers: Comply with NEMA ICS 2, general purpose, Class A.
- B. Combination Multispeed Magnetic Controller: Factory-assembled combination of two-speed magnetic controller, OCPD, and disconnecting means.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Eaton Corp. Electrical Group.

- b. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - c. Square D; a brand of Schneider Electric
- 2. Configuration: Non-reversing; [consequent pole] [two winding].
- 3. Pressure-encapsulated type with coil transient suppressors.
 - a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.
- 4. Power Contacts: Totally enclosed, double break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
- 5. Control Circuits: 120 VAC; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices.
 - a. CPT Spare Capacity: 100VA.
- 6. Compelling relays shall ensure that motor will start only at low speed.
- 7. MCCB Disconnecting Means:
 - a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents; thermal-magnetic MCCB, with inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits.
 - b. Front-mounted, adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - c. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
 - d. Auxiliary contacts "a" and "b" arranged to activate with MCCB handle.

2.4 ENCLOSURES

- A. Separately Mounted Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.
 - 1. Dry and Clean Indoor Locations: Type 1.
 - 2. Outdoor Locations: Type 3R.
 - 3. Kitchens, Wash-Down Areas, Other Wet Indoor Locations: Type 4X, stainless steel.
 - 4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: Type 12.
 - 5. Hazardous Areas Indicated on Drawings: Type 7 or Type 9 as indicated.

2.5 ACCESSORIES

- A. General Requirements for Control Circuit and Pilot Devices: NEMA ICS 5; factory installed in controller enclosure cover unless otherwise indicated.
 - 1. Push Buttons: Shrouded types; maintained or momentary contact as indicated.
 - 2. Pilot Lights: LED types; colors as indicated; push to test.

- 3. Selector Switches: Rotary type.
- B. Reversible N.C. /N.O. auxiliary contact(s) as indicated.
- C. Control Relays: Auxiliary and adjustable solid-state time-delay relays as indicated.
- D. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays as indicated: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.
- E. Communications Modules: Where indicated provide communication modules, energy metering and control in motor starters with functions and features compatible with power monitoring and control system. Communications link shall be via OWNER's SCADA system.
- F. Breather and drain assemblies, to maintain interior pressure and release condensation in Type 4X, Type 7, Type 9 enclosures installed outdoors or in unconditioned interior spaces subject to humidity and temperature swings.
- G. Space heaters, with N.C. auxiliary contacts, to mitigate condensation in Type 3R enclosures installed outdoors or in unconditioned interior spaces subject to humidity and temperature swings.
- H. Cover gaskets for Type 1 enclosures.
- I. Terminals for connecting power factor correction capacitors to the load side of overload relays.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Contractor shall coordinate all Motor Controllers installation in accordance with the approved equipment submittals to provide best locations.
- B. Motor Controllers shall be installed in accordance with the Electrical Raceway Systems design and best practices of the trade as complete assemblies as intended on the Contract Documents.

3.2 INSTALLATION

- A. Wall-mounted Controllers: Install enclosed controllers on walls with tops at uniform height unless otherwise indicated, and by mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 16070 - Hangers and Supports.
- B. Floor-Mounted Controllers: Install enclosed controllers on 4-inch (100-mm) nominal-thickness concrete base. Comply with requirements for concrete base specified in Division 03 Sections:
 - 1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
 - 2. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.

3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 4. Install anchor bolts to elevations required for proper attachment to supported equipment
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
 - D. Install fuses in each fusible-switch enclosed controller in accordance with Section 16010 - Electrical Power Studies.
 - E. Install fuses in control circuits if not factory installed.
 - F. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.
 - G. Install power factor correction capacitors on all motors 50 HP and larger. Connect to the load side of overload relays; adjust overload heater sizes to accommodate the reduced motor full-load currents.
 1. Do not install capacitors on any installation where the motor is controlled by a solid state device such as a VFC.
 - H. Comply with NECA 1.

3.3 IDENTIFICATION

- A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 16075 - Electrical Identification.
 1. Identify field-installed conductors, interconnecting wiring, and components.
 2. Label each enclosure with engraved nameplate.
 3. Label each enclosure-mounted control and pilot device.

3.4 CONTROL WIRING INSTALLATION

- A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 16120 - Conductors and Cables.
 1. Install all low voltage wiring (CAT. 6, twisted pair, etc.) between energy metering devices and OWNER's network.
- B. Bundle, train, and support wiring in enclosures.
- C. Connect selector switches and other automatic-control selection devices where applicable.
 1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
 2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.5 FIELD QUALITY CONTROL

- A. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
 2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
 3. Test continuity of each circuit.
 4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages.
 5. Test each motor for proper phase rotation.
 6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Enclosed controllers will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports including a certified report that identifies enclosed controllers and that describes scanning results. Include notation of deficiencies detected, remedial action taken and observations after remedial action.

3.6 ADJUSTING

- A. Set field-adjustable switches, auxiliary relays, time-delay relays, timers, and overload-relay pickup and trip ranges.
- B. Adjust overload-relay heaters or settings if power factor correction capacitors are connected to the load side of the overload relays.
- C. Adjust the trip settings of thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cool-down between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors) if required.
- D. Set field-adjustable circuit-breaker trip ranges as specified in Section 16010 - Electrical Power Studies.

3.7 CLEANING

- A. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

3.8 PROTECTION

- A. Replace controllers whose interiors have been exposed to water or other liquids prior to Substantial Completion.

3.9 DEMONSTRATION

- A. Train OWNER's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION

SECTION 16410 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall provide and install all Disconnect Switches of voltage and current ratings as shown in the Contract Documents of the type approved and as indicated herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 16120 – CONDUCTORS AND CABLES
 - 2. 16111 – CONDUIT AND RACEWAYS

1.03 REFERENCES

- A. Disconnect Switches shall conform to all applicable Federal, UL, and NEMA standards. Materials and components shall be new and conform to grades, qualities and standards as specified herein and shown in the Contract Documents.
- B. Codes and Standards:
 - 1. UL Listing/ Approval
 - 2. UL 98 - Enclosed and Dead Front Switches
 - 3. NEMA KS 1 - Enclosed Switches
 - 4. NEMA 250 - Enclosures for Electrical Equipment

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Shop Drawings
 - 1. Submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.
 - 2. Partial, incomplete or illegible submittals will be returned to the Contractor without review for resubmittal.
 - 3. Shop drawings shall include but not be limited to:
 - a. Equipment specifications and product data sheets identifying all materials used and methods of fabrication.
 - b. Complete layout drawing(s) with clearly marked dimensions for each type/size/rating of Disconnect Switch.

- c. Double-Throw Disconnect Switches identified for use as Service-Entrance (SE) equipment are to be labeled for this application.
 - d. Assembled weight of each unit.
 - 4. Shop drawing information shall be complete and organized in such a way that Engineer can determine if the requirements of these Specifications are being met. Copies of technical bulletins, technical data sheets from "soft-cover" catalogs, and similar information which is "highlighted" or somehow identifies the specific equipment items that the Contractor intends to provide are acceptable and shall be submitted.
- C. Qualifications
 - 1. For approval, manufacturer shall have specialized in the manufacturing and assembly of Disconnect Switches for at least fifty (50) years.
 - 2. Furnish products listed by Underwriters Laboratories Incorporated and in accordance with standards listed in Section 1.3.
 - 3. Manufacturer of the assembly shall be the manufacturer of the major components within the assembly.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Disconnect Switches and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations.
- B. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- C. Store in a clean, dry space.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. Disconnect Switches operation and maintenance manuals shall be provided with each lot shipped, and shall include instruction leaflets and instruction bulletins for the assembly.

1.07 WARRANTY

- A. Manufacturer shall warrant Disconnect Switches to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

1.08 IDENTIFICATION

- A. Disconnect Switches shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplates shall be furnished and installed as required Specification Section(s):
 - 1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The equipment covered by this Section is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown in the Contract Documents.
- B. Subject to compliance with the Contract Documents all Disconnect Switches shall be of the same manufacturer and provided by:
 - 1. Square D / Schneider Electric USA
 - 2. Acceptable as Specified in the Owner's Approved Products List

2.02 GENERAL-DUTY SAFETY DISCONNECT SWITCHES

- A. Provide Disconnect Switches as shown in the Contract Documents with the following ratings:
 - 1. 30A to 600A
 - 2. 240VAC maximum
 - 3. 2- and 3-pole plus Solid Neutral (S/N)
 - 4. Fusible and Non-Fusible
 - 5. Mechanical lugs suitable for aluminum or copper conductors
- B. Construction:
 - 1. Switch blades and jaws shall be visible and plated copper
 - 2. Disconnect Switches shall have a black handle through 100A (except on plug-fuse type) that is easily pad-lockable with two 3/8IN shank locks in the OFF position. Higher rating shall have a RED handle that is easily pad-lockable with three 3/8IN shank locks in the OFF position
 - 3. Disconnect Switches shall have non-defeatable door interlock that prevent the door from opening when the handle is in the ON position
 - a. Switch assembly and operating handle shall be an integral part of the enclosure
 - b. Disconnect Switches rated 200A to 600A shall have reinforced fuse clips
 - c. Switch blades shall be readily visible in the "ON" and "OFF" position
 - 4. Switch operating mechanism shall be non-teasable, positive quick-make/quick-break type (except 30A plug-fuse type and compact design general-duty double-throw)
 - 5. Fusible Disconnect Switches shall be suitable for service entrance equipment and be equipped with factory installed neutrals, as noted on drawings
 - 6. All Disconnect Switches (except 30A plug-fuse type) shall have hinged doors. Door padlocking capability shall be provided
 - 7. Disconnect Switches shall be suitable for systems capable of 100kA with Class R Fuses (except 30A plug-fuse type)
 - 8. Double-Make, Double-Break switch blade feature shall be provided (except 30A plug-fuse type and compact design general-duty double throw)

9. 30A to 100A shall have Class R fuse rejection capability (not applicable to plug-fuse type)
10. Viewing Window, lower contacts
11. Voltage Indicators, line-side and load-side

C. Enclosures

1. All enclosures shall be NEMA-1 general purpose unless otherwise noted.
2. Paint color shall be ANSI 61 gray
3. Other types, where noted in the Contract Documents shall be:
 - a. NEMA-1G plug fuse indoor:
 - 1) 30A to 60A NEMA 1 enclosures shall have tangential knockouts on the top, bottom and sides of the enclosure.
 - b. NEMA-3R rainproof:
 - 1) Enclosures shall have tangential knockouts on the bottom and sides. (Not applicable to NEMA-1 plug-fuse type).

2.03 HEAVY-DUTY SAFETY DISCONNECT SWITCHES

A. Provide Disconnect Switches as shown in the Contract Documents with the following ratings:

1. 30A to 1200A
2. 250VAC/DC, 600VAC (30A to 200A 600VDC)
3. 2, 3, 4 and 6 poles (2, 3 and 4 poles on 800A; 2 and 3 poles on 1200A)
4. Fusible and Non-Fusible
5. Mechanical lugs suitable for aluminum or copper conductors.

B. Construction:

1. Switch blades and jaws shall be visible and plated copper
2. Disconnect Switches shall have a RED handle that is easily pad-lockable with three 3/8IN shank locks in the OFF position
3. Disconnect Switches shall have non-defeatable door interlock that prevent the door from opening when the handle is in the ON position (except for double-throw switches). Defeater mechanism shall be front accessible.
4. Switches shall have deionizing arc chutes.
5. Disconnect Switch assembly and operating handle shall be an integral part of the enclosure base.
6. Disconnect Switches rated 30A to 600A shall have reinforced fuse clips
7. Switch blades shall be readily visible in the "ON" and "OFF" position
8. Switch operating mechanism shall be non-teasable, positive quick-make/quick-break type. Bail type mechanisms are not acceptable
9. Fusible Disconnect Switches shall be suitable for service entrance equipment (except for 4-pole switches and 1200A when used on 480/277 or 600/347 grounded WYE systems)
10. Switches shall have line terminal shields (except for non-fusible double throw switches)
11. Disconnect Switches shall be suitable for systems capable of 200kA at 480V with Class J, L, R, or T fusing as applicable for single-throw switches; 100kA at 600V for double- throw switches

12. Engraved ON-OFF indication label shall be provided
13. Double-Make, Double-Break switch blade feature shall be provided
14. Fuse pullers shall be provided on all NEMA-4X and NEMA-12 Disconnect Switches through 200A
15. Shunt-trippable mechanism for switches 30A thru 800A switches, NEMA-12/3R, 4, and 4X/SS
 - a. Coil voltage rating 24, 48, 120, 240, 480 VAC and 24, 48 and 125VDC
 - b. Minimum operating voltage 55% of nominal rating for AC coils rated for Class 1 ground fault interruption
 - c. 3-cycle maximum response time
16. Viewing Window, lower contacts
17. Voltage Indicators, line-side and load-side

C. Enclosures:

1. All enclosures shall be NEMA-12 general purpose unless otherwise shown in the Contract Documents.
2. Other types, where noted, shall be:
 - a. NEMA-3R rainproof
 - b. NEMA-4X watertight corrosion-resistant:
 - 1) 30A to 200A – 304 stainless steel
 - 2) 400A to 1200A – 304 stainless steel
 - c. NEMA-12 dust-tight and oil-tight special industry (dual NEMA-12/3R rating through 800A).
 - d. Paint color shall be ANSI 61 gray
3. 30A to 100A NEMA-4X and 12 enclosures shall be provided with draw-pull latches.

2.04 HEAVY-DUTY DOUBLE-THROW GENERATOR SAFETY DISCONNECT SWITCHES

- A. Provide Heavy-Duty Double-Throw Generator Disconnect Switches as shown in the Contract Documents, with the following ratings:
1. 100A – 800A
 2. 250VAC/DC; 600VAC (30A - 200A 600VDC)
 3. 2, 3 or 4 poles
 4. Upper utility switch shall be: Fusible
 5. Lower generator switch shall be: Fusible
 6. Mechanical lugs suitable for aluminum or copper conductors
- B. Construction:
1. Switch blades and jaws and bus bars shall be visible and plated copper

2. Disconnect Switches shall have a RED handle that is easily pad-lockable with three 3/8IN shank locks in the OFF position
3. Switch shall be of double throw design such that both switches may not be closed simultaneously. Handle operation shall have an "OFF" position between the two on positions.
4. Disconnect Switch shall be equipped with a separate interlocked receptacle compartment containing receptacles for quick-connection and disconnection of portable cord-connected equipment.
5. Interlock shall prevent the lower generator switch from being closed while cable compartment door is open, and shall prevent the door from being opened while the switch is closed.
6. Compartment shall be equipped with a spring-assisted door to allow portable cords to exit the compartment while in use, but shall close when not in use to effectively seal the compartment to prevent insects and small animals from entry.
7. Compartment shall be equipped with receptacles for sufficient cable connection for the ampacity of the switch.
8. Receptacles for switches 200A and greater shall be of the single cable per phase design – utilizing quarter turn cam type connections.
 - a. Receptacles shall be: Cam-Lok type.
 - b. 600A and 800A switches shall employ parallel receptacles.
9. Switch shall have deionizing arc chutes.
10. Disconnect Switches shall have factory-installed ground lug kit.
11. Switch assembly and operating handle shall be an integral part of the enclosure base
12. Switch blades shall be readily visible in the "ON" and "OFF" position.
13. Switch operating mechanism shall be non-teasable, positive quick-make/quick-break type. Bail type mechanisms are not acceptable.
14. Fusible Disconnect Switches shall be suitable for Service-Entrance equipment.
15. Disconnect Switches shall have a solid or switched neutral as shown in the Contract Documents.
16. Disconnect Switches shall have line terminal shields (except for non-fusible double throw switches).
17. Switch shall be suitable for systems capable of 100kA at 600V with embossed or engraved ON-OFF indication shall be provided
18. Double-make, double-break switch blade feature shall be provided.
19. Viewing Window, lower contacts
20. Voltage Indicators, line-side and load-side

C. Enclosures:

1. All enclosures shall be NEMA-3R heavy-duty unless otherwise shown in the Contract Documents.
2. Other types, where noted, shall be:
 - a. NEMA-4X watertight corrosion-resistant
 - 1) 100A to 800A – 304 stainless steel
 - b. NEMA-12 dust-tight and oil-tight special industry (dual NEMA-12/3R rating through 800A).
 - 1) Paint color shall be ANSI 61 gray

3. 600A and 800A Switches shall be equipped with lifting eyes.
4. The following factory modifications are to be included:
 - a. Factory installed UL listed switching neutral bonding kit for 3 or 4 pole double throw switches requiring a switching neutral

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Disconnect Switches to be mounted 60IN to top of enclosure above the finished floor, finished concrete or finished grade at the equipment height where appropriate, or as shown in the Contract Documents.
- B. Disconnect Switches shall not be mounted to any hand-rail, safety rail stair-well, ladder-well or like structure that is designed for life-safety use. A minimum of 4IN shall be maintained from all life-safety structures and any edge of Disconnect Switches.
- C. Contractor shall provide and install supports and/or support structures such as equipment racks to mount all Disconnect Switches.
- D. Contractor shall furnish and install fuses or circuit breakers as required or shown in the Contract Documents.

3.02 PROJECT CLOSE OUT

- A. All exterior and interior surfaces of the Disconnect Switches shall be cleaned thoroughly, and all scratches and abrasions shall be retouched with the same paint coating as approved by the manufacturer for touch-up work.
- B. Interiors of Disconnect Switches shall be free of debris to include cleaning of wire/cable pulling compounds. The use of compressed air systems is not acceptable.

END OF SECTION

SECTION 16430 – SWITCHBOARDS

PART 1 - GENERAL

1.1 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install floor-mounted dead-front low-voltage Switchboards which consist of an enclosure, circuit breakers, instruments and metering equipment, monitoring equipment or control equipment, with associated interconnections and supporting structures connected solidly (bussed) to Metal-Enclosed Draw-Out Switchgear as indicated on the Contract Documents and as specified herein.
 - 1. Distribution Switchboard - Furnish and install the distribution switchboard(s) shown on the Contract Documents and specified in this Specification Section.
- B. Equipment supplier shall preform and provide all data and reports as required for the Switchboards and all associated connected loads as shown in the Contractor Documents in accordance with the Project Specification Sections.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 16010 – ELECTRICAL POWER STUDIES
 - 2. 16671 – TRANSIENT VOLTAGE SURGE SUPPRESSION

1.3 REFERENCES

- A. Switchboards and overcurrent protection devices referenced herein are designed and manufactured according to the following appropriate codes and regulations.
- B. Codes and Standards:
 - 1. ANSI/NFPA 70 - National Electric al Code (NEC).
 - 2. ANSI/IEEE C12.16 - Solid-State Electricity Metering.
 - 3. ANSI C57.13 - Instrument Transformers.
 - 4. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
 - 5. NEMA PB 2 - Deadfront Distribution Switchboards, File E8681
 - 6. NEMA PB 2.1 - Proper Handling, Installation, Operation and Maintenance of Deadfront Switchboards Rated 600 Volts or Less.
 - 7. NEMA PB 2.2 - Application Guide for Ground Fault Protective Devices for Equipment.
 - 8. UL 50 - Cabinets and Boxes.
 - 9. UL 98 - Enclosed and Dead Front Switches.
 - 10. UL 489 - Molded Case Circuit Breakers.
 - 11. UL 891 - Dead-Front Switchboards.
 - 12. UL 943 - Standard for Ground Fault Circuit Interrupters.
 - 13. Federal Specification W-C-375B/Gen - Circuit Breakers, Molded Case, Branch Circuit and Service.

1.4 SUBMITTALS

A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:

1. 01310 – ADMINISTRATIVE REQUIREMENTS

B. For Engineer Review

1. The following information shall be submitted to the Engineer:

- a. Master drawing index
- b. Front view and plan view of the assembly
- c. Three-line diagrams
- d. Schematic diagrams
- e. Nameplate schedule
- f. Component list
- g. Conduit space locations within the assembly
- h. Assembly ratings include but not limited to:
 - 1) Short-circuit rating
 - 2) Voltage
 - 3) Continuous current rating
- i. Major component ratings include but not limited to:
 - 1) Voltage
 - 2) Continuous current rating
 - 3) Interrupting ratings
- j. Cable terminal sizes
- k. Product data sheets

2. Where applicable, the following additional information shall be submitted to the Engineer:

- a. Busway connection(s)
- b. Composite front view and plan view of close-coupled assemblies

C. For Construction

1. The following information shall be submitted for record purposes:

- a. Final as-built drawings and information for items listed in Section 1.4B, and shall incorporate all changes made during the manufacturing process

- b. Wiring diagram(s)
- c. Certified production test report(s)
- d. Installation information

D. Qualifications

- 1. For approval, manufacturer shall have specialized in the manufacturing and assembly of Switchboards for at least fifty (50) years.
- 2. Furnish products listed by Underwriters Laboratories Incorporated and in accordance with standards listed in Section 1.3.
- 3. Manufacturer of the assembly shall be the manufacturer of the major components within the assembly.
- 4. Equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- 5. Switchboards shall bear a UL 891 label.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Switchboards and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations as outlined in applicable Installation and Maintenance Manuals. Three (3) copies of these instructions shall be included with the equipment at time of shipment.
- B. Switchboards section(s) shall be delivered in individual shipping splits for ease of handling. Sections shall be individually wrapped for protection and mounted on shipping skids as required to prevent tipping.
- C. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- D. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Switchboards operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.
 - 1. Operation and Maintenance manuals, drawings etc. to be provided within the assemblies shall be water-proof and fire-resistant utilizing tear-resistant paper.

1.7 WARRANTY

- A. Manufacturer shall warrant Switchboards to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

1.8 IDENTIFICATION

- A. Switchboards shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplate(s) shall be securely affixed in a conspicuous place on Metal-Enclosed Draw-Out Switchgear. Nameplates shall be furnished and installed as required Specification Section(s):

1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Switchboards shall be provided by one of the manufacturers listed:
 - 1. Square D / Schneider Electric USA
 - 2. Acceptable as Specified in the Owner's Approved Products List
- B. Manufacturer of Switchboards shall be the same as the manufacturer of the circuit breakers or the switches mounted within Switchboards.
- C. Switchboards shall be by the same manufacture as the Metal-Enclosed Draw-Out Switchgear for the purposes of stocking common breaker types, series ratings, etc.

2.2 SWITCHBOARD - GENERAL

- A. Short Circuit Current Rating: Switchboards shall be rated with a minimum short circuit current rating of 65kA RMS symmetrical at 600VAC maximum.
- B. Future Provisions: All unused spaces provided, unless otherwise specified, shall be fully equipped for future devices, including all appropriate connectors and mounting hardware.
 - 1. Enclosure: NEMA 1G/12
- C. Sections shall be aligned front and rear.
- D. Removable steel base channels 1.5IN shall be bolted to the frame to rigidly support the entire shipping section for moving on rollers and floor mounting.
- E. Switchboards enclosure shall be painted on all exterior surfaces. The paint finish shall be a medium gray, ANSI #49, applied by the electro-deposition process over an iron phosphate pre-treatment.
- F. All front covers shall be screw removable with a single tool and all doors shall be hinged with removable hinge pins.
- G. Top and bottom conduit termination areas shall be clearly indicated on shop drawings.

2.3 NAMEPLATES

- A. Engraved nameplates, mounted on the face of the Switchboards, shall be furnished for all main and feeder circuits as indicated in the Contract Documents; reference Section 1.8.

- B. Furnish master nameplate giving Switchboards designation, voltage ampere rating, short-circuit rating, and manufacturer's name.
- C. Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification corresponding to appropriate designations on manufacturer's drawings.

2.4 BUS

- A. All bus bar shall be tin-plated copper. Plating shall be applied continuously to all bus work. Switchboards bussing shall be of sufficient cross-sectional area to meet UL Standard 891 temperature rise requirements. The phase and neutral through-bus shall have an ampacity as shown in the Contract Documents. The neutral shall be of equivalent ampacity as the phase bus bar. Tapered bus is not acceptable.
- B. Full provisions for the addition of future sections shall be provided. Bussing shall include all necessary hardware to accommodate splicing for future additions.
- C. Connections shall be bolted with Grade 5 bolts and conical spring washers.
- D. Ground bus shall be sized per NFPA70 and UL 891 Tables 25.1 and 25.2 and shall extend the entire length of the Switchboard. Provisions for the addition of future sections shall be provided.

2.5 WIRING / TERMINATIONS

- A. Small wiring, necessary fuse blocks and terminal blocks within the Switchboards shall be furnished as required. Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification corresponding to appropriate designations on manufacturer's wiring diagrams.
- B. All control wire shall be type SIS and 14AWG for control circuits. Wire bundles shall be secured with nylon ties and anchored to the assembly with the use of pre-punched wire lances or nylon non-adhesive anchors. All groups of control wires leaving the Switchboards shall be provided with screw-cage terminal blocks with suitable numbering strips and provisions for 10AWG field connections. Provide printed heat-shrink sleeve wire markers at each end of all control wiring. Plug-in terminal blocks shall be provided for all shipping split control wires. Terminal connections to remote devices or sources shall be front accessible via doors above each circuit breaker.

2.6 SWITCHBOARD – DISTRIBUTION SECTION

- A. General:
 - 1. Distribution section shall be of the configuration and ratings as shown on the Contract Documents. Distribution section shall be dead-front type with automatic trip-free, non-adjustable, thermal overload branch circuit breakers, unless otherwise shown in the Contract Documents. Distribution circuit breakers shall be bolt-on molded case type conforming to NEMA Standard AB1. Trip elements of the circuit breakers shall be rated shall be as shown in the Contract Documents.
 - 2. Distribution Section shall consist of those requirements listed in this Specification.

2.7 FINISH

- A. All exterior and interior steel surfaces of Switchboards shall be properly cleaned and provided with a rust-inhibiting phosphatized coating. Color and finish shall be ANSI 61.

2.8 SURGE PROTECTIVE DEVICES

- A. Provide surge protective devices as indicated in Contract Documents and as specified in Specification Section(s):

- 1. 16671 – TRANSIENT VOLTAGE SURGE SUPPRESSION

2.9 SPARE PARTS AND ACCESSORIES

- A. Provide spare parts for Switchboards as recommended by the manufacturer.

PART 3 - EXECUTION

3.1 FACTORY ACCEPTANCE TESTING

- A. All Switchboards shall go through a standardized Factory Acceptance Test (FAT) prior to shipment. FAT shall include, but not limited to, the following:
 - 1. After assembly, the complete Switchboard shall be tested to ensure the accuracy of the wiring and the functioning of all equipment.
 - 2. Main bus system shall be given a dielectric test of 2.2kV for one minute (1MIN) between live parts and ground and between opposite polarities.
- B. A certified test report of all standard FAT procedures, tests, results and corrective actions shall be shipped with Switchboards.
- C. Manufacturer shall notify Engineer two (2) weeks prior to the date the tests are to be performed

3.2 EXAMINATION

- A. Examine concrete flooring and/or concrete equipment pad(s) to receive Switchboards for compliance with installation tolerances and other conditions affecting performance of the product as required by the manufacturers installation instructions and recommendations to include Engineer installation details. Do not proceed with installation until unsatisfactory conditions have been met or corrective action has been taken.

3.3 INSTALLATION

- A. Contractor shall install Switchboards per the manufacturer's recommendations and the Contract Documents.
- B. All necessary hardware to secure the assembly in place shall be provided by the Contractor.
- C. Switchboards shall be installed and checked in accordance with the manufacturer's recommendations. This shall include but not limited to:

1. Checking to ensure that concrete flooring and/or concrete equipment pad(s) are level to within 0.125IN per 3FT feet of distance in any direction; reference Section 2.3B.
2. Checking to ensure that all bus bars are torqued to the manufacturer's recommendations
3. Assembling all shipping sections, removing all shipping braces and connecting all shipping split mechanical and electrical connections
4. Securing Switchboards to concrete flooring and/or concrete equipment pad(s).
5. Inspecting and installing all circuit breakers in their proper compartments

3.4 FIELD QUALITY CONTROL

- A. Clean, inspect, test, and energize Switchboards in accordance with applicable NECA / NEIS standards and recommendations.
- B. Verify circuit breakers are in the proper locations and that setting of trip units, devices and current sensor taps match values scheduled on the approved shop drawings.
- C. Exercise each circuit breaker three (3) times to verify smooth mechanical operation.
- D. Verify proper torque of accessible bus connections and mechanical fasteners after installing Switchboards.
- E. Field testing shall be done in accordance with the requirements specified in Specification Sections:
 1. Division 2 – SITE CONTRUCTION
 2. 16080 – ELECTRICAL TESTING
 3. Coordinate inspections and tests as required
- F. After completing installation, cleaning, and testing, touch up scratches and mars on finish to match original finish.
- G. Provide the services of a qualified factory-trained manufacturer's representative to provide start-up of the equipment specified under this Section for a period of three (3) working days.
- H. The Contractor shall provide three (3) copies of the manufacturer's field startup report.

3.5 TRAINING

- A. Contractor shall provide a training session for up to five (5) Owner's representatives for two (2) normal workdays at a job site location determined by the Owner.
- B. Training sessions shall be conducted by a manufacturer's qualified representative. The training program shall consist of the instruction on the operation of the assembly, circuit breakers, and major components within the assembly.

END OF SECTION

SECTION 16435 – PANELBOARDS

PART 1 - GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install panelboards of voltage and current ratings as shown in the Contract Documents. Panelboards shall be furnished with circuit breaker ratings, number of breakers, number of poles and locations conforming to the panelboard schedules in the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:
 - 1. 16010 – ELECTRICAL POWER STUDIES
 - 2. 16671 – TRANSIENT VOLTAGE SURGE SUPPRESSION

1.03 REFERENCES

- A. Panelboards shall conform to all applicable Federal, UL, and NEMA standards. Materials and components shall be new and conform to grades, qualities and standards as specified herein and shown in the Contract Documents.
- B. Codes and Standards:
 - 1. UL Listing/ Approval
 - 2. UL 50 – Cabinets and Boxes
 - 3. UL 67 – Panelboards
 - 4. NEMA – PB1
 - 5. NFPA 70 – National Electrical Code

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Qualifications
 - 1. For approval, manufacturer shall have specialized in the manufacturing and assembly of Panelboards for at least fifty (50) years.
 - 2. Furnish products listed by Underwriters Laboratories Incorporated and in accordance with standards listed in Section 1.3.
 - 3. Manufacturer of the assembly shall be the manufacturer of the major components within the assembly.
 - 4. Equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
 - 5. Switchboards shall bear a UL 891 label.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Panelboards and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations as outlined in applicable Installation and Maintenance Manuals. Three (3) copies of these instructions shall be included with the equipment at time of shipment.
- B. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- C. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. Panelboards operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

1.07 WARRANTY

- A. Manufacturer shall warrant Panelboards to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

1.08 IDENTIFICATION

- A. Panelboards shall be identified with the equipment tag number indicated on the Contract Documents and the accepted shop drawings. Nameplates shall be furnished and installed as required Specification Section(s):

- 1. 16075 – ELECTRICAL IDENTIFICATION

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Panelboards shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown in the Contract Documents.
- B. Subject to compliance with the Contract Documents all Panelboards shall be of the same manufacturer and provided by:
 - 1. Square D / Schneider Electric USA
 - 2. Acceptable as Specified in the Owner's Approved Products List

2.02 MAIN BUS AND BRANCH CONNECTORS

- A. All main bus shall be copper sized in accordance with UL standards to limit the temperature rise on any current carrying part to a maximum of 50C above a maximum ambient temperature of 40C.

2.03 PANELBOARDS – LIGHTING

A. General:

1. Lighting Panelboards, as defined by NEC or noted in the Contract Documents, shall be dead-front type with automatic trip-free, non-adjustable, thermal-overload, branch circuit breakers. Panelboards shall be of the configuration and rating as specified herein and indicated in the Contract Documents. Panelboards shall be listed and labeled by Underwriter's Laboratories, Inc.
2. Lighting Panelboards shall be equipped with a main breaker or main lugs complete with branch circuit breakers, as shown in the Contract Documents. Panelboards shall be enclosed in a cabinet suitable for flush or surface mounting. Some panelboards shall be furnished and installed within motor control center structures as shown in the Contract Documents.
3. Lighting Panelboards shall be fully rated and shall have a short circuit rating of 22kA symmetrical, minimum. In the event the results of the Contractor's short circuit fault analysis, as accepted by the Engineer, indicate that a higher short circuit rating of the panelboards is required, furnish complete panelboards with that higher rating.
4. Lighting Panelboards shall be furnished with Surge Protective Device(s) (SPD) as shown in the Contract Documents and in accordance with Specification Sections:

a. 16671 – TRANSIENT VOLTAGE SURGE SUPPRESSION

B. Enclosures

1. Except for lighting panelboards installed in motor control centers, the Panelboard enclosure rating shall be NEMA Type-12 or as indicated in the Contract Documents. The door shall be fastened to the enclosure with concealed brass hinges and shall be equipped with flush-type catches and locks; all locks shall be keyed alike. Enclosures shall have wiring gutters on sides and shall be at least 20IN wide and 5-3/4IN deep. Contractor shall provide an engraved nameplate for the panelboard in accordance with Section 1.9
2. All metal surfaces of the enclosures shall be thoroughly cleaned and given one prime of zinc chromate primer. All interior surfaces shall then be given one shop finishing coat of a lacquer of the nitro cellulose enamel variety. All exterior surfaces shall be given three coats of the same lacquer. The color of finishing coats shall be light gray ANSI #61.
3. An Underwriter's Laboratories, Inc. inspection label shall appear on the interior of the cabinet.

C. Bus Work

1. Main bus bars shall be of ample size so that a current density of not more than 1000A per square inch of cross section will be attained. This current density shall be based on the application of the full load connected to the panel plus approximately 25% of the full load for spare capacity. The main bus shall be full capacity as based on the preceding for the entire length of the panel so as to provide full flexibility of circuit arrangement.
2. Solid neutral bus bars are required. Ratings shall be in accordance with applicable standards.
3. A separate ground bus shall be provided with lugs for termination of equipment grounding conductors.
4. Branch bus work shall be rated to match the maximum branch circuit breaker which may be installed in the standard space.
5. All bus shall be plated copper.

D. Circuit Breakers

1. Circuit breakers shall be bolt-on, molded-case type conforming to NEMA Standard AB 1. Trip elements of circuit breakers shall be 20A unless otherwise shown in the Contract Documents. Minimum branch circuit breaker shall be 100A frame for 60A and above except where shown otherwise in the Contract Documents or where a larger frame size is standard for the continuous current rating required. Breakers shall have an interrupting rating of 22kA symmetrical at 240VAC, minimum. All breakers shall have quick-make, quick-break, toggle mechanism for manual as well as automatic operation. Tandem or half-size breakers are not acceptable.
2. Where indicated in the Contract Documents or where required by NFPA, branch circuits requiring ground fault protection for personnel shall be supplied by Class-A ground fault circuit interrupter (GFCI) circuit breakers with TEST push button and fit standard Panelboard spaces.
3. Where indicated in the Contract Documents or where required by NFPA, branch circuits requiring ground fault protection for heat-trace or other identified equipment shall be supplied by Class-B GFCI circuit breakers with TEST push button and fit standard Panelboard spaces.
4. Instrument power panel branch circuit breakers set for control instrumentation, telephone, data, fire alarm or auxiliary equipment circuits requiring continuous operation shall be provided with a lock on device.
5. Where required by Article 440 of the NEC, circuit breakers installed for air conditioning units shall be HACR type.

E. Directories

1. Approved directories with glass or noncombustible plastic cover and with typewritten designations of each branch circuit, shall be furnished and installed in each panelboard. Contractor shall maintain in each panelboard, during the duration of the Contract, a handwritten directory clearly indicating the circuit breakers in service. This directory shall be updated as work progresses, and final, typewritten directories, as specified above, shall be installed at the end of the project and required for project close-out. Designations and circuit locations shall conform to the panelboard schedules in the Contract Documents, except as otherwise authorized by the Engineer.
2. Contractor shall provide directories identifying panelboards and indicating the size of the feeder (cable and conduit) serving the panel, circuit numbers, and a description of associated branch circuits including branch circuit trip and connected load for each circuit.

2.04 PANELBOARDS - POWER DISTRIBUTION

A. General

1. Power Distribution Panelboards, as defined by NEC or noted in Contract Documents, shall be of the configuration and rated as shown in the Contract Documents. Panelboards shall be dead front type with automatic trip-free, non-adjustable, thermal overload branch circuit breakers. Circuit breakers shall be bolt-on molded case type conforming to NEMA Standard AB1. Trip elements of the circuit breakers shall be rated 20A unless otherwise shown in the Contract Documents. Bus ratings shall be as shown in the Contract Documents. Panelboards shall be listed and labeled by Underwriter's Laboratories, Inc.
2. Power distribution panelboards shall be fully rated and shall have a short circuit rating of 25kA symmetrical, minimum. In the event the results of the Contractor's short circuit fault analysis, as accepted by the Engineer, indicate that a higher short

circuit rating of the panelboards is required, furnish complete panelboards with that higher rating.

3. Power Distribution Panelboards shall be furnished with Surge Protective Device(s) (SPD) as shown in the Contract Documents and in accordance with Specification Sections:

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B. Enclosures

1. Power Distribution Panelboard enclosure rating shall be NEMA Type-12 or as indicated in the Contract Documents. The door shall be fastened to the enclosure with concealed brass hinges and shall be equipped with flush-type catches and locks; all locks shall be keyed alike. Enclosures shall have wiring gutters on sides and shall be at least 20IN wide and 5-3/4IN deep. Contractor shall provide an engraved nameplate for the panelboard in accordance with Section 1.9
2. All metal surfaces of the enclosures shall be thoroughly cleaned and given one prime of zinc chromate primer. All interior surfaces shall then be given one shop finishing coat of a lacquer of the nitro cellulose enamel variety. All exterior surfaces shall be given three coats of the same lacquer. The color of finishing coats shall be light gray ANSI #61.
3. An Underwriter's Laboratories, Inc. inspection label shall appear on the interior of the cabinet.

C. Bus Work

1. Main bus bars shall be of ample size so that a current density of not more than 1kA per square inch of cross section will be attained. This current density shall be based on the application of the full load connected to the panel plus approximately 25% of the full load for spare capacity. The main bus shall be full capacity as based on the preceding for the entire length of the panel so as to provide full flexibility of circuit arrangement.
2. Solid neutral bus bars, where required, shall be provided. Ratings shall be in accordance with applicable standards.
3. A separate ground bus shall be provided with lugs for termination of equipment grounding conductors.
4. Branch bus work shall be rated to match the maximum branch circuit breaker which may be installed in the standard space.
5. All bus shall be plated copper.

D. Circuit Breakers

1. Circuit breakers shall be bolt-on, molded-case type conforming to NEMA Standard AB 1. Trip elements of circuit breakers shall be 20A unless otherwise shown in the Contract Documents. Minimum branch circuit breaker shall be 100A frame for 60A and above except where shown otherwise in the Contract Documents or where a larger frame size is standard for the continuous current rating required. Breakers shall have an interrupting rating of 25kA symmetrical at 480VAC, minimum. All breakers shall have quick-make, quick-break, toggle mechanism for manual as well as automatic operation. Tandem or half-size breakers are not acceptable.

E. Directories

1. Approved directories with glass or noncombustible plastic cover, and with typewritten designations of each branch circuit, shall be provided in each panel.

- Contractor shall maintain in each panel, during the duration of the Contract, a handwritten directory clearly indicating the circuit breakers in service. This directory shall be updated as work progresses, and final, typewritten directories, as specified above, shall be installed at the end of the project and required for project close-out. Designations and circuit locations shall conform to the Panelboard schedules in the Contract Documents, except as otherwise authorized by the Engineer.
2. The Contractor shall provide directories identifying Panelboards and indicating the size of the feeder (cable and conduit) serving the panel, circuit numbers, and a description of associated branch circuits including branch circuit trip and connected load for each circuit.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Panelboards shall be furnished and installed as shown in the Contract Documents and as recommended by the equipment manufacturer.
- B. Panelboards shall be set true and plumb in all locations as shown in the Contract Documents. Top of Panelboard enclosure shall not exceed 6FT above finished floor elevation.
- C. Panelboards installed outdoors shall not be mounted to hand-rail or safety rail.
- D. Panelboard enclosures shall not be fastened to concrete or masonry surfaces with wooden plugs, conical plastic anchors. Appropriate cadmium plated or galvanized steel bolts shall be used with expansion shields or other metallic type concrete insert for mounting on concrete or solid masonry walls. Cadmium plated or galvanized steel toggle bolts shall be used for mounting on concrete block or other hollow masonry walls. Bolt diameter shall be as required considering the size and weight of the completed panelboard and enclosure to provide adequate structural support.
- E. Contractor shall not use factory furnished knockouts with surface back boxes. The Contractor shall punch or drill required openings during installation and shall equip flush back boxes with manufacturer's standard pattern of knockouts. The Contractor shall equip enclosure doors exceeding 40IN height with vertical bolt three-point locking mechanism.
- F. Contractor shall install cabinets (and other enclosure products) in plumb with the building construction. Flush enclosures shall be installed so that the trim will rest against the surrounding surface material and around the entire perimeter of the enclosure.

3.02 PROJECT CLOSE OUT

- A. All exterior and interior surfaces of the Panelboards shall be cleaned thoroughly, and all scratches and abrasions shall be retouched with the same paint coating as approved by the manufacturer for touch-up work.
- B. Interiors of Panelboards shall be free of debris to include cleaning of wire/cable pulling compounds. The use of compressed air systems is not acceptable.

END OF SECTION

SECTION 16500 – LIGHTING

PART 1 - GENERAL

1.1 REQUIREMENT SUMMARY

- A. Contractor shall furnish all labor, materials, tools and equipment necessary for furnishing, installing, connecting, testing and placing into satisfactory operation all Lighting Systems to include but not limited to lighting fixtures, lamps, contactors, controllers, control panels, control devices, supports, etc. as required for complete and operational Lighting Systems as specified herein and indicated on the Contract Documents.
- B. Lighting Systems shall be in accordance with the latest requirements of the Illuminating Engineering Society, and all lighting fixtures shall have the Underwriters Laboratories, Inc. label of approval.
- C. All wiring shall be placed in conduit and shall comply with all the DIV-16 Specification Sections for conduit, outlet boxes, pull and junction boxes, wires and cables, grounding, etc. and other applicable Sections or as noted herein.

1.2 RELATED WORK ELSEWHERE

- A. In addition to the requirements specified in this Section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Specification Sections include but not limited to:

- 1. DIVISION 3 – CONCRETE

1.3 REFERENCES

- A. Lighting Systems and associated devices referenced herein shall be designed and manufactured according to the following appropriate codes and regulations.
- B. Codes and Standards:
 - 1. ANSI/NFPA 70 - National Electric al Code (NEC).
 - 2. Illuminating Engineering Society of North America (IESNA)
 - a. ANSI/IES RP-7-17 – Recommended Practice for Lighting Industrial Facilities
 - b. ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting
 - 3. International Building Code (IBC) – Latest Edition
 - 4. NECA/IESNA 500, Recommended Practice for Installing Indoor Commercial Lighting Systems
 - 5. NECA/IESNA 501, Recommended Practice for Installing Exterior Lighting Systems
 - 6. NECA/IESNA 502, Recommended Practice for Installing Industrial Lighting Systems
 - 7. UL 1598 - Luminaires
 - 8. U.S. Energy Policy Act and Energy Star requirements for lighting products

1.4 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:
 - 1. 01310 – ADMINISTRATIVE REQUIREMENTS
- B. Contractor shall provide submittals to include but not limited to the following:
 - 1. Equipment specifications and product data sheets identifying all materials used and methods of fabrication.
 - 2. Catalog cuts for each lighting controller, control panel, fixture type showing performance and construction details of standard lighting fixtures, and complete working drawings showing all proposed construction details of special or modified standard lighting fixtures.
 - 3. Photometric calculations and curves
 - 4. Photometric plans shall be provided if substitutions are made from the equipment shown or specified. Data shall be submitted electronically in an approved Engineer format.
 - 5. Data/Information:
 - a. Fixture Assemblies
 - b. Lamp/Tube LED data
 - c. LED Driver, Ballast Information.
 - 6. Catalog data including applicable coefficients of utilization tables, Isolux chart of illumination on a horizontal plane, beam efficiency, horizontal and vertical beam spread, and beam lumens.
 - 7. Wind-load calculations for light poles.
- B. Lighting submittal shall include all proposed fixtures, LED drivers, ballasts, and lamps.
- C. Lighting controllers, digital dimming and control systems
 - 1. Submit product datasheets for all devices provided to include but not be limited to relay panels, switches, DTC, photocells and other interfaces.
 - 2. Submittal drawings shall indicate exact location and programming of each device and indicate all time schedules and switch button engraving.
 - 3. Submit system riser diagrams detailing communication wiring and control wiring.
 - 4. Submit standard wiring diagrams for the typical lighting fixtures, wall switch and sensor interfaces.
 - 5. Submit a sequence of operation for each typical space type describing the typical control functions and occupant interactions with the lighting controls.
 - 6. Submit floor plans showing the type and location of each network device and each controlled light fixture zone. Submitted floor plan(s) shall include a bill of material listing all control devices, model numbers and quantities for each floor or location.
 - 7. Submit screens that are to be provided as part of the PC Ethernet connected system for control and monitoring.
- D. Incomplete submittals will be rejected by Engineer.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Lighting Systems and all components shipped loose shall be handled and stored in accordance with manufacturer's instructions and recommendations to include NECA/IESNA recommendations.
- B. Inspect and report concealed damage to carrier within their required time period. Owner is not responsible for damages incurred during shipping, handling and storage.
- C. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Lighting Systems installation manuals shall be provided for each type of assembly shipped and shall include instruction leaflets and instruction bulletins.

1.7 WARRANTY

- A. Manufacturer shall warrant Lighting Systems to be free from defects in materials and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

1.8 IDENTIFICATION

- A. Lighting Systems shall be identified with the equipment tag or type number indicated on the Contract Documents and the accepted shop drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Specifications, Contract Documents and Shop drawing approvals, the following manufacturers shall be provided for Lighting Systems:
 - 1. Site/Area Lights
 - a. Lithonia
 - b. AEL
 - c. Eaton
 - d. Holophane
 - e. KIM Lighting
 - 2. Interior /Exterior Lights
 - a. Holophane
 - b. Lithonia

c. KIM Lighting

d. GE Lighting

3. Or as specified in contract drawings fixture schedule.

2.2 GENERAL REQUIREMENTS

- A. The Lighting Systems equipment under this Specification is intended to be standard equipment of proven performance as manufactured by reputable firms regularly engaged in the manufacturing of lighting equipment, of types and sizes required, whose products have been in satisfactory use in similar service for not less than three-years (3YR). Equipment shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Contract Documents.
- B. Manufacturer's catalog number and description in the lighting fixture schedule on the Contract Documents establishes a level of quality, style, finish, etc. The use of a catalog number describing the various types of light fixtures shall be used as a guide only, and does not exclude all the required accessories or hardware that may be required for a complete installation.
- C. All products shall be UL listed and meet the requirements of the National Electrical Code (NEC). Electrical components shall be listed and labeled by U.L.

2.3 LIGHTING CONTROL SYSTEMS

- A. Switches
 - 1. Reference specification section 16140 – WIRING DEVICES.
- B. Photocells
 - 1. Hermetically sealed cadmium sulfide cell with single-throw contacts rated for 277V for 1800VA. Photocell shall be housed within a die-cast aluminum, vandal and impact resistant enclosure. Designed to turn ON at level below three foot-candles (3fc/32.3lux) and OFF at three to ten foot-candles (3-10fc/32.3-107.6lux). A fifteen second (15SEC) time delay to prevent switching from transient light sources. Directional lens, mounted in front of cell, to prevent fixed light sources from turning unit off. Temperature range -40F to +170F. Power consumption less than 1.4W average.

2.4 LED LUMINAIRES

- A. Electrical
 - 1. Operating voltage: 24VDC, 120VAC at 60Hz, 277VAC at 60Hz, or universal voltage (120, 208, 220/240, 277VAC at 50/60 Hz)
 - 2. Power factor: ≥ 0.90 (at full luminaire output and across specified voltage range)
 - 3. Total harmonic distortion: $\leq 20\%$ (at full luminaire output and across specified voltage range)
 - 4. Transient and surge protection: ANSI C62.41-2002 Category A surge protection standards up to and including 2.5kV for interior fixtures.
 - 5. Sound: Class A not to exceed a measured value of 24dB
 - 6. Maximum standby power: 1W

7. Warranty: Ten-year (10YR) non-prorated on complete fixture including driver.
8. LED arrays in the product(s) will be considered defective in material or workmanship if a total of 10% or more of the individual light-emitting diodes
9. LED Power Supply/Driver
 - a. Driver efficiency (at full load):
 - 1) $\geq 85\%$ for drivers capable of $\geq 50W$
 - 2) $\geq 80\%$ for drivers capable of $< 50W$
 - b. Federal Communications Commission (FCC) compliance: FCC 47 Part 15 Non-Consumer limits for EMI/RFI emissions
 - c. Fixtures that are designated to be controlled by 0V – 10V dimming signals shall be fully compatible with the Light Dimming and Control System provided under this specification section.
10. Temperature Rating: Each luminaire shall be designed to operate at an average operating temperature of 25C. The operating temperature range shall be 0C to 25C.
11. Thermal management: The driver manufacturer's maximum case temperature shall not be exceeded at the maximum operating temperature. Thermal management shall be passive by design. The use of fans or other mechanical cooling devices shall not be allowed. The use of fans or other mechanical cooling devices shall not be allowed.
12. EMI/RFI: The luminaire and associated on-board circuitry must meet Class A emission limits referred in Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 Non-Consumer requirements for EMI/RFI Emissions.

B. Performance

1. Photometric
 - a. Provide minimum initial delivered luminaire lumens in accordance with Contract Documents.
 - b. Provide minimum Luminaire Efficacy (LE) or Luminaire Efficacy Rating (LER) per Contract Documents
2. Colorimetric
 - a. Provide Correlated Color Temperature (CCT) as indicated on fixture schedule.
 - b. Acceptable tolerances as shall be per ANSI C78.377-2015 (LED)
 - c. Color Rendering Index (CRI) [Ra] ≥ 80 with a positive R9 value
 - d. Color shift shall be no less than $\Delta u'v' < 0.007$ during the warranty period

2.5 INDOOR LIGHTING

- A. Indoor lighting is as specified on Contract Documents. Manufacturer listed in the Contract Drawings may be substituted for manufacturers listed hereinafter.

- B. Construction/Finish: No visible, no plane-protruding screws, latches, springs, hooks, rivets or plastic supports viewed from the occupied (room) side are allowed.
- C. Maintenance: Power supplies, drivers, ballasts, LED arrays, boards and light engines shall be easily replaceable using common hand tools (e.g. screw drivers, pliers, etc.) and without uninstalling the luminaire.

2.6 EXIT SIGNS AND EMERGENCY LIGHTING

- A. Emergency lighting and exit signs are as specified and located on plans.
- B. The emergency power wiring shall be a complete system in itself and shall be kept entirely separate from any other wiring in the project unless indicated otherwise on Contract Documents
- C. Emergency lighting fixtures shall be provided so that failure of any one (1) element, such as lamp, will not result in loss of illumination in fixture used for emergency egress lighting.
- D. Contractor shall perform a test on each battery powered unit after it is permanently installed and charged for a minimum of twenty-four hours (24HR). The battery shall be tested for ninety-minutes (90MIN), in accordance with NEC 700. The battery test shall be done ten-days (10DY) prior to final inspection. Any unit which fails the test must be repaired or replaced, and tested again.

2.7 SITE LIGHTING

- A. A lighting fixture shall be provided for every pole indicated. Any omission shall be brought to the attention of the Engineer before submitting proposal; otherwise a unit selected by the Engineer shall be furnished and installed at no additional charge.
- B. Metal Lighting Poles and Standards: Provide metal, raceway-type, lighting poles and standards, of sizes and types indicated on the Contract Documents, comprised of shaft and bracket; equip with grounding connection readily accessible from handhole. Construct of Extruded Aluminum or steel. All poles shall meet the AASHTO wind loading for the area in which they are installed.
- C. Configuration: Anchor base-type with handhole and base cover. Contractor shall furnish and install concrete foundations for all light poles as required on Contract Documents. All anchor bolts and nuts shall be provided by the light pole manufacturer.
- D. Lighting Pole Accessories: Provide accessories for metal lighting poles and standards, including, luminaire mounting arms, cover plates, anchor base covers, mounting yokes, slip fitter tenon mounts as required for the type of required fixture mounts. Provide anchor bolts, as recommended by lighting standard manufacturer, of sizes and materials needed to meet erection and loading application requirements.
- G. Materials
 - 1. Catalog numbers are for general identification of fixtures only. All related parts, such as plaster rings, junction boxes, louvers, shields, mounting stems, canopies, connectors, straps, nipples, etc., to fit them properly to the construction, shall be furnished and installed.
 - 2. All fixtures and control system components shall be grounded per NFPA 70
 - 3. Fixtures connected with flex to the rigid raceway portion of the wiring system shall carry a green bonding jumper within the flex. The jumper shall be fastened to both

- the fixture and the raceway system with a listed grounding clip or approved equivalent. Phase and ground conductors run in a flex shall be #12AWG minimum.
4. Surface-mounted fixtures being installed on combustible material shall be mounted at least 1-1/2IN from the surface of the material; except units which are plainly marked on fixtures as U.L. approved for mounting directly to such surfaces.
 5. Mount all fixtures plumb and square. Keep rows in perfect line where applicable.

2.8 TOOLS, SUPPLIES AND SPARE PARTS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Provide to the Owner within fourteen-days (14DY) of occupancy.
 1. Plastic Diffusers and Lenses: One (1) for every five (5) of each type and rating installed. Furnish at least one (1) of each type.
 2. LED Drivers: One (1) for every ten (10) of each type and rating installed. Furnish at least one (1) of each type.
 3. Globes and Guards: One (1) for every five (5) of each type and rating installed. Furnish at least one (1) of each type.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all surfaces and structural elements and/or concrete bases to receive Lighting Systems for compliance with installation tolerances and other conditions affecting performance of the product as required by the manufacturers installation instructions and recommendations to include Engineer installation details. Do not proceed with installation until unsatisfactory conditions have been met or corrective action has been taken.

3.2 INSTALLATION

- A. Installation shall meet the requirements of all Project Specifications.
- B. Mount all poles, pole fixtures and lighting fixtures plumb and square; keep rows in alignment and symmetrical.
- C. Connect lighting fixtures to branch circuit panel via photocell or time clock-controlled contactor as shown on the Contract Documents.
- D. Install concrete bases for site lighting poles at locations as indicated on the Contract Documents and approved shop drawings.
- E. Install poles plumb. Install double nuts to adjust plumb. Grout around each base and provide weep hole in grout.
- F. Install lamps in each luminaire.
- G. Bond and ground luminaire metal accessories and metal poles in accordance with NFPA 70 and applicable Specification Sections. Install supplementary grounding electrode at each pole.
- H. Lighting fixtures shall be located symmetrically with architectural lines and landscape features as shown on the Contract Drawings. Contractor shall furnish and install the light fixtures to allow convenient access for maintenance such as cleaning, re-lamping, and

other activities. Where light fixtures are shown in locations on the Contract Drawings that inhibits maintenance operations, the Contractor shall notify the Engineer.

- I. Contractor shall provide and install all inserts, conduit, structural supports, lamps, LED drivers, ballasts, poles, wiring, and any other items as required for a complete Lighting System. Contractor shall properly adjust and test, to the satisfaction of the Engineer, the entire Lighting System.
- J. Contractor shall furnish and install all pendant trapezes and pendant stem hangers with durable swivel or equivalent trapeze hanger permitting normal light fixture motion and self-alignment. Light fixture pendants shall be type UNJ ball type flexible hanger at the light fixture and supports from a JBLX junction box with JBLX hub cover, or approved equal. Pendant lengths shall be adequate and adjusted to provide uniformity of installation heights above the reference datum. Stems shall be one piece, with matching canopies and fittings.
- K. Light fixtures located on the exterior of the building shall be provided with neoprene gasket and stainless-steel fasteners and hardware finished to match the light fixtures.
- L. The finish or exposed metal parts of light fixtures and finish trims of all recessed light fixtures shall be as directed by the Engineer.
- M. Contractor shall furnish and install recessed light fixtures with a separate junction box concealed and located as to be accessible when the light fixture is removed.
- N. Contractor shall furnish and install all boxes for light fixtures such that the box is not the sole support of the light fixture. The boxes shall be offset to allow maintenance such that access to wiring within the box can be attained without having to consider supporting the light fixture.
- O. All lighting units, when installed, shall be set true and be free of light leaks, warps, dents, and other irregularities. All hangers, cables, supports, channels, and brackets of all kinds for safely erecting this equipment in place, shall be furnished and erected in place by the Contractor.
- P. Contractor shall install light fixtures at mounting heights indicated on the Contract Documents or the Engineer. In areas with exposed ducts and/or piping, installation of light fixtures shall be adapted to field conditions as determined by the Engineer.
- Q. Contractor shall support each light fixture securely. All light fixtures shall be secured to the building structure. Contractor shall not secure light fixtures to the work of other trades, unless specified or noted otherwise, and shall not support light fixtures to plaster. Contractor shall furnish and install all steel members and supports as required to fasten and suspended light fixtures from the structure.
- R. In all mechanical equipment areas, Contractor shall install light fixtures on the ceiling after all piping and equipment therein has been installed. Exact locations for such light fixtures may be determined by the Engineer on the site during the course of the work.
- S. Re-lamping access shall require no special tools. All optical control surfaces such as lenses and reflectors shall be safely and securely attached to lighting fixtures and shall be easily and quickly removed and replaced for cleaning without the use of tools. No light fixture part that may be removed, for maintenance, shall be held in place by metal tabs that must be bent to remove said part.

1. All lighting fixture lamps that have been used during construction shall be replaced by the contractor prior to beneficial occupancy.
- T. Pole mounted light fixtures shall be mounted on poles as designated in the lighting fixture schedule or as indicated on the Contract Documents. All metal poles shall be bonded to the site grounding system. Poles shall have adequate handholes and weatherproof receptacles where indicated.
- U. Contractor shall furnish and install switches as indicated on the Contract Documents. Switches shall be installed in accordance Specification Section 16140.
- V. Contractor shall furnish and install time switches or photocells as specified herein or indicated on the Contract Documents.
- W. All exterior light fixtures mounted on concrete or masonry shall be caulked with approved color matching compounds.

3.3 FIELD QUALITY CONTROL

- A. Clean, inspect, test, and energize Lighting Systems in accordance with applicable NECA / NEIS standards and recommendations.
- B. Verify circuit breakers designated for Lighting Systems are the proper trip unit to match values indicated on the Contract Documents and/or approved shop drawings.

3.4 LIGHTING CONTROL SYSTEM START-UP AND PROGRAMMING

- A. Upon completion of the installation, the Lighting System shall be started up and programmed by an authorized representative of the manufacturer.
- B. System Start up shall include diagnostics and manufacturer confirmation of the operation of all system programming.
- C. A certified representative from the manufacturer shall demonstrate operation of all system components to the Engineer and/or Owner before final acceptance.
- D. A certified representative from the manufacturer shall provide one (1) eight-hour (8hr) of continuous training of the Lighting System operation and function of all system components including programing instructions to the Owner's designated representatives after Engineer's approval of the system. Included in the Owner training shall be instruction manuals, programming manuals and system diagrams in order to convey a complete understating of the operation, system components functions including programming.

3.5 PROJECT CLOSE-OUT

- A. Adjustment
 1. All light fixtures that require physical adjustment shall be so adjusted in accordance with the directions of the Engineer and/or Owner. Contractor shall also adjust angular direction of light fixtures and/or lamps, as directed.
- B. Cleaning
 1. Upon completion of work, and after indoor areas are cleaned, all lighting fixtures shall be made clean and free of dust and all other foreign matter both on visible

surfaces, and on surfaces that affect the lighting performance of the light fixture including diffusers, lenses, louvers, reflectors, and lamps.

- a. Clean all luminaires and light fixture surfaces as recommended by manufacturer.
- b. Clean photometric control surfaces as recommended by manufacturer.
2. Clean finishes and touch up damage with manufacturer's approved paint or coating materials.

C. Final Acceptance

1. Contractor shall protect all light fixtures and light poles at all times. Before final acceptance, by the Engineer, all light fixtures, light poles and associated devices shall be:
 - a. Fully Operational by Control System Functionality
 - b. Free of any scraps, dents or chips in the finish
 - c. Cleaned of all dust, dirt or other material
 - d. Fully Lamped

END OF SECTION

SECTION 16671 – TRANSIENT VOLTAGE SURGE SUPPRESSION

PART 1 – GENERAL

1.01 REQUIREMENT SUMMARY

- A. Contractor shall furnish and install Surge Protective Device (SPD) equipment having the electrical characteristics, ratings and modifications as specified herein and as shown in the Contract Documents.
- B. SPD equipment shall provide effective high-energy protection against transient surges, temporary over voltages, voltage swells and high-frequency noise attenuation for power, control and telephone/data circuits 1kV or less and as shown in the Contract Documents.
- C. SPD units and all components shall be designed, manufactured and tested in accordance with the latest applicable UL standards.
- D. SPD equipment installation shall conform to local code requirements and the National Electric Code (NEC).

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. In addition to the requirements specified in this section, the requirements of Division 16 and those Project Specification Sections referenced therein shall be applied.
- B. Related Sections include but not limited to:
 - 1. 13130 – I&C CONTROL ENCLOSURES
 - 2. 16080 – ELECTRICAL TESTING
 - 3. 16060 – GROUNDING AND BONDING
 - 4. 16430 – SWITCHBOARDS
 - 5. 16435 – PANELBOARDS

1.03 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. EMI: Electromagnetic Interference
 - 2. NTRL: Nationally Recognized Testing Laboratory
 - 3. SCCR: Short Circuit Current Rating
 - 4. SPD: Surge Protection Device
- a. Type-I: Permanently connected between the secondary of the utility transformer and the line or load side of the service entrance overcurrent device and intended to be installed without an external overcurrent device.
- b. Type-II: Permanently connected to the load side of the service entrance overcurrent device including branch circuit panels.
- c. Type-III: Connected from the electrical service panel to the point of utilization with a minimum conductor length of 30 FT.
- d. Type-IV: Component and/or component assemblies.

5. SVR: Suppressed Voltage Rating
6. TOV: Temporary Over Voltage
7. TVSS: Transient Voltage Surge Suppressor

B. Codes and Standards:

1. Institute of Electrical and Electronics Engineers (IEEE):
 - a) C62.41, IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits.
 - b) C62.43, IEEE Certified by NRTL as "Secondary Surge Arrestor"
 - c) C62.45, IEEE Guide for Surge Testing for Equipment Connected to Low-Voltage AC Power.
2. International Electrotechnical Commission (IEC):
 - a) 61024, Protection of Structures against Lightning.
3. National Electrical Manufacturers Association (NEMA):
 - a) LS-1 (1992), Low Voltage Surge Protection Devices
4. National Fire Protection Association (NFPA):
 - a) NFPA 70, National Electrical Code (NEC) Article 285.
5. Underwriters Laboratories, Inc (UL):
 - a) 1283, Electromagnetic Interference Filters
 - b) 1449, Transient Voltage Surge Suppressors

1.04 SUBMITTALS

- A. Contractor shall reference and provide all documentation for all Division 16 Sections as required per Specification Sections:

1. 01310 – ADMINISTRATIVE REQUIREMENTS

B. For Engineer Review

1. Contractor shall submit written copies of all inspection and test reports.
2. Product Data: For each type of product indicated, include unit dimensions, weights, installation instructions, wiring details, rated capacities, operating characteristics, furnish specialties and accessories. Include the following data, information and/or documents:
 - a) Suppressed Voltage Rating
 - b) Symmetrical Fault Current Withstand Ratings

- c) Provide independent third-party testing lab report indicating device is capable of surviving the specified number of 8x20mSEC waveforms
 - d) Spectrum Analysis based on MIL-STD-220A test procedures between 50kHz and 200kHz verifying the device noise attenuation equals or exceeds 50dB at 100kHz
 - e) Survivability of multiple TOV events for Type-I and Type-II devices
3. Product Certificates: SPD devices, signed by third-party NRTL testing agencies certifying compliance with the following standards:
- a) ANSI / UL 1449 Third Edition 2007 Revision
 - b) IEEE C62.34 Secondary Surge Arrestor
 - c) NEMA LS-1 (1992) Low Voltage Surge Protective Devices
 - d) UL 1283 Standard for Electromagnetic Interference Filters

C. Qualifications

- 1. Third-Party testing lab or US Department of Labor/OSHA approved NRTL.
- 2. Field Quality-Control test reports, including but not limited to the following:
 - a) Test procedures used. Include single impulse testing data that matches label rating, including fuses or upstream breaker.
 - b) Test results that comply with requirements.
 - c) Failed test results and corrective actions taken to achieve requirements.

1.05 OPERATION AND MAINTENANCE MANUALS

- A. Contractor shall submit operation and maintenance manuals in accordance with the procedures and requirements set forth in the General Conditions and Division 01.
- B. Operation and Maintenance Data: For each type or series of SPD devices to include emergency, operation and maintenance manuals.

1.06 WARRANTY

- A. Manufacturer shall provide a full ten-year (10YR) warranty from the date of installation against any SPD device part failure when installed in compliance with manufacturer's written instructions and any applicable national or local codes.

1.07 IDENTIFICATION

- A. All SPD devices shall be identified as specified in Section PART 3, EXECUTION.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Advanced Protection Technologies Inc.
 2. Current Technology
 3. Eaton/ Cutler Hammer
 4. Innovative Technology
 5. General Electric
 6. Square-D

2.02 SERVICE ENTRANCE SPD (TYPE-I)

- A. Surge Protection Device Description: Modular design with field-replaceable module with EMI filtering and the following features:
1. The SPD unit tested at 200kA interrupting capacity (AIC).
 2. The SPD unit shall provide overvoltage protection as follows:
 - a. >1800 cycles at 180% of rated voltage to 0.7 OHM load
 - b. Test Report included
 3. Fabrication using bolted compression lugs for internal wiring.
 4. Utilizing copper bus bars and bolted connections to phase buses, neutral bus and ground bus.
 5. Utilizing wire connections to phase buses, neutral bus and ground bus.
 6. Integral disconnect switch capable of passing full rated surge current.
 7. Multiple suppression circuits with current sharing.
 8. LED indicator lights for power and protection status.
 9. Monitoring system capable of the following:
 - a. Number of transient surges, overvoltages and undervoltages.
 - b. Neutral-to-ground voltage and current.
 - c. EMI filter status.
 - d. Percentage of protection available.
 10. Audible alarm with silencing switch to indicate when protection has failed.
 11. Dual set of dry contacts rated at 5A and 250VAC for remote monitoring of protection status.
 12. Field testable with test data from factory provided comparison.
 13. Field replaceable surge protection modules.
- B. Peak Single-Impulse Surge Current Rating of 200kA per mode.
- C. Connection Means: Permanent
- D. Protection modes and UL 1449 SVR for voltages of 480/277V, 3-Phase, 4-Wire, grounded wye circuits shall be as follows:

1. Line to Neutral: 800V
2. Line to Ground: 1000V
3. Neutral to Ground: 900V

- E. EMI noise rejection or attenuation values shall comply with those test and evaluation procedures as outlined in NEMA LS-1 1992.

2.03 POWER DISTRIBUTION PANELBOARD/ MCC SPD (TYPE-II)

- A. Surge Protection Device Description: Modular design with field-replaceable module mounted externally to the panelboard or MCC with EMI filtering and the following features:

1. Supplied with fuses rated at 200kA interrupting capacity (AIC).
2. Fabrication using bolted compression lugs for internal wiring.
3. Utilizing copper bus bars and bolted connections to phase buses, neutral bus and ground bus.
4. Utilizing wire connections to phase buses, neutral bus and ground bus.
5. Integral disconnect switch capable of passing full rated surge current or dedicated fuse or breaker.
6. Multiple suppression circuits with current sharing.
7. LED indicator lights for power and protection status.
8. Monitoring system capable of the following:
 - a. Number of transient surges, overvoltages and undervoltages.
 - b. Neutral-to-ground voltage and current.
 - c. Percentage of protection available.
9. Audible alarm with silencing switch to indicate when protection has failed.
10. Dual set of dry contacts rated at 5A and 250VAC for remote monitoring of protection status.
11. Field testable with test data from factory provided comparison.
12. Field replaceable surge protection modules.

- B. Peak Single-Impulse Surge Current Rating of 150kA per mode.

- C. Connection Means: Permanent

- D. Protection modes and UL 1449 SVR for voltages of 480/277V, 3-Phase, 4-Wire, grounded wye circuits shall be as follows:

1. Line to Neutral: 900V
2. Line to Ground: 900V
3. Neutral to Ground: 900V

- E. EMI noise rejection or attenuation values shall comply with those test and evaluation procedures as outlined in NEMA LS-1 1992.

2.04 LIGHTING PANELBOARD SPD (TYPE-II)

- A. Surge Protection Device Description: Modular design with field-replaceable module mounted externally to the panelboard with EMI filtering and the following features:

1. Supplied with fuses rated at 200kA interrupting capacity (AIC).

2. Fabrication using bolted compression lugs for internal wiring.
 3. Utilizing copper bus bars and bolted connections to phase buses, neutral bus and ground bus.
 4. Utilizing wire connections to phase buses, neutral bus and ground bus.
 5. Integral disconnect switch capable of passing full rated surge current or dedicated fuse or breaker.
 6. Multiple suppression circuits with current sharing.
 7. LED indicator lights for power and protection status.
 8. Monitoring system capable of the following:
 - a. Number of transient surges, overvoltages and undervoltages.
 - b. Neutral-to-ground voltage and current.
 - c. Percentage of protection available.
 9. Audible alarm with silencing switch to indicate when protection has failed.
 10. Dual set of dry contacts rated at 5A and 250VAC for remote monitoring of protection status.
 11. Field testable with test data from factory provided comparison.
 12. Field replaceable surge protection modules.
- B. Peak Single-Impulse Surge Current Rating of 60kA per mode.
- C. Connection Means: Permanent
- D. Protection modes and UL 1449 SVR for voltages of 208/120V, 3-Phase, 4-Wire, grounded wye circuits shall be as follows:
1. Line to Neutral: 400V
 2. Line to Ground: 500V
 3. Neutral to Ground: 500V
- E. Protection modes and UL 1449 SVR for 240/120V, 1-Phase, 3-Wire circuits shall be as follows:
1. Line to Neutral: 400V
 2. Line to Ground: 500V
 3. Neutral to Ground: 500V
- F. EMI noise rejection or attenuation values shall comply with those test and evaluation procedures as outlined in NEMA LS-1 1992.

PART 3 – EXECUTION

3.01 INSTALLATION OF SURGE PROTECTION DEVICE (SPD)

- A. For Dual Rated Surge Protection (listed as both Surge Arrestor and SPD) for service entrance, product can be placed on either Line or Load side of the Service Entrance Equipment.
1. Provide and install circuit breakers or fuses as shown in the Contract Documents.
- B. For all remaining SPD devices:

1. Provide and install circuit breakers or fuses as shown in the Contract Documents.
- C. Install SPD devices for panelboards and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not connect neutral and ground leads together.
- D. SPD devices shall not be integrated with Switchgear or Panelboards as recommended by IEEE-1100, Section 8.4.2.5.
- E. All SPD devices shall have the raceway between the SPD and the switchgear enclosure sealed with approved fire sealant. The sealant shall prevent vapors from entering the switchgear enclosure.

3.02 PLACING EQUIPMENT INTO SERVICE

- A. Do not energize or connect service entrance equipment, panelboards, control panels or telephone/data equipment to their sources until surge protection devices are installed and connected.

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Contractor shall engage a factory-authorized service representative to perform inspections, field tests and adjustments to the equipment including all connections. Service Representative shall report results in writing to the Engineer.
 1. Verify that the electrical wiring installation complies with manufacturer's written installation instructions and requirements.
 2. After installation of SPD devices but before circuitry has been energized, test for compliance with requirements.
 3. Complete installation checks according to manufacturer's written instructions.
 4. Remove and replace malfunctioning SPD devices and retest as specified as above.

END OF SECTION

Appendix A

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis
Governor

Joseph A. Ladapo, MD, PhD
State Surgeon General

Vision: To be the Healthiest State in the Nation

September 16, 2022

ELECTRONIC CORRESPONDENCE

In the matter of an Application for Permit by:

City of Ormond Beach
Attn: Joyce Shanahan
City Manager
22 South Beach Street
Ormond Beach, FL 32174
joyce.shanahan@ormondbeach.org
chill@mckimcreed.com
sspooner@mckimcreed.com

VCHD File No. 0125747-369-WC/M1
County: Volusia

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number 0125747-369-WC/M1 for improvements at the City of Ormond Beach water treatment plant. Construction to include (1) improvements to the aerator box and updraft aerators; (2) replacement of aerator transfer pumps; (3) recarbonation tank piping improvements; (4) splitter box removal; (5) distribution box improvements, and (6) anhydrous ammonia tank and associated piping/valves/controls relocation. The facility is located at 298 Tomoka Ave., Ormond Beach, Volusia County, Florida, and the permit is issued pursuant to Section 403.861(9), Florida Statutes.

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until a subsequent order of the Department. Because the administrative hearing process is designed to formulate final agency action, the subsequent order may modify or take a different position than this action.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rules 28-106.201 and 28-106.301, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency_Clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant and persons entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the notice or within 14 days of receipt of the written notice, whichever occurs first. You cannot justifiably rely on the finality of this decision unless notice of this decision and the right of substantially affected persons to challenge this decision has been duly published or otherwise provided to all persons substantially affected by the decision. While you are not required to publish notice of this action, you may elect to do so pursuant Rule 62-110.106(10)(a).

The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under [Sections 120.569](#) and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C. If you do not publish notice of this action, this waiver may not apply to persons who have not received a clear point of entry.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency_Clerk@dep.state.fl.us, before the deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Florida Rules of Appellate Procedure 9.110 and 9.190 with the Clerk of the Department in the Office of General Counsel (Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000) and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Joyce Shanahan, City Manager
City of Ormond Beach
0125747-369-WC/M1

EXECUTION AND CLERKING

Executed in Volusia County, Florida.

DEPARTMENT OF HEALTH IN VOLUSIA COUNTY



Gabor Matrai, P.E.
Professional Engineer II
Florida Department of Health

Enclosures: Permit No. 0125747-369-WC/M1

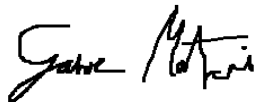
CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this permit and all copies were sent on the filing date below to the following listed persons:

Joyce Shanahan, City Manager, City of Ormond Beach [joyce.shanahan@ormondbeach.org]
Charles H. Hill, P.E., McKim & Creed, Inc. [chill@mckimcreed.com]
Scott Spooner, McKim & Creed, Inc. [sspooner@mckimcreed.com]

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.



Clerk

September 16, 2022

Date

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis
Governor

Joseph A. Ladapo, MD, PhD
State Surgeon General

Vision: To be the Healthiest State in the Nation

September 16, 2022

Permittee:

City of Ormond Beach

Attn: Joyce Shanahan

City Manager

22 South Beach St.

Ormond Beach, FL 32174

joyce.shanahan@ormondbeach.org

chill@mckimcreed.com

sspooner@mckimcreed.com

Permit Number: 0125747-369-WC/M1

Issue Date: September 16, 2022

Expiration Date: September 15, 2027

County: VOLUSIA

Project Name: 2022 Water Treatment
Plant Improvements

PWS ID: 3640963

This permit is issued under the provisions of Chapter [403](#), Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters [62-4](#), [62-550](#), [62-555](#) and [62-560](#). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT: At the City of Ormond Beach Water Treatment Plant, perform improvements to the 8.0 MGD lime softening process train (no work will take place on the 4.0 MGD low pressure reverse osmosis process train) to replace equipment at the end of its service life, improve accuracy of flow metering, improve flow control amongst the six filter bays, and to improve the condition of the ammonia tank, piping, valving, and controls. The activities are to consist of:

- Aeration system-
 - o remove and replace blowers, motors, enclosures, electrical panels, and instrumentation—(2) 30 Hp, 8,000 ACFM blowers
 - o coat aerator box interior wet well walls and ceiling – Tnemec System No. 21 Phenalkamine Epoxy
 - o remove and replace aerator transfer pumps, electrical and instrumentation – (3) Peerless horizontal split case pump (or equivalent) 50 Hp, w/VFD, +2,800 gpm at 46' TDH
 - o incorporate bridge crane
- Removal of ozone equipment inside clearwell and aerator structure (inactive over 10 years)
- Recarbonation tank internal and external piping and valving modification
- Removal of splitter box and reconstruction of distribution box (6,732 gal) to include increased box height and baffle walls (concrete, open top, 10'x10'x21'-6"H internal dimension, 16,080 gal) with three mechanical weir gates
- Relocate existing 1,000 gal. steel anhydrous ammonia tank, ammoniator, and provide new piping and valving
- Remove two Venturi meters to Claricones and replace with two 12-inch Rosemount mag meters
- Remove two Venturi meters in raw water main and replace with two 10-inch Rosemount mag meters
- Remove and replace 24-inch DIP between the recarbonation tank and distribution box with 24-inch PVC pipe.
- All chemicals, materials and components in contact with potable water to meet NSF.

The City of Ormond Beach Water Treatment Plant, **PWS ID No. 3640963**, after cleared for service by

the Department, will continue to be a **Community Public Water System** with a permitted capacity (unchanged) of 12 MGD.

IN ACCORDANCE WITH: This permit is issued based upon the dates and submissions during the application process as follows: permit application received on June 29, 2022, with additional information received through September 13, 2022, as submitted by McKim & Creed, Inc., on behalf of the City of Ormond Beach.

LOCATION: The project is located at 298 Tomoka Ave., Ormond Beach, Volusia County.

This permit does not pertain to any wastewater, storm water or dredge and fill aspects of the project. Work must be conducted in accordance with the General and Specific Conditions, attached hereto. The permittee shall be aware of and operate under the Permit Conditions below. These applicable conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes per Florida Administrative Code Rule 62-555.533(1)

A. GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permits conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup and auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
 - a. Have access to and copy any records that must be kept under conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of noncompliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
9. In accepting this permit, the permittee understand and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in rule 62-302.500, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.
11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-730.300 F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (BACT)
 - b. Determination of Prevention of significant Deterioration (PSD)
 - c. Certification of compliance with the state Water Quality Standards (Section 401, PL 92-500)
 - d. Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records

and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule

c. Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

B. Construction Activities

1. Permit Modification

All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data [F.A.C. Rule 62-555.536].

2. Professional Engineer Supervision

Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit [F.A.C. Rule 62- 555.520(3)]

3. Artifacts

If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850) 245-6333 or (800) 847-7278 as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources and the permitting agency. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

4. Delays and Extension of Permit

If delays will cause project completion to extend beyond the expiration date of this permit, the permittee shall submit to the Department a request to extend the expiration date of this permit including the appropriate processing fee. This request shall specify the reasons for delay and shall be submitted to the Department for approval prior to the expiration date of this permit. Note that no specific construction permit shall be extended so as to remain in affect longer than five years per Rule 62-555.536(4), F.A.C.

5. Permit Transfer

In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. Persons proposing to transfer this permit must apply jointly for a transfer of the permit within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service by the Department using form, 62-555.900(8), Application for Transfer of a PWS Construction Permit along with the appropriate fee. [F.A.C. Rule 62-555.536(5)]

6. Obligation to Obtain Other Permits

This permit satisfies Drinking Water permitting requirements only and does not authorize construction of operation of this distribution system prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal or local agencies.

7. Limits on Authorizing Connections

This permit is for CONSTRUCTION ONLY of the components found on page 1 of this permit. This permit shall not infer that the clearance necessary for connection will be granted. Partial clearance may be granted, if required

8. Gasoline Contamination

If gasoline contamination is found at the construction site, work shall be stopped and the proper authorities notified. With the approval of the Department, ductile iron pipe and fittings, and solvent resistant gasket materials shall be used in the contaminated area. The ductile iron pipe shall extend 100 feet beyond any solvent noted. Any contaminated soil that is excavated shall be placed on an impermeable mat, covered with waterproof covering, and held for disposal. If the site cannot be properly cleaned, then consultation with the Department is necessary prior to continuing with the project construction.

9. Wetlands Jurisdiction

This permit does not constitute approval of construction on jurisdictional wetland areas; therefore such approval must be obtained separately from the Water Management District or from DEP Environmental Resource Permitting (ERP) Section, as applicable, the permittee shall provide a copy of permit approval to the Department when water main installation involves activities on wetlands.

10. Security

Permittee shall ensure that the well and drinking water treatment facilities will be protected to prevent tampering, vandalism, and sabotage as required by Rule 62-555.315(1) & 62-555.320(5), F.A.C.

C. Construction Standards

1. National Sanitation Foundation (NSF)

All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform to National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.

2. American Water Works Association (AWWA)

Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations. The system shall be pressure and leak tested in accordance with AWWA Standard C600, C603, or C605, as applicable, and disinfected in accordance with AWWA Standard C651-C653, as well as in accordance with Rule 62-555.340, F.A.C.

3. Lead Free

The installation or repairs of any public water system, or any plumbing in residential or nonresidential facilities providing water for human consumption, which is connected to a public water system shall be lead free in accordance with Rule 62-555.322, F.A.C.

4. Asbestos

If any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Central District Office prior to commencing any such activities at (407) 897-4100. Please be aware that a notification is required to be submitted to the Department at least 10 days prior to the start of a regulated project.

5. Hazard and Reuse Setbacks

Setback distances between potable water wells and sanitary hazards shall be in accordance with 62-555.312, F.A.C. Reclaimed water land application areas must not be located within the setback distance from potable water supply wells established in Chapter 62-610, F.A.C.

6. Line Separation

Permittee shall maintain vertical clearance and horizontal separation between water mains and sanitary sewers, storm sewers, etc. unless approved otherwise by the Department, as provided in Rule 62-555.314, F.A.C. and Section 8.6 of Recommended Standards for Water Works, a manual adopted by reference in Rule 62-555.330(3), F.A.C.

7. Color Coding of Pipes

The new or altered above ground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition" [F.A.C. Rule 62-555.320(10)]

8. Cross Connections

Permittee shall ensure that there shall be no cross-connection with any non-potable water source in accordance with Rule 62-555.360, F.A.C.

D. Operational Requirements

1. Staffing

The City of Ormond Beach Water Treatment Plant has been classified as a Category I, Class A water treatment plant. Accordingly, the lead or chief operator must be Class A. Proof of staffing by a Class C or higher operator for 24 hours per day 7 days per week must be provided. [F.A.C. Rule 62-699.310]

2. Operation and Maintenance to Comply with Water Quality Standards

The supplier of water shall operate and maintain the public water system so as to comply with applicable standards in F.A.C. Rule 62-550 and 62-555.350.

3. Record Drawings

The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

4. Operations and Maintenance Manual

The permittee shall provide an operation and maintenance manual for the new or altered treatment facilities to fulfill the requirements under subsection 62-555.350(13), F.A.C. The manual shall contain operation and control procedures, and preventative maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of the subsection.

5. Monthly Operations Reports (MORs)

The permittee shall submit a monthly operations reports (MOR) DEP Form 62-555.900(3) and DEP Form 62-555.900(5) to the Department no later than the tenth of each succeeding month.

6. State Watch Office

The permittee or supplier of water shall telephone the State Watch Office (SWO), at 1-800- 320-0519 immediately (i.e., within two hours) after discovery of any actual or suspected sabotage or security breach, or any suspicious incident, involving a public water system in accordance with the F.A.C. Rule 62-555.350(10).

E. Monitoring Provisions

1. Compliance Monitoring by System Type

Permittee shall follow the guidelines of Chapters 62-550, 62-555, and 62-560, F.A.C., regarding public drinking water system standards, monitoring, reporting, permitting, construction, and operation.

This facility is a Community Water System as defined in F.A.C. Rule 62-550.200(17) and shall comply with the applicable chemical, radiological, lead and copper, and bacteriological monitoring requirements of F.A.C. Rule 62-550. Such requirements shall be initiated within the quarter that the water treatment facility is placed into service (i.e. January—March or April—June, the preceding are examples of quarters) and the results submitted to the Department.

2. **Chlorine Residual**

The water treatment plant shall maintain throughout the distribution system a minimum combined chlorine residual of 0.6 mg/l or its equivalent. A minimum system pressure of 20 psi must be maintained throughout the system. Also, safety equipment shall be provided and located outside of chlorine room.

3. **Corrosion Control/Potential Black Water**

To address copper pipe corrosion control and potential black water issues, permittee shall collect at least one sample of raw water from each new well in accordance with F.A.C. Rule 62-555.315(5). The sample shall be analyzed for alkalinity, dissolved iron, dissolved oxygen (D.O.), pH, total sulfide, and turbidity, and the results shall be submitted to the Department.

F. Clearance Requirements

4. **Clearance Letter**

The permittee must instruct the engineer of record to request system clearance from the Department within 60 days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the tests were completed more than 60 days before the Department received the results. [F.A.C. Rule 62-555.345]

Permitted construction or alteration of a public water system may not be placed into service until a letter of clearance has been issued by this Department. [F.A.C. Rule 62-555.345]

5. **Requirements to Obtain Clearance**

After submitting the permit clearance package, the permittee shall contact the Department by telephone at 386.624.0483 or by email at Renee.Slone@FLHealth.gov to establish a date/time for an inspection of the components contained in this permit:

- a. The engineer's *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components Into Operation* {DEP Form 62-555.900(9)};
- b. Certified record drawings, if there are any changes noted for the permitted project.
- c. Copy of a satisfactory pressure test of the process piping performed in accordance with AWWA Standards. [F.A.C. Rule 62-555.320(21)(a)(1)]
- d. Cut sheets/spec sheets for the equipment installed;
- e. Analytical results from two consecutive days of satisfactory bacteriological samples from locations found in paragraph 6 below;
- f. Provide evidence that the required operation and maintenance(O&M) manual for the water treatment plant is in place, which will be updated thereafter as necessary to reflect plant modifications. The manual shall contain operation and control procedures, and preventive maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of this subsection. [F.A.C. 62-555.350 (13)].

6. **Cleaning, Disinfecting, and Bacteriological Samples**

All new facilities shall be cleaned, disinfected, and bacteriologically cleared in accordance with Chapter 62-555, F.A.C. The bacteriological clearance data representative of the storage tank (two samples on consecutive days), the well discharge piping and distribution system and the untreated well water (two samples per day for 5 consecutive days collected at least six hours apart) shall be

submitted to the Department with the engineer's certification of construction. [Section 62-555.340 and 62-555.315(6)(b), F.A.C.]
Rule 62-555.340, F.A.C., and AWWA Standard C653, which is referenced in Rule 62-555.340, all newly constructed chemical feed system components should be cleaned, rinsed with disinfectant, and bacteriologically evaluated unless the system is feeding a chemical upstream of surface water filtration and disinfection facilities or is feeding a disinfectant, in which case the system need only be cleaned. However, new piping to be constructed to deliver the disinfectant to the distribution system must be disinfected.

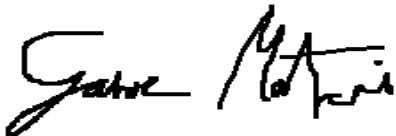
*All bacteriological sampling points shall be sampled on two separate days (at least 6 hours apart) with sample point locations and chlorine residual readings **clearly indicated** on the report. A sketch and description of all bacteriological sampling locations must also be provided. Bacteriological sample results will be considered unacceptable if the tests were completed more than 60 days before the Department receives the results*

In order to facilitate the issuance of a letter of clearance, the Department requests that all of the above information be submitted as one package.

Issued this 16th day of September 2022

STATE OF FLORIDA
FLORIDA DEPARTMENT OF HEALTH IN VOLUSIA COUNTY

Gabor Matrai, P.E.

A handwritten signature in black ink, appearing to read 'Gabor Matrai', is written over a horizontal line.

Professional Engineer II
Florida Department of Health
(386) 736-5082

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.J
Section:	CONSENT AGENDA			
Item Category:	Consent - Resolution	Res./Ord. No:		
Strategic Goal:	Water Quality & Environment – Other			
Department :	Public Works - Utilities Management			
Subject:	Intent to Bid - Pre-treatment Effluent Pumps (PEP) Purchase			
Budget Impact:	Sufficient funding for the Pretreatment Effluent Pump (PEP) purchase is available in the 2022-2023 Water & Wastewater Renewal & Replacement Fund (project# 409177).			
Summary:	This item is to inform the Commission that staff intends to go to bid for a new PEP pump contract. These pumps are necessary to maintain service to customers in the Western Service district.			
Recommended Action:	It is staff's intent to publicly advertise this pump purchase project for competitive bidding, unless otherwise directed by the City Commission.			
Staff Contact:	Bob Preis, Utilities Manager, (386) 676-3305			
Approval:				
Kelly McGuire, Finance Director		1/27/2023		
Claire Whitley, Assistant City Manager		1/30/2023		
Joyce Shanahan, City Manager		2/2/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Bob Preis, Utilities Manager
Date: February 21, 2023
Subject: Intent to Bid - Pre-treatment Effluent Pumps (PEP) Purchase
Commission Goal: Water Quality & Environment – Other

Introduction

This disposition item provides public notice of the City's intent to issue an invitation to bid for pump procurement associated with the pre-treatment effluent pump (PEP) purchase project, Bid# 2023-21.

Background

The PEP Replacement Project is described in the City's Five Year Capital Improvement Plan (CIP) and is contained in the Water & Wastewater Renewal & Replacement Budget. The wastewater system in portions of West Ormond (Hunter's Ridge/Breakaway Trails/Tymber Crossings/Saddler's Run) utilizes a low pressure pump housed within the PEP tank system for pumping liquid wastewater to a force main collection system after solids settling and biodegradation processes occur in the tank. Approximately 1,600 residential home sites are served by these systems within the described area. Approximately 200 pumps are replaced annually with scheduled and unscheduled tank rehabilitative activities.

Discussion

A contract was awarded to Alpha General Services, LLC to provide pre-treatment effluent pumps under Resolution No. 2018-39 on March 20, 2018. The term of this contract was three (3) years with two (2) one-year renewals. As a result of this contract ending, staff has prepared the attached bid document for advertisement of the City's PEP purchase conditions to include updated designated pump specifications. The City has used various pumping systems in the past and staff has determined that the Champion CPE5A-12 is the most effective and cost-efficient system available. The City typically purchases 200 pumps per year.

Budget Impact

Sufficient funding for the Pretreatment Effluent Pump (PEP) purchase is available in the 2022-2023 Water & Wastewater Renewal & Replacement Fund (project# 409177).

Citizen Impact

These pumps are necessary to provide appropriate reliability standards in the City's low pressure sewer system service area.

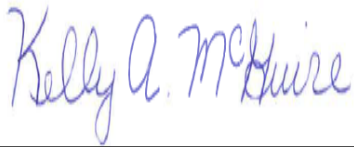
Recommendation

It is staff's intent to publicly advertise this pump purchase project for competitive bidding, unless otherwise directed by the City Commission.

Attachments:

1. BID 2023-21 Pretreatment Effluent Pump (PEP) Purchase
2. cpe_rev_1017

Approvals:



Kelly McGuire, Finance Director

Date: January 27, 2023



Claire Whitley, Assistant City Manager

Date: January 30, 2023



Joyce Shanahan, City Manager

Date: February 02, 2023



City of Ormond Beach
22 South Beach Street
Ormond Beach, Florida 32174
Telephone (386) 676-3223
Fax (386) 676-3374

INVITATION TO BID

BIDDER ACKNOWLEDGEMENT FORM

THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID

Bid Title: Pretreatment Effluent Pump (PEP) Purchase

Bid Number: 2023-21

Bid Opening Date & Time: 3/31/2023 @ 2:00 PM

Bid Opening Location: City Hall Training Room (breezeway)

Pre-Bid Meeting Date & Time: NA

Pre-Bid Meeting location: NA

Bids received after the above date and time will not be accepted.

Bidder's Name: _____

Bidder's Mailing Address: _____

City, State, Zip Code: _____

F.E.I.N or SS Number: _____

Phone Number: _____

Email: _____

If returning as "No Bid", please state the reason(s): _____

I certify that this Bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a Bid for the same materials, supplies, or equipment, and is in all respects fair and made without collusion or fraud. I agree to abide by all conditions of this Bid and certify that I am authorized to sign this Bid for the Bidder. In submitting a Bid to the City of Ormond

Beach, the Bidder offers and agrees that if the Bid is accepted, the Bidder will convey, assign or transfer to the City of Ormond Beach all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Antitrust laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the City of Ormond Beach. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the Bidder.

AUTHORIZED SIGNATURE

NAME

TITLE

DATE

GENERAL CONDITIONS

PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Bid on a contract to provide any goods or services to a public entity, may not submit a Bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit Bids on leases or real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

DISCRIMINATION: Pursuant to Section 287.134(2)(a), Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid or proposal on a contract to provide any goods or services to a public entity, may not submit a bid or proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit bid or proposal on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.

PUBLIC RECORDS/NON-CONFIDENTIALITY OF BIDS AND/OR PROPOSALS. The City of Ormond Beach cannot and does not warrant the confidentiality of any information submitted in response to this solicitation. Florida law provides that municipal records shall at all times be open for personal inspection by any person, Section 119.01, F.S., The Public Records Law. Information and materials received by the City of Ormond Beach in connection with all Proposers' response shall be deemed to be public records subject to public inspection upon award, recommendation for award, or 30 days after bid opening, whichever occurs first. Section 119.071, F.S.

NOTIFICATION OF BIDS AND RFP'S: The City uses the services of DemandStar (www.demandstar.com) for notification of its Bids and RFP's on-line on the Internet. If you have received a copy of this Bid/RFP from any source other than DemandStar, please be aware that you may not have received the latest version of the Bid/RFP or any related addendums.

SUBMISSION OF BIDS: All Bids shall be submitted in a sealed envelope. The Invitation to Bid (ITB) number, title, and opening date shall be clearly displayed on the outside of the sealed envelope. The delivery of said Bid to the Purchasing Office on or before the specified opening date and time is solely and strictly the responsibility of the Bidder. Any Bid received by the Purchasing Office after the specified date and time will not be accepted. Bids must be submitted on forms provided by the City. No other forms will be accepted. Telephone, telefax and telegraph Bids will not be considered. No Bid may be modified after opening. **No Bid may be withdrawn after opening for a period of ninety (90) days unless otherwise specified.**

EXECUTION OF BID: Bid must contain a manual signature of authorized representative in the space(s) provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by Bidder to any Bid entry must be initialed. The company name and Federal

Employer Identification Number (F.E.I.N.) or Social Security (S.S.) number shall appear in the space(s) provided.

BID OPENING: Bids shall be opened and the name of the Bidders and the bid amounts shall be read publicly. Bid amounts announced at the bid opening are subject to change due to math errors made by Bidders

BID TABULATION: Any Bidder wishing to receive a copy of the Bid tabulation is required to enclose a stamped, self-addressed envelope with their Bid response. Bid opening tabulations will be posted on DemandStar.com.

CLARIFICATION/CORRECTION OF BID ENTRY: The City of Ormond Beach reserves the right to allow for the clarification of questionable entries and for the correction of obvious mistakes.

INTERPRETATION: Any questions concerning conditions and specifications shall be directed to the Purchasing Coordinator. Those interpretations which may affect the eventual outcome of this Bid will be furnished in writing to all prospective Bidders. No interpretation shall be considered binding unless provided in writing by the City of Ormond Beach.

MINORITY POLICIES: The City of Ormond Beach, Florida, encourages the full participation of Disadvantaged and Women Business Enterprises (D&WBE) in the provision of goods and services.

REGISTRATION AND RISK MANAGEMENT REQUIREMENTS: Any Vendor delivering a product or Contractor doing work for the City of Ormond Beach, on City property shall be **registered** to do business in the City of Ormond Beach and shall provide **proof of**, abide by and maintain, for the entire life of the Contractual Agreement, including any and all approved time extensions, such **insurance** as is required by City ordinance, which shall be incorporated in and made part of the contract documents. A vendor using a common carrier is exempt from this requirement. This proof of insurance will be required prior to commencement of any **on-site** work. Refer to **Exhibit A** for the City's registration and risk management requirements.

LICENSES AND PERMITS: The vendor is responsible for obtaining all necessary permits and licenses to comply with all Federal, State, and Local laws, rules and regulations required to perform work in accordance with the specifications.

LOCAL VENDOR PREFERENCE: The City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded. A Local Vendor Affidavit of Eligibility shall accompany the bid submittal to be considered valid.

PRICING: Firm prices shall be proposed and include FOB DESTINATION, all packing, handling, shipping charges and delivery to any point within the City of Ormond Beach to a secure area or inside delivery. Prices shall be valid for ninety (90) days from date of Bid opening. In the event there is a discrepancy between the unit price and the extended amount, the unit price will prevail.

COST OF BID PREPARATION: No reimbursement will be made by the City of Ormond Beach for any costs incurred in the preparation of the Bid, proposal or presentation.

EQUIPMENT: Contractor shall own and have in good repair all equipment necessary to perform the described services in particular and the equipment necessary to complete related tasks. The City will not provide any equipment to do this work.

COST ADJUSTMENTS: No later than June 1, of each contract year, the Contractor may petition the City through the Contract Manager for a rate adjustment to reflect the change in the cost of doing business, as measured by fluctuations in the Consumer Price Index (CPI), All Urban Customers, published by the U.S. Department of Labor, Bureau of Labor Statistics, for the preceding July 1-June 30 period. The maximum increase for any annual period shall be four (4%) percent which will only apply to the future year, increases will not be retroactive. The adjusted rate, if approved shall take effect on October 1, of the year in which approved.

ADDITIONAL TERMS AND CONDITIONS: The City of Ormond Beach reserves the right to reject Bids containing any additional terms or conditions not specifically requested in the original conditions and specifications.

TAXES: The City of Ormond Beach is exempt from Federal Excise Taxes and all sales taxes. The Contractor is responsible for paying any and all taxes associated with this agreement.

DISCOUNTS: All discounts EXCEPT THOSE FOR PROMPT PAYMENT shall be considered in determining the lowest net cost for Bid evaluation purposes. If a Bidder offers a discount, it is understood that the discount time will be computed from the date of satisfactory delivery, at the place of acceptance, and receipt of correct invoice, at the office specified, whichever occurs last.

SILENCE OF SPECIFICATIONS: The apparent silence of any specification and any supplemental specifications as to any details or the omission from same of any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size, and design are to be used. All workmanship is to be first quality. All interpretations of the specifications shall be made upon the basis of this statement.

ASSIGNMENT: Any purchase order or contract issued pursuant to a Bid and the monies which may become due thereunder are not assignable except with the prior written approval of the City Manager or City Commission, whichever authorized the purchase.

LIABILITY: The vendor shall hold and save the City of Ormond Beach, its officers, agents, and employees harmless against claims by third parties resulting from the vendor's or supplier's breach of contract or negligence, including all attorney's fees and costs, and shall pay any and all damages, fees, and costs assessed on behalf of the City. The City expressly reserves all rights, privileges and benefits of sovereign immunity.

PATENTS AND ROYALTIES: The Bidder, without exception, shall indemnify and save harmless the City of Ormond Beach and its employees from liability of any kind, including cost and expenses for or

on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Ormond Beach. If the Bidder uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the Bid prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

SAFETY WARRANTY: The selling dealer, distributor, supplier, and manufacturer shall be responsible for compliance with all Federal, State and local laws, rules and regulations concerning the equipment and/or service specified and the use thereof, applicable and effective on the date of manufacture including safety and environmental standards as apply to both private industry and governmental agencies.

WARRANTY: The Bidder agrees that, unless otherwise specified, the services furnished under the Bid shall be covered by the most favorable commercial warranty for comparable services, and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the City of Ormond Beach by other provision of the Bid.

AWARDS: The City reserves the right, in its sole discretion, as the best interest of the City may require, to make award(s) by individual item, group of items, all or none, or a combination thereof; on a geographical basis and/or with one or more vendors or contractors; or to reject any and all Bids or waive any minor irregularity or technicality in the Bids received. The City is not bound to award any contract(s) based solely on lowest quoted price. The City also reserves the right to negotiate separately with competing bidders as deemed to be in the City's best interest.

REJECTIONS RIGHTS: The City of Ormond Beach reserves the right, at any time, to modify, waive or otherwise vary the terms and conditions of this Bid including, but not limited to, the deadlines for submission and submission requirements. The City further reserves the right to reject any or all submittals, to cancel or withdraw this Bid at any time and to negotiate with any party prior to or after submittal of Bid.

TERMINATION: The City of Ormond Beach reserves the right to terminate any contract or agreement resulting from this BID at any time.

PURCHASE ORDERS: Purchase Orders will be issued for all purchases exceeding \$2,500.00.

NON-APPROPRIATION OF FUNDS: In the event sufficient budget funds are not available for a new fiscal period, the CITY shall notify the VENDOR/CONTRACTOR of such occurrence and the contract shall terminate on the last day of the current fiscal period, without any penalty or expense to the CITY of any kind whatsoever.

OTHER AGENCIES: All Bidder(s) awarded contracts from this bid or proposal may, permit any municipality or other government agency to participate in the contract under the same prices, terms, and conditions, if agreed to by both parties.

It is understood that at no time will any city, municipality, or other agency be obligated for placing an order for any other city, municipality, or agency: nor will any city, municipality, or agency be obligated for any bills incurred by any other city, municipality, or agency. Further, it is understood that each agency will issue its own purchase orders to the awarded bidder(s).

COMPLIANCE WITH FLORIDA PUBLIC RECORDS LAW:

Contractor expressly agrees that it shall comply with the public records law provided in Florida Statutes, Chapter 119, and specifically to:

- (a) Keep and maintain public records required by the City to perform the contracted service.
- (b) Upon request from the City Clerk, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- (c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the City.
- (d) Upon completion of the contract, transfer at no cost, to the City all public records in possession of the contractor or keep and maintain public records required by the City to perform the service. If the contractor transfers all public records to the City upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon the completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City Clerk, in a format that is compatible with the information technology systems of the City.
- (e) Failure of the Contractor to comply with Public Records Law as provided by Florida Statutes, Chapter 119, shall subject the Contractor to penalties under Chapter 119.10 and subject this Agreement to termination for cause by the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**CITY CLERK
22 SOUTH BEACH STREET
ORMOND BEACH, FLORIDA 32174**

(386)677-0311

CITYCLERK@ORMONDBEACH.ORG

or online at

<https://www.ormondbeach.org/prr>

Ref: Fla. Stat. §119.0701(2016)

THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, AND TO WAIVE INFORMALITIES, AS MAY BE DEEMED TO BE IN THE BEST INTEREST OF THE CITY.

DEFINITIONS:

BIDDER - The term used herein refers to any individual, company or other entity submitting a Bid to the CITY in response to an Invitation to Bid (ITB).

CITY/OWNER - The terms CITY or OWNER herein refers to the City of Ormond Beach, Florida, and its duly authorized representatives.

CONTRACT MANAGER - The term refers to the CITY representative(s) who will be acting on the CITY's part to manage all the Contract actions.

FURNISH - The terms "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install, complete in place and ready for service".

PROJECT - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

PROJECT MANUAL - The term "Project Manual" includes Bid Requirements, General Conditions, Scope of Work, Specifications, Risk Management requirements and any associated attachments.

SPECIFICATIONS - The term refers to those portions of the Project Manual consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

SUPPLIER - The term used herein refers to any individual, company or other entity supplying services pursuant to the terms, conditions, and quotations of a Bid or Proposal.

VENDOR, CONTRACTOR, or VENDOR/CONTRACTOR - The term(s) used herein refers to any individual, company, or other entity that is awarded a contract by the CITY, pursuant to the terms, conditions, and quotations of a bid/proposal.

WORK - The entire, completed job or the various separately identifiable parts thereof, required to be furnished under the Contract Documents. Work is the result of providing goods and/or services, furnishing labor and/or furnishing and incorporating materials and equipment into the construction, as required by the Contract Documents.

City of Ormond Beach

Pretreatment Effluent Pump (PEP) Purchase

Bid 2023-21

BID RESPONSE FORM

THIS BID IS SUBMITTED TO:

(Name and Address of Owner)

Purchasing Coordinator
City of Ormond Beach
22 S. Beach Street
Room 101
Ormond Beach, Florida
32174
Phone: (386) 676-3223

The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with the CITY in the form included in the Bid Documents to complete all Work as specified or indicated in the Bid Documents for the Contract Price and within the Contract Time indicated in this Bid and in full accordance with the Bid Documents.

BIDDER certifies that he has investigated the requirements to do business in the jurisdiction where the project is located, and that he is either qualified to do business or will obtain such prequalification prior to award of the contract.

BIDDER accepts all of the terms and conditions of the General Conditions. BIDDER will sign the Agreement (Contract) and submit the Contract security (when applicable) and other documents required by the Contract Documents within ten (10) days after the date of CITY's Notice of Award.

In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

BIDDER has examined copies of all the Bid Documents and of the following Addenda:

Addendum Date

Addendum Number

Receipt of all of which is hereby acknowledged.

BIDDER has examined the site and locality where the Work is to be performed, when applicable, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.

This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over the CITY.

THIS BID IS SUBMITTED BY:

COMPANY NAME: _____

VENDOR/CONTRACTOR LICENSE NUMBER: _____

ADDRESS: _____

PHONE NO.: _____

EMAIL: _____

SUBMITTER'S NAME: _____

(Typed or Printed in Ink)

TITLE: _____

AUTHORIZED SIGNATURE: I, _____ hereby

(Original Signature)

declare that I have read and fully understand the Invitation to Bid, including the General Conditions, Specifications and Drawings (when applicable) and that I am duly authorized to sign and submit this bid.

The CITY reserves the right to reject any and all bids, to waive informalities, and to accept any bid or parts thereof as the CITY, in its sole discretion, determines to be in the best interest of the CITY.

City of Ormond Beach

Pretreatment Effluent Pump (PEP) Purchase

Bid 2023-21

GENERAL INSTRUCTIONS:

Bid Delivery: Submit one (1) signed and unbound original of the complete Bid packet and one (1) electronic file in pdf format, with all required attachments, by the closing date and time. Deliver Bids to:

Rob Hart
Purchasing Coordinator
Ormond Beach City Hall
Room 101
22 South Beach Street
Ormond Beach, Florida 32174

Make sure the bid number is clearly visible on the outside of the delivery package. Bids delivered after the time and date specified will not be accepted. For any question regarding bid delivery contact the purchasing office at 386-676-3223 or email rob.hart@ormondbeach.org

Technical Questions: Submit all technical questions regarding this Bid to the City's Purchasing Coordinator, Rob Hart, by e-mailing rob.hart@ormondbeach.org.

TERM OF AGREEMENT:

The initial term of this Agreement shall be for a period of **two (2) year beginning October 1, 2023 and ending September 30, 2024** and will be automatically renewed for three additional **one (1) year** periods unless either party provides at least ninety (90) days prior written notice to the other party of their intent not to renew the Agreement.

SCOPE OF WORK:

GENERAL

The City of Ormond Beach invites qualified vendors to submit bids to supply and deliver approximately 130 septic tank effluent pumps on an annual basis to the public works facility located at 501 North Orchard Street. The minimum quantity delivered at one time shall be 20 pumps. Delivery will be accepted when and as needed.

SPECIFICATIONS FOR SEPTIC TANK EFFLUENT PUMPS

PUMP PERFORMANCE REQUIREMENTS

Pumps shall be capable of delivering at or near 20 GPM at 50 TDH, 30 GPM at 40 Feet TDH with a shut off head of 60 TDH. The pump and control assembly shall weigh no more than 60 pounds. The pump(s) shall be designed to pump waste water or effluent containing a minimum 0.75 inch diameter solids without damage during operation. The pump(s) shall be designed so that the shaft power shall not exceed the motor rated output throughout the entire operating range of the pump performance curve. The pumps shall be manufactured by a company regularly engaged in the manufacture and assembly of similar units for a minimum of 5 years. Pumps shall be supplied with a (pump on / pump off) water tight level control float. A fused disconnect switch or circuit breaker is all that shall be required above the sump.

Pumps shall be Champion CPEH5A or equivalent.

MATERIALS OF CONSTRUCTION

The upper volute, seal plates and motor housing shall be constructed of high quality ASTM A-48 class 20-30 cast iron or 304 stainless steel. Cast iron pump (s) shall be painted with a water based air dry enamel of 2.0 mil minimum thickness. All exposed hardware shall be 300 stainless steel. Discharge connection shall be a standard 2" inch NPT in the vertical position. Impellers shall be of the vaned enclosed or vortex design made of plastic or equivalent material.

MECHANICAL SEAL

The unit shall utilize a minimum single Type 21 or equal mechanical shaft seal which will operate in an oil atmosphere. The materials of construction shall be carbon for the rotating face and ceramic for the stationary face, 300 series stainless steel hardware, and all elastomer parts to be of Buna-N.

MOTOR

The pump motor shall be 115V, 60 Hz. 3450 RPM , single phase maximum 0.50 Hp and shall be minimum NEMA L rated for submersible operation. Motor(s) shall be rated at full load amps, shall have a 1.15 service factor and shall be rated for 20 starts per hour. Motor(s) shall be oil filled, copper wound, minimum class B insulated with built in over amperage protection. Motor shaft shall be stainless steel and shall be supported by two permanently lubricated or oil bath type, high temperature ball bearings, with a B-10 life rating at best efficiency point of 60,000 hours.

POWER CABLE AND CABLE ENTRANCE

The pump power cable shall be at 20 feet in length and suitable for submersible pump applications. The cable entrance shall incorporate strain relief and shall be sealed to eliminate water incursion into the motor.

DRY RUN CAPABILITY

The pump must be capable of running dry in air for extended periods without damage.

SUBMITTAL REQUIREMENTS

The following documentation is required to be submitted with the bid:

- a. Pump catalog data
- b. Pump performance curve
- c. Typical installation drawing
- d. Liquid level float control system

BID SCHEDULE

Description	Unit price
Furnish Pretreatment Effluent Pumps, FOB	

EQUIPMENT AND SUBCONTRACTORS LIST

List the names of the manufacturers whose product is proposed for use. No more than one manufacturer's name shall be inserted for each item of material and/or equipment listed. Failure to list materials and equipment supplier may result in the Bid being rejected as incomplete and nonresponsive. If any Subcontractors are proposed to be used for any portions of the Work, the names, addresses, phone numbers and work classifications of each such Subcontractor must be listed. The failure to list all Subcontractors proposed for the work may result in the Bid being rejected as incomplete and nonresponsive. If more than one manufacturer or subcontractor is listed, selection will be made by the OWNER. If none is listed, those listed as the "Basis for Design" will be used.

Materials and Equipment:

Item

Supplier

Pumps

BIDS:

All bids submitted shall be a delivered price. Bids shall be F.O.B. the City of Ormond Beach Public Works Department, 501 North Orchard Street, Ormond Beach, Florida. Bidders must comply with the insurance and risk management requirements of the City of Ormond Beach, attached to this specification as Exhibit A.

IN THE EVENT THE SUPPLIER IS UNABLE TO SUPPLY, THE CITY OF ORMOND BEACH RESERVES THE RIGHT TO PURCHASE SUPPLIES FROM THE BEST AVAILABLE SOURCE.

City of Ormond Beach

Pretreatment Effluent Pump (PEP) Purchase

BID 2023-21

VERIFICATION OF EMPLOYMENT STATUS USING E-VERIFY SYSTEM

1. Undersigned firm warrants it **IS** currently registered with the U.S. Department of Homeland Security's E-Verify system, **and** is compliant with the requirements of Sections 448.09 and 448.095, *Florida Statutes*.
2. Undersigned firm warrants it **has not** had any contracts terminated as a result of violations of Sections 448.09 or 448.095, *Florida Statutes*, that prohibit it from contracting with a public agency.
3. Undersigned firm warrants that if it enters into an agreement with a subcontractor, an express provision shall be included in all of its subcontracts requiring subcontractors, who perform work or provide services pursuant to the contract, to use the E-Verify system to verify employment eligibility of all new employees hired by the subcontractor during the contract term.
4. Undersigned firm understands that any subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and the contractor understands it shall maintain any such affidavits for the duration of the contract, and the contract with the subcontractor must be immediately terminated if the City has a good faith belief that the subcontractor knowingly violated Section 448.09 (1), *Florida Statutes*.
5. Undersigned firm understands that in the event the City has a good faith belief that the contractor has knowingly violated Section 448.09 (1), *Florida Statutes*, the City shall terminate the contract, and the contractor may not be awarded a public contract for a period of at least one (1) year after the date of termination. The contractor may be held liable for any additional costs incurred by the City as a result of termination of the contract.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME

TITLE

DATE

City of Ormond Beach

Pretreatment Effluent Pump (PEP) Purchase

BID 2023-21

CITY OF ORMOND BEACH, FLORIDA

**CONFLICT, NON-CONFLICT OF INTEREST STATEMENT
LITIGATION STATEMENT**

1.

- ☐ To the best of our knowledge, the undersigned firm has no potential conflicts of interest due to any other clients or contracts for this project.
- ☐ The undersigned firm, by attachment to this form, submits information which may be a potential conflict of interest due to other clients or contracts for this project.

2.

- ☐ The undersigned firm has had no litigation on any project in the last five (5) years.
- ☐ The undersigned firm, by attachment to this form, submits a summary and disposition of individual cases of litigation during the past five (5) years.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

TITLE

DATE

CITY OF ORMOND BEACH

DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL OR "TIE" BID: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more Bids which are equal in respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a Bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie Bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violation.

Give each employee that engages in providing the commodities or contractual services that are under proposal a copy of the statement specified in subsection (1).

In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) calendar days after such conviction.

Impose sanctions on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

COMPANY NAME

AUTHORIZED SIGNATURE

NAME (PRINT OR TYPE)

DATE

LOCAL VENDOR PREFERENCE

The following is taken from the Code of Ordinances, City of Ormond Beach, Chapter 2, Financial Matters, Division 3, Purchasing, Article IX, Section 2-304:

Except where otherwise provided by federal or state law or other funding source restrictions, purchases of goods and services under the Purchasing Code shall give preference to local businesses as follows:

- (a) Under a competitive bid solicitation, the City *may* give a local preference in the amount of three percent (3%) of the bid price or \$25,000, whichever is less. The bid price shall include not only the base bid price but all alternatives which are part of the bid and actually purchased or awarded.
- (b) A *local business* shall mean a vendor that has a valid occupational license issued by the City of Ormond Beach at least one year prior to bid opening, with a physical business address located within the municipal boundaries of the City of Ormond Beach from which the vendor operates or performs business on a day-to-day basis that is a substantial component of the goods or services being offered and has provided a Local Vendor Affidavit of Eligibility at the time the bid is submitted.
- (c) A *Local Vendor Affidavit of Eligibility* shall accompany the bid submittal to be considered valid and shall include, but not be limited to, the following information:
 - (1) A physical business and location address;
 - (2) A copy of current City of Ormond Beach Local Business Tax Receipt (occupational license) to verify the business location;
 - (3) Proof of payment of business tax and real property tax due to the City of Ormond Beach;
 - (4) A copy of the firm's most recent annual corporation report to the Florida Division of Corporations;
 - (5) Any additional information necessary to verify local status.
- (d) *Exemptions:* Goods or services provided under a cooperative purchasing agreement, contracts for professional services subject to Consultants' Competitive Negotiation Act, purchases or contracts funded in whole or part by a governmental entity that does not allow local preferences, purchases made under another agency's agreements or contracts (piggybacking), purchases under emergency or sole source situations and procurements subject to formal proposals including but not limited to request for proposals (RFP) or continuing contract, and request for quotes (RFQ) versus straight competitive bids.
- (e) This section shall not be deemed to require the granting of a local preference, and nothing herein prohibits the award of a contract to a non-local vendor where such award is in the public interest.



Local Vendor Affidavit of Eligibility

I certify that my company meets all of the following qualifications to be eligible for the local vendor preference:

- My company has a physical business address located within the municipal boundaries of the City of Ormond Beach which is used to perform business on a day-to-day basis.
- My company holds any business (occupational) or contractor license required by the City of Ormond Beach at least one year prior to bid opening.
- Payment of business tax and real property tax due to the City of Ormond Beach is current
- My company is in compliance with annual reporting to the Florida Division of Corporations

Company Name: _____

Address: _____

Business or Contractor License Number: _____

Phone Number: _____ Fax Number: _____

Owner's Name: _____ Signature: _____

Sworn to before me this _____ day of _____

Notary Public for the State of _____ My Commission Expires _____

Notary Public Signature: _____ Printed Name: _____

To be approved as a local bidder and receive bid preference on an eligible local project, this affidavit of eligibility, a copy of your local business or contractor license, copy of business tax/real property tax and a copy of the firm's most recent annual corporation report must be submitted with your bonafide BID package. Bid preference is provided at the City's sole discretion.

VENDOR DO NOT COMPLETE BELOW

To be verified and completed by an authorized representative of the City of Ormond Beach's Purchasing Department:

Vendor Certified by: _____ **Date:** _____

EXHIBIT "A"

A. Payment and Performance Bonds

1. Except as otherwise provided herein, the Contractor shall, prior to beginning performance, deliver to the City, and the City shall record in the public records of Volusia County, Florida, the Contractor's Payment and Performance Bond in an amount equal to the full amount of the Contract.
2.
 - (a) Payment and Performance Bonds shall not be required for any contract except those which are for the construction of a public building, for the prosecution and completion of a public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time) or for repairs upon a public building or public work (as described in Section 180.06, **Florida Statutes**, as amended from time to time).
 - (b) With respect to those Contracts for which Payment and Performance Bonds are otherwise required:
 - i. Unless the City Manager, or designee, determines such Bond to be necessary to protect the interests of the City, no Contractor shall be required to provide a Payment and Performance Bond for any Contract which is for \$25,000.00 or less.
 - ii. Upon the request of the contractor, good cause shown by the Contractor, and a determination that the public health, safety and welfare will be sufficiently protected, the City Commission may exempt the contractor from the requirement of providing a Payment and Performance Bond for any Contract which is for more than \$25,000.00 but is less than \$200,000.00.
3. The Payment and Performance Bond shall list the Contractor as Principal and be issued by a surety insurer authorized to do business in Florida as a surety and listed as an acceptable surety in the Federal Register.
4. The Payment and Performance Bond shall be executed pursuant to Section 255.05, **Florida Statutes**, and be in a form substantially similar to the form set forth in Section 255.05(3), **Florida Statutes**.
5. The Payment and Performance Bond shall specifically provide coverage for delay damages due to a default by the Contractor.
6. The Payment and Performance Bond shall not make the Contract part of the Bond agreement.
7. In lieu of the Payment and Performance Bond, the Contractor may file with the Finance Director of the City, in an amount equal to the full amount of the Contract, cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in Part II, Chapter 625, **Florida Statutes**.

8. In the event the surety on any Payment and Performance Bond furnished by the Contractor is declared bankrupt or becomes insolvent, or its right to do business in the State of Florida is terminated, the Contractor shall, within five (5) working days thereafter, substitute another Payment and Performance Bond and surety acceptable to the City.
9. The Contractor is totally and solely responsible for keeping its surety informed as to the Base Contract Price as bid, significant changes in the Project Scope, and the overall progress and completion of the Project for the entire life of the Contract.
10. The payment and performance bond requirements stated herein above shall not be applicable to service-related contracts unless otherwise determined by the City Manager in order to protect the health, safety and welfare of the general public.

B. Contractual Provisions Relative to Risk Management

All contracts for any public works to be performed, and service-related contracts, for or on behalf of the City shall include at a minimum, the following, or substantially similar, provisions:

1. Hold Harmless and Indemnity

The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the Contractor in the performance of this Contract. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this provision.

2. Payment on Behalf of City

The Contractor shall pay all costs of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph.

Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

3. Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees and property. The Contractor shall comply with all applicable laws, regulations and ordinances related to safety and health, shall make special efforts to detect hazardous conditions, and shall take prompt action when loss control/safety measures are reasonably necessary.

The City may order work to be stopped if conditions exist that present an immediate danger to persons or property. The Contractor acknowledges that such work stoppage will not shift responsibility for any damages from the Contractor to the City.

4. Service Bond

For Service-related contracts only, the City may require the Contractor to secure a service bond with a minimum \$25,000 coverage limit for the period of the service agreement. The service bond covers dishonest acts of the contractor's employees against the City. A copy of the bond shall be provided to the City when the agreement commences.

Service-related contracts include and are not limited to businesses providing janitorial, pest control, general repair, security, carpet cleaning, locksmith, temporary employment, painting, moving services or other contracts as determined in the discretion of the Risk Manager as necessary to minimize loss.

C. Contractor's Insurance

1. General

The Contractor, including service-related contractors, shall purchase and maintain for the entire life of the Project, including any and all approved time extensions, until its final acceptance by the City, such insurance as will protect the Contractor from claims under Workers' Compensation, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees; from claims insured by usual or unusual injury liability coverage; from claims or injury to or destruction of tangible property and from claims insured by usual Commercial General Liability coverage. This includes loss of use resulting therefrom, any or all of which may arise out of the Contractor's operations under the Contract Documents, whether such operations be by the Contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. The Contractor's deductibles/self-insured retentions shall be disclosed to the City and may be disapproved by the City, and may be reduced or eliminated at the sole discretion of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

2. Types of Insurance and Limits of Liability

The insurance required herein shall be written for not less than any limits of liability specified and incorporated as part of the Contract Documents or as required by law, whichever is greater, and shall include and not limited to the following:

- (a)** Workers' Compensation Insurance in statutory limits for the State of Florida with Coverage B - Employer's Liability limits of not less than:

\$100,000 Each Accident Bodily Injury by Accident

\$100,000 Each Employee Bodily Injury by Disease
\$500,000 Policy Limit Bodily Injury by Disease

Certificate of Exemptions. If the contractor has a State-issued Certificate of Exemption, the contractor may provide a copy in place of the requirement for coverage. However, if the contractor subcontracts or retains any other person or entity to perform under the contract, that person or entity must provide proof of workers' compensation insurance as required by law or provide a Certificate of Exemption.

It is the intent of the City that any individual who either contracts directly with the city or performs any work on behalf of any such contractor be covered by workers' compensation insurance or have a valid exemption from said coverage.

(If applicable to the Project, the policy must include benefits under the United States Longshoremen's and Harbor Workers' Act and the Jones Act coverage--all maritime coverage.)

(b) Commercial General Liability Insurance shall be written on a coverage form as broad as Insurance Services Office (ISO) Form CG 00 01 11 85, or its successor form, including but not limited to the following coverage (any deviation shall be noted on the Certificates of Insurance):

- a. Premises, Operations, Products and Completed Operations
- b. Owners' & Contractors' Protective
- c. Products & Completed Operation
- d. Explosion, Collapse & Underground Conditions
- e. Blanket Contractual Liability
- f. Personal Injury Liability
- g. Broad Form Property Damage Endorsement, including Completed Operations
- h. Independent Contractors
- i. Watercraft--Owned and Non-Owned (if applicable, endorsement must be included in General Liability policy or a separate Protection & Indemnity Policy must be written)
- j. Pollution Liability (if applicable)
- k. Asbestos Abatement (if applicable)
- l. Fire Damage Liability

Certain coverage outlined above may not be required if they do not relate to the Project, as may be determined at the sole discretion of the City.

Commercial General Liability Coverage shall be written on an occurrence basis and the limits shall be no less and not limited to the following amounts:

Limits (not less than)

\$1 Million Each Occurrence

\$2 Million General Aggregate
\$1 Million Aggregate Products & Completed Operations

NOTE: Commercial General Liability Coverage must be purchased on either a project basis (separate policy per contract) or an endorsement allocating an aggregate limit per location or specified project.

- (c) Automobile Liability Insurance is required if an Automobile(s) is used in the performance of the contract.

ISO Symbol 1 (Any Auto), or alternatively a combination of Symbol 2 (Owned Autos), Symbol 8 (Hired Autos), and Symbol 9 (Non-Owned Autos), and limits shall be no less than:

\$1 Million Combined Single Limit for Bodily Injury
and Property Damage

- (d) Excess Liability

For contracts \$250,000 or greater an Excess Liability Policy of at least but not limited to \$1,000,000 in addition to the scheduled underlying policies for Commercial General Liability, Automobile Liability and Employers' Liability, the Contractor shall also provide an Excess Liability Policy with a maximum self-insured retention not to exceed \$25,0000 per occurrence.

- (e) Builder's Risk

Contractor shall purchase Builder's Risk Insurance for any contracts that are deemed to be vertical construction on an All-Risk policy, and shall also include coverage for wind, hail, and named storm. Limits of coverage shall be at least and not limited to the value of the project.

- (f) Professional Liability, Malpractice and/or Errors and Omissions

The Contractor shall purchase and maintain professional liability, malpractice, or errors or omissions insurance with minimum limits of \$1,000,000 per occurrence. If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts. Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great a duration as is available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provides a retroactive date no later than the inception date of claims made coverage.

D. Requirements for Certificates of Insurance

1. With the execution of the Contract Documents, the Contractor, including service-related contractors, shall provide certificates of such insurance acceptable to the City. These certificates and insurance policies shall contain an endorsement that the coverage under the policies will not be canceled, non-renewed or materially changed until at least thirty (30) days' prior written notice of such cancellation, non-renewal or change (except for nonpayment of premium, which shall be ten (10) days) and a copy of the cancellation endorsement signed by an authorized representative of the insurer, be given to the City. The contractor shall be required to replace any expired or canceled policies in like amount and coverage to the satisfaction of the City. The Certificate of Insurance shall be the ACORD FORM 25-S (7/90), or its successor form, and shall be made a part of the Contract Documents.
2. New certificates of insurance shall be provided to the City at least fifteen (15) days prior to coverage renewals.
3. If requested by the City, the contractor shall immediately furnish complete copies of the Contractor's insurance policies, forms and endorsements.
4. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage. If the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit may be required by the City for the given contract.
5. If the Contractor fails to obtain and maintain for the life of the Project the insurance required hereby or to replace any such expired or canceled policy, the City may obtain and maintain such insurance with such company as it deems satisfactory. Any amounts expended by the City in payment of premiums for such insurance shall be deducted by the City from the amount due the Contractor for the work covered by the Contract.

E. Policies of Insurance

1. Except as otherwise provided in this Exhibit, all insurance policies shall be issued by insurers licensed to do business in the State of Florida on an admitted basis or which is an eligible surplus lines insurer in the State of Florida, and any such insuring company is required to have a minimum financial rating of (A-), in the latest edition of "Best's Key Rating Guide", published by A. M. Best Co., Inc., or some similarly nationally recognized rating authority, including Standard and Poors and Demotech.
2. For Workers' Compensation coverage only, self-insurance programs are acceptable with a minimum A- rated reinsurance carrier; written confirmation is required.
3. All policies of insurance or certificates thereof referred to in this Exhibit shall be deposited with the City Clerk.

4. The City shall be named an Additional Insured on General Liability including products and completed operations and Automobile Liability policies of insurance and certificates thereof.

REGISTRATION REQUIREMENTS FOR VENDOR/CONTRACTOR WORKING ON CITY PROJECTS

Registration Requirements

VENDORS doing business within the City Limits must be registered with the City.

Requirements for registering a business are as follows:

Copy of City Business Tax Receipt (where your business is located).

Certificate of Insurance showing General Liability and Workers' Comp (or State Workers' Comp Exemption form).

Application Fee: \$25.00 For more information, contact the City's Business Tax Receipt official.

State Certified/Registered Contractors

All registered contractors must be registered with Volusia County. Volusia County Contractor Licensing, 123 W. Indiana Ave., Rm 203, Deland, FL 32720 (386) 736-5957 Opt. 2 – (386) 740-5215 Fax. Certified Contractors have the option of registering with Volusia County, or providing information directly to the business tax receipt official.

If you have any questions regarding the above requirements, please contact the business tax receipt official at (386) 676-3234.

Every pump tested in water to ensure pump meets performance curve.



FEATURES/BENEFITS

PERFORMANCE

- Heads up to 65' TDH
- Flows up to 86 GPM

MOTOR

- High efficient, 115v or 230v, oil filled, permanent split capacitor motor with upper and lower ball bearings and thermal overload protection
- Constant bearing lubrication
- Maximum motor cooling
- Runs cooler and lasts longer
- Internal overload protection
- Quiet operation
- Fasteners and shaft made from rugged, corrosion resistant stainless steel

SEAL DESIGN

- Type 21 inboard seal design with secondary exclusion seal
- Rotating components of seal are in the motor housing, being lubricated by the motor oil preventing foreign matter from wrapping around the seal components
- Seal will last longer if the pump runs dry
- Secondary exclusion seal keeps debris from entering the seal cavity

IMPELLER DESIGN

- Non-clog style, cast-iron vortex impeller (CPEH Thermoplastic Vortex)
- Designed to help reduce clogging by foreign material

POWER CORD

- Sealed entry quick disconnect power cords
- Prevents water from entering the motor housing through a cut cord
- Easy to replace in the field
- Available in lengths up to 100'

SWITCH

- Piggy-back switch design
- Defective switches can be diagnosed over the phone
- Pump can be operated manually or supplied with other piggy-back switches
- Switch can be replaced without having to replace the pump

APPLICATIONS

Dewatering, septic systems, residential and commercial developments, elevator pits and STEP systems



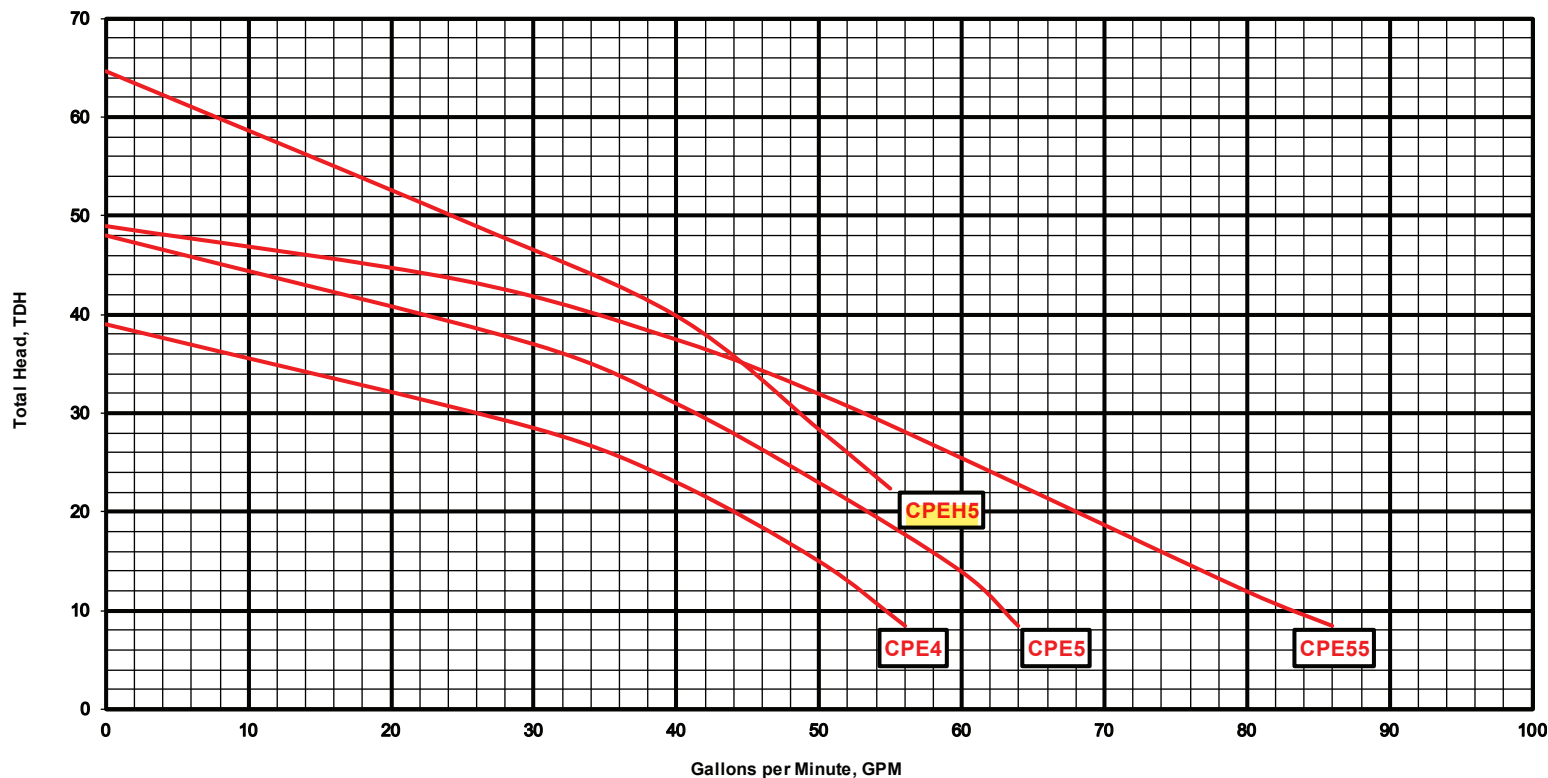
Vertical Float



Wide-Angle Float

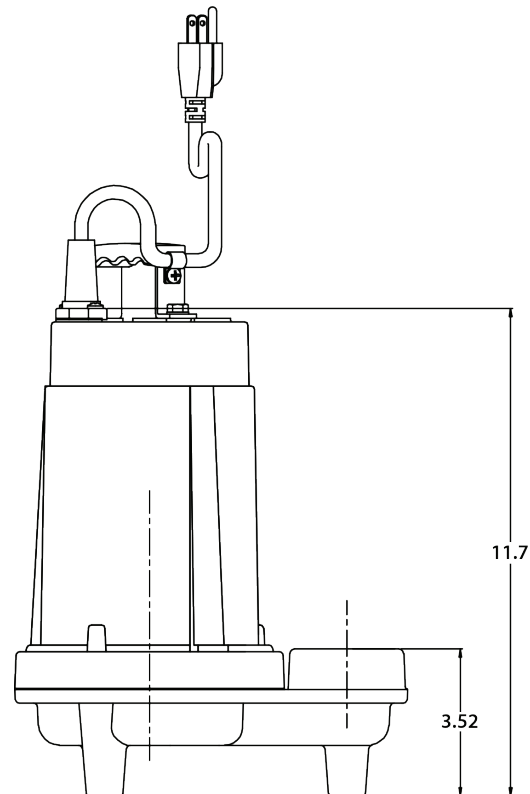
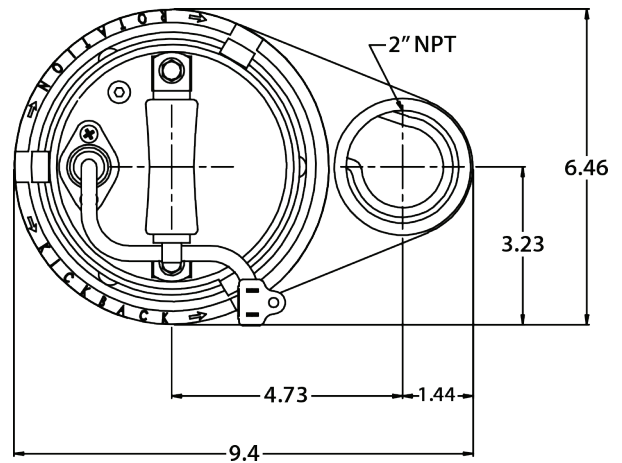
4/10-1/2 HP submersible pumps that handle up to 3/4" solids with 2" discharge

PERFORMANCE CURVE



TECHNICAL DATA

DISCHARGE	2" NPT. vertical standard
LIQUID TEMPERATURE	140 Degrees F. (Intermittent)
MOTOR HOUSING	Cast Iron
VOLUTE	Cast Iron
SEAL PLATE	Cast Iron
IMPELLER	Cast Iron / Vortex (CPEH thermoplastic vortex)
SOLIDS HANDLING	3/4"
SHAFT	Stainless Steel
SHAFT SEAL (SINGLE SEAL)	Inboard mechanical with secondary exclusion V-Seal, carbon rotating face, ceramic stationary face, Buna-N elastomer, 300 series stainless steel hardware
BEARINGS (UPPER & LOWER)	Single row, ball, oil lubricated
HARDWARE	300 Series stainless steel
O-RINGS	Buna-N
CORD	20' Length standard. Up to 100' available. (UL/CUL) Listed 16 AWG, Type SJTW
MOTOR (SINGLE PHASE)	4/10-1/2 HP 3450 RPM, 60 Hz, NEMA L Includes Overload Protection in the motor, oil filled, class B permanent split capacitor
WEIGHT	37 lbs. (Manual)



MODEL(S) INFORMATION

MODEL	HP	VOLTS	PHASE	AMPS	CORD LENGTH	SWITCH
CPE4-12 / CPE5-12 / CPE55-12 / CPEH5-12	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	20'	Manual
CPE4-13 / CPE5-13 / CPE55-13 / CPEH5-13	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	30'	Manual
CPE4-15 / CPE5-15 / CPE55-15 / CPEH5-15	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	50'	Manual
CPE4A-12 / CPE5A-12 / CPE55A-12 / CPEH5A-12	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	20'	Wide-Angle Float
CPE4A-13 / CPE5A-13 / CPE55A-13 / CPEH5A-13	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	30'	Wide-Angle Float
CPE4V-12 / CPE5V-12 / CPE55V-12 / CPEH5V-12	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	20'	Vertical Float
CPE4V-13 / CPE5V-13 / CPE55V-13 / CPEH5V-13	4/10 - 1/2	115	1	6.6 / 8.5 / 10.5 / 11.5	30'	Vertical Float
CPE4-22 / CPE5-22 / CPE55-22 / CPEH5-22	4/10 - 1/2	230	1	3.3 / 4.3 / 5.75 / 5.75	20'	Manual
CPE4A-22 / CPE5A-22 / CPE55A-22 / CPEH5A-22	4/10 - 1/2	230	1	3.3 / 4.3 / 5.75 / 5.75	20'	Wide-Angle Float
CPE4V-22 / CPE5V-22 / CPE55V-22 / CPEH5V-22	4/10 - 1/2	230	1	3.3 / 4.3 / 5.75 / 5.75	20'	Vertical Float

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.K
Section:	CONSENT AGENDA			
Item Category:	Consent - Disposition Item	Res./Ord. No:		
Strategic Goal:	Water Quality & Environment – Other			
Department :	Public Works - Utilities Management			
Subject:	Auto-Renew Contract - Neptune Water Meters (Ferguson Waterworks Inc.)			
Budget Impact:	An allocation of \$203,000 is contained in the FY 2022-23 budget of Fund 409 Water and Wastewater Renewal & Replacement for existing meter replacements and \$90,000 has been budgeted for new meter installation.			
Summary:	The annual renewal of the water meter contract was brought to the City Commission in November of 2022 but did not have the correct pricing information. This agenda item is to give the Commission the correct pricing for the purchase of Neptune water meters.			
Recommended Action:	To date, this agreement continues to appropriately serve the interests of both parties. This item serves as public notification of the intent to renew the aforementioned contract, unless otherwise directed by the City Commission.			
Staff Contact:	Bob Preis, Utilities Manager, (386) 676-3305			
Approval:				
Kelly McGuire, Finance Director		2/2/2023		
Claire Whitley, Assistant City Manager		2/6/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Bob Preis, Utilities Manager
Date: February 21, 2023
Subject: Auto-Renew Contract - Neptune Water Meters (Ferguson Waterworks Inc.)

Commission Goal: Water Quality & Environment – Other

Introduction

This is a disposition item notifying the City Commission of staff's intent to automatically renew a water meter purchasing agreement with Ferguson Waterworks Inc. for the 2023 calendar year.

Background

Several of the City's contracts allow for automatic renewal after the initial term of the contract. For contracts with annual renewal terms in excess of \$25,000, notification of the intent to renew is provided to the City Commission.

Discussion

The Water Meter Purchasing Agreement (Sole Source) - Ferguson Waterworks, Inc (Neptune Meters) contract is approaching its renewal date.

The City of Ormond Beach previously standardized its water meter products to those manufactured by Neptune Technology Group, Inc. ("Neptune") and purchased meters from 2001 through 2006 in accordance with a piggy-back agreement of a competitively bid meter purchasing agreement with Sunstate Meter & Supply, Inc. (sole source provider of Neptune products in Florida) as referenced by Resolution No. 2004-211. The purchase of Neptune meter products continued as sole source purchase agreement with Sunstate Meter & Supply, Inc., of Newberry, Florida in 2006 and again in 2008 with vendor requested pricing adjustments requested at various times and as referenced in Resolution Nos. 2006-265 and 2008-35.

The vendor provided a proposed cost sheet for the 2021 calendar period identical to the previously approved agreement for the 2020 calendar period. The current

agreement includes a wide range of standardized metering devices used by the City to include scheduled and emergency delivery timing requirements. The vendor continues to proficiently support the City's meter procurement needs within the desired delivery time frame.

The current agreement was established under Resolution No. 2008-35 for a one (1) year period beginning in January 2008 and automatically renews for successive one (1) year terms unless terminated by the parties with thirty (30) days prior written notice. A copy of the resolution is attached for reference. To date, the agreement continues to appropriately serve the interests of both parties.

In 2022, Sunstate Meter & Supply, Inc. was purchased by Ferguson Waterworks, Inc.. Ferguson Waterworks, Inc. is the only authorized Neptune dealer in the State of Florida.

In November of 2022, the renewal of the contract was taken to the City Commission for renewal. In October of 2022, Ferguson provided an updated price list for 2023. That information was inadvertently left out of the agenda item. The current pricing schedule is attached.

In the past, Ferguson Waterworks, Inc. has been a satisfactory vendor for other parts and accessories. Based on the vendor's satisfactory service levels and current City meter equipment standardization practices with Neptune products, staff intends to renew this sole source agreement with Ferguson Waterworks, Inc. for an additional year until December 31, 2023.

Budget Impact

An allocation of \$203,000 is contained in the FY 2022-23 budget of Fund 409 Water and Wastewater Renewal & Replacement for existing meter replacements and \$90,000 has been budgeted for new meter installation.

Citizen Impact

Annual review and renewal of existing contract agreements that successfully serve the interests of both parties promotes consistent and efficient procurement of necessary materials and services for the public good.

Recommendation

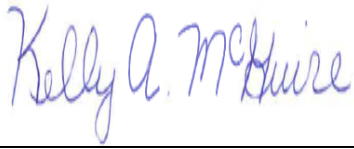
To date, this agreement continues to appropriately serve the interests of both parties. This item serves as public notification of the intent to renew the aforementioned contract, unless otherwise directed by the City Commission.

Attachments:

1. SPWAMB22100613340
2. Ormond Beach - Sole Source Neptune 2022 Term

3. Res.2008-35
4. Ormond Beach 2023 Ferguson-Neptune Product Pricing

Approvals:



Kelly McGuire, Finance Director

Date: February 02, 2023



Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023



City of Ormond Beach

SOLE SOURCE JUSTIFICATION FORM

Requisition No.: TBD

Date: 10/6/2022

Vendor: Ferguson Waterworks

Cost: \$293,000/year

Requested by: Ryan Roessler, Water Distribution Supervisor

Department: PW/Utilities

Per City Ordinance Sec. 2-300(g)- A contract may be made without competition when the department head or division manager certifies to the purchasing agent or the finance director's designee in writing that after conducting a good faith review of available sources, that there is only one (1) source for the required item(s) or service(s). The purchasing agent or the finance director's designee shall conduct negotiations as appropriate as to price, delivery and terms. A record of sole procurements shall be maintained as a public record.

Describe the product or service being requested in detail:

This is for the purpose of providing Neptune meters and associated parts for the City's water distribution system residential, commercial and industrial meters and associated parts at each property served by the City's water utility.

Explain why the requested product or service is the only one that can satisfy your requirements (attach additional sheets, if necessary):

Ferguson supplies the only Neptune water meters and associated parts that are compatible with the City's existing water meters, for the distribution system. Neptune meters and associated parts are now currently installed in over twenty thousand locations throughout the City's distribution system. The software for radio reading the meters in proprietary for Neptune meters and will not work with other brands. The City has used Neptune meters for over 15 years, making this the City standard for reliable operations and to maintain consistency with existing equipment and reduce the types of spare parts needed.

Explain why this vendor is the only practicably available source for this purchase, and identify what steps were taken to find other sources (attach additional sheets, if necessary):

Ferguson Waterworks is the sole authorized Neptune Distributor with a resell supply agreement in the State of Florida.

STATEMENT OF NEED:

My department's recommendation for sole source is based upon an objective review of the product/service required and is in the best interest of the City of Ormond Beach. I know of no conflict of interest on my part or any other individual's part, nor do I have any personal involvement in any way with the supplier(s) involved. No gratuities, favors or compromising action have taken place. Neither has my personal familiarity with particular brands, types of equipment, materials or firms been a deciding influence on my request to sole source this purchase when there are other known suppliers to exist.


Signature (Dept. Director or Division Manager)

Utilities Manager
Title

Under Florida Statute 838.22(2) It is unlawful for a public servant, with corrupt intent, to obtain a benefit for any person or to cause unlawful harm to another, to circumvent a competitive bidding process required by law or rule by using a sole-source contract for commodities or services. (3) It is unlawful for any person to knowingly agree, conspire, combine, or confederate, directly or indirectly, with a public servant to violate subsection (1) or subsection (2). (4) It is unlawful for any person to knowingly enter into a contract for commodities or services which was secured by a public servant acting in violation of subsection (1) or subsection (2). (5) Any person who violates this section commits a felony of the second degree, punishable as provided in s. [775.082](#), s. [775.083](#), or s. [775.084](#).



August 2, 2022

Mr Ryan Roessler
Water Distribution Supervisor
City of Ormond Beach
501 N. Orchard St.
Ormond Beach, Fl. 32174

Mr. Roessler,

Please note that Ferguson Waterworks, Inc., is the sole authorized Neptune Distributor with a resell supply agreement in the State of Florida.

The geographical area of responsibility assigned to them includes all Counties within the State of Florida.

Types: Classes of customers exclusively assigned are: Municipalities, private water companies, contractors, and plumbers.

Hence, our Distributor(s) are required to maintain a sufficient inventory of Neptune Water Metering Products to provide customer field servicing.

Thank you in advance for your cooperation.

Sincerely,

Terry D. Gullett

Terry D. Gullett
Senior Territory Manager
Neptune Technology Group, Inc.

FILE
SUNSTATE METERS
OR RESOLUTION
FILES 2008

RESOLUTION NO. 2008-35

A RESOLUTION AUTHORIZING THE SOLE SOURCE PROCUREMENT OF WATER METERS FROM SUNSTATE METER & SUPPLY, INC.; AUTHORIZING THE EXECUTION OF AN AGREEMENT WITH SUNSTATE METER & SUPPLY, INC., AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, the Utilities Manager and appropriate staff have determined it to be in the economic interest of the City of Ormond Beach and the general public to purchase residential and commercial water meters for new customers as well as replacement meters for existing customers, and

WHEREAS, over the past seven years, the City has purchased all of its Neptune water meters from Sunstate Meter & Supply, Inc., and

WHEREAS, Sunstate Meter & Supply, Inc. manufactures the only Neptune water meters that are compatible with the City's existing water meters, and therefore, the equipment purchase is a sole source procurement pursuant to Section 2-300(g) of the *Code of Ordinances*, and

WHEREAS, the City's staff recommends the purchase of residential and commercial water meters from Sunstate Meter & Supply, Inc. as specified in the price quote which is incorporated in the agreement attached hereto and incorporated herein by reference, and

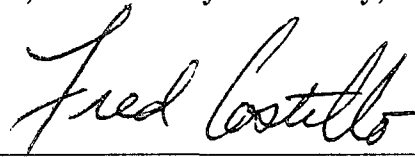
WHEREAS, the City Manager has certified that the funds necessary for the purchase of the water meters are available in the City's Water Renewal and Replacement Fund (409), and have not been appropriated for any other purpose, now therefore,

**BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF
ORMOND BEACH, FLORIDA, THAT:**

SECTION ONE. The Mayor and City Manager are hereby authorized and directed to execute the attached Agreement for the purchase and delivery of residential and commercial water meters from Sunstate Meter & Supply, Inc., under the terms and conditions set forth therein, and to pay the costs therefore from the Water Renewal and Replacement Fund.

SECTION TWO. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED, this 15th day of January, 2008.



FRED COSTELLO
Mayor

ATTEST:



VERONICA PATTERSON
City Clerk

AGREEMENT

THIS AGREEMENT is made and entered into by and between the **City of Ormond Beach** ("City"), a Florida municipal corporation, 22 South Beach Street, Ormond Beach, Volusia County, Florida and **Sunstate Meter & Supply, Inc.** ("Contractor"), a Florida corporation, 14001 W. Newberry Road, Newberry, FL 32669-2710, and in consideration of the mutual promises and covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to the following:

1. **Scope of Work.** Contractor shall provide the equipment described on the Pricing Quote dated November 29, 2007, attached hereto as Exhibit "A" at the prices set forth therein. The Contractor shall fully comply with the terms and conditions described in the attached exhibit.
2. **Term.** This Agreement shall take effect on the date of execution by the parties, shall remain valid through December 31, 2009, and shall automatically renew for additional one (1) year periods unless either party provides thirty (30) days prior written notice to the other party of its intent not to renew the agreement. The City makes no representations or warranties, whether express or implied, regarding the specific quantity of water meters to be purchased from the Contractor during the term of this Agreement.
3. **Consideration.** Contractor shall prepare and submit invoices to the City at the address set forth in Paragraph 9 of this Agreement. Final payment will be made only after delivery of the equipment and completion of the City's final acceptance inspection. All such invoices shall be paid by the City pursuant to the Florida Prompt Payment Act, Chapter 218 (Part VII), Sections 218.70-218.80, *Florida Statutes*, as the same presently exists or may hereafter be amended.
4. **Delivery.** The Contractor shall furnish the equipment (water meters) described on Exhibit "A" as required by the City's Utilities Department. All meters must be able to read with equipment owned by the City. Contractor shall maintain minimum stock levels equal to 3-weeks annual average usage by the City, as determined by the Utilities Department. Contractor shall deliver orders complete, up to the minimum quality standards, within 5-working-days. Emergency deliveries shall be made within 24-hours of notification by the City. Contractor shall deliver the items described in any valid Purchase Orders issued by the City.
5. **Termination of Agreement.** The City reserves the right to terminate this Agreement with or without cause upon forty-five (45)-calendar days written notice to Contractor.
6. **Assignment.** This Agreement shall not be assignable by either party.

7. **Complete Agreement.** This Agreement, including the provisions set forth in the exhibits attached hereto and incorporated by reference herein, constitutes the entire and complete agreement of the parties, and the promises and covenants herein contained shall survive the life of this Agreement.
8. **Amendment to Agreement.** Any amendment, change, or modification of this Agreement must be in writing and fully executed by both parties.
9. **Notices.** All notices which are required by this Agreement shall be provided to the parties at the following addresses, or such other addresses as may be requested in writing by either party:

City of Ormond Beach
Isaac D. Turner, City Manager
(copy to City Attorney)
22 South Beach Street
Ormond Beach, FL 32174

Sunstate Meter & Supply, Inc.
Keith Ellenburg, General Manager
14001 W. Newberry Road
Newberry, FL 32669

10. **Sovereign Immunity.** The City expressly retains and reserves all rights, privileges, immunities, and benefits of sovereign immunity. This provision shall be construed broadly in favor of the City.
11. **Venue.** The terms and conditions of this Agreement shall be construed and enforced under the laws of the State of Florida. Any action or proceeding, either at law or in equity, regarding this Agreement shall be brought in the circuit court, Seventh Judicial Circuit in and for Volusia County, Florida. Venue in any other jurisdiction or forum, whether it be any other circuit, state or federal venue, is hereby expressly waived.
12. **Waiver of Conditions.** No waiver by the City of any condition or breach of performance by the Contractor shall constitute an irrevocable, continuing, or subsequent waiver by the City of the same condition or breach of performance, or of any other condition or other breach of performance.
13. **Enforcement of Costs.** If any legal action or other proceeding is brought for the enforcement of this Agreement, or because of an alleged dispute, breach, default, or misrepresentation in connection with any provision of this Agreement, the successful or prevailing party or parties shall be entitled to recover reasonable attorneys' fees, court costs, and all expenses even if not taxable court costs (including, without limitation, all such fees, costs and expenses incident to arbitration, appellate, bankruptcy, and post-judgment proceedings), incurred in that action or proceeding or any appeal, in addition to any other relief to which the party or parties may be entitled. Attorneys' fees include legal assistant fees, expert witness fees, investigative fees, administrative costs, and all other charges billed by the attorney for the prevailing party.

14. **Severability.** If any part of this Agreement is declared to be unenforceable or void by a court of competent jurisdiction, the remaining parts of the Agreement shall remain in full force and effect as long as the services to be provided by the Contractor are not materially affected, altered or impaired as a result of said judicial declaration.
15. **Conflicting Provisions.** In the event of any conflict between the provisions of this Agreement and any exhibits, the provision most favorable to the City shall control and shall be given full force and effect.
16. **Indemnification.** The City, its agents, employees, and officials, both elected and appointed, shall be indemnified and held harmless by Contractor from any and all liabilities, claims, and causes of action which may arise out of the willful, negligent, or unlawful acts or omissions of the Contractor or its subcontractors in the performance of this Agreement, unless such claims are a result of the City's sole negligence, as determined by the final decision maker of such claim.
17. **Duty to Defend.** The Contractor shall defend all suits and administrative actions, including all appellate proceedings, brought against the City, its agents, employees, and officials, both elected and appointed and shall pay all attorneys' fees and costs associated with the City's legal defense, as may be selected by the City, arising from all claims and causes of action described in Section 16 above. Such payment on behalf of the City shall be in addition to any and all other legal or equitable remedies available to the City and shall not be considered to be the City's exclusive remedy.
18. **Warranty.** The warranty and specifications for the water meters shall be as described in Exhibit "B" attached hereto and incorporated herein by reference.
19. **Representation by Contractor.** The Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Contractor, to solicit or secure this Agreement and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for the Contractor, any fee, commission, percentage, gift or other compensation contingent upon or resulting from the award or making of this Agreement.
20. **Effective Date.** This Agreement shall become effective upon the date last signed by the parties hereto.

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be signed on the dates indicated hereinbelow.

DATED this 15th day of January, 2008.

Witnesses:

Veronica Patterson
Print Name: Veronica Patterson

Louis Toney
Print Name: Louis Toney

CITY OF ORMOND BEACH

By: Fred Costello
FRED COSTELLO
Mayor

By: Isaac D. Turner
ISAAC D. TURNER
City Manager

DATED this _____ day of _____, 2008.

Witnesses:

Print Name: _____

Print Name: _____

SUNSTATE METER & SUPPLY, INC.

By: _____
Print Name: _____
Title: _____

Attest: _____
Print Name: _____
Title: _____

**Sunstate Meter & Supply, Inc.**

14001 W. Newberry Road, Newberry, FL 32669

"Florida's Leading Distributor of Automated Meter Reading Systems"

Phone: 352.332.7106

Fax: 352.332.5604

November 29, 2007

Ms. Kelly A. McGuire
 Budget Director
 City of Ormond Beach
 P.O. Box 277
 Ormond Beach, FL 32175-0277
 Phone: 386-676-3226
 Fax: 386-676-3330
 Email: mcguire@ormondbeach.org

RE: CONTRACT PRICING - NEPTUNE WATER METERS 2008-2009

<u>Description</u>	<u>Unit Price</u>
Neptune, 5/8"x3/4" T10 Meter Complete W/Direct Read Gallon Register	\$33.50
Complete W/Proread Gallon Encoder & Pad	\$83.50
Complete W/R900i RF Ecoder/MIU	\$188.50
Neptune, 5/8"x3/4" T10 Double Check Backflow Meter	
Complete W/Direct Read Gallon Register	\$144.25
Complete W/Proread Gallon Encoder & Pad	\$199.25
Complete W/R900i RF Ecoder/MIU	\$314.00
Neptune, 3/4"x3/4" T10 Meter Complete W/Direct Read Gallon Register	\$65.50
Complete W/Proread Gallon Encoder & Pad	\$120.50
Complete W/R900i RF Ecoder/MIU	\$235.65
Neptune, 1" T10 Meter Complete W/Direct Read Gallon Register	\$90.75
Complete W/Proread Gallon Encoder & Pad	\$129.50
Complete W/R900i RF Ecoder/MIU	\$235.00
Neptune, 1 1/2" T10 Meter Complete W/Direct Read Gallon Register	\$198.00
Complete W/Proread Gallon Encoder & Pad	\$260.50
Complete W/R900i RF Ecoder/MIU	\$381.00
Neptune, 2" T10 Meter Complete W/Direct Read Gallon Register	\$302.50
Complete W/Proread Gallon Encoder & Pad	\$368.00
Complete W/R900i RF Ecoder/MIU	\$499.00
Neptune, 1 1/2" HP Turbine Meter Complete W/Direct Read Gallon Register	\$405.00
Complete W/Proread Gallon Encoder & Pad	\$455.00
Complete W/R900i RF Ecoder/MIU	\$571.00

Sunstate Meter & Supply, Inc.

14001 W. Newberry Road, Newberry, FL 32669

Phone: 352.332.7106

Fax: 352.332.5604

"Florida's Leading Distributor of Automated Meter Reading Systems"

Neptune, 2" HP Turbine Meter Complete W/Direct Read Gallon Register	\$487.00
Complete W/Proread Gallon Encoder & Pad	\$523.00
Complete W/R900i RF Ecoder/MIU	\$639.00
Neptune, 3" HP Turbine Meter Complete W/Direct Read Gallon Register	\$580.00
Complete W/Proread Gallon Encoder & Pad	\$676.00
Complete W/R900i RF Ecoder/MIU	\$755.00
Neptune, 4" HP Turbine Meter Complete W/Direct Read Gallon Register	\$1,186.00
Complete W/Proread Gallon Encoder & Pad	\$1,295.00
Complete W/R900i RF Ecoder/MIU	\$1,376.00
Neptune, 6" HP Turbine Meter Complete W/Direct Read Gallon Register	\$2,222.00
Complete W/Proread Gallon Encoder & Pad	\$2,394.00
Complete W/R900i RF Ecoder/MIU	\$2,476.00
Neptune, 8" HP Turbine Meter Complete W/Direct Read Gallon Register	\$3,665.00
Complete W/Proread Gallon Encoder & Pad	\$3,822.00
Complete W/R900i RF Ecoder/MIU	\$3,904.00
Neptune, 10" HP Turbine Meter Complete W/Direct Read Gallon Register	\$5,077.00
Complete W/Proread Gallon Encoder & Pad	\$5,144.00
Complete W/R900i RF Ecoder/MIU	\$5,226.00
Neptune, 2" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,153.00
Complete W/R900i RF Ecoder/MIU's	\$1,483.00
Neptune, 3" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,373.75
Complete W/R900i RF Ecoder/MIU's	\$1,703.75
Neptune, 4" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,968.00
Complete W/R900i RF Ecoder/MIU's	\$2,188.00
Neptune, 6" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$3,138.00
Complete W/R900i RF Ecoder/MIU's	\$3,468.00
Neptune, 6"x8" Tru Flo Cmpd Meter Complete W/Proread Gal Encoders & Pad	\$5,336.00
Complete W/R900i RF Ecoders/MIU's	\$5,665.00
Neptune, 4"x1" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$5,050.00
Complete W/R900i RF Ecoder/MIU's	\$5,360.00
Neptune, 6" x 1 1/2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$5,773.00
Complete W/R900i RF Ecoders/MIU's	\$6,082.00

Sunstate Meter & Supply, Inc.
14001 W. Newberry Road, Newberry, FL 32669

Phone: 352.332.7106

Fax: 352.332.5604

"Florida's Leading Distributor of Automated Meter Reading Systems"

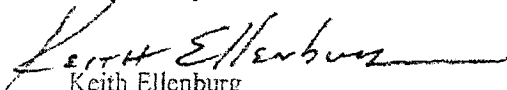
Neptune, 8" x 2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$8,145.00
Complete W/R900i RF Ecoders/MIU's	\$8,453.00
Neptune, 10" x 2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$11,340.00
Complete W/R900i RF Ecoders/MIU's	\$11,649.00
Neptune, 2" Bronze Flanged Meter Strainer	\$233.00
Neptune, 3" Bronze Flanged Meter Strainer	\$398.00
Neptune, 4" Bronze Flanged Meter Strainer	\$510.00
Neptune, 6" Bronze Flanged Meter Strainer	\$898.00
Neptune, 8" Bronze Flanged Meter Strainer	\$1,790.00
Neptune, 10" Epoxy Coated Flanged Meter Strainer	\$2,866.00
Neptune, R900 Wired Pit MIU Complete W/Antenna (to convert wired Proread meters to R900 RF read - any size)	\$110.00
Neptune, R900 Replacement Pit Coax Antenna Only	\$45.00
Neptune, R900i Wireless Ecoder/RF MIU (to convert any Neptune meter to R900i "wireless" system - any size)	\$159.00
Price Adder - Optional "Reclaimed" Purple Trim & Markings (per register)	\$3.00
Neptune, 3" Portable Fire Hydrant Meter Complete W/Direct Read Gallon Register, Hydrant Connections, & Gate Valve	\$735.00
Neptune, Proread Register Upgrade to R900i Integrated Ecoder/Transmitter (Requires trade-in of existing Proread Register)	\$119.00
Neptune, Proread Register Wired to R900 MIU Upgrade to R900i Integrated Ecoder/Transmitter (requires trade-in of existing Proread register and wired MIU)	\$99.00

Pricing valid: 1/1/08 - 12/31/09

Freight: Allowed

I hope this quotation meets with your approval. If you have any questions, please do not hesitate to contact me.

Respectfully submitted,


Keith Ellenburg
General Manager
Sunstate Meter & Supply, Inc.

Neptune Certificate of Warranty Neptune Fire Service Water Meters

1. Terms of Limited Warranty.

With respect to its Neptune Fire Service Cold Water Meters, which include: (1) the HP PROTECTUS® III Meter and; (2) HP Fire Service Turbine; and (3) Neptune Fire Hydrant Meter, Neptune Technology Group Inc. ("Neptune") warrants the following on meters sold on or after 11/1/92:

The Neptune Fire Service Water Meters will be, at the later of (i) the date of original purchase from Neptune or (ii) the date of original shipment from Neptune-authorized distributor of Neptune Fire Service Water Meters (that later date is referred to as "the Date of Shipment") and will remain for a period of 18 months from the Date of Shipment, or 12 months from date of installation, free from manufacturing defects in workmanship and material.

(a) Registers.

Standard, roll sealed registers of the Neptune Fire Service Cold Water Meters will be at the Date of Shipment, and shall remain for the following periods, free from manufacturing defects in workmanship and material for a period of 10 years. The performance of the Neptune Fire Service Water Meters Pulser RM remote is warranted for 1 year from Date of Shipment. The ARB and ProRead™ (ARB VI) system registers are warranted for 10 years from Date of Shipment. All ProRead encoder receptacles shipped after January 1, 2001 shall be warranted for five years from Date of Shipment. All other components and parts are covered under the Neptune standard one year material and workmanship guarantee.

(b) Meter accuracy for Neptune Fire Service Cold Water Meters.

Neptune Fire Service Cold Water Meters will perform, for a period of one (1) year from the Date of Shipment, to American Water Works Association ("AWWA") accuracy standards for new water meters.

2. Warranty Return.

If a Neptune Water Meter fails an accuracy test during an applicable warranty period, it may be returned to Neptune for repair or replacement at Neptune's option. An accuracy test shall be conducted by the customer according to AWWA standards. If foreign material causes the meter not to perform appropriately, all such material shall be removed prior to the customer conducting the test. Any meter being returned for repair to Neptune under this performance guarantee must be returned with a copy of the customer's test results. If the meter is returned to Neptune without a copy of the test results or if Neptune's factory test shows the meter to meet current AWWA standards the customer will be charged a nominal testing fee by Neptune in such cases. Neptune will repair or replace the meter at Neptune's option after the meter has been tested by Neptune. Meters repaired or replaced under the performance guarantee will be guaranteed to perform to AWWA repaired meter accuracy standards.

3. Warranties are exclusive.

THE WARRANTIES SET FORTH IN THIS CERTIFICATE OF LIMITED WARRANTY ARE IN LIEU OF ANY OTHER WARRANTY, GUARANTEE OR REPRESENTATION, WHETHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

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4. Damages limited to costs of replacement and repair.

If the Neptune Fire Service Cold Water Meter fails to meet the warranties set forth in Paragraph 1 of this Certificate of Limited Warranty, Neptune, at its option shall, without charge of labor or materials, repair or replace the Neptune Fire Service Cold Water Meter or part thereof, provided that (a) the Neptune Fire Service Cold Water Meter is delivered to Neptune, (b) the Neptune Fire Service Cold Water Meter is accompanied by a Material Return Authorization, and (c) all costs of delivery to Neptune are assumed by the purchaser of the Neptune Fire Service Cold Water Meter. Neptune's liability is limited to its costs of replacement and repair of the defective Neptune Fire Service Cold Water Meter or damages resulting from miscalculation of water usage or lost revenue or profit are not recoverable from Neptune. It is the responsibility of the customer to periodically verify the operation and accuracy of its meters.

5. Warranties are inapplicable under certain conditions.

The warranties set forth in this Certificate of Limited Warranty do not apply to any Neptune Fire Service Cold Water Meter that has been damaged by, or subjected to, conditions which, in the opinion of Neptune, have affected the Neptune Fire Service Cold Water Meter's ability of performance, including but not limited to; misuse; improper handling, application, or installation; excessive operating conditions; foreign materials in the water; aggressive water conditions; tampering or unauthorized repairs or modifications; accidental or intentional damage; acts of God. This Certificate of Limited Warranty shall not apply if product is placed in non-recommended installation, is connected or altered by other than Neptune recommended procedures, is used with other than genuine Neptune meter registers and components or read by equipment not approved or licensed by Neptune. Neptune makes no claims concerning operability and/or compatibility or third party reading systems. In addition, this Certificate of Limited Warranty shall not apply if third party reading equipment is believed to have caused damage to the meter or register. In order to determine its liability, if any, under this certificate of Limited Warranty, Neptune shall have the right to inspect any Neptune Fire Service Cold Water Meter or part thereof that is claimed to be defective at Neptune or other location designated by Neptune.

NEPTUNE'S LIABILITY WITH RESPECT TO BREACHES OF THE FOREGOING CERTIFICATE OF LIMITED WARRANTY SHALL BE LIMITED AS STATED HEREIN. NEPTUNE'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE. NEPTUNE SHALL NOT BE SUBJECT TO AND DISCLAIMS THE FOLLOWING: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY NEPTUNE, OR ANY UNDERTAKINGS, ACT OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL, MULTIPLE, EXEMPLARY, AND PUNITIVE DAMAGES WHATSOEVER.

WV FIRESERVICE 04.06



NEPTUNE
TECHNOLOGY GROUP INC.



ProRead™/E-Coder® Encoder Warranty Statement

ARB® Utility Management Systems™

Products Covered

This warranty shall apply to both the ProRead Absolute Encoder and E-Coder Solid State Absolute Encoder Registers, hereinafter referred to as "Product", sold by Neptune Technology Group Inc. The warranty is extended only to utilities, municipalities, other commercial users, and authorized distributors, hereinafter referred to as "Customer", and does NOT apply to consumers.

Materials and workmanship

Neptune Technology Group Inc. ("Neptune") warrants that the product shall be free from defects in manufacture and design for a period of ten (10) years from the date of shipment (such period being the "Warranty Period") when installed, serviced and operated according to Neptune's instructions. Neptune shall not be responsible for any defects in the product (whether due to design, materials, manufacture, or otherwise) which manifest themselves after the expiration of the Warranty Period. Neptune will repair or replace a non-performing product free of charge for ten (10) years.

Warranties are inapplicable under certain conditions

This warranty does not include field replacement labor or materials costs, which are the responsibility of the Customer. This warranty does not apply if product is placed in non-recommended installations; may have been repaired with parts not recommended by Neptune; is converted, altered or connected by other than Neptune recommended procedures; is used with other than genuine Neptune components or read by equipment not approved or licensed by Neptune; or damaged due to improper care or maintenance, or improper periodic testing (please refer to Encoder quick install guide). This warranty does not apply to any Product that has been damaged by, or subjected to, conditions which, in the opinion of Neptune, have affected the Product's ability of performance, including but not limited to; misuse; improper handling; application or installation; excessive operating conditions; tampering or unauthorized repairs and modifications; accidental or intentional damage; or acts of God. In no event shall Neptune be liable for special, incidental, indirect or consequential damages, including, without limitation, lost revenue.

THE ABOVE WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY NEPTUNE WITH RESPECT TO THE PRODUCT. ALL OTHER WARRANTIES, CONDITIONS, TERMS, REPRESENTATIONS, OR OTHER LEGALLY OPERATIVE PROVISIONS CONCERNING THE PRODUCT ARE HEREBY EXPRESSLY EXCLUDED. THIS INCLUDES, WITHOUT LIMITATION, ANY WARRANTY, CONDITION, TERM, AND REPRESENTATION OR OTHER LEGALLY OPERATIVE PROVISION AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS PARAGRAPH IS EXPRESSLY INTENDED TO EXCLUDE FROM THIS CONTRACT ALL STATUTORY AND COMMON LAW WARRANTIES TO THE MAXIMUM EXTENT PERMITTED BY LAW. TO AVOID ANY AMBIGUITY OR MISUNDERSTANDING, ALL PROBLEMS ARISING WITH THE PRODUCT AFTER THIS POINT ARE CUSTOMER'S RESPONSIBILITY. NEPTUNE'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE. NEPTUNE SHALL NOT BE SUBJECT TO AND DISCLAIMS THE FOLLOWING: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY; (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY NEPTUNE, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO; AND (3) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL, MULTIPLE, EXEMPLARY, AND PUNITIVE DAMAGES WHATSOEVER.

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NEPTUNE
TECHNOLOGY GROUP INC.



Encoder Compatibility Guarantee

ARB® Utility Management Systems™

Automatic Reading and Billing (ARB®) System (ARB V, ProRead™, and E-Coder®)

With the purchase of the ARB encoder metering system, Neptune will provide the assurance that the ARB System purchased today can be expanded from reading with Neptune handheld devices to reading with Neptune mobile products and fixed network systems.

GUARANTEE OF COMPATIBILITY

The Pocket ProReader RF, Advantage Probe, R900®, E-Coder®R900i™, DAP handhelds (PC9300, 9800 & CE5320X) and Neptune mobile systems are designed and built by Neptune. This guarantees the utility compatibility between these systems and the ARB encoder registers.

For Probed Reads: When reading ARB encoders with the Pocket ProReader RF, Advantage Probe, or DAP handhelds (PC9300, 9800 and CE5320X), Neptune will guarantee that the meter reading obtained will match the mechanical odometer reading, or Neptune will pay the difference at the rate currently in force.

For RF Reads: When reading ARB encoders connected to an R900 where the R900 reads a ProRead or ARB V encoder hourly, or in the case of E-Coder where the R900 reads the E-Coder every 15 minutes, Neptune will guarantee the encoder reading and the remote reading will match upon manual activation of the R900 with a magnet to force an immediate read and transmission. In the event of the E-Coder®R900i where the R900 transmission is updated every 15 minutes, Neptune will guarantee the encoder reading and remote reading to match upon this update. If the electronic reading on the handheld device is less than the odometer reading, Neptune will pay the difference at the rate currently in force.

Damage Guarantee

The Pocket ProReader RF, Advantage Probe, R900, E-Coder®R900i, DAP handhelds (PC9300 & 9800, CE5320X) and Neptune mobile systems are warranted against causing damage to any ARB encoder register during interrogation. If it is found that the Pocket ProReader RF, Advantage Probe, R900, DAP handhelds (PC9300 & 9800, CE5320X) or Neptune mobile systems caused damage to an ARB encoder register during interrogation, Neptune will either repair or replace the register at no charge to the utility.

If there are any questions concerning this Meter & Reading Information Systems Guarantee, please write to: Manager of Consumer Relations, Neptune Technology Group Inc., 1600 Alabama Hwy. 229, Tallahassee, Alabama 36078.

IF A NEPTUNE WATER METER FAILS AN ACCURACY TEST DURING AN APPLICABLE WARRANTY PERIOD, IT MAY BE RETURNED TO NEPTUNE FOR REPAIR OR REPLACEMENT AT NEPTUNE'S OPTION. AN ACCURACY TEST SHALL BE CONDUCTED BY THE CUSTOMER ACCORDING TO AWWA STANDARDS. IF FOREIGN MATERIAL CAUSES THE METER NOT TO PERFORM APPROPRIATELY, ALL SUCH MATERIAL SHALL BE REMOVED PRIOR TO THE CUSTOMER CONDUCTING THE TEST. ANY METER BEING RETURNED FOR REPAIR TO NEPTUNE UNDER THIS PERFORMANCE GUARANTEE MUST BE RETURNED WITH A COPY OF THE CUSTOMER'S TEST RESULTS. IF THE METER IS RETURNED TO NEPTUNE WITHOUT A COPY OF THE TEST RESULTS OR IF NEPTUNE'S FACTORY TEST SHOWS THE METER TO MEET CURRENT AWWA STANDARDS THE CUSTOMER WILL BE CHARGED A NOMINAL TESTING FEE BY NEPTUNE IN SUCH CASES. NEPTUNE WILL REPAIR OR REPLACE THE METER AT NEPTUNE'S OPTION AFTER THE METER HAS BEEN TESTED BY NEPTUNE. METERS REPAIRED OR REPLACED UNDER THE PERFORMANCE GUARANTEE WILL BE GUARANTEED TO PERFORM TO AWWA REPAIRED METER ACCURACY STANDARDS. THIS GUARANTEE IS VOID IF COMPONENTS HAVE NOT BEEN MAINTAINED OR INSTALLED ACCORDING TO NEPTUNE INSTALLATION AND MAINTENANCE GUIDELINES, OR ARE OTHERWISE DAMAGED OR DEFECTIVE. THE ACCURACY GUARANTEE WILL NOT APPLY WHERE A PROPERLY FORMATTED ELECTRONIC METER READING CANNOT BE OBTAINED. ON SIX DIGIT ENCODERS, THE LAST DIGIT WILL BE DISPLAYED ONLY AS A 0 OR 5 WHEN READ REMOTELY. AS PART OF THE ENCODER TECHNOLOGY, THE ELECTRONIC READING FROM THE R900 IS GUARANTEED TO MATCH THE READING ON THE ENCODER REGISTER UPON MANUAL ACTIVATION OF THE R900 WITH A MAGNET TO FORCE AN IMMEDIATE READ AND TRANSITION (ONE PER HOUR). SYSTEM DAMAGE AS A RESULT OF VANDALISM OR ACTS OF GOD ARE NOT COVERED. ADDITIONAL WARRANTIES MAY ALSO APPLY TO INDIVIDUAL SYSTEM COMPONENTS. NEPTUNE'S LIABILITY WITH RESPECT TO BREACHES OF THE FOREGOING WARRANTY SHALL BE LIMITED AS STATED HEREIN. NEPTUNE'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE. NEPTUNE SHALL NOT BE SUBJECT TO AND DISCLAIMS THE FOLLOWING: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY; (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY NEPTUNE, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO; AND (3) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL, MULTIPLE, EXEMPLARY, AND PUNITIVE DAMAGES WHATSOEVER.

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 **NEPTUNE**
TECHNOLOGY GROUP INC.



Neptune Certificate of Warranty

Neptune T-10, HP Turbine, Tru/Flo® Compound Cold Water Meters

1. Terms of Limited Warranty.

With respect to its Neptune T-10, HP TURBINE, TRU/FLO COMPOUND Water Meters (collectively the "Water Meters"), Neptune Technology Group Inc. ("Neptune") warrants the following on meters sold on or after 11/1/92:

The Water Meters will be, at the later of (i) the date of original purchase from Neptune or (ii) the date of original shipment from Neptune-authorized distributor of Water Meters (that later date is referred to as "the Date of Shipment") and will remain for a period of 18 months from the Date of Shipment, or 12 months from date of installation, free from manufacturing defects in workmanship and material.

- (a) **Maincase.** The no-lead high copper alloy or Brass maincase of the Water Meters will be at the Date of Shipment free from manufacturing defects in workmanship and material for the life of the Water Meter.
- (b) **Frost Protection.** All Neptune T-10 Cold Water Meters shipped with a synthetic polymer or cast iron bottom cap will, commencing upon the Date of Shipment, be warranted against chamber damage for a period of 10 years.
- (c) **Registers.** Standard, roll sealed registers of the Water Meters will be at the Date of Shipment, and shall remain for the following periods, free from manufacturing defects in workmanship and material for a period of 10 years. The performance of the Water Meters Pulser RM remote is guaranteed for 1 year from Date of Shipment. The ARB®, ProRead™ (ARB VI), and E-Coder™ (ARB VII) system registers are warranted for 10 years from Date of Shipment. All ProRead encoder receptacles shipped after January 1, 2001 shall be warranted for five years from the Date of Shipment. All other components and parts are covered under Neptune's standard one year material and workmanship guarantee.
- (d) **Meter Accuracy for Neptune T-10.** Neptune T-10 Meters are warranted to meet or exceed, as listed herein, accuracy standards of the AWWA Standard C700-95 for a period of: (i) five (5) years from Date of Shipment for 5/8", 3/4" and 1" meters; (ii) for a period of two (2) years from the Date of Shipment for 1 1/2" and 2" meters; or (iii) the applicable registration shown below whichever occurs first. Neptune further guarantees that the Neptune T-10 will perform to at least Repaired Meter Accuracy Standards, according to AWWA Manual M-6 Chapter 5 (1999) Table 5.3 for an additional ten (10) years or the registration shown below, whichever occurs first.
- (e) **Meter accuracy for HP Turbine and TRU/FLO.** The HP Turbine and TRU/FLO Compound Cold Water Meters will perform, for a period of one (1) year from the Date of Shipment, to American Water Works Association ("AWWA") accuracy standards for new water meters.

SIZE	EXTENDED LOW FLOW ACCURACY	NEW METER ACCURACY	REPAIRED METER ACCURACY
5/8 & 5/8"x 3/4"	1/8 US gpm @ 95% 5 years or 500,000 gallons	500,000 gallons	1,500,000 gallons
3/4"	1/4 US gpm @ 95% 5 years or 750,000 gallons	750,000 gallons	2,250,000 gallons
1"	3/8 US gpm @ 95% 5 years or 1,000,000 gallons	1,000,000 gallons	3,000,000 gallons
1 1/2"	3/4 US gpm @ 95% 2 years or 1,600,000 gallons	1,600,000 gallons	5,000,000 gallons
2"	1 US gpm @ 95% 2 years or 2,700,000 gallons	2,700,000 gallons	8,000,000 gallons

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NEPTUNE
TECHNOLOGY GROUP INC.



2. Warranty Return.

If a Neptune Water Meter fails an accuracy test during an applicable warranty period, it may be returned to Neptune for repair or replacement at Neptune's option. An accuracy test shall be conducted by the customer according to AWWA standards. If foreign material causes the meter not to perform appropriately, all such material shall be removed prior to the customer conducting the test. Any meter being returned for repair to Neptune under this performance guarantee must be returned with a copy of the customer's test results. If the meter is returned to Neptune without a copy of the test results or if Neptune's factory test shows the meter to meet current AWWA standards the customer will be charged a nominal testing fee by Neptune in such cases. Neptune will repair or replace the meter at Neptune's option after the meter has been tested by Neptune. Meters repaired or replaced under the performance guarantee will be guaranteed to perform to AWWA repaired meter accuracy standards.

3. Warranties are exclusive.

THE WARRANTIES SET FORTH IN THIS CERTIFICATE OF LIMITED WARRANTY ARE IN LIEU OF ANY OTHER WARRANTY, GUARANTEE OR REPRESENTATION, WHETHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

4. Damages limited to costs of replacement and repair.

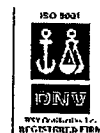
If the Water Meter fails to meet the warranties set forth in Paragraph 1 of this Certificate of Limited Warranty, Neptune, at its option shall, without charge of labor or materials, repair or replace the Water Meter or part thereof, provided that (a) the Water Meter is delivered to a Neptune representative, (b) the Water Meter is accompanied by a Material Return Authorization, and (c) all costs of delivery to Neptune are assumed by the purchaser of the Water Meter. Neptune's liability is limited to its costs of replacement and repair of the defective water meter. Damages resulting from miscalculation of water usage or lost revenue or profit are not recoverable from Neptune. It is the responsibility of the customer to periodically verify the operation and accuracy of its meters.

5. Warranties are inapplicable under certain conditions.

The warranties set forth in this Certificate of Limited Warranty do not apply to any Water Meter that has been damaged by, or subjected to, conditions which, in the opinion of Neptune, have affected the Water Meter's ability of performance, including but not limited to; misuse; improper handling, application or installation; excessive operating conditions; foreign materials in the water; aggressive water conditions; tampering or unauthorized repairs or modifications; accidental or intentional damage; acts of God. This Certificate of Limited Warranty shall not apply if product is placed in non-recommended installation, is connected or altered by other than Neptune recommended procedures, is used with other than genuine Neptune meter registers and components or read by equipment not approved or licensed by Neptune. Neptune makes no claims concerning operability and/or compatibility or third party reading systems. In addition, this Certificate of Limited Warranty shall not apply if third party reading equipment is believed to have caused damage to the meter or register. In order to determine its liability, if any, under this certificate of Limited Warranty, Neptune shall have the right to inspect any Water Meter or part thereof that is claimed to be defective at Neptune or other location designated by Neptune.

NEPTUNE'S LIABILITY WITH RESPECT TO BREACHES OF THE FOREGOING LIMITED WARRANTY SHALL BE LIMITED AS STATED HEREIN. NEPTUNE'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE. NEPTUNE SHALL NOT BE SUBJECT TO AND DISCLAIMS THE FOLLOWING: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY NEPTUNE, OR ANY UNDERTAKINGS, ACT OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL, MULTIPLE, EXEMPLARY, AND PUNITIVE DAMAGES WHATSOEVER.

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E-Coder)R900i Warranty Statement

E-CODER) R900i

ARB Utility Management Systems

I. Integrated E-Coder and R900 meter interface unit (IMIU)

Neptune Technology Group Inc. warrants that the a fully integrated self-contained solid state absolute encoder register and a radio frequency meter interface unit shall be free from defects in manufacture and design for a period of twenty (20) years for the electronics from the "date of shipment" (such period being the "Warranty Period"). Neptune shall not be responsible for any defects in the E-Coder)R900i (whether due to design, materials, manufacture, or otherwise) which manifest themselves after the expiration of the Warranty Period. Neptune will repair or replace a non-performing E-Coder)R900i free of charge for the first ten (10) years and at a prorated replacement cost of the current list price during the remaining ten (10) years per the table.

II. Integrated E-Coder and R900 meter interface unit (IMIU) batteries

Neptune warrants that any Neptune-supplied batteries installed in the fully integrated self-contained solid state absolute encoder register and a radio frequency meter interface unit (the "Batteries") shall be free from defects in manufacture and design for a period of twenty (20) years from the "date of shipment" (such period being the "Battery Warranty Period"). Neptune shall not be responsible for any defects in, or failure of, batteries (whether due to design, materials, manufacture, or otherwise) which occur after the expiration of the Battery Warranty Period. Neptune will repair or replace a non-performing E-Coder)R900i Battery free of charge for the first ten (10) years and at a prorated replacement cost of the current list price during the remaining ten (10) years per the table:

Year of Failure	Battery Replacement Cost*
1 - 10	Full Replacement
11	30%
12	35%
13	40%
14	45%
15	50%
16	55%
17	60%
18	65%
19	70%
20	75%

* Replacement cost percentages will be applied towards published parts list prices in effect for the year product is accepted by Neptune under warranty conditions. Replacement batteries are warranted for one (1) year after date of shipment or balance of original battery warranty, whichever is greater.

III. Warranties are inapplicable under certain conditions

This warranty does not include field replacement labor or materials costs, which are the responsibility of the utility. This warranty does not apply if product is placed in non-recommended installations; may have been repaired with parts not recommended by Neptune; converted, altered or connected by other than Neptune recommended procedures; is used with other than genuine Neptune meter registers and components or read by equipment not approved or licensed by Neptune; or damaged due to improper care or maintenance, or improper periodic testing (please refer to E-Coder)R900i installation manual and quick install guides). This warranty does not apply to any MIU that has been damaged by, or subjected to, conditions which, in the opinion of Neptune, have affected the E-Coder)R900i MIUs ability of performance, including but not limited to; misuse; improper handling; application or installation; excessive operating conditions; tampering or unauthorized repairs and modifications; accidental or intentional damage; or acts of God. In no event shall Neptune be liable for special, incidental, indirect or consequential damages, including, without limitation, lost revenue.

THE ABOVE WARRANTY FOR THE MIU AND NEPTUNE-SUPPLIED BATTERY IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY NEPTUNE WITH RESPECT TO THE E-Coder)R900i MIU AND NEPTUNE-SUPPLIED BATTERY. ALL OTHER WARRANTIES, CONDITIONS, TERMS, REPRESENTATIONS, OR OTHER LEGALLY OPERATIVE PROVISIONS CONCERNING THE MIUs AND NEPTUNE-SUPPLIED BATTERY ARE HEREBY EXPRESSLY EXCLUDED. THIS INCLUDES, WITHOUT LIMITATION, ANY WARRANTY, CONDITION, TERM, AND REPRESENTATION OR OTHER LEGALLY OPERATIVE PROVISION AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS PARAGRAPH IS EXPRESSLY INTENDED TO EXCLUDE FROM THIS CONTRACT ALL STATUTORY AND COMMON LAW WARRANTIES TO THE MAXIMUM EXTENT PERMITTED BY LAW. TO AVOID ANY AMBIGUITY OR MISUNDERSTANDING, ALL PROBLEMS ARISING WITH AN MIU OR NEPTUNE-SUPPLIED BATTERY AFTER THIS POINT ARE BUYER'S RESPONSIBILITY. NEPTUNE'S LIABILITY SHALL IN NO EVENT EXCEED THE PURCHASE PRICE. NEPTUNE SHALL NOT BE SUBJECT TO AND DISCLAIMS THE FOLLOWING: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY NEPTUNE, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. AND (3) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL, MULTIPLE, EXEMPLARY, AND PUNITIVE DAMAGES WHATSOEVER.

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NEPTUNE
TECHNOLOGY GROUP INC.



**Sunstate Meter & Supply, Inc.**

14001 W. Newberry Road, Newberry, FL 32669

*"Florida's Leading Distributor of Automated Meter Reading Systems"***Phone: 352.332.7106****Fax: 352.332.5604**

November 29, 2007

Ms. Kelly A. McGuire
Budget Director
City of Ormond Beach
P.O. Box 277
Ormond Beach, Fl. 32175-0277
Phone: 386-676-3226
Fax: 386-676-3330
Email: mcguire@ormondbeach.org

RE: CONTRACT PRICING – NEPTUNE WATER METERS 2008-2009

<u>Description</u>	<u>Unit Price</u>
Neptune, 5/8"x3/4" T10 Meter Complete W/Direct Read Gallon Register	\$33.50
Complete W/Proread Gallon Encoder & Pad	\$83.50
Complete W/R900i RF Ecoder/MIU	\$188.50
Neptune, 5/8"x3/4" T10 Double Check Backflow Meter	
Complete W/Direct Read Gallon Register	\$144.25
Complete W/Proread Gallon Encoder & Pad	\$199.25
Complete W/R900i RF Ecoder/MIU	\$314.00
Neptune, 3/4"x3/4" T10 Meter Complete W/Direct Read Gallon Register	\$65.50
Complete W/Proread Gallon Encoder & Pad	\$120.50
Complete W/R900i RF Ecoder/MIU	\$235.65
Neptune, 1" T10 Meter Complete W/Direct Read Gallon Register	\$90.75
Complete W/Proread Gallon Encoder & Pad	\$129.50
Complete W/R900i RF Ecoder/MIU	\$235.00
Neptune, 1 1/2" T10 Meter Complete W/Direct Read Gallon Register	\$198.00
Complete W/Proread Gallon Encoder & Pad	\$260.50
Complete W/R900i RF Ecoder/MIU	\$381.00
Neptune, 2" T10 Meter Complete W/Direct Read Gallon Register	\$302.50
Complete W/Proread Gallon Encoder & Pad	\$368.00
Complete W/R900i RF Ecoder/MIU	\$499.00
Neptune, 1 1/2" HP Turbine Meter Complete W/Direct Read Gallon Register	\$405.00
Complete W/Proread Gallon Encoder & Pad	\$455.00
Complete W/R900i RF Ecoder/MIU	\$571.00

**Sunstate Meter & Supply, Inc.**

14001 W. Newberry Road, Newberry, FL 32669

*"Florida's Leading Distributor of Automated Meter Reading Systems"***Phone: 352.332.7106****Fax: 352.332.5604**

Neptune, 2" HP Turbine Meter Complete W/Direct Read Gallon Register	\$487.00
Complete W/Proread Gallon Encoder & Pad	\$523.00
Complete W/R900i RF Ecoder/MIU	\$639.00
Neptune, 3" HP Turbine Meter Complete W/Direct Read Gallon Register	\$580.00
Complete W/Proread Gallon Encoder & Pad	\$676.00
Complete W/R900i RF Ecoder/MIU	\$755.00
Neptune, 4" HP Turbine Meter Complete W/Direct Read Gallon Register	\$1,186.00
Complete W/Proread Gallon Encoder & Pad	\$1,295.00
Complete W/R900i RF Ecoder/MIU	\$1,376.00
Neptune, 6" HP Turbine Meter Complete W/Direct Read Gallon Register	\$2,222.00
Complete W/Proread Gallon Encoder & Pad	\$2,394.00
Complete W/R900i RF Ecoder/MIU	\$2,476.00
Neptune, 8" HP Turbine Meter Complete W/Direct Read Gallon Register	\$3,665.00
Complete W/Proread Gallon Encoder & Pad	\$3,822.00
Complete W/R900i RF Ecoder/MIU	\$3,904.00
Neptune, 10" HP Turbine Meter Complete W/Direct Read Gallon Register	\$5,077.00
Complete W/Proread Gallon Encoder & Pad	\$5,144.00
Complete W/R900i RF Ecoder/MIU	\$5,226.00
Neptune, 2" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,153.00
Complete W/R900i RF Ecoder/MIU's	\$1,483.00
Neptune, 3" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,373.75
Complete W/R900i RF Ecoder/MIU's	\$1,703.75
Neptune, 4" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$1,968.00
Complete W/R900i RF Ecoder/MIU's	\$2,188.00
Neptune, 6" Tru Flo Compound Meter Complete W/Proread Gal Encoders & Pad	\$3,138.00
Complete W/R900i RF Ecoder/MIU's	\$3,468.00
Neptune, 6"x8" Tru Flo Cmpd Meter Complete W/Proread Gal Encoders & Pad	\$5,336.00
Complete W/R900i RF Ecoders/MIU's	\$5,665.00
Neptune, 4"x1" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$5,050.00
Complete W/R900i RF Ecoder/MIU's	\$5,360.00
Neptune, 6" x 1 1/2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$5,773.00
Complete W/R900i RF Ecoders/MIU's	\$6,082.00

**Sunstate Meter & Supply, Inc.**

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*"Florida's Leading Distributor of Automated Meter Reading Systems"***Phone: 352.332.7106****Fax: 352.332.5604**

Neptune, 8" x 2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$8,145.00
Complete W/R900i RF Ecoders/MIU's	\$8,453.00
Neptune, 10" x 2" HPPIII Fire Service Compound Meter	
Complete W/Proread Gal Encoders & Pad	\$11,340.00
Complete W/R900i RF Ecoders/MIU's	\$11,649.00
Neptune, 2" Bronze Flanged Meter Strainer	\$233.00
Neptune, 3" Bronze Flanged Meter Strainer	\$398.00
Neptune, 4" Bronze Flanged Meter Strainer	\$510.00
Neptune, 6" Bronze Flanged Meter Strainer	\$898.00
Neptune, 8" Bronze Flanged Meter Strainer	\$1,790.00
Neptune, 10" Epoxy Coated Flanged Meter Strainer	\$2,866.00
Neptune, R900 Wired Pit MIU Complete W/Antenna (to convert wired Proread meters to R900 RF read – any size)	\$110.00
Neptune, R900 Replacement Pit Coax Antenna Only	\$45.00
Neptune, R900i Wireless Ecoder/RF MIU (to convert any Neptune meter to R900i "wireless" system – any size)	\$159.00
Price Adder – Optional "Reclaimed" Purple Trim & Markings (per register)	\$3.00
Neptune, 3" Portable Fire Hydrant Meter Complete W/Direct Read Gallon Register, Hydrant Connections, & Gate Valve	\$735.00
Neptune, Proread Register Upgrade to R900i Integrated Ecoder/Transmitter (Requires trade-in of existing Proread Register)	\$119.00
Neptune, Proread Register Wired to R900 MIU Upgrade to R900i Integrated Ecoder/Transmitter (requires trade-in of existing Proread register and wired MIU)	\$99.00

Pricing valid: 1/1/08 – 12/31/09

Freight: Allowed

I hope this quotation meets with your approval. If you have any questions, please do not hesitate to contact me.

Respectfully submitted,

Keith Ellenburg
General Manager
Sunstate Meter & Supply, Inc.

**CITY MANAGER
MEMORANDUM**

TO: The Honorable Mayor Costello and City Commissioners

FROM: Isaac D. Turner, City Manager 

DATE: January 10, 2008

SUBJECT: Purchase of Water Meters

Introduction: This is a request to enter into a contract with Sunstate Meter and Supply, Inc., of Newberry, Florida, for the purchase of water meters.

Background: The Utilities Division purchases water meters for new customer accounts and for its water meter replacement program. For the past seven years, the City has purchased Neptune brand water meters from Sunstate Meter and Supply, Inc., of Newberry, Florida, under previous agreements. The City's current agreement with the supplier is expiring at the end of December 2007. Staff wishes to enter into a new agreement with Sunstate Meter and Supply for meeting the City's water meter needs.

Discussion: Water meters are purchased by the City for new and replacement installations for both residential and commercial applications. The City also programs replacement of residential meters exceeding ten (10) years in age.

The meter replacement program calls for the annual replacement of approximately 2,500 existing manual read residential meters with new touch read meters having radio read capability. The use of touch read meters increases the efficiency of meter reading as the meter reader uses a "wand" which allows for more than twice the number of meters to be read per period compared with manual read meters.

Additionally, radio read meters are specified and purchased for use on all new commercial accounts. The City also programs the replacement of existing meters with radio read meters for all commercial accounts located in high density areas and adjacent to the main traffic corridors. This program involves annual replacement of approximately 200 manual read meters with radio read meters. Radio read meters increase the efficiency of meter reading as the meter reader simply passes by the business in a vehicle and the meter reading is automatically taken. The number of "re-reads" due to meter inaccessibility or lenses disrepair is also reduced by the use of this technology.

Sunstate Meter and Supply, Inc., is not the only supplier of meters. There are several other meter brands in the marketplace. The City chose to standardize with the Neptune meter line six years ago due to price and Sunstate's compatibility guarantee that provides the City with assurances that meters and meter reading products will be

compatible. No other meter manufacturer that we are aware of provides this guarantee. Sunstate is the sole distributor of Neptune meters in Florida.

Sunstate has provided good service, has met all obligations under the agreement that has recently expired, and staff wishes to enter into a similar agreement to continue purchase of the meters at the prices stated in their November 29, 2007, quotation, attached. The quotation includes a complete listing of all meters and sizes that the City purchases for all residential and commercial applications. Below is a cost comparison between the previous agreement and the proposed meter prices for residential meters which are the predominant size and type of meter the City purchases under this agreement.

METER	RESOLUTION #2006-265	CURRENT PROPOSED	DIFFERENCE	% change
¾" Manual Read	\$30.50	\$33.50	\$3.00	9.8%
¾" Touch Read	\$80.00	\$83.50	\$3.50	4.4%
¾" Radio Read*	\$184.75	\$188.50	\$3.75	2.0%

* per November 29, 2007 quote

Resolution #2006-265 provided a one year agreement and fixed pricing for calendar year 2007 and contained a renewal clause for two (2) additional one-year periods. The supplier has requested new pricing for calendar years 2008 and 2009 term thus requiring preparation of a new agreement. The new agreement illustrates a commitment by the supplier to fix the meter pricing for a two-year period and shall include a yearly renewal clause should the City desire to extend the understanding beyond the expiration period.

Attached is a sole source justification form for the purchase of these meters from Sunstate Meter & Supply, Inc.

Budget Impact: The budgetary impact of the price increase is estimated to be approximately \$12,000 annually. For FY 2007-08, the budget for meter replacements and new meter installations is \$307,000 and is funded through the Water & Wastewater Capital Improvement Fund.

Recommendation: It is recommended that the City enter into a new agreement with Sunstate Meter and Supply, Inc., for the purchase of water meters as described in their November 29, 2007, letter quotation.

Prepared by: David C. Ponitz, P.E., Utilities Manager
Reviewed by: Judy Sloane, P.E., Public Works Director



City of Ormond Beach

SOLE SOURCE JUSTIFICATION FORM

Requisition No.: _____

Date: December 18, 2007

Vendor: Sunstate Meter and Supply, Inc.

Cost: Varies according to meter

Requested by: Ponitz/Russell

Department: Public Works/Utilities

City Ordinance No. 2001-43, Supplement No. 72, establishes that a contract may be made without competition when the department head or division manager certifies to the purchasing agent or the finance director's designee in writing that after conducting a good faith review of available sources, that there is only one (1) source for the required item(s) or service(s). The purchasing agent or the finance director's designee shall conduct negotiations as appropriate as to price, delivery and terms. A record of sole procurements shall be maintained as a public record.

Describe the product or service being requested:

Various sizes and types of water meters.

Explain why the requested product or service is the only one that can satisfy your requirements (attach additional sheets, if necessary):

Vendor is not the only supplier of meters. However, they are the sole supplier of the Neptune Meter that the City has standardized its meter reading operation on. Neptune Technology Group, Inc. has a complete line of both touch read and radio read meters including the software and automatic meter reading devices. Over the past eight years, the City has purchased a complete Neptune Meter reading system with hand held devices and software. Over 13,000 meters have been purchased with the Neptune system of Neptune Proread ARB encoder register complete with the Proread Pit Pad for touch read or the R900 RF transmitter for radio read. The software for reading the meters is proprietary and works well with the current utility billing system.

Explain why this vendor is the only practicably available source for this purchase, and identify what steps were taken to find other sources (attach additional sheets, if necessary):

There are several other meter manufacturer's in the market place. The City chose to go with the Neptune meter line six years ago due to price and their "compatibility guarantee" that provides the City with assurance that all Neptune meters and Neptune meter reading products purchased will be compatible. No other vendor that we are aware of provides this guarantee. Neptune has also developed new technology that allows conversion of an existing Neptune meter to radio read technology and a new all-in-one radio read meter and transmitter with 20 year battery.

In evaluating whether to bid the purchase of meters out and possibly entering into a contract with another meter provider, consideration was given to the overall cost of changing the system, incompatibility issues with existing equipment and software, as well as price comparisons that show that most meters are in the same price range. Also, consideration was given to the excellent support and service provided by the vendor.

STATEMENT OF NEED:

My department's recommendation for sole source is based upon an objective review of the product/service required and is in the best interest of the City of Ormond Beach. I know of no conflict of interest on my part or any other individual's part, nor do I have any personal involvement in any way with the supplier(s) involved. No gratuities, favors or compromising action have taken place. Neither has my personal familiarity with particular brands, types of equipment, materials or firms been a deciding influence on my request to sole source this purchase when there are other known suppliers to exist.



David C. Ponitz, Utilities Manager



Meter & Automation Group

10/11/2022

City of Ormond Beach
P.O. Box 277
Ormond Beach, Fl. 32175-0277

RE: – PRICE AGREEMENT - NEPTUNE/FERGUSON GROUP PRODUCT 2023 TERM

<u>Description</u>	<u>Unit Price</u>
Neptune, 5/8"x3/4" T10 PB Meter Complete W/R900i Pit Gal. Reg.	\$224.00
Neptune, 5/8"x3/4" T10 PB Meter Complete W/ProCoder Wired Reg.	\$149.00
Neptune, 1" T10 Meter Complete W/R900i Pit Gal. Reg.	\$366.00
Neptune, 1" T10 Meter Complete W/ProCoder Wired Reg.	\$291.00
Neptune, 1 1/2" T10 Flg. Meter Complete W/R900i Pit Gal. Reg.	\$759.00
Neptune, 1 1/2" T10 Flg. Meter Complete W/ProCoder Wired Reg.	\$684.00
Neptune, 2" T10 Flg. Meter Complete W/R900i Pit Gal. Reg.	\$987.00
Neptune, 2" T10 Flg. Meter Complete W/ProCoder Wired Reg.	\$912.00
Neptune, 2" Coated Flanged Meter Strainer	\$315.00
Neptune, 3" Coated Flanged Meter Strainer	\$476.00
Neptune, 4" Coated Flanged Meter Strainer	\$665.00
Neptune, 6" Coated Flanged Meter Strainer	\$1,225.00
Neptune, 8" Coated Flanged Meter Strainer	\$1,922.00
Neptune, 10" Coated Flanged Meter Strainer	\$3,077.00
Neptune, 4" Stainless Steel UL-FM Basket Strainer	\$3,385.00
Neptune, 6" Stainless Steel UL-FM Basket Strainer	\$5,750.00
Neptune, 8" Stainless Steel UL-FM Basket Strainer	\$9,515.00
Neptune, 10" Stainless Steel UL-FM Basket Strainer	\$12,255.00
Neptune, 5/8"x3/4" T10 PB Bare Meter (Less Register)	\$60.00
Neptune, R900 Cellular Wall Endpoint	\$158.50
Neptune, R900 Cellular Pit Endpoint W/Internal Antenna	\$165.00
Neptune, R900 Replacement Pit Coax Antenna Only, 6'	\$50.00
Neptune, First Net Pit Coax Antenna Only, 6'	\$50.00
Neptune, R900i Pit Gallon Register Only – Any Size/Model	\$176.00
Neptune, ProCoder Wired Register Only – Any Size/Model	\$101.00

R900i Registers available as Ecoder or ProCoder model – same price.

Neptune, 1 ½" Mach 10 R900i Water Meter – <i>Any Length</i>	\$850.00
Neptune, 1 ½" Mach 10 Stand Alone Water Meter – <i>Any Length</i>	\$710.00
Neptune, 2" Mach 10 R900i Water Meter – <i>Any Length</i>	\$1,078.00
Neptune, 2" Mach 10 Stand Alone Water Meter – <i>Any Length</i>	\$938.00
Neptune, 3" Mach 10 R900i Gallon Meter – <i>12" Lay Length</i>	\$2,985.00
Neptune, 3" Mach 10 Stand Alone Gallon Meter – <i>12" Lay Length</i>	\$2,845.00
Neptune, 3" Mach 10 R900i Gallon Meter – <i>17" Lay Length</i>	\$3,060.00
Neptune, 3" Mach 10 Stand Alone Gallon Meter – <i>17" Lay Length</i>	\$2,920.00
Neptune, 4" Mach 10 R900i Gallon Meter – <i>14" Lay Length</i>	\$3,780.00
Neptune, 4" Mach 10 Stand Alone Gallon Meter – <i>14" Lay Length</i>	\$3,640.00
Neptune, 4" Mach 10 R900i Gallon Meter – <i>20" Lay Length</i>	\$3,880.00
Neptune, 4" Mach 10 Stand Alone Gallon Meter – <i>20" Lay Length</i>	\$3,740.00
Neptune, 6" Mach 10 R900i Gallon Meter – <i>18" Lay Length</i>	\$6,385.00
Neptune, 6" Mach 10 Stand Alone Gallon Meter – <i>18" Lay Length</i>	\$6,245.00
Neptune, 6" Mach 10 R900i Gallon Meter – <i>24" Lay Length</i>	\$6,540.00
Neptune, 6" Mach 10 Stand Alone Gallon Meter – <i>24" Lay Length</i>	\$6,400.00
Neptune, 8" Mach 10 R900i Gallon Meter – <i>20" Lay Length</i>	\$9,995.00
Neptune, 8" Mach 10 Stand Alone Gallon Meter – <i>20" Lay Length</i>	\$9,855.00
Neptune, 10" Mach 10 R900i Gallon Meter – <i>26" Lay Length</i>	\$12,450.00
Neptune, 10" Mach 10 Stand Alone Gallon Meter – <i>26" Lay Length</i>	\$12,310.00
Neptune, 12" Mach 10 R900i Gallon Meter – <i>19.7" Lay Length</i>	\$14,440.00
Neptune, 12" Mach 10 Stand Alone Gallon Meter – <i>19.7" Lay Length</i>	\$14,300.00
<u>Neptune 360 SaaS Platform + Firstnet Cellular Data Plan Annual Subscription</u>	
20,001-50,000 Connected Endpoints – (Per Meter/Per Year)	\$6.85
<u>Neptune 360 SaaS Platform (AMR) Annual Subscription</u>	
20,001-50,000 Connected Endpoints – (Per Meter/Per Year)	\$1.93
Neptune, R900 Belt Clip Transceiver	\$6,000.00
Neptune, MRX920 Mobile Data Collector	\$9,950.00



Meter & Automation Group

Freight: Allowed – FOB: City of Ormond Beach

Payment Terms: Net 30 Days – Check or ACH only.

Price Term: 1/1/2023 – 12/31/2023*

**(Due to current economic conditions, pricing subject to change prior to end of term).*

On behalf of everyone at Ferguson Waterworks and Neptune Technology Group, Inc., I would like to thank the City of Ormond Beach for its past business. We are looking forward to meeting your automated meter needs for many years to come.

Respectfully submitted,

Jarad Olson

AMR/AMI Specialists – Meter & Automation Group

Ferguson Waterworks

Phone: 352-504-1601

Email: jarad.olson@ferguson.com

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.L
Section:	CONSENT AGENDA			
Item Category:	Consent - Disposition Item	Res./Ord. No:		
Strategic Goal:	Governance - Other			
Department :	City Manager			
Subject:	Travel Approval for the City Manager			
Budget Impact:	Travel for the City Commission, City Manager and City Attorney are budgeted items.			
Summary:	The City's travel policy requires prior approval by the City Commission for travel by the City Commission where lodging accommodations or travel by air are necessary.			
Recommended Action:	It is respectfully requested that the City Commission approve the additional request for travel to attend the orientation for the ICMA Senior Fellowship Program for Military participants.			
Staff Contact:	Joyce Shanahan, City Manager, (386) 676-3200			
Approval:				
Kelly McGuire, Finance Director		2/2/2023		
Claire Whitley, Assistant City Manager		2/6/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Joyce Shanahan, City Manager
Date: February 21, 2023
Subject: Travel Approval for the City Manager
Commission Goal: Governance - Other

Introduction

The City's travel policy requires prior approval by the City Commission for travel by the City Commission, the City Attorney, or the City Manager where lodging accommodations or travel by air are necessary.

Background

At the December 6, 2022, meeting, the City Commission approved the travel request of the City Commission, City Manager and City Attorney to attend various conferences and events for 2023. This is an additional request for the City Manager to attend a two-day orientation for the ICMA (City/County Management Association) Senior Fellowship Program for Army participants on March 23 & 24, 2023, in Washington, D.C. The City was selected as one of the participants to partner with an Army Veteran currently serving in civil capacity. The Manager's airfare and lodging accommodations are paid by ICMA.

Discussion

Many military installations operate as small towns or cities with many of the same challenges and opportunities as their civilian counterparts. ICMA is partnering with the Army to prepare individuals to manage military installations through a city-county management fellowship.

The (CMSFP) is a program designed to enable Army participants to:

- Gain a better understanding of city/county management.
- Enable creation of enduring professional relationships with the leadership of a city or county.
- Collaborate with other senior professionals to exchange ideas and to discuss

shared challenges, successes, and opportunities.

- Leverage resources of ICMA, such as certificate programs and one-on-one coaching, and share the Army's story with colleagues outside the Department of Defense.

The CMSFP is a one-week (5-day), on-the-ground "shadowing" experience working with a city or county manager and his or her senior leaders. The experience will vary slightly based on the location, but generally each experience will include:

- Welcome meetings, city tour, lunch, and discussion with elected officials and senior management.
- Observation of community forums, seminars, and recognition ceremonies.
- Tours of airports, water and wastewater management facilities, emergency operations centers, police rides or station tours, parks and recreation facilities, administration facilities (city, town, or county hall), fleet management, public works, engineering, and capital projects, or other related facilities.
- Sessions on community engagement, strategic planning, community partnerships, empowering staff, resiliency, management techniques, managing policy, and administration are encouraged based on pilot experience after-action recommendations.

Included with the fellowship are the following additional resources offered by ICMA for the military designee:

- ICMA's Management Assessment.
- ICMA membership (including all member resources).
- ICMA Annual Digital Conference registration.
- Partnered with a coach/mentor through ICMA CoachConnect.
- Pre-fellowship orientation, fellowship planning, discussion, and evaluation in Washington, D.C. (March).

Program Details & Eligibility:

GS-14 to GS-15 (and equivalents on other pay plans, i.e., NF and GG) serving in deputy to installation commander and deputy depot commander or similar positions, including those who have served in such positions previously and those who possess the potential to serve in such positions in the near future. Colonel and Lieutenant Colonel installation and deputy installation commanders are also welcome, pending support and staff availability.

It is with great honor that the City of Ormond Beach was selected to participate in this program. The City previously participated with ICMA in a 12-week military veteran internship program. The city's intern, Larry Wheatcraft, is now a Senior Planner for the City of Edgewater.

Budget Impact

Travel for the City Commission, City Manager and City Attorney are budgeted items.

Citizen Impact

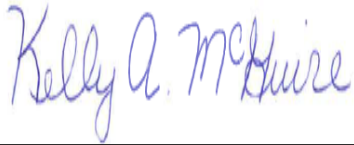
There is no citizen impact.

Recommendation

It is respectfully requested that the City Commission approve the additional request for travel to attend the orientation for the ICMA Senior Fellowship Program for Military participants.

Attachments:

Approvals:



Kelly McGuire, Finance Director

Date: February 02, 2023



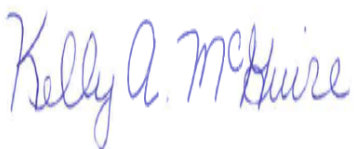
Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 7.M
Section:	CONSENT AGENDA			
Item Category:	Consent - Disposition Item	Res./Ord. No:		
Strategic Goal:	Governance - Other			
Department :	City Manager			
Subject:	City Manager Status Report, February 2023			
Budget Impact:				
Summary:	This item provides the City Commission monthly information regarding City activities.			
Recommended Action:	This report is for informational purposes and acceptance is recommended. Any additional information or clarification will be provided upon request, and staff will plan to proceed as directed.			
Staff Contact:	Joyce Shanahan, City Manager, (386) 676-3200			
Approval:				
Kelly McGuire, Finance Director		2/14/2023		
Claire Whitley, Assistant City Manager		2/15/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
From: Joyce Shanahan, City Manager
Date: February 21, 2023
Subject: City Manager Status Report, February 2023
Commission Goal: Governance - Other

Introduction

This item provides the City Commission monthly information regarding City activities.

Background

In order to keep the City Commission informed on a variety of issues in a comprehensive and timely manner, staff provides this report regarding the status of citywide activities. The purpose of the report is to highlight general information in the various areas of business such as financial, economic development, capital projects, planning and building activities.

Discussion

Reports

Please see the following reports attached to this memo:

1. Building Permit Activity January 2023
2. Capital Improvements Program (CIP) Status Report January 2023
3. Planning Memorandum February 7, 2023
4. Development Activity Report January 2023
5. Financial Status Report December 2022
6. Economic Development Report November 2022

CIP Projects

2023 Storm & Sewer Lining

- Bid were opened and are under evaluation. Bid award expected to be on the

March 21 commission meeting agenda.

Facility Hardening

- The construction is complete. Staff is working with the contractor to finalize documentation/paperwork.

PAC Renovations

- Work Authorization for construction management services is anticipated for the March 7 City Commission Meeting.

Future Workshops

All dates and topics are tentative and subject to change. Some items might be presented as discussion items on the regular Commission agenda.

Date

Topic

June 6
July 18

Capital Improvements Program and Draft Budget
Operating Budget Workshop

Recommendation

This report is for informational purposes and acceptance is recommended. Any additional information or clarification will be provided upon request, and staff will plan to proceed as directed.

Attachments:

1. Building Permit Activity January 2023
2. CIP Status Report January 2023
3. Planning Memorandum February 7, 2023
4. Development Activity Report January 2023
5. Financial Status Report December 2022
6. Economic Development Report January 2023

Approvals:



Kelly McGuire, Finance Director

Date: February 14, 2023



Claire Whitley, Assistant City Manager

Date: February 15, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

Monthly Building Permit Summary

January 1 to January 31, 2023 versus January 1 to January 31, 2022 and year to date:

Total Building Permits Issued, including	1/1 to 1/31/2023	1/1 to 1/31/2022	FY2022-23 year to date (1/31/23)	FY2021-22 year to date 1/31/22
Business Fire Inspection	6	8	23	18
Business Tax Receipt	11	10	47	23
Clearing, Tree Removal, Vegetation	20	19	49	55
Commercial Alterations	4	3	17	23
Commercial Buildings	0	2	5	1
Commercial Re-roof	4	1	24	11
Demolition	2	6	5	11
Dock	3	1	7	5
Door	23	19	0	3
Electrical (residential & commercial)	16	18	85	81
Fire Protection Systems	3	2	8	11
Garage or Carport	4	5	17	13
Garage sale	34	31	195	196
Gas	5	7	15	14
Generator	2	2	16	14
LDC (Driveways/Fences)	47	49	198	181
Mechanical (residential & commercial)	58	71	242	258
Mobile home set-up	6	2	20	4
Multi-Family Homes	0	0	0	18
Other categories (all other permits not listed)	17	22	179	202
Plumbing (residential & commercial)	16	10	60	34
Residential Remodel/Additions	5	14	31	44
Residential re-roof	150	161	555	434
Screen room/hard roof	1	1	2	11
Screen enclosure only	5	4	26	18
Shed	0	3	0	6
Signs	22	5	34	26
Single Family Homes	3	9	11	39
Site permit	2	0	8	3
Solar	13	18	51	40
Special Events	3	7	19	29
Swimming pool	8	9	26	30
Utility connection only	3	10	15	27
Windows	43	34	175	159
Total permits	539	563	2,165	2,042
Total Valuation	\$10,283,129	\$15,414,690	\$81,455,584	\$73,734,246
Total fees	\$61,981.76	\$81,992.19	\$321,344	\$332,265

CAPITAL IMPROVEMENT STATUS - as of February 1, 2023

Project	Status	Project Manager	Engineer/ Architect	Contractor	CIP Budget	Const Contract \$	Design Start	Bid Award	Const NTP	% Complete
Construction										
Facility Hardening	Project is substantially complete, however 3 windows for the PAC were damaged in shipment-awaiting delivery of replacements for installation.	Cole Buck	DJDesign	Paul Culver Construction	\$ 1,000,000	\$ 999,000		1/4/22	6/8/22	97%
SONC Gym	Final inspections were held, Contractor is completing punch list items. Final completion and project closeout is imminent.	Cole Buck	Zev Cohen	Saboungi Construction	\$ 1,100,000	\$ 1,079,880		8/4/21	1/3/22	99.8%
PD HVAC Upgrades	Construction has commenced. Materials are being delivered and stored.	George Lavatelli	SGM Engineering	General Mechanical Corporation	\$ 225,000	\$ 598,596		7/19/22	1/16/23	14%
CDBG South Washington Sidewalk Improvements	Project is complete.	Cara Culliver	In-House	Sanderson Concrete Construction	\$ 114,611 *CDBG grant award \$151,165	\$ 117,623		7/19/22	9/6/22	100%
WRF Clarifier Improvements	The Contractor has begun concrete work, anticipated delivery of covers is late February.	Mike Stephenson	Mead Hunt	SGS Contracting Services	\$ 550,000	\$ 546,700		8/16/22	10/3/22	6%
2022 Roadway Resurfacing	Project is substantially complete. Contractor is working on punch list items.	Cole Buck	In-House	Masci General Contractor	\$ 750,000	\$ 662,964		10/5/22	10/31/22	95%
Downtown: Sidewalk Renovations/Banding	A logistics meeting was held on January 5. Construction anticipated to commence after Bike Week.	Cara Culliver	In-House	P&S Paving	\$ 2,000,000	\$ 2,818,050		12/6/22		0%
EDC Feature Display Improvements	Construction Management Work Authorization has been rescheduled for approval at the January 24 City Commission meeting.	Alex Schumann	In-House	Hall Construction		\$ 88,732		1/24/23	1/26/23	0%
Hurricane Ian - Tennis Center Fence Replacement	Notice to Proceed was issued for January 27.	Dan D'Amato	In-House	Fence Services, Inc. d/b/a AAA Fence		\$ 68,350		1/24/23	1/27/23	0%
Bidding										
WTP Aeration, Clearwell & Splitter Box	Approval to bid has been rescheduled for the February 21 City Commission meeting.	Mike Stephenson	McKim/Creed		\$ 2,220,000					
2023 Storm & Sewer Lining	Project was advertised January 15, a pre-bid meeting was held February 2, and bids are due on February 15.	Dan D'Amato	In-House		\$ 950,000					
SONC Rental Pavilion Replacement	Approval to bid is scheduled for the February 21 City Commission meeting.	Dan D'Amato	In-House		\$ 65,000					

Project	Status	Project Manager	Engineer/ Architect	Contractor	CIP Budget	Const Contract \$	Design Start	Bid Award	Const NTP	% Complete
PAC Renovations	Pre-Construction Phase Services are complete. Bid award is anticipated for the March 7 City Commission meeting.	Alex Schumann	RLF/Bomar Construction		\$ 1,630,000					
Neighborhood Traffic Calming	A sole-source procurement of speed tables is scheduled for approval at the March 21 City Commission meeting.	Cole Buck	In-House		\$ 50,000					
Design										
Cassen Park Improvements	Project kick-off meeting was held on January 10.	Alex Schumann	Zev Cohen				1/23			0%
Doug Thomas Way Extension	Design in process	Alex Schumann	Upham		\$ 90,000		6/21			99%
WRF Upgrades	Awaiting design revisions from the Consultant.	Mike Stephenson	Mead Hunt		\$ 1,150,000		7/21			94%
Hurricane Ian-Roof Replacements	A bid package for hurricane damaged roof repairs/replacements has been prepared for bidding. Awaiting facility inspections by FEMA.	George Lavatelli	In-House				9/22			100%
CDBG North Ridgewood Sidewalk Improvements - East Side	Design is complete. Project will be bid upon receipt of CDBG documents and CDBG Notice to Proceed.	Cara Culliver	In-House		\$ 151,165		11/22			100%
Outdoor Fitness Station-Nova Community Park	Design is complete, an RFP is being prepared for bidding.	Cara Culliver	In-House		\$ 97,000		11/22			100%
2023 Lift Station 4P Rehabilitation	A Work Authorization for design services is scheduled for approval at the February 21 City Commission meeting.	George Lavatelli	McKim/Creed		\$ 335,000					0%
Hudson Wellfield Expansion	Work Authorization for design services approved by City Commission January 24, a design kick-off meeting is being scheduled.	George Lavatelli	Mead Hunt		\$ 300,000		2/23			0%
Septic to Sewer - Oak, Magnolia & Bonita	Design kick off meeting held. Survey work and resident notification to begin.	Alex Schumann	Upham		\$ 1,600,000		1/23			0%
Downtown - East Granada Utility Undergrounding	Consultant is preparing 90% design plans and specifications.	George Lavatelli	John Searcy		\$ 120,000		7/22			60%
2023 Lift Stations 11M & OBSC3 Rehabilitation	Staff is obtaining proposals from Underground Utility Continuing Contractor.	George Lavatelli	McKim/Creed		\$ 150,000					0%
Shadow Crossings Reuse Pump Facility Upgrades	A Work Authorization for design services is scheduled for approval at the February 21 City Commission meeting.	George Lavatelli	Parker Mynchenberg		\$ 240,000					0%
Airport Road Reclaimed Water Main PH 2	Requested proposal from Survey Consultant.	Cole Buck			\$ 150,000		1/23			0%

Project	Status	Project Manager	Engineer/ Architect	Contractor	CIP Budget	Const Contract \$	Design Start	Bid Award	Const NTP	% Complete
Stormwater Construction - Arbors Drive South	In-house design has commenced, however the existing stormwater system issues are considerably more complex than anticipated, and may require the services of a design Consultant.	Dan D'Amato	In-House		\$ 250,000		1/23			2%
Downtown Upgrades/Improvements - City Hall Landscaping	Preliminary design is in process.	Cara Culliver	In-House		\$ 60,000		1/23			1%

**CITY OF ORMOND BEACH
FLORIDA
PLANNING MEMORANDUM**

TO: City Commission
Joyce A. Shanahan, City Manager
Terri Hamsher, Executive Secretary
Randy Hayes, City Attorney
Claire Whitley, Assistant City Manager

Susan Dauderis, City Clerk
Steve Johnson, GIS
Taylor Lochert, City Clerk office
Melani Beringer, Support Services Administrator
Cassidi Ritz, Paralegal
Cindy Pinizzotto, Senior Paralegal

FROM: Steven Spraker, AICP, Planning Director

DATE: February 7, 2023

SUBJECT: Agendas for Upcoming Meetings

Listed below are the preliminary agenda items for upcoming meetings. This list is to help prepare you in advance to meet advertising, notice and report writing deadlines. Please let me know at your earliest convenience if there are any problems with these items.

MTG. DATE	MTG.	SUBMIT DEADLINE	ITEM				
2/7	CC	1/11	2nd Reading (if approved on first reading)				
			Item	Letter	To NJ	NJ Ad run	Post
			Ormond Central Self-Storage	Done -1/6	1/20	1/27	NA
			Stor-It, North Ormond	Done -1/6	1/20	1/27	NA
			101 Fiesta Drive, Land Use Map Amendment	Done -1/6	1/20	1/27	NA
			1st Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			RidgeHaven West, Zoning Map Amendment	Done 1/23	1/20	1/27	NA
			Tymber Creek Apartments – request for continuance	Done -1/6;1/25	1/20	1/27	NA
2/8			Tomoka Reserve Neighborhood meeting				
2/9	PB	1/25	Planning Board				
			Item	Letter	To NJ	NJ Ad run	Post
			Fence setback to ROW – LDC Amendment	NA	1/23	1/27	NA
			Meter fees – LDC Amendment	NA	1/23	1/27	NA
			Neighborhood meetings – LDC Amendment	NA	1/23	1/27	NA
			Ormond Art Museum – Shed Special Exception	Done 1/26	1/23	1/27	Done 1/26
2/20	HLPB		Cancelled				

MTG. DATE	MTG.	SUBMIT DEADLINE	ITEM				
2/21	CC	1/25	2nd Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			RidgeHaven West, Zoning Map Amendment	Done 1/23	2/6	2/10	NA
			Resolution				
			Item	Letter	To NJ	NJ Ad run	Post
			1089 N. US 1 Hwy, Itinerant Vending and Outdoor Music- SE renewal, exp. 3.3.2023	On/Before 2/7	2/6	2/10	NA
			1st Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			101 Fiesta Drive, Zoning Map Amendment	Done 2/7	NA	NA	NA
			Workshop/Discussion Item				
			Item	Letter	To NJ	NJ Ad run	Post
			Impact Fee Study Update	NA	NA	NA	NA
			3/1	BOAA	2/1	Cancelled	
			3/7	2/8		2nd Reading	
						Item	Letter
101 Fiesta Drive, Zoning Map Amendment	Done 2/7	2/17				2/24	NA
1st Reading							
Item	Letter	To NJ				NJ Ad run	Post
Tymber Creek Apartments Zoning & DO (Tentative)	On/Before 2/21	2/17				2/24	NA
3/9	PB					Planning Board	
			Item	Letter	To NJ	NJ Ad run	Post
			Impact Fees – Discussion item				
			475 N. Tymber Creek, Zoning Map Amendment PRD to SR				
			RidgeHaven PRD & Preliminary Plat				
			[T] 204 Magnolia Drive, Land Use Map Amendment				
			[T] Ormond Enclave				
			[T] Certificate of Use – LDC Amendment				
			3/20	HLPB			

MTG. DATE	MTG.	SUBMIT DEADLINE	ITEM				
3/21	CC	2/22	2nd Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			Tymber Creek Apartments Zoning & DO (Tentative)	On/Before 2/21	3/3	3/10	NA
			Resolution				
			Item	Letter	To NJ	NJ Ad run	Post
			Ormond Art Museum – Shed Special Exception	On/before 3/7	3/3	3/10	NA
			1st reading				
			Item	Letter	To NJ	NJ Ad run	Post
			Fence setback to ROW – LDC Amendment	NA	NA	NA	NA
			Meter fees – LDC Amendment	NA	NA	NA	NA
			Neighborhood meetings – LDC Amendment	NA	NA	NA	NA
4/4	CC		Scheduled to be canceled				
4/5	BOAA						
4/11	BFAB						
4/13	PB		Planning Board				
			Item	Letter	To NJ	NJ Ad run	Post
			Impact Fees – Ordinance				
4/17	HLPB						
4/18	CC	3/22	2nd reading				
			Item	Letter	To NJ	NJ Ad run	Post
			Fence setback to ROW – LDC Amendment	NA	3/31	4/7	NA
			Meter fees – LDC Amendment	NA	3/31	4/7	NA
			Neighborhood meetings – LDC Amendment	NA	3/31	4/7	NA

MTG. DATE	MTG.	SUBMIT DEADLINE	ITEM				
5/2	CC						
5/11	PB						
5/15	HLPB						
5/16	CC		1st Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			Impact Fee Amendments	NA	TBD	TBD	NA
6/6	CC		2nd Reading				
			Item	Letter	To NJ	NJ Ad run	Post
			Impact Fee Amendments	NA	TBD	TBD	NA
6/8	PB						
6/19	HLPB						
7/13	PB						
7/17	HLPB						
8/10	PB						
8/21	HLPB						
9/14	PB						
9/18	HLPB						
10/12	PB						
10/16	HLPB						

MTG. DATE	MTG.	SUBMIT DEADLINE	ITEM
11/09	PB		
11/20	HLPB		
12/07	PB		
12/18	HLPB		

Planning related City Commission items to be advertised by City Clerk's office

February 21, 2023

#	Item	Ad to be sent	Type	Run Date
1.	RidgeHaven West, Zoning Map Amendment	2/6	Display	2/10
2.	1089 North US Highway 1 – Outdoor Activity	2/6	Legal	2/10
3.				

March 7, 2023

#	Item	Ad to be sent	Type	Run Date
1.	101 Fiesta Drive, Zoning Map Amendment	2/17	Legal	2/24
2.	Tymber Creek Apartments Zoning & DO (Tentative)	2/17	Display	2/24
3.				

March 21, 2023

#	Item	Ad to be sent	Type	Run Date
1.	Tymber Creek Apartments Zoning & DO (Tentative)	3/3	Display	3/10
2.	Ormond Art Museum – Shed Special Exception	3/3	Legal	3/10
3.				

Planning projects

		Activity in last 14 days		Item completed
#	Project	Status		Staff Contact
Studies				
1.	FDEP Resiliency Grant	Grant awarded. Present to CC for acceptance and approved on 10/18/2022. Scheduled Kickoff meeting with ECFRPC and staff on Monday, 2/06/2023 at 1:30 pm CC Conf Rm.		BW
2.	Impact Fee Update	1. Discussion item occurred on 9/07/22. 2. Work Authorization for Police/Fire Impact Fees approved on 10/05/22. 3. Workshop/Discussion item tentatively scheduled for 2/21/2023 City Commission meeting. 4. PB discussion: 03/09/2023		SSS/BW
3.	Stormwater (Engineering lead)	Workshop scheduled for 2/7/2023.		Engineering
4.	Former Riverbend Golf Course (Economic Development lead)	Provided comments on scope of services to Economic Development Director. Approved on 10/05/21 City Commission agenda.		ED/SSS
5.	Water Supply Work Program	Required by the state. Due August 2023.		Utilities/SSS
Downtown				
6.	Sidewalk banding	Approved at 12/6/22 City Commission meeting.		Engineering
7.	Cabinet Wraps	Awaiting on artist agreements.		BW
8.	Cassen Park (Engineering lead - design)	Engineering lead. Approved at 12/6/22 City Commission meeting.		Engineering
9.	Annual Floodplain Management Progress Report	Complete and provide as disposition item on 4/18/23 CC agenda.		BW
Development projects				
10.	101 Fiesta Drive	Land Use Amendment: Recommended approval with conditions at 12/8/22 Planning Board. Scheduled for 2nd reading on 02/07/23 City Commission. Zoning Amendment: Recommended approval with conditions at 12/8/22 Planning Board. Scheduled for 02/21/23 & 03/07/23 City Commission. https://www.ormondbeach.org/1032/101-Fiesta-Drive		SSS
11.	Former Tomoka Golf course	Traffic study comments issued. Neighborhood meeting on 02/08/2023. 2 nd SPRC review submitted. https://www.ormondbeach.org/1013/Tomoka-Reserve		SSS/SPRC
12.	Ormond Central Self-Storage	Three story climate controlled self-storage facility that is a total of 106,140 square feet. Under SPRC review. Neighborhood meeting held on 9/13/22. Second neighborhood meeting occurred on 10/20/22. Recommended for approval at 12/8/22 Planning Board. Scheduled for 2nd reading on 02/07/23 City Commission. https://www.ormondbeach.org/1025/Ormond-Central-Self-Storage		SSS/SPRC
13.	Ormond Enclave (former Courtyards at Ormond Beach)	2 nd Submittal – SPRC comments provided. Neighborhood meeting held on 01/17/2023. Awaiting a res-submittal. https://www.ormondbeach.org/1029/Ormond-Enclave		SSS/SPRC

#	Project	Status	Staff Contact
14.	RidgeHaven	ISBA – complete Annexation – completed 3/1/22 & 3/22/22 – CC Land Use – completed PRD – submitted. <u>Awaiting on site plan resubmittal.</u> https://www.ormondbeach.org/1019/RidgeHaven Site plan reviewed and comments issued. Neighborhood meeting completed on 7/26/22. Site plan submittal returned to applicant. Awaiting a re-submittal.	SSS/SPRC
15.	Stor-It, North Ormond	Self-storage facility. Neighborhood meeting: 11/17/2022 Planning Board: 12/08/2022 (recommended approval) City Commission: 1/24/23 (Approved) & 2/7/23 https://www.ormondbeach.org/1026/Stor-It	SSS
16.	RidgeHaven West	Land Use Amendment: Recommended for approval at 12/5/22 Planning Board. Land use amendment approved on 1/10/23 CC meeting & 1/24/23 CC meeting. Zoning Amendment: Recommended for approval at 12/5/22 Planning Board. On CC agenda for 02/07/23 and 02/21/23. https://www.ormondbeach.org/1033/RidgeHaven-West	SSS
17.	Tymber Creek Apartments	300 Apartment units. Neighborhood meeting occurred. Awaiting SPRC resubmittal. Traffic update submitted and reviewed. Planning Board: 12/08/2022 (recommended denial) City Commission: Continuance requested to 02/07/2023 https://www.ormondbeach.org/1015/Tymber-Creek-Apartments	SSS/SPRC
Permitting software			
18.	Tyler/Energov Upgrade	Go live 10/01/23 (tentatively). Creation of processes. Conversion of existing permitting software. Working on creating permit processes.	CB/LM/RG/SSS
Land Development Code/Zoning amendments			
19.	Business Tax Receipt process	Amend BTR process, create certificate of use.	RG
20.	Creation of I-2 zoning district	Would apply to existing Volusia County land area north of Hull Road.	SSS
21.	Meter fee update	Planning Board: 02/09/2023 City Commission: 03/21/2023 City Commission: 04/04/2023	SSS
22.	Fence setback next to ROW	Planning Board: 02/09/2023 City Commission: 03/21/2023 City Commission: 04/04/2023	SSS
23.	Neighborhood meeting update	Planning Board: 02/09/2023 City Commission: 03/21/2023 City Commission: 04/04/2023	SSS
Other jurisdictions			
24.	Daytona Beach western development	1. Avalon Park preliminary plat approved. 2. No submittal for Avalon Park final plat. 3. Meetings occurring between Avalon Park, Daytona Beach and Ormond Beach. All traffic study comments were provided to Lassiter Transportation Group. 4. OB Life participation. 5. Received Avalon Park TIA resubmittal.	SSS

Miscellaneous			
#	Project	Status	Staff Contact
25.	State law changes	Implement changes based upon recent legislation. Include HB1059 and condo maintenance for multi-story buildings.	SSS/TG
26.	MacDonald House renaming recommendation of HLPB	Discussion item prepared. No City Commission date determined.	BW
27.	901 Airport Road	Amend land use and zoning to reflect city/county/SJRWMD purchase of property for preservation/park land.	
28.	204 Magnolia Avenue	Amend land use from "Public Institutional".	
Plats			
29.	Ormond Gateway	Plat approved. No additional action to date.	SSS
30.	Plantation Oaks, Unit 1A (Tiger Oaks)	Preliminary plat approved. Project under construction. Final plat comments provided. Approved on 06/07/22 & 7/19/22 City Commission meetings.	SSS
31.	Cupola Final Plat	City Commission review of Preliminary Plat on 1/18/22. Project under construction. Final plat approved on 01/24/23.	SSS/SPRC

Completed

#	Project	Status	Staff Contact
1.	1405 North US Highway 1	5.26 parcel annexation, Approved at 9/21/22 and 10/05/22 City Commission meetings.	SSS
2.	Joint purchase of the Penland property – Volusia Forever	Joint purchase of a 19-acre parcel with St. Johns River Water Management District and Volusia County. Property would be under a conservation easement and would allow passive recreation for bike and walking trails. Discussion item occurred August 16, 2022. Joint Participation Agreement approved at 9/21/22 City Commission meeting. Closing date is January 2023.	SSS/BW
3.	North Interchange storage/warehouse	1. Approved by Planning Board (5-0) with some conditions. 2. Approved 10/18/22 & 11/01/22 CC. 3. https://www.ormondbeach.org/1021/North-Interchange	SSS/SPRC
4.	Non-RidgeHaven parcels	1. Zoning amendments for properties in 2nd ISBA amendment not owned by RidgeHaven. 2. Approved by Planning Board (5-0) on 9/08/22. 3. Approved 10/18/22 & scheduled for 11/01/22 CC.	BW
5.	Volusia County parkland	1. Amend land use and zoning to Special Environmental. 2. Approved by PB on 8/11/22. 3. Land use scheduled for 9/21/22 & 10/05/22 City Commission meetings. 4. Zoning - Approved 10/18/22 & 11/01/22 CC.	SSS
6.	NFIP Community Assistance Visit (Audit)	5. Florida Department of Emergency Management Office of Floodplain Management (OFM) found the City of Ormond Beach compliant with the floodplain management program and deemed eligible to continue participating in the National Flood Insurance Program (NFIP).	BW

#	Project	Status	Staff Contact
7.	Tattersall at Tymber Creek	129-unit subdivision and associated site improvements. - Neighborhood meeting on 8/23/22. - Planning Board approved 4-1 on 9/08/22. - Approved 10/18/22 & 11/01/22 CC. https://www.ormondbeach.org/1024/Tattersall-at-Tymber-Creek	SSS/SPRC
8.	CRS 5-year Cycle Visit (Audit)	Completed-City will improve CRS rating to a “5” effective October 1, 2023.	BW
9.	Paradise Pointe Wall Waiver	Denied at Planning Board (6-1). Approved at City Commission on 12/6/22.	SSS
10.	Expiration of variance	Allow 1-year extension. Approved at 10/13/22 at Planning Board. City Commission: 12/06/22 – Approved City Commission: 01/10/23 – Approved	SSS
11.	ISBA update	Approved at 10/13/22 at Planning Board. City Commission: 12/06/22 – Approved City Commission: 01/10/23 – Approved	SSS
12.	Pool screen enclosure setback	Review pool screen enclosure setbacks. Approved at 10/13/22 at Planning Board. City Commission: 12/06/22 – Approved City Commission: 01/10/23 – Approved	SSS
13.	Townhomes	Review existing standards. Approved at 10/13/22 at Planning Board. City Commission: 12/06/22 – Approved City Commission: 01/10/23 – Approved	SSS
14.	Easements, Flagler County	Celedine	SSS
15.	Archer’s Mill Preliminary Plat	94 units. Recommended for approval at 12/5/22 Planning Board. Scheduled for 1/10/23 CC.	SSS
16.	251 South Atlantic Avenue, vacant lot – Ormond Holdings LLC	Neighborhood meeting held on 9/14/22. Recommended for approval at 12/5/22 Planning Board. Approved at 1/10/23 CC meeting & second reading on 1/24/23 CC. https://www.ormondbeach.org/1018/Ormond-Beach-Holdings-LLC	SSS/SPRC
17.	West Street partial ROW Vacation	<u>Notice of Intent:</u> City Commission: 12/06/22 – Approved <u>Vacation Ordinance:</u> City Commission: 01/10/23 City Commission: 01/24/23	
18.	Tides Edge Preliminary Plat	15 units. Preliminary Plat approved at 1/24/23 CC.	SSS

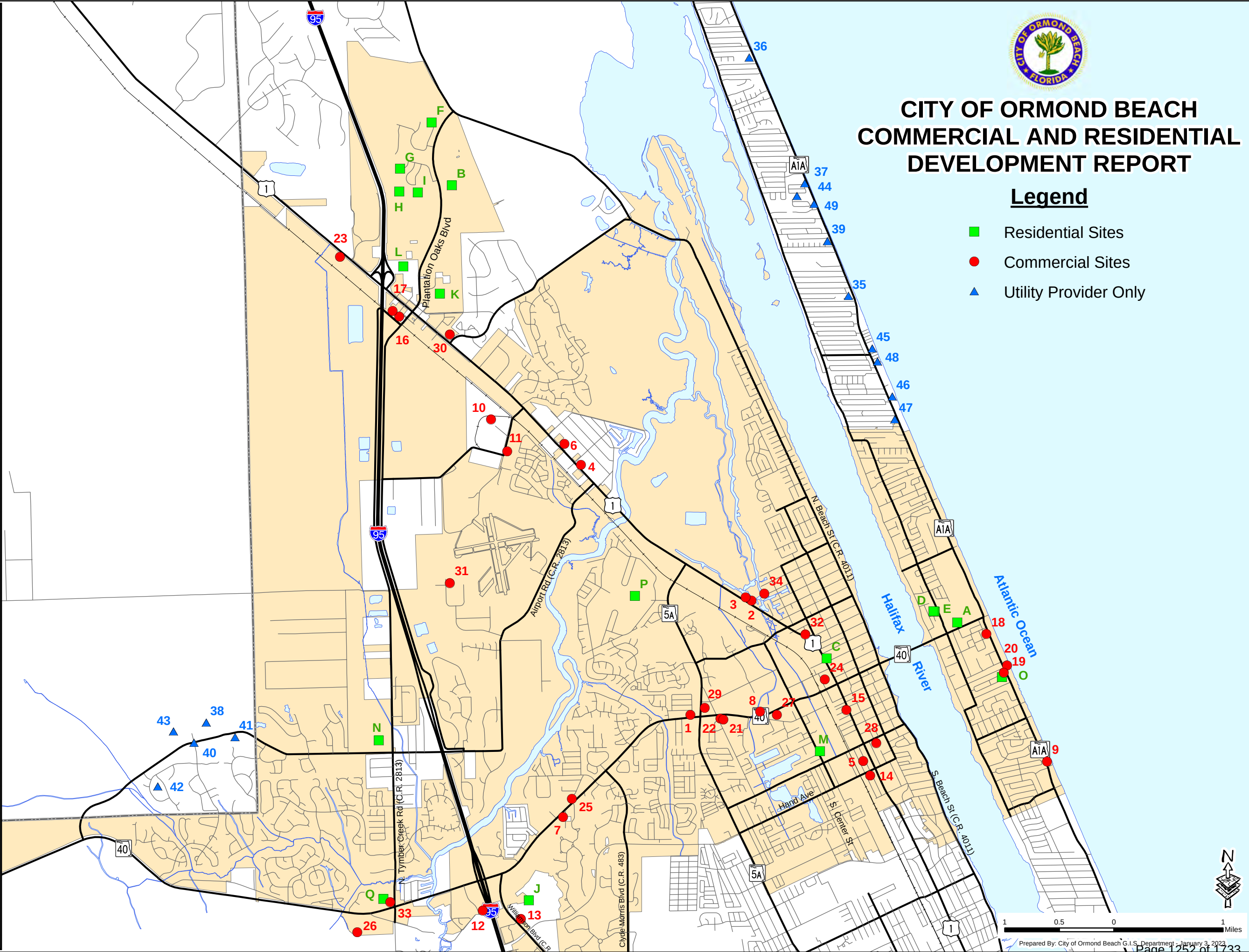


CITY OF ORMOND BEACH COMMERCIAL AND RESIDENTIAL DEVELOPMENT REPORT

Legend

- Residential Sites
- Commercial Sites
- Utility Provider Only

RESIDENTIAL PROJECTS	
A	121 East
B	Archers Mill - Phase 3A
C	Ormond Enclave (FKA Courtyards)
D	Cupola at Oceanside
E	Cupola at Oceanside - Final Plat
F	Plantation Oaks - 1A
G	Plantation Oaks - 2B
H	Plantation Oaks - 2C
I	Plantation Oaks - 2D
J	Regal Multifamily
K	Ridgehaven
L	Ridgehaven West
M	Stanton Grove
N	Tattersall at Tymber Creek
O	Tides Edge
P	Tomoka Reserve
Q	Tymber Creek Apartments
COMMERCIAL PROJECTS	
1	101 Fiesta Drive
2	783 North US Hwy 1 - Campana
3	801 North US Hwy 1
4	1089 North US 1
5	Air One
6	Caldera Spas
7	Complete Cardiology Expansion
8	Culvers Restaurant
9	Georgian Inn Recreation
10	Halifax Paving Office
11	Hull Road RV and Boat Storage
12	Interchange Depot
13	Love Whole Food Expansion
14	McNamara Warehouse
15	MetroNet
16	North Interchange Industrial Flex Space
17	North Interchange Self Storage
18	Ocean Club Ormond Beach
19	Ormond Beach Holdings LLC
20	Ormond Beach Holdings LLC
21	Ormond Central
22	Ormond Central Self Storage
23	Ormond Gateway
24	Perrott Depot
25	Revella at Ormond Beach ALF
26	Riverbend Church School Expansion
27	Shoppes at Granada Pointe
28	SONC Gymnasium
29	Splash Car Wash
30	Stor - It
31	Valiant Diners Expansion - Phase 3
32	VROOM Vechile Display
33	Walgreens/Commercal Area Improvements
34	West Street - Partial ROW Vacation
ORMOND BEACH - UTILITY PROVIDER ONLY	
35	101 Town and Country Lane
36	Beachview Cove
37	2284 Ocean Shore Boulevard
38	Celedine Subdivision (Flagler)
39	Corinthian Villas
40	Force Main Extension (Flagler)
41	Hunters Ridge Storage Site
42	Huntington Forcemain Extension (Flagler)
43	Iris Subdivision (Flagler)
44	Ocean Village Townhomes
45	Regency Plaza Condominium
46	Sands Point Condominium
47	Surf Style
48	Traders Inn Beach Club
49	Verona Oceanside



City of Ormond Beach Commercial Development Report, as of January 3, 2023

Applications, site plans, and public hearing documents may be viewed at the Planning Department website: <http://fl-ormondbeach.civicplus.com/index.aspx?NID=247>

		Change in project status								Project nearing completion								Projects reviewed this month		
#	Project	Description	Application Date	1st Review	2nd Review	3rd Review	4th Review	Neigh- borhood meeting	Advisory Board	City Commis- sion	Final Approval	DO Expiration	LDC Extension Expiration	Building Permit Info	Building Permit Value	Eng. Permit	Eng. Permit Constr. Value	Under Construc- tion	CO Issued	E or Arc = Project Engineer or Architect O = Owner A = Applicant
1	101 FIESTA DRIVE 101 Fiesta Dive PZ# 2023-003 & 004	Land use change from "Low Density Residential" to "Residential, Office, Retail" and zoning change from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital	10.25.22	NA				Not applicable	12.05.22 (4-1 approval with conditions)	Land Use 01.24.23 & 02.07.23										O = Murphy Dugan LLC
2	783 N US HWY 1, CAMPANA 783 North U.S. Highway 1 PZ# 2016-010	Construction of a 1,216 SF building for kayak rental & repair and associated site improvements on a 1.03 acre site.	11.06.15	11.20.15	02.03.16	03.11.16	05.20.16	Not applicable	Not applicable	Not applicable	05.24.16	Under Constr.		Issued 09.25.17	\$80,000	Issued 05.27.16	\$35,000	55%		E = Alann Engineering Group ARC/E: W.A. Cross O = Steven Campana
3	801 N US HWY 1 801 North U.S. Highway 1 PZ# 2022-072	Special Exception application to allow outdoor activities that include canoe and kayak rentals	06.29.22	07.13.22	Resubmittal due by 1.13.23			Not applicable	Required	Required										O = Tidewater Real Estate Holdings, LLC
4	1089 NORTH US 1 1089 North U.S. Highway 1 PZ# 2023-010	Special Event application to allow iterant vending and live outdoor music during special events. Also to allow weekend music under certain conditions.	11.23.22	NA				12.19.23	01.12.23	02.21.23										O = Karin Gehris
5	AIR ONE 390 Andalusia Avenue PZ# 2021-048	Construction of a 2,500 square foot storage/warehouse building on a 1.1 acre property.	04.07.21	04.28.21	06.15.21	07.07.21	08.19.21	Not applicable	Not applicable	Not applicable	09.15.21	09.15.23		Not applied	Not applied	Not applied	Not applied			E = Newkirk Engineering, Inc. O = Francis Family LLC
6	CALDERA SPAS 1141 North U.S. Highway 1 PZ# 2022-007	Renovate existing building for new business and associated site improvements. No new building square footage.	11.16.21	11.30.21				Not applicable	Not applicable	Not applicable	01.25.22	Under Constr.		Issued 02.23.22	\$23,000	Issued 02.22.22	\$38,000	95%		E = Newkirk Engineering, Inc. O = CMD Realty, LLC
7	COMPLETE CARDIOLOGY EXPANSION 1240 West Granada Boulevard PZ#2022-090	Enclosing of the former bank drive through with new building square footage totaling 4,326 square feet and associated site improvements. Total building square footage = 12,714.	07.29.22	08.14.22	11.21.22			Not applicable	Not applicable	Not applicable	12.13.23	12.13.25		Not applied	Not applied	Not applied	Not applied			E = Zev Cohen & Associates, Inc. O = Complete Cardiology, LLC ARC = BFP Design Inc
8	CULVER'S RESTAURANT 655 West Granada Boulevard PZ#2-23-008	Construction of a 4,460 square foot drive thru restaurant on a vacant 3.04 acre parcel. Part of Granada Pointe PBD.	11.04.22	11.20.22	12.23.22			Not applicable	Not applicable	Not applicable										E = Newkirk Engineering, Inc. O = Granada Pointe Investors, LLC APP = Jemini Investments, LLC
9	GEORGIAN INN RECREATION 749 South Atlantic Avenue PZ#2022-067	Construction of a 1,212 square foot recreation building and amenities for the Georgian Inn on a 0.72 acre parcel.	06.14.22	06.26.22	10.06.22			Not applicable	Not applicable	Not applicable										E = Parker Mynchenberg & Associates, Inc. O = Georgian Inn Beach Club Association, Inc.
10	HALIFAX PAVING OFFICE 860 Hull Road PZ#2023-013	Construct a new 8,800 square foot office. Property currently in unincorporated Volusia County.	12.20.22	Due 01.07.23				Not applicable	Not applicable	Not applicable										E = Parker Mynchenberg & Associates, Inc. O = Halifax Paving
11	HULL ROAD RV & BOAT STORAGE 835 Hull Road PZ# 2021-006	Proposed RV & Boat storage of 20 spaces and associated site improvements on a 0.78 acre parcel.	11.18.20	12.01.20				Not applicable	Not applicable	Not applicable	04.16.21	04.16.23		Not applicable	Not applicable	Not applied	Not applied			E = Newkirk Engineering, Inc. O = BMill Inc.
12	INTERCHANGE DEPOT 295 Interchange Boulevard PZ# 2021-072	Three story storage facility of 111,825 square feet on a 2.94 acre parcel and associated site improvements	06.11.21	06.25.21	09.16.21			08.05.21	10.14.21 (Approved 7-0)	11.16.21 (Approved 5-0) & 12.07.21 (Approved 5-0)	12.08.21	Under Constr.		Issued 05.10.22	\$12,619,451	Issued 03.02.22	\$711,015	65%		E = Newkirk Engineering, Inc. O = Southwest I-95, LLC APP = 295 Interchange LLC
13	LOVE WHOLE FOOD EXPANSION 275 Williamson Boulevard PZ# 2021-096	Addition of a 4,765 square foot building at the existing Love Whole property and associated site improvements.	10.06.21	10.24.21	04.19.22	04.26.22		Not applicable	Not applicable	Not applicable	06.10.22; 12.19.22	Under Constr.		Approved	\$985,000	Approved	\$151,149	0%		E = Zev Cohen & Associates, Inc. O = Love Whole Foods
14	McNAMARA WAREHOUSE 460 Andalusia Avenue PZ# 2021-030	Construction of an 840 square foot warehouse and associated site improvements on a 0.10 acre property.	01.12.21	01.28.21	03.16.21			Not applicable	Not applicable	Not applicable	04.27.21	Under Constr.		Issued 09.01.21	\$66,177	Issued	\$2,000	80%		E = Parker Mynchenberg & Associates, Inc. O =McNamara Construction

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		Change in project status								Project nearing completion								Projects reviewed this month		
#	Project	Description	Application Date	1st Review	2nd Review	3rd Review	4th Review	Neigh- borhood meeting	Advisory Board	City Commis- sion	Final Approval	DO Expiration	LDC Extension Expiration	Building Permit Info	Building Permit Value	Eng. Permit	Eng. Permit Constr. Value	Under Construc- tion	CO Issued	E or Arc = Project Engineer or Architect O = Owner A = Applicant
15	METRONET 124 South Yonge Street PZ# 2023-002	Proposed 344 square foot concrete unmanned fiberoptic communication hut.	10.28.22	11.15.22				Required	Not applicable	Not applicable										E = Metro Fibernet LLC O = Coast to Coast Construction
16	NORTH INTERCHANGE INDUSTRIAL FLEX SPACE 520 Flagler Road PZ# 2022-076	Proposed two 11,999 square foot industrial flex space buildings on 2.34 acres and associated site improvements.	06.29.22	07.18.22	08.16.22	09.01.22		Not applicable	09.08.22, Recommended for Approval (5-0)	10.18.22 (Approved) & 11.01.22	11.17.22	11.17.24		Not applied	Not applied	Not applied	Not applied			E = Newkirk Engineering, Inc. O = BHT Holdings, LLC
17	NORTH INTERCHANGE SELF STORAGE 540 Flagler Road PZ# 2022-075	Proposed 4-story self storage facility (110,900 square feet) with 28 RV and boat parking spaces on 3.40 acres and associated site improvements.	06.30.22	07.18.22	08.17.22	09.01.22		Not applicable	09.08.22, Recommended for Approval (5-0)	10.18.22 (Approved) & 11.01.22	11.22.22	11.22.24		Not applied	Not applied	Not applied	Not applied			E = Newkirk Engineering, Inc. O = BHT Holdings, LLC
18	OCEAN CLUB ORMOND BEACH 88 South Atlantic Avenue PZ# 2019-026	Demolition of existing building (10,866 SF) and construction of a new retail shop (8,596 SF) and related site improvements.	01.15.19	01.31.19	06.06.19	06.03.21		06.19.19	07.11.19	08.20.19 & 11.05.19 - Approved	08.08.21	Under Constr.		Issued 11.03.22	\$1,800,000	Issued 12.07.22	\$549,000	10%		E = The Performance Group O = 88 South Atlantic, LLC
19	ORMOND BEACH HOLDINGS LLC 251 South Atlantic Avenue PZ #22-018(b)	Proposed five story, 95,700 square foot hotel with 137 rooms, associated driveways, parking (108 spaces east of SRA1A and 62 spaces west of SRA1A) stormwater, utilities, signage, lighting, landscaping, public sidewalk and ADA beach access, and hotel related beach access	03.09.22	04.04.22	06.13.22	08.24.22	09.07.22	09.14.22	12.05.22 Approved 5-0	01.10.23 & 01.24.23				Not applied	Not applied	Not applied	Not applied			E = Parker Mynchenberg & Associates, Inc. O = Memorial Health Systems, Inc. APP/O = Ormond Beach Holdings, LLC
20	ORMOND BEACH HOLDINGS LLC 264 South Atlantic Avenue PZ #22-018(a)	Land use application from "Public Institutional" to "Low Intensity Commercial" and "Low Density Residential"	05.06.22	05.18.22	06.14.22			09.14.22	12.05.22 Approved 5-0	01.10.23 & 01.24.23				Not applied	Not applied	Not applied	Not applied			E = Parker Mynchenberg & Associates, Inc. O = Memorial Health Systems, Inc. APP = Ormond Beach Holdings, LLC
21	ORMOND CENTRAL 1 South Old Kings Road PZ# 2015-072	Proposed 4 unit, 8.73 acre commercial development. Project proposes site improvements to develop 4 pad ready sites.	04.09.16	04.26.16	11.16.16	02.01.17	08.02.17	08.30.17	10.12.17 Recommended Approval	11.21.17 & 12.05.17 Approved	12.08.17	Under Constr.		Not Applicable	Not Applicable	Issued 11.01.22	\$907,057	10%		O = Ormond Central Investors, LLC E = Newkirk Engineering, Inc.
22	ORMOND CENTRAL SELF STORAGE 1 South Old Kings Road PZ# 2022-092	Proposed three story building for a 106,140 square foot climate controlled self-storage facility. Overall building square footage allowed of 131,140 on 8.73 acres.	08.07.22	08.25.22	11.20.22	12.17.22		09.13.22 and 10.20.22	12.08.22 - Approved 5-0	01.24.23 & 02.07.23										E = Newkirk Engineering, Inc. APP = Ormond Beach Dunamis Storage, LLC O = Ormond Central Investors, LLC
23	ORMOND GATEWAY 1670 North U.S. Highway 1 PZ# 2020-091	Development of a three lot commercial subdivision and associated site improvements.	09.11.20	10.06.20	12.16.20	02.01.20		Not applicable	01.14.21 Approved	2.16.21 Approved	03.01.21	03.01.23		Not applied	Not applied	Not applied	Not applied			E = Zev Cohen & Associates, Inc. O = Destination Interchange, LLC
24	PERROTT DEPOT 29 North Perrott Drive PZ #2021-029	Redevelopment of 1.86-acre site that has an existing 4,834 distribution/warehouse use to include 12,540 square feet of self-storage buildings.	01.12.21	02.02.21	03.19.21	05.24.21		02.17.21	Not applicable	Not applicable	06.08.21 Revision 11.09.21	Under Constr.		Issued 02.17.22	\$410,000	Issued 12.03.21	\$250,000	Phase 1 complete		E = Newkirk Engineering, Inc. O = Hand & Yonge, LLC ARC = BPF Design, Inc.
25	REVELLA AT ORMOND BEACH ALF 1211 West Granada Boulevard PZ# 2021-073	150 resident Assisted Living Facility, 120,501 SF on 5.54 acres and associated site improvements	05.29.21	06.27.21	08.31.21			06.28.21	Not applicable	Not applicable	09.28.21	Under Constr.		11.08.22	\$29,723,266	Issued 04.26.22	\$2,184,284	30%		E = Mark Dowst & Associates, Inc. O = 1245 Blvd. Investors, LLC APP = Ormond Beach Investments, LLC
26	RIVERBEND CHURCH SCHOOL EXPANSION 2080 West Granada Boulevard PZ# 2022-036	Special Exception amendment to increase number of allowed students from 200 to 600, including the construction of new classrooms totaling 13,327 square feet.	03.11.22	03.27.22	07.20.22			07.25.22	08.11.22 Approved	09.21.22	09.22.22	Under Constr.		Issued	\$1,145,192	Not applied	Not applied	25%		E = Mark Dowst & Associates, Inc. O = Riverbend Community Church, Inc.
27	SHOPPES AT GRANADA POINTE 550 West Granada Boulevard PZ# 2019-120	Construction of a 21,114 square foot building on 2.52 acres within the Granada Pointe development and associated site work.	10.17.19	11.04.19	12.02.19			Not applicable	Not applicable	Not applicable	12.14.19	Under Constr.	12.14.22	Not applied	Not applied	Issued 03.11.22	\$486,082	0%		E = Newkirk Engineering, Inc. O = Granada Pointe Investors, LLC ARC = BPF Design, Inc.
28	SONC GYMNASIUM 176 Division Avenue PZ# 2021-008	Construction of a gymnasium of 7,429 SF over existing outdoor basketball court.	11.11.20	11.24.20	01.26.21			Not applicable	Not applicable	Not applicable	02.21.21	Under Constr.		Issued 01.03.22	\$1,738,905	Issued 01.03.22	\$142,110	95%		E = Zev Cohen & Associates O = City of Ormond Beach ARC = DJ Design, Inc.

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29	SPLASH CAR WASH 55 North Nova Road PZ# 2022-041	Redevelopment of a 2.53 acre parcel of a vacant church for a full service car wash with a 9,956 square foot building.	04.27.22	05.11.22	06.06.22	07.29.22	08.10.22	Not applicable	06.09.22 Approved	07.19.22 & 08.03.22 Approved	09.21.22	09.22.24		Not applied	Not applied	Not applied	Not applied			E = Upham Engineering O = Port Orange Investors, LLC APP = Ormond Car Wash Investments, LLC
30	STOR-IT 1405 North US Highway 1 PZ# 2022-096	Proposed indoor self-storage facility of 123,534 square feet (three stories) on 5.26 acres and associated site improvements.	08.11.22	08.29.22	11.09.22			11.17.22	12.08.22 Approve 5-0	01.24.23 & 02.07.23										E = Parker Mynchenberg & Associates, Inc. O = Vanacore Commercial Property, Inc.
31	VALIANT DINERS EXPASNION, PHASE 3 15 West Tower Circle PZ# 2022-027	Expansion of existing facility with a 11,250 square foot building and associated site improvements	02.21.22	03.09.22	08.09.22	09.16.22	10.22.22	Not applicable	Not applicable	Not applicable	11.17.22	Under Constr.		Issued 11.16.22	Not applied	Approved	\$240,000	0%		E = Zev Cohen & Associates O = Padwell Holdings, LLC
32	VROOM VEHICLE DISPLAY 305 North Yonge Street PZ# 2023-001	Site improvements for vehicle display associated with vehicle sales including landscaping.	10.18.22	10.24.22				Not applicable	Not applicable	Not applicable	11.07.22	11/07.24		Not Applicable	Not Applicable	Not applied	Not applied			E = Upham, Inc. O = Jaidy Franco
33	WALGREENS/COMMERCIAL AREA IMPROVEMENTS 2001 West Granada Boulevard PZ# 2022-038	Modifications to the access to West Granada Boulevard and stormwater improvements to Walgreens site	03.21.22	04.05.22	04.22.22	06.03.22	06.28.22	Not applicable	Not applicable	Not applicable	07.14.22	07.14.24		Not applied	Not applied	Not applied	Not applied			E = Newkirk Engineering, Inc.
34	WEST STREET, PARTIAL ROW VACATION 363 Putnam Avenue PZ# 2022-114	Partial right-of-way vacation for a portion of West Street.	09.28.22	10.24.22	11.10.22			Not applicable	Notice of Intent 12.06.22	01.10.23 & 01.24.23				Not applied	Not applied	Not applied	Not applied			O/A = Megan Ford

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Ormond Beach is Utility Provider Only																				
35	101 TOWN & COUNTRY LANE 101 Town & Country Lane PZ #2019-078	Utility connection for existing multi-family development.	05.07.19	06.10.19	07.07.19			Outside City	Outside City	Outside City	07.18.19	Under constr.	NA	Not applicable	Not applicable	Utilities only Issued 09.11.2019	\$126,650	40%		E = Ultra Design Consultant, Inc.
36	BEACHVIEW COVE 2960 Oceanshore Boulevard PZ#21-045	28 lot subdivision in Volusia County. Utility connection only	08.24.21	09.06.21	10.01.21	10.29.21		Outside City	Outside City	Outside City	11.11.21	06.15.23		Not applicable	Not applicable	Not applied	Not applied			E = Alliant O = Lake Pointe Villas LLC
37	2284 OCEAN SHORE BOULEVARD 2284 Ocean Shore Boulevard PZ-2021-045	Septic to sewer connection	03.21.21	04.05.21	05.25.21			Outside City	Outside City	Outside City	06.15.21	06.15.23		Not applicable	Not applicable	Not applied	Not applied			E = Alann Engineering Group O = Steven Sahai
38	CELEDINE SUBDIVISION (FLAGLER) PZ# 2021-069 Flagler County	Utility connection for 99 single-family homes. Flagler County (Hunter's Ridge).	05.12.21	06.07.21	08.30.21	10.19.21		Outside City	Outside City	Outside City	11.22.21	Under Constr.		Not applicable	Not applicable	Issued 06.24.22	\$1,073,894 utilities only	25%		E = Alann Engineering Group O = U.S. Capital Alliance, LLC
39	CORINTHIAN VILLAS PZ# 2023-011 1926 Ocean Shore Boulevard	Utility connection for existing multi-family development.	11.29.22	12.06.22				Outside City	Outside City	Outside City				Not applicable	Not applicable	Not applied	Not applied			E = Clearwater Solutions, LLC O = Corinthian Villas
40	FORCE MAIN EXTENSION (FLAGLER) PZ# 2021-070 Airport Road right-of-way	Force main extension in Flagler County (Hunter's Ridge DRI) along Airport Road	05.12.21	06.07.21	08.30.21			Outside City	Outside City	Outside City	08.31.21	Under Constr.		Not applicable	Not applicable	Issued 06.20.22	\$834,160 utilities only	98%		E = Alann Engineering Group O = U.S. Capital Alliance, LLC
41	HUNTER'S RIDGE STORAGE SITE 2730 Airport Road PZ# 2022-100	Flagler County utility connection for self-storage facility. Building square footage = 102,214 on 10.44 acres	09.19.22	09.27.22				Outside City	Outside City	Outside City	12.20.22			Not applicable	Not applicable	Not applied	Not applied			E = Alann Engineering Group O = Preston Court II, LLC
42	HUNTINGTON FORCE MAIN EXTENSION Huntington subdivision PZ #-19-024(A)	Force main extension within the Huntington subdivision	08.19.19	09.10.19				Outside City	Outside City	Outside City	04.29.20	Under Constr.		Not applicable	Not applicable	Approved (21-7125) 09.27.21	\$117,025	98%		E = Zev Cohen and Associates, Inc.
43	IRIS SUBDIVISION (FLAGLER) PZ# 2021-071 Flagler County	Utility connection for 76 single-family homes. Flagler County (Hunter's Ridge)	05.12.21	06.07.21	10.29.21			Outside City	Outside City	Outside City	01.10.22	01.10.24		Not applicable	Not applicable	Not applied	Not applied			E = Alann Engineering Group O = U.S. Capital Alliance, LLC
44	OCEAN VILLAGE TOWNHOMES 90 Verona Vista Ct. PZ# 2020-056	19 unit townhome development on 3.75 in Volusia County.	05.21.20	06.03.20				Outside City	Outside City	Outside City	07.17.20	Under Constr.	NA	Not applicable	Not applicable	Issued 11.02.21	\$139,028	90%		E = Alann Engineering Group, Inc. O = Cornelius Prior APP = John Wine
45	REGENCY PLAZA CONDOMINIUM 1415 Ocean Shore Boulevard PZ# 2022-104	Sewer connection for a 133 multi-family condominium.	09.13.22	09.27.22				Outside City	Outside City	Outside City	11.07.22	11.07.24		Not applicable	Not applicable	Not applied	Not applied			E = Saltus Engineering, Inc. O = Regency Plaza Condominium
46	SANDS POINT CONDOMINIUM 1167 Ocean Shore Boulevard PZ# 2022-103	Sewer connection for a 20 multi-family condominium.	10.03.22	10.22.22				Outside City	Outside City	Outside City	11.14.22	11.14.24		Not applicable	Not applicable	Not applied	Not applied			E = Robert Marshall. P.E. O = Sands Point Condominium
47	SURF STYLE 1054 Ocean Shore Boulevard PZ# 2022-006	Volusia County project. Development of a 10,890 building. SPRC review is for the utility connection.	11.16.21	11.29.21				Outside City	Outside City	Outside City	01.10.22	01.10.24		Not applicable	Not applicable	Not applied	Not applied			E = Zev Cohen and Associates, Inc. O = 1054 Ocean Shores Blvd, LLC
48	TRADERS INN BEACH CLUB 1355 Ocean Shore Boulevard PZ #2022-031	Connection to city sewer services, including lift station.	03.10.22	03.16.22				Outside City	Outside City	Outside City	04.08.22	Under Constr.		Not applicable	Not applicable	Issued 11.17.22	\$145,475			E - Mark Dowst & Associates O = Traders Inn Beach Club Association, Inc.
49	VERONA OCEANSIDE PZ #2020-011 2162 Ocean Shore Boulevard	Volusia County project. Replat of 3.50 acres into 5 single-family lots and 18 multi-family townhome lots.	12.08.19	12.27.19	06.08.20			Outside City	Outside City	Outside City	06.18.20	Under Constr.	NA	Not applicable	Not applicable	Utilities only Issued 05.19.21	\$117,270	95%		O = MHK Of Volusia County E = Parker Mynchenberg & Associates

City of Ormond Beach Residential Development Report, as of January 3, 2023

#	Project	Description	Application Date	1st Review	2nd Review	3rd Review	4th Review	Neighborhood meeting	Advisory Board	City Commission	Final Approval	DO Expiration	LDC Extension Expiration	Eng. Permit	Eng. Permit Constr. Value	Under construction	E or Arc = Project Engineer or Architect O = Owner A = Applicant
A	121 EAST 121 East Granada Boulevard PZ #2022-098	Proposed multi-story multi-family development of 24 units	08.12.22	09.01.22				Required	Required	Required							E = Zev Cohen & Associates, Inc. O = Dime Rock Properties, LLC
B	ARCHER'S MILL, PHASE 3A Plantation Oaks Boulevard PZ #2022-091	94 single-family lots on 42.38 acres	08.01.22	08.22.22	10.18.22	Due 01.05.23		Not Required	12.05.22 Approved	01.10.23							E = Parker Mynchenberg & Associates, Inc. O = Plantation Oaks of Ormond Beach, LLC
C	ORMOND ENCLAVE (FKA COURTYARDS) 135 North Yonge Street PZ# 2021-079	Construct 64 unit multi family apartment complex.	06.17.21	07.09.21	10.19.22			08.15.21	Required	Required							E = Parker Mynchenberg & Associates, Inc. O = CST Holdings, LLC ARC = BPF Design
D	CUPOLA AT OCEANSIDE 100 North Halifax Drive PZ# 2021-068	12 two story townhomes - previously Halifax 100- and associated site improvements.	05.17.21	06.22.21				Completed	Approved	Approved	08.25.21	Under construction	Under construction	Issued 09.03.21	\$548,099	85%	E - Newkirk Engineering O = Halifax Enterprises LLC APP = Halifax Enterprises LLC
E	CUPOLA AT OCEANSIDE FINAL PLAT 100 North Halifax Drive PZ#2022-079	Final plat of 12 townhomes.	07.19.22	08.03.22	09.24.22	10.29.22	12.06.22	Not Required	Not Required	01.10.23 & 01.24.23							E - Newkirk Engineering O = Halifax Enterprises LLC
F	PLANTATION OAKS, 1A 1395 Fountain View Street PZ# 2020-029	Development of 121 lots on 100.91 acres. Preliminary plat. Single family homes.	02.06.20	03.01.20	04.09.21			Not Required	PB 05.13.21 Approved	CC 06.01.21 Approved	08.27.21	Under construction	Under construction	Issued 09.17.21	\$3,400,200	80%	E = Parker Mynchenberg & Associates, Inc. O = Plantation Oaks of Ormond Beach, LLC
G	PLANTATION OAKS, 2B 2389 Destrenan Drive PZ# 2020-024	Development of 125 lots on 89.16 acres. Manufactured home phase.	12.14.17	01.24.18	07.17.18			Volusia County approval	Volusia County approval	Volusia County approval	09.20.18	Under construction	Under construction	Issued 03.29.2021	\$2,390,520	30%	E = Parker Mynchenberg & Associates, Inc. O = Plantation Oaks of Ormond Beach, LLC
H	PLANTATION OAKS, 2C 2124 Esplanada Drive PZ# 2020-025	Development of 121 lots on 63.12 acres. Manufactured home phase.	12.14.17	2.07.18	07.17.18			Volusia County approval	Volusia County approval	Volusia County approval	09.20.18	Under construction	Under construction	Issued 09.17.21	\$3,044,572	10%	E = Parker Mynchenberg & Associates, Inc. O = Plantation Oaks of Ormond Beach, LLC
I	PLANTATION OAKS, 2D 2258 Chretien Drive PZ# 2020-026	Development of 84 units on 27.32 acres. Manufactured home phase.	12.14.17	02.12.18	08.24.18			Volusia County approval	Volusia County approval	Volusia County approval	09.20.18	Under construction	Under construction	Issued 09.17.21	\$1,784,746	5%	E = Parker Mynchenberg & Associates, Inc. O = Plantation Oaks of Ormond Beach, LLC
J	REGAL MULTIFAMILY 215 Williamson Boulevard PZ-22-047	Redevelopment of 310 multi-family units on 12 acres	04.22.22	05.11.22	07.20.22	09.21.22	10.19.22 11.20.22 12.11.22	Not Required	06.09.22 Approved	07.19.22 & 08.03.22 Approved		Submitted	Not issued	Not applied	Not applied		O = Southwest I-95, LLC E = Newkirk Engineering APP = LIV Development
K	RIDGEHAVEN Plantation Oaks Boulevard & Addison Drive PZ-22-061	96 duplex units and 202 single-family lots within a Planned Residential Development on 103.45 acres	05.23.22	06.13.22	10.14.22	12.20.22		07.26.22	Required	Required							O = Snilloc Family Limited Partnership E = Parker Mynchenberg & Associates, Inc. APP = RidgeHaven LLC

City of Ormond Beach Residential Development Report, as of January 3, 2023

L	RIDGEHAVEN WEST 3136-01-08-0010 and 3136-01-09-0001 PZ-23-005 & 006	Land use from "Low Intensity Commercial" to "Medium Density Residential". Zoning from B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse	10.31.22 & 11.15.22	NA				NA	12.05.22 Approval (5-0)	Land Use 01.10.23 & 01.24.23							O = RCM Properties, LLC
M	STANTON GROVE 183 South Orchard PZ-22-062	21 unit rental townhome project consisting of three buildings on 3.92 acres.	05.27.22	06.13.22	8.25.22	09.07.22	09.23.22	Not required	Not required	Not required	10.29.22	10.29.24	Not applied	Not applied	Not applied		E = Newkirk Engineering O = Stanton Grove, LLC
N	TATTERSALL AT TYMBER CREEK TyMBER Creek Road and Airport Road PZ# 2022-082	Construction of 129 lot subdivision and associated site improvements.	07.12.22	08.12.22	08.30.22			08.23.22	09.08.22 Approval (4-1)	10.18.22 Approved (3-2) & 11.01.22							E = Zev Cohen & Associates, Inc. O = TyMBER Sky, LLC & Enclave of TyMBER Creek LLC APP = Paylin TyMBER 1 and 2, LLC
O	TIDES EDGE 264 South Atlantic Avenue PZ# 2022-018	Preliminary plat for 15 single-family lots.	05.31.22	06.13.22	09.07.22	11.20.22		09.14.22	12.05.22	01.10.23 & 01.24.23							E = Parker Mynchenberg & Associates, Inc. O = Memorial Health Systems, Inc. APP = Contender Development, Inc.
P	TOMOKA RESERVE 20 Tomoka Oaks Boulevard PZ#-2022-043	Establishment of a Development Order for the former Tomoka Oaks Golf Course property of 147.94 acres. The application seeks 300 residential units or 2.03 units per acre	04.20.22	05.03.22				Required	Required	Required							O = Triumph Oaks of Ormond Beach I, LLC E - Zev Cohen & Associates, Inc. APP = Cobb Cole
Q	TYMBER CREEK APARTMENTS 2011 West Granada Boulevard PZ#2022-008	300 multi-family units and associated site improvements on a vacant 19.62 acre parcel.	12.07.21	12.27.21	04.28.22	06.23.22	7th - 12.09.22	06.08.22	12.08.22 Denial (5-0)	01.24.23 & 02.07.23							E - Newkirk Engineering O = VCP Ormond Beach, LLC ARC = English Associates, Inc.

Planning public hearing items

City Commission items					
File Number	Item	Description	Planning Board	City Commission	City Commission
LDC 2022-106	Land Development Code Amendment, Townhouses in the R-4, R-5, and R-6 zoning districts	This is an administrative amendment to the Land Development Code (LDC), Chapter 2, District and General Regulations, Article II, District Regulations, Section 2-17, R-4, Single-Family Cluster & Townhouse Zoning District, Section 2-18, R-5, Multifamily Medium Density Zoning District, and Section 2-19, Multifamily Medium High Density Zoning District and Chapter 2, District and General Regulations, Article IV, Conditional and Special Exception Regulations, Section 2-57, Criteria for review of specific conditional and special exception, subsection (84), to amend the dimensional standards and conditional use criteria for townhouses.	Approval 7-0	12.06.22, Approved 5-0	01.10.2023
LDC 2022-108	Land Development Code Amendment, Screen porches/enclosures	This is an administrative amendment to the Land Development Code (LDC), Chapter 2, District and General Regulations, Article III, General Regulations, Section 2-50, Accessory uses, subsections (z) Pools and (cc) Screen porches/enclosures to: (1) amend the required rear yard setback for screen enclosures from ten feet (10') to five feet (5') and (2) amend the required side yard setback for screen enclosures from seven and one-half feet (7½') to five feet (5').	Approval 7-0	12.06.22, Approved 5-0	01.10.2023
LDC 2022-109	Land Development Code Amendment, Variance expiration	This is an administrative amendment to the Land Development Code (LDC), Chapter 1, General Administration, Article II, Administration and Enforcement, Section 1-14(3), Expiration of a development order to amend the expiration date of a variance from one (1) year to two (2) years.	Approval 7-0	12.06.22, Approved 5-0	01.10.2023
LDC 2022-112	Land Development Code Amendment, Municipal Service Area	This is an administrative request to amend the Land Development Code (LDC) Chapter 2 – District and General Regulations, Article VII – North U.S. Highway 1 Interlocal Planning and Municipal Service Area, Division 2, Sec. 2-84(a) to add the Book and Page numbers for the second amended Interlocal Service Boundary Agreement (ISBA)	Approval 7-0	12.06.22, Approved 5-0	01.10.2023
PZ# 2020-24	Plantation Oaks, Dedication of Utility Easement (Phase 2B)	This is a request to accept a missing portion of an access, maintenance and utility easement as part of phase 2B of the Plantation Oaks Planned Residential Development that connects to phase 1A of the Plantation Oaks subdivision. The easement area is 5,621 square feet and is 50' in width and ranges from 84' to 109' in length. The Plantation Oaks Planned Residential Development is a private subdivision and phase 2B is one master tract and is not platted. The easement is a mechanism to ensure City staff have the ability to access and maintain the water and sewer infrastructure in the subdivision.	NA	01.10.2023	NA
PZ# 2021-069	Celedine Subdivision, Dedication of Easement (Lift Station)	This is a request to accept an access, maintenance, and utility easement for a public lift station within the Celedine Subdivision (Celedine) in the Hunter's Ridge residential subdivision located in Flagler County's portion of the Hunter's Ridge Development of Regional Impact. Celedine contains 99 single-family lots on 39.83 acres.	NA	01.10.2023	NA
PZ# 2021-069	Celedine Subdivision, Dedication of Easement (Utility)	This is a request to accept an access, maintenance, and utility easement within the Celedine Subdivision (Celedine) in the Hunter's Ridge residential subdivision located in Flagler County's portion of the Hunter's Ridge Development of Regional Impact (DRI). Celedine contains 99 single-family lots on 39.83 acres.	NA	01.10.2023	NA
PZ# 2021-068	Cupola at Oceanside, Final Plat	This is a request from Nancy Lohman, Halifax Enterprises, LLC, for a final plat for the Cupola at Oceanside consisting of a twelve (12) lot townhome development on 1.48 acres.	NA	01.10.2023	01.24.2023
PZ# 2022-114	West Street, Partial Right-of-Way Vacation	This is a request by Megan Ford, property owner of 363 Putnam Avenue, for a partial right-of-way (ROW) vacation of approximately 2,257 square feet of the West Street ROW abutting their property in order to construct a dock. As part of the Site Plan Review Committee (SPRC) review, Public Works staff were supportive of the partial ROW vacation with the condition of granting of a drainage, access, maintenance easement back to the City for a portion of the area proposed to be vacated. The drainage, access, maintenance easement would be presented at the second City Commission hearing since the easement is a Resolution that requires one hearing. The Notice of Intent for the partial ROW vacation was approved December 6, 2022 by Resolution 2022-167.	NA	01.10.2023	01.24.2023
LUMA 2022-081(A)	Small Scale Comprehensive Plan Land Use Map Amendment, 264 South Atlantic Avenue, 225 Magnolia Drive, and 300 South Atlantic Avenue	This is a request from Robert A. Merrell, III, Esquire, Cobb Cole, on behalf of the property owner, Ormond Beach Holdings, LLC, for a Small-Scale Comprehensive Plan Land Use Map amendment for approximately 4.25 acres located at 264 South Atlantic Avenue, 225 Magnolia Drive, and 300 South Atlantic Avenue from "Public/Institutional" to "Low Intensity Commercial" for approximately 0.76 acres and from "Public/Institutional" to "Low Density Residential" for approximately 3.49 acres.	Approval 5-0	01.10.2023	01.24.2023
PBD 2022-018(B)(1)	Zoning Map Amendment, Ormond Beach Holdings LLC, 251 South Atlantic Avenue and a portion of 264 South Atlantic Avenue	This is a request for a zoning map amendment submitted by Robert A. Merrell, III, Esquire, Cobb Cole, on behalf of the property owner, Ormond Beach Holdings, LLC, from the existing zoning district designations of B-6, Tourist Commercial and B-1, Professional Office/Hospital to PBD, Planned Business Development. The subject property is a total of approximately 2.95 acres and is located at 251 South Atlantic Avenue (approximately 2.19 acres) and a portion of the property at 264 South Atlantic Avenue (approximately 0.76 acres). The subject property is also seeking the issuance of a development order. The Ormond Beach Holdings, LLC, Planned Business Development seeks to allow the construction of a five (5)-story hotel of approximately 95,700 square feet with 137 rooms and parking, including a remote lot on the west side of South Atlantic Avenue, and associated site improvements, which shall be the next agenda item.	Approval 5-0	01.10.2023	01.24.2023
PBD 2022-018(B)(2)	Issuance of a Development Order, Ormond Beach Holdings, LLC, 251 South Atlantic Avenue and a portion of 264 South Atlantic Avenue	This is a request for the issuance of a development order submitted by Robert A. Merrell, III, Esquire, Cobb Cole on behalf of the property owner, Ormond Beach Holdings, LLC. The Ormond Holdings, LLC Planned Business Development seeks to allow the construction of a five (5) story hotel of approximately 95,700 square feet with 137 rooms and parking, including a remote lot on the west side of South Atlantic Avenue, and associated site improvements. The subject property is a total of approximately 2.95 acres and is located at 251 South Atlantic Avenue (approximately 2.19 acres) and a portion of the property at 264 South Atlantic Avenue (approximately 0.76 acres).	Approval 5-0	01.10.2023	01.24.23
RZ 2022-018(D)	Zoning Map Amendment, Ormond Beach Holdings, LLC, portions of 264 South Atlantic Avenue, 225 Magnolia Avenue, and 300 South Atlantic Avenue	This is a request for a zoning map amendment submitted by Robert A. Merrell, III, Esquire, Cobb Cole on behalf of the property owner, Ormond Beach Holdings, LLC, from the existing zoning district designation of B-1, Professional Office/Hospital to R-3, Single-Family Medium Density. The subject property area totals approximately 1.70 acres and includes a portion of 264 South Atlantic Avenue (approximately 0.80 acres), a portion of 225 Magnolia Avenue (approximately 0.19 acres) and a portion of 300 South Atlantic Avenue (approximately 0.71 acres).	Approval 5-0	01.10.23	01.24.23

Note: City Commission items are based upon the best information available as of **December 30, 2022 and are subject to change**. City Commission agendas are available at: <https://ormondbeach.ig2.com/citizens/default.aspx?>. For additional information, please contact the Planning Department via e-mail at comdev@ormondbeach.org or by telephone at (386) 676-3238.

Planning public hearing items

		City Commission items			
File Number	Item	Description	Planning Board	City Commission	City Commission
LUMA 2023-005	Small Scale Comprehensive Plan Land Use Map Amendment, RidgeHaven West	This is a request from RCM Properties, LLC, property owner, for a Small-Scale Comprehensive Plan Land Use Map amendment for approximately 13.13-acres generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001, from "Low Intensity Commercial" to "Medium Density Residential." The land use amendment shall maintain the existing land use limitation of a maximum of eight (8) units per acre for residential development.	Approval 5-0	01.10.2023	01.24.2023
PP 2022-091	Archer's Mill, Phase 3A Preliminary Plat, Plantation Oaks Planned Residential Development	This is a request from Forestar (USA) Real Estate Group, Inc. for a preliminary plat for Archer's Mill, Phase 3A- Plantation Oaks of Ormond Beach, consisting of 94 single-family lots on 42.38 acres. The preliminary plat is a technical review to allow the subdivision of land consistent with the Planned Residential Development that is reviewed by the Planning Board and acted upon by the City Commission as a Resolution.	NA	01.10.2023	NA
	Comprehensive Plan Amendment, Coastal Management Element	This is an administrative request to approve a Comprehensive Plan Amendment through the Expedited State Review (ESR) process, amending the Coastal Management Element, adding an Objective and Policies for flood risk planning in accordance with Florida Statutes Section 163.3178(2)(f). The proposed text changes are required to be included in the City's Coastal Management Element.	Approval 5-0	10.18.22, Approved 5-0	01.24.2023
NA	Summary of Administrative Variances granted	Section 1-14(7)(c) of the Land Development Code requires an annual report of the administrative variances granted by the Planning Director. This disposition item provides a list of the administrative variances approved for fiscal year 2021-2022.	NA	01.24.23	NA
PZ# 2022-114	363 Putnam Avenue, granting of stormwater drainage, access, and maintenance easement (West Street Partial ROW Vacation)	This a request to accept a stormwater drainage, access, and maintenance easement of approximately 292 square feet from the property owner at 363 Putnam Avenue.	NA	01.24.23	NA
PZ# 2020-056	Acceptance of utility easement, Ocean Village Townhomes	This is a request for acceptance of a utility easement within the Ocean Village Townhomes development located at 90 Verona Vista Court, within the Ormond by the Sea utility service area.	NA	01.24.23	NA
LUMA 2023-003	Small Scale Comprehensive Plan Land Use Map Amendment, 101 Fiesta Drive	This is a request from Murphy Dugan, LLC, property owner, for a Small-Scale Comprehensive Plan Land Use Map amendment for approximately 0.30 acres located at 101 Fiesta Drive from "Low Density Residential" to "Residential, Office, Retail". The application limits the Floor Area Ratio to zero and the residential units allowed to zero with the intention of developing a parking lot in association with the Hamlin & Associates building at 801 West Granada Boulevard. The Future Land Use Map amendment does not provide any specific development approval, but instead a framework of uses. Any future site development would require review by the city Site Plan Review Committee, including a neighborhood meeting.	Approval, 4-1 with conditions	01.24.23	02.07.2023
PBD 2022-008(A)	Zoning Map Amendment, Tymber Creek Apartments	This is an application submitted by Nika K. Hosseini, Esquire, Cobb Cole, on behalf of the property owner, VCP Ormond Beach II, LLC, for a (1) zoning map amendment from Volusia County RC, Resource Corridor, Volusia County A-2, Agriculture, and Ormond Beach B-8, Commercial to PBD, Planned Business Development and (2) the issuance of a development order. The Tymber Creek Apartments Planned Business Development seeks to allow the construction of 300 multi-family residential units and associated site improvements on 19.62 acres. The subject property is located at 36 North Tymber Creek Road and 2011 West Granada Boulevard. This staff report, item A, is for the zoning map amendment and the next agenda item, item B, is for the issuance of the development order.	Denial, 5-0	01.24.23	02.07.2023
PBD 2022-008(B)	Issuance of a Development Order, Tymber Creek Apartments, Planned Business Development	This is a request from Nika K. Hosseini, Esquire, Cobb Cole, on behalf of the property owner, VCP Ormond Beach II, LLC, for the issuance of a development order. The Tymber Creek Apartments Planned Business Development seeks to allow the construction of 300 multi-family residential units and associated site improvements on 19.62 acres. The subject property is located at 36 North Tymber Creek Road and 2011 West Granada Boulevard.	Denial, 5-0	01.24.23	02.07.2023
PBD 2022-092	Issuance of a Development Order, Ormond Central Self-Storage, Planned Business Development Amendment	This is an application submitted by the property owner, Ormond Central Investors, LLC, for a Planned Business Development amendment. The Ormond Central Planned Business Development amendment seeks to allow (1) a three-story indoor self-storage use with a building of 106,140 square feet and associated site improvements as an allowed use within the Ormond Central property and (2) amend the allowed Floor Area Ratio (FAR) from 55,000 square feet to 131,140 square feet for the entire Ormond Central property. The subject property is approximately 8.73 acres and is located at 1 South Old Kings Road (Volusia County Property appraiser parcel number 4241-01-09-0180), 760 West Granada Boulevard Road (Volusia County Property appraiser parcel number 4241-01-09-0170), and no addresses, Volusia County Property appraiser parcel numbers 4241-01-11-0120 and 4241-01-11-0130.	Approval, 5-0	01.24.2023	02.07.2023
PBD 2022-096	Issuance of a Development Order, Stor-It North Ormond, Planned Business Development Amendment	This is an application submitted by the property owner, Vanacore Commercial Properties, LLC, for a Planned Business Development amendment. The Stor-It, North Ormond Planned Business Development amendment seeks to allow a three-story indoor self-storage use with a building of approximately 123,534 square feet and associated site improvements as an allowed use within the Stor-It, North Ormond Planned Business Development.	Approval, 5-0	01.24.2023	02.07.2023
PP 2022-018(C)	Tides Edge Preliminary Plat	This is a request for a Preliminary Plat submitted by Ormond Beach Holdings, LLC, for the subdivision of 3.49 acres into fifteen (15) single-family lots and associated site improvements. The subject property includes a portion of 264 South Atlantic Avenue, 225 Magnolia Avenue, and 300 South Atlantic Avenue.	Approval, 5-0	01.24.2023	NA

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Planning public hearing items

Planning Board - January 12, 2023

SE23-010	1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity	This is a request by Karin Gehris, President, Jackson Hole Saloon and Grille, Incorporated, d/b/a Boot Hill Saloon Outpost (applicant), for a Special Exception to: 1.)Continue outdoor activities previously approved by Resolution 2020-37 on March 3, 2020 during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for: A.Itinerant vending of up to 24 vendors, including food trucks; and B.Live outdoor music from 2:00 p.m. to 10:00 p.m.; and 2.)Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. in association with the new Boot Hill Saloon Outpost. Boot Hill Saloon Outpost, is located at 1089 North U.S. Highway 1, which lies within the larger parent property addressed as 1081 North U.S. Highway 1, and is zoned B-5 (Service Commercial). Boot Hill Saloon Outpost is located in the North US 1 Interlocal Service Boundary Agreement (ISBA) area which the City of Ormond Beach has established jurisdictional authority.
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NA	Discussion Item	Review of Planning items and introduction of the Site Plan Review Committee (SPRC)
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The Planning Board agenda is available at: <https://www.ormondbeach.org/224/Planning-Board>. For additional information, please contact the Planning Department via e-mail at comdev@ormondbeach.org or by telephone at (386) 676-3238.

Neighborhood meeting - January 17, 2023

Ormond Enclave: Tuesday, January 17, 2023, at 6:00PM, Trails Clubhouse, 201 Main Trail, Ormond Beach, FL 32174. This project is located along the east side of US 1, between Dix Avenue and Highland Avenue and is seeking to allow residential development of low-rise apartments.

Board of Adjustment and Appeals - January 18, 2023

Canceled

The Board of Adjustment and Appeals agenda is available at: <https://www.ormondbeach.org/218/Board-of-Adjustment-Appeals>. For additional information, please contact the Planning Department via e-mail at comdev@ormondbeach.org or by telephone at (386) 676-3238.



Monthly Financial Status Report

December 2022

This report provides the City Commission with an update of the financial status of the City's operating funds. The purpose of the report is to identify any significant variances from the adopted budget and to identify any adverse trends and their implications for the current and future years' budgets. Revenues at or above 25% benchmark is favorable, while expenses at or below the 25% benchmark is also favorable. The first table below provides a summary of the revenues and expenditures to date by fund. Additional detail by fund type is provided in subsequent tables.

Fund	Final Budget	YTD Actual		YTD Actual	
		Revenues	YTD %	Expenses	YTD %
001 - General Fund	41,522,489	15,858,458	38%	8,786,765.48	21%
104 - Community Redevelopment	1,437,353	953,782	66%	73,365.40	5%
106 - Ormond Crossing	296,171	182,820	62%	0.00	0%
107 - Stormwater	2,525,500	645,909	26%	400,285.59	16%
108 - Airport	288,998	1,831,492	634%	603,236.26	209%
109 - Local Law Enforcement Trust Fund	-	22,485	0%	11,850.00	0%
110 - Economic Development Fund	1,112,000	75,000	0%	652.00	0%
113 - Pension Contribution Pass Through	800,000	-	0%	0.00	0%
115 - Recreation Facility Fee	50,275	13,454	27%	0.00	0%
11 - Grant Fund	-	-	0%	81,985.00	0%
205 - Financing Debt Service	651,688	162,000	25%	188,437.27	0%
210 - Debt Service GOB 2003	118,674	17,410	15%	1,499.85	0%
211 - Debt Service 2005 CIP Note	162,202	39,249	24%	5,643.93	3%
220 - Debt Service GOB 2010	352,327	278,524	79%	43,239.38	12%
301 - General Capital Improvement	2,190,745	473,775	22%	260,810.15	12%
302 - General Equipment & Vehicle	347,000	168,583	49%	232,801.00	67%
305 - Public Safety Vehicle & Equip	934,000	501,343	54%	101,001.53	11%
308 - Transportation	2,262,489	504,410	22%	268,535.00	12%
310 - Recreation Impact Fee	215,000	12,588	6%	0.00	0%
316 - Local Roads Impact Fee	89,000	14,585	16%	0.00	0%
317 - Facilities Renewal & Replacement	506,470	400,375	79%	65,137.41	13%
318 - Stormwater Impact Fee	50,000	19,262	39%	0.00	0%
401 - Water/Wastewater Operating Fund	24,001,431	5,301,988	22%	5,381,910.39	22%
408 - Water/Wastewater E&V Fund	368,000	37,500	10%	0.00	0%
409 - Water/Wastewater Capital	9,494,412	938,162	10%	217,132.15	2%
414 - Water/Wastewater Consolidated Debt	4,753,500	1,185,876	25%	195,757.74	4%
109 - Local Law Enforcement Trust Fund	850,000	-	0%	0.00	0%
434 - Water Impact Fee	725,000	200,993	28%	0.00	0%
435 - Wastewater Impact Fee	4,300,000	257,307	6%	0.00	0%
460 - Solid Waste	9,827,200	2,560,171	26%	2,739,431.23	28%
502 - Workers Compensation	801,612	195,403	24%	292,857.86	37%
504 - General Liability	1,460,253	371,817	25%	1,194,989.82	82%
Total	\$ 112,493,789	\$ 33,224,718	30%	\$ 21,147,324	19%

The airport fund has revenue and expense impacts from FAA grants.

General Fund Revenues

Ad valorem Taxes- Annual revenue is estimated at \$14.5 million and is based on the taxable value (\$4.6 billion) and the General Fund operating millage (3.761). Actuals to date are \$1.3 or 78% of the budgeted amount.

Utility Taxes- The City levies a utility tax of 10% on electric and gas sales. To date, the City has collected \$765,249.

Communication Taxes – Communication service taxes received to date are \$162,427.

Business Tax –Business tax collections amounted to \$114,366. The majority of business taxes are collected in the last quarter of the fiscal year.

Licenses, Permits and Franchise Fees – This revenue source includes building permits, plan review and franchise fees. The City has franchise fee agreements which require electric and natural gas providers to remit 6% of gross sales to the City. Payments made to the City for franchise fees often occur several months after they are collected by FPL and other providers. Collections through December 2022 are \$678,523.

Intergovernmental – This revenue source includes municipal revenue sharing and sales tax both of which were expected to be negatively impact by the COVID pandemic. Through December 2022, the City received a total of \$868,630 in this category.

Charges for Services – This category includes the County library lease and Leisure Services user charges. Additional revenue from contracts for right of way mowing, traffic signal maintenance, and street lighting are included in this category. The City received a total of \$184,500 in this category through December.

Fines and Forfeitures – Traffic, code enforcement, and court fines make up this revenue category. Revenues were \$13,017.

Miscellaneous Revenue – Interest and internal service charges for Fleet and Engineering are included in this revenue category. Revenues collected were \$569,007.

Transfers In –Transfers have been recorded in the amount of \$1,194,777.

Financial Status Report: December 2022

General Fund Revenues - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance
Property Tax	\$ 14,504,485	\$ 11,307,959	\$ 3,196,526	78.0%	\$ 1,701,745	\$ 9,606,214
Utility Taxes	4,260,000	765,249	3,494,751	18.0%	392,345	372,904
Communication Tax						
Receipts	1,590,000	162,427	1,427,573	10.2%	-	162,427
Business Tax	283,500	114,366	169,134	40.3%	38,952	75,414
Licenses, Permits & Fees	4,654,350	678,523	3,975,827	14.6%	253,439	425,084
Intergovernmental	4,890,300	868,630	4,021,670	17.8%	402,214	466,416

General Fund Reserve – This category includes commitments made by the City Commission by resolution or Commission comments at the City Commission meeting.

Purpose	Amount	Approval Process
Fire Station 91 Generator	\$ 81,000	Discussion Item-Tentatively Approved
South Ormond Neighborhood Center Backboards	\$ 90,000	Discussion Item-Tentatively Approved
JPA Conversation Land	\$ 161,000	Discussion Item-Tentatively Approved
Police and Fire Impact Study	\$ 31,500	Resolution 2022-121

General Fund Expenditures

Personnel Services - This category includes wages and benefits paid by the City. Personnel services account for \$26.5 million of the General Fund gross budget. Expenditures through December 2022 were \$5.7 million or 21.6% of the budget amount.

Operating Expenditures - This category includes \$12 million for maintenance contracts, utilities, tools, fuel, insurance, supplies and contracts for service with community agencies. Through December 2022, \$2.5 has been spent.

Grants and Aids - This category includes contributions made to not for profit organizations which were budgeted at \$208,414. \$49,440 has been expended year to date.

Transfers Out – The budget for transfers from the General Fund to other funds is \$2.2 million with \$561,582 made during December 2022.

Financial Status Report: December 2022

General Fund Expenditures - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
City Commission	\$ 393,342	\$ 106,200	\$ 287,142	27.0%	\$ 56,460	\$ 49,740	88.10%
City Administration	750,099	155,251	594,848	20.7%	88,463	66,788	75.50%
Support Services	458,818	115,100	343,718	25.1%	68,660	46,440	67.64%
City Attorney	861,962	177,481	684,481	20.6%	118,432	59,049	49.86%
Legislation & Policy	2,464,221	554,032	1,910,189	22.5%	332,014	222,018	66.87%
Finance	1,081,904	216,938	864,966	20.1%	135,171	81,767	60.49%
Information Technology	1,140,518	277,219	863,299	24.3%	95,557	181,662	190.11%
Human Resources	505,117	148,773	356,344	29.5%	72,337	76,436	105.67%
Planning	711,727	159,354	552,373	22.4%	76,735	82,619	107.67%
Building Inspections	1,163,670	221,126	942,544	19.0%	151,781	69,345	45.69%
Police Administration	1,098,183	201,005	897,178	18.3%	105,861	95,144	89.88%
Police Operations	6,871,060	1,557,361	5,313,699	22.7%	855,107	702,254	82.12%
Community Outreach	587,579	114,240	473,339	19.4%	63,302	50,938	80.47%
Criminal Investigations	1,491,988	302,577	1,189,411	20.3%	194,640	107,937	55.45%
Community Services	438,297	97,560	340,737	22.3%	50,625	46,935	92.71%
Records	194,023	35,067	158,956	18.1%	18,613	16,454	88.40%
Neighborhood Impr.	460,629	79,641	380,988	17.3%	51,176	28,465	55.62%
Police	11,141,759	2,387,451	8,754,308	21.4%	1,339,324	1,048,127	78.26%
Fire	6,731,586	1,650,704	5,080,882	24.5%	969,845	680,859	70.20%
Streets	2,525,485	478,301	2,047,184	18.9%	277,966	200,335	72.07%
Engineering	1,201,983	247,127	954,856	20.6%	129,208	117,919	91.26%
Fleet	1,908,683	420,171	1,488,512	22.0%	165,086	255,085	154.52%
Public Works	5,636,151	1,145,599	4,490,552	20.3%	572,261	573,338	100.19%
Economic Development	400,799	147,538	253,261	36.8%	85,615	61,923	72.33%
Building Maintenance	928,047	227,622	700,425	24.5%	113,441	114,181	100.65%
Administration	795,835	152,254	643,581	19.1%	98,843	53,411	54.04%
Nova Recreation	350,757	65,145	285,612	18.6%	38,608	26,537	68.74%
S. Ormond Neigh. Center	369,318	58,037	311,281	15.7%	33,128	24,909	75.19%
Athletic Fields Mnt.	1,586,785	252,619	1,334,166	15.9%	156,218	96,401	61.71%
Parks	2,445,146	332,353	2,112,793	13.6%	235,968	96,385	40.85%
Environmental Learning	176,349	35,709	140,640	20.2%	16,631	19,078	114.72%
The Casements	357,694	77,580	280,114	21.7%	41,231	36,349	88.16%
Performing Arts Center	301,196	54,570	246,626	18.1%	30,160	24,410	80.94%
Senior Center	99,637	15,354	84,283	15.4%	6,970	8,384	120.28%
Community Events	252,034	37,759	214,275	15.0%	19,434	18,325	94.30%
Leisure Services	7,662,798	1,309,002	6,353,796	17.1%	790,632	518,370	65.56%
Grants & Aid*	91,528	7,440	84,088	8.1%	7,440	-	0.00%
Transfers	2,246,345	561,582	1,684,763	25.0%	217,830	343,752	157.81%
Contingency	544,366	-	544,366	0.0%	-	-	0.00%
Total	\$ 41,522,489	\$ 8,786,758	\$ 32,735,731	21.2%	\$ 4,846,542	\$ 3,940,216	81.30%

Financial Status Report:
December 2022

Downtown Redevelopment Trust

Revenues – Budgeted revenues are comprised of City, County, Hospital, and special district property taxes levied on property within the Downtown Redevelopment boundaries and amount to \$911,308 with \$822,397 collected year to date. The City's budgeted contribution is \$525,545.

Expenditures – A total of \$73,365 has been expended for capital projects and service contracts (Ormond Main Street and property improvement grants).

Downtown Redevelopment Fund Revenues - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Grant	\$ -	\$ -	\$ -	0.0%	\$ -	\$ -	0.0%
Local Units	911,308	822,397	88,911	90.2%	810,205	12,192	1.5%
Miscellaneous	500	-	500	0.0%	30	(30)	-100.0%
Transfers In	525,545	131,385	394,160	25.0%	87,374	44,011	50.4%
Use of Fund Balance		-	-	0.0%	-	-	0.0%
	\$ 1,437,353	\$ 953,782	\$ 483,571	66.4%	\$ 897,609	\$ 56,173	6.26%

Downtown Redevelopment Fund Expenditures

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Planning	\$ 66,050	\$ 35,350	\$ 30,700	53.5%	\$ 16,600	\$ 18,750	113.0%
Public Works	148,961	22,640	126,321	15.2%	91	22,549	24779.1%
Grants	200,000	-	200,000	0.0%	-	-	0.0%
Leisure Services	184,500	15,375	169,125	8.3%	-	15,375	0.0%
Contingency	837,842	-	837,842	0.0%	-	-	0.0%
	\$ 1,437,353	\$ 73,365	\$ 1,363,988	5.1%	\$ 16,691	\$ 56,674	339.55%

Financial Status Report:
December 2022

Stormwater Fund

Revenues – The primary revenue source is stormwater user fees. User fees were budgeted at \$2.525 million with \$645,909 million received through December.

Expenditures – The budget for stormwater maintenance is \$2.5 million with \$334,875 spent to date. Transfers of \$65,410 have also been made year to date.

Stormwater Fund Revenues - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Grants	\$ -	\$ -	\$ -	0.0%	\$ -	\$ -	0.00%
Stormwater Fees	2,525,000	645,909	1,879,091	25.6%	426,787	219,122	51.34%
Miscellaneous	500	-	500	0.0%	89	(89)	-100.00%
Intergovernmental	-	-	-	0.0%	-	-	0.00%
Use of Fund Balance	-	-	-	0.0%	-	-	0.00%
	\$ 2,525,500	\$ 645,909	\$ 1,879,591	25.6%	\$ 426,876	\$ 219,033	51.31%

Stormwater Fund Expenditures

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Maintenance	2,208,419	334,875	1,873,544	15.2%	157,762	177,113	112.27%
Engineering Support	\$ 74,939	\$ -	\$ 74,939	0.0%	\$ -	\$ -	0.00%
Transfers Out	221,640	65,410	156,230	29.5%	32,884	32,526	98.91%
Contingency	20,502	-	20,502	0.0%	-	-	0.00%
	\$ 2,525,500	\$ 400,285	\$ 2,125,215	15.8%	\$ 190,646	\$ 209,639	109.96%

Financial Status Report:
December 2022

Water and Wastewater Fund

Revenues – The primary revenue sources are water and sewer user fees. User fees were budgeted at \$20.9 million with \$5.2 million collected year to date. The budget also includes \$106,473 in transfers.

Expenditures – Operating expenses for utility billing and water/wastewater public works services is budgeted in the amount of \$12.6 million with \$2.6 million expended to date. The budget also includes \$11.4 million in transfers of which \$2.8 million has been made through December 2022.

Water/Wastewater Fund Revenues - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Water/Sewer Charges	\$ 20,930,000	\$ 5,195,515	\$ 15,734,485	24.8%	\$ 3,265,018	\$ 1,930,497	59.13%
Miscellaneous	15,000	-	15,000	0.0%	166	(166)	-100.00%
Transfers In	425,887	106,473	319,414	25.0%	58,342	48,131	82.50%
Intergovernmental	-	-	-	0.0%	-	-	0.00%
Use of Fund Balance	2,630,544	-	2,630,544	0.0%	-	-	0.00%
	\$ 24,001,431	\$ 5,301,988	\$ 18,699,443	22.1%	\$ 3,323,526	\$ 1,978,462	59.53%

Water/Wastewater Fund Expenditures

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Utility Billing	\$ 2,467,103	\$ 415,273	\$ 2,051,830	16.8%	\$ 205,758	\$ 209,515	101.83%
Water Production	3,803,802	768,242	3,035,560	20.2%	400,597	367,645	91.77%
Water Distribution	1,431,645	320,093	1,111,552	22.4%	198,432	121,661	61.31%
Wastewater Treatment	3,352,389	689,863	2,662,526	20.6%	333,784	356,079	106.68%
Collection	1,591,328	349,646	1,241,682	22.0%	243,005	106,641	43.88%
Transfers Out	11,355,164	2,838,792	8,516,372	25.0%	1,765,128	1,073,664	60.83%
Contingency	-	-	-	#DIV/0!	-	-	0.00%
	\$ 24,001,431	\$ 5,381,909	\$ 18,619,522	22.4%	\$ 3,146,704	\$ 2,235,205	71.03%

Financial Status Report:
December 2022

Solid Waste Fund

Revenues – The primary revenue source is solid waste franchise and user fees. To date \$394,262 in franchise fees and \$2.2 million in user fees have been collected.

Expenditures – Personnel, operating, capital expenses and transfers expended to date are \$2.7 million.

Solid Waste Fund Revenues - December 2022

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Franchise Fees	\$ 1,648,000	\$ 394,262	\$ 1,253,738	23.9%	\$ 131,048	\$ 263,214	200.85%
User Fees	8,178,200	2,164,864	\$ 6,013,336	26.5%	1,371,667	793,197	57.83%
Miscellaneous	1,000	1,045	\$ (45)	104.5%	-	1,045	0.00%
Intergovernmental	-	-	\$ -	0.0%	-	-	0.00%
Use of Fund Balance	-	-	\$ -	0.0%	-	-	0.00%
	\$ 9,827,200	\$ 2,560,171	\$ 7,267,029	26.1%	\$ 1,502,715	\$ 1,057,456	70.37%

Solid Waste Fund Expenditures

	Final Budget	YTD FY 2022-23	\$ Variance	% of Budget	YTD FY 2021-22	\$ Variance	% Variance
Collection & Disposal	\$ 7,306,235	\$ 2,127,895	\$ 5,178,340	29.1%	\$ 629,087	\$ 1,498,808	238.25%
Recycling	1,133,960	275,546	858,414	24.3%	91,915	183,631	199.78%
Engineering		-	-	0.0%	-	-	0.00%
Transfers Out	1,343,962	335,991	1,007,971	25.0%	213,124	122,867	57.65%
Contingency	43,043	-	43,043	0.0%	-	-	0.00%
	\$ 9,827,200	\$ 2,739,432	\$ 7,087,768	27.9%	\$ 934,126	\$ 1,805,306	193.26%



Economic Development Monthly Report

January, 2023

Ormond Beach December Employment

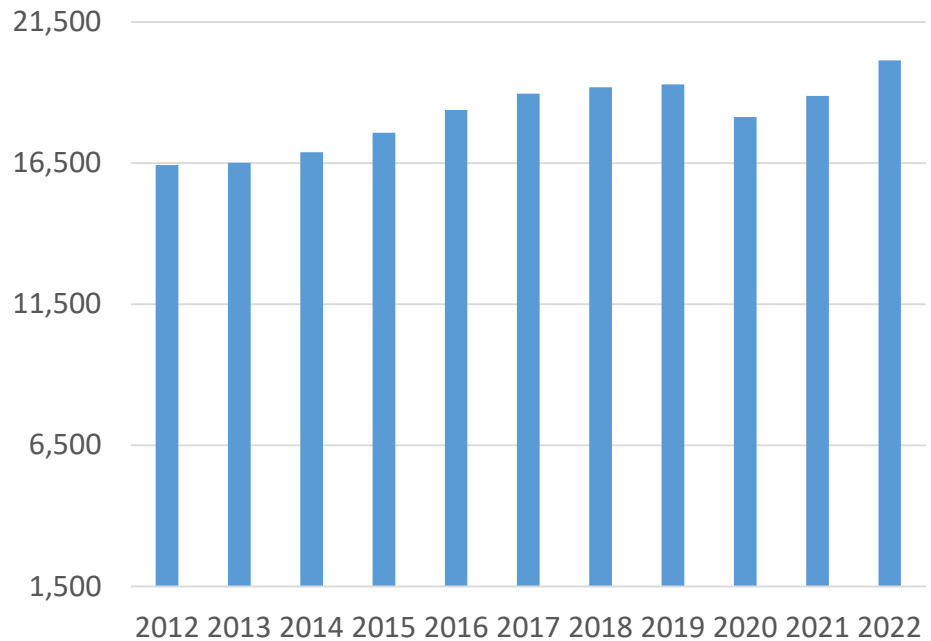
20,137

This is up 3.9% from last year

Ormond Beach Unemployment Rate

2.2%

Ormond Beach Employment Trend



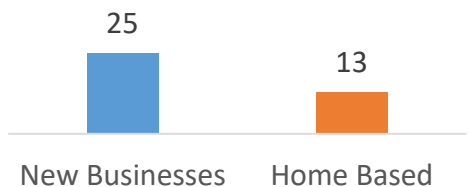
Total Permits Issued January

485

Permit Valuation for January

\$10.2m

Total OB Business Tax Receipts in January



Commercial Real Estate Key Indicators

Current Quarter	RBA	Vacancy Rate	Market Rent	Availability Rate
Office	1,609,712	6.1%	\$20.48	7.1%
Industrial	2,934,591	1.5%	\$10.41	1.0%
Retail	4,114,636	3.2%	\$17.14	3.4%

*RBA = Rentable Building Area The number shown is the total RBA for all buildings in that asset class in Ormond Beach.



This Month's Takeaways

January, 2023

Notes and Updates:

- **Employment for November** was 20,137 up 3.9% from the same month last year. The unemployment rate is 2.2% which is down from 2.8% this time last year. Through year end December 2022 employment was up 4.5% (860) since January of 2022. There was a slight decline in overall employment in October and November. Although December is above November it is below the high for the year of 20,311 in September. This could correlate to recent moves made by the Federal Reserve as a similar trend has been occurring throughout the region, state, and nation.
- **Permits and Business Tax Receipt** data for 2023 are starting strong. Total Permits issued in January is 485 with an associated construction value of \$10.2 million. Business Tax Receipts to new commercial businesses in Ormond Beach in January is 25 for bricks and mortar locations and 13 for Home Based Businesses.
- **The commercial real estate market** remains competitive regionally. Vacancy is low among all the asset classes especially within industrial and retail. Vacancy rates continue to tighten as inventory among industrial space is harder to find. Rental rates continue to have year-over-year increases as supply is tighter demand increases. There has been high activity generally across the Volusia County area within commercial real estate.
- **SizeUp Ormond Beach** is a free tool available to Ormond Beach businesses that allows small businesses access to data and market research to rank their business performance to industry competitors. The tool can also be used to identify suppliers and Business to Business customers. It can be accessed at the following link: <https://sizeup.info/ormondbeach>
- **Doing Business In Ormond Beach** is available. The magazine serves as a reference for entrepreneurs and business owners to navigate the process of starting and expanding a business in Ormond Beach. Hard copies are available by request and digital e-book is available on the following website: <https://www.ormondbeach.org/918/Doing-Business-in-Ormond-Beach>.

Thank you,
Brian Rademacher
Economic Development Director

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 8.A
Section:	PUBLIC HEARINGS			
Item Category:	Public Hearing - Ordinances	Res./Ord. No:	2023-13	
Strategic Goal:	Community Development - Other			
Department :	Planning & Building			
Subject:	RidgeHaven West, Zoning Map Amendment (SECOND READING)			
Budget Impact:	There is no budget impact as the result of this zoning map amendment.			
Summary:	Zoning map amendment submitted by RCM Properties, LLC, property owner, for approximately 13.13-acres generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, from B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse.			
Recommended Action:	It is recommended the City Commission approve the zoning map amendment from the existing zoning district classification of B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse for Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001. The Planning Board recommended approval by a 5-0 vote.			
Staff Contact:	Steven Spraker, Planning Director, (386) 676-3341			
Approval:				
Kelly McGuire, Finance Director		2/8/2023		
Claire Whitley, Assistant City Manager		2/8/2023		
Joyce Shanahan, City Manager		2/15/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Steven Spraker, Planning Director
Date: February 21, 2023
Subject: RidgeHaven West, Zoning Map Amendment (SECOND READING)
Commission Goal: Community Development - Other

Introduction

This is a request for a zoning map amendment submitted by RCM Properties, LLC, property owner, for a Zoning Map amendment for approximately 13.13-acres generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001, from B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse.

Background

The subject property is approximately 13.13 acres and is currently vacant. The current land use map designation is "Low Intensity Commercial" and the zoning classification is B-7, Highway Tourist Commercial. There have been no previous development related applications with the subject property. The land area is part of the Interlocal Service Boundary Agreement (ISBA) adopted by the City of Ormond Beach Commission and by the Volusia County Council effective and recorded on August 28, 2014. As part of the adoption of the Interlocal Service Boundary Agreement, Comprehensive Plan policies were established to maintain what was allowed by the Volusia County land use map entitlements. Policy 9.1.4 of the Comprehensive Plan Future Land Use Element contains table 4 that provides the following land use map annotations: "Density shall not exceed 8 dwelling units per acre. Maximum FAR shall not exceed 0.50 for retail or 0.55 for all other nonresidential uses." The subject property is within unincorporated Volusia County and would require annexation prior to any utility connections. There are no current site plans submitted for the 13.13 acres under this application.

There is a companion land use map amendment (Ordinance 2023-07) to this zoning map amendment that seeks to amend the subject property from "Low Intensity Commercial" to "Medium Density Residential". The land use amendment shall maintain the existing land use limitation of a maximum of eight (8) units per acre for residential

development.

Discussion

The purpose of the zoning map amendment is to change the 13.13 acres to the R-4, Single-Family Cluster and Townhouse zoning classification. Based upon the land use map amendment from “Low Intensity Commercial” to “Medium Density Residential”, a corresponding zoning classification is required. This land area abuts Plantation Oaks, Phase 4, I-95 and other lands zoned R-4, Single-Family Cluster and Townhouse.

The existing B-7, Highway Tourist Commercial, zoning classification allows the following key uses:

- Business and Professional Office
- Financial Institution
- Retail Sales and Services
- Transient Lodging
- Convenience store, Type “B” and “C” – conditional use
- Dwelling, Multi-family – conditional use
- Restaurants, Types “A”, “B”, and “C” – conditional use
- Shopping Center

The proposed R-4, Single-Family Cluster and Townhouse classification allows the following key uses:

- Dwelling, Single-Family Detached
- Dwelling, Multi-family
- Townhouse

Based upon the existing and proposed residential use of a maximum of eight (8) units per acre and the existing R-4, Single-Family Cluster and Townhouse zoning in the immediate areas, the R-4, Single-Family Cluster and Townhouse is the most appropriate zoning compatible with the “Medium Density Residential” land use.

Planning Board

The Planning Board reviewed the land use map amendment at the December 8, 2022 meeting and recommended approval with a 5-0 vote. There were no individuals who spoke for or against the application.

Budget Impact

There is no budget impact as the result of this zoning map amendment.

Citizen Impact

There is no citizen impact anticipated by the zoning map amendment. Any future

development will be reviewed by the Site Plan Review Committee.

Recommendation

It is recommended the City Commission approve the zoning map amendment from the existing zoning district classification of B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse for Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001. The Planning Board recommended approval by a 5-0 vote.

Attachments:

1. 23-13 ZMA, RidgeHaven West (P23-0008G)
2. Exhibit A, Sketch and Legal (8.5X11)
3. Exhibit B, Ridgehaven_West_ZONING
4. 12.05.2022, Zoning Map Amendment, RidgeHaven West, PB Staff Report
5. Draft PB Minutes, RidgeHaven West, ZMA

Approvals:



Kelly McGuire, Finance Director

Date: February 08, 2023



Claire Whitley, Assistant City Manager

Date: February 08, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

ORDINANCE NO. 2023-13

AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH *LAND DEVELOPMENT CODE*, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE TWO PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 13.13 ACRES GENERALLY LOCATED SOUTH OF THE PLATTED ROAD OF PENNSYLVANIA AVENUE AND ALONG THE PLATTED ROADWAYS OF ROSEMARY STREET AND BENTON STREET, WEST OF PLANTATION OAKS BOULEVARD (VOLUSIA COUNTY PROPERTY APPRAISER PARCEL IDENTIFICATION NUMBERS: 3136-01-08-0010 AND 3136-01-09-0001) FROM B-7, HIGHWAY TOURIST COMMERCIAL, TO R-4, SINGLE-FAMILY CLUSTER AND TOWNHOUSE; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, RCM Properties, LLC, a Florida limited liability company (“Property Owner”) is the fee simple owner of certain real property consisting of approximately 13.13 acres and being generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard (Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001) Ormond Beach, Florida, which is legally described and depicted in Exhibit “A” (“Property”) attached hereto and incorporated herein, and

WHEREAS, the Property Owner has submitted an application to the city to re-zone the Property from B-7, Highway Tourist Commercial, to R-4, Single-Family Cluster and Townhouse, and

WHEREAS, the Property to be re-zoned is more than ten contiguous acres, consisting of approximately 13.13 contiguous acres, and

WHEREAS, the Planning Board held a public hearing regarding this matter as required by Chapter 1, Article II, Section 1-15(d)(3), of the *Land Development Code*, and

WHEREAS, the City Commission held a public hearing regarding this matter as required by Section 166.041(3)(c), *Florida Statutes*, and

WHEREAS, all applicable legal notice requirements have been complied with, and

WHEREAS, the City Commission finds the proposed rezoning to be consistent with the Future Land Use Element, and the Future Land Use Map, of the City's adopted *Comprehensive Plan*, now therefore,

BE IT ENACTED BY THE PEOPLE OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The foregoing recitals are incorporated herein as the findings of the City Commission.

SECTION TWO. Paragraph C, Official Zoning Map, of Section 2-01, Established, of Article I, Establishment of Zoning Districts and Official Zoning Map, of Chapter 2, District and General Regulations, of the *Land Development Code* of the City of Ormond Beach, Florida, is hereby amended by amending the Official Zoning Map, to change the zoning designation of two parcels of property generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard (Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001), as more particularly described and depicted in Exhibit “A” from B-7, Highway Tourist Commercial, to R-4, Single-Family Cluster and Townhouse, as shown and depicted in Exhibit “B”.

SECTION THREE. The change in zoning is contingent, and shall become effective, upon the proposed *Comprehensive Plan* amendment for the Property (Ordinance No. 2023-07) becoming effective.

SECTION FOUR. All Ordinances or parts of Ordinances in conflict herewith are hereby repealed to the extent of such conflict.

PASSED UPON at the first reading of the City Commission, this 7th day of February, 2023.

PASSED UPON at the second and final reading of the City Commission, this 21st
day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

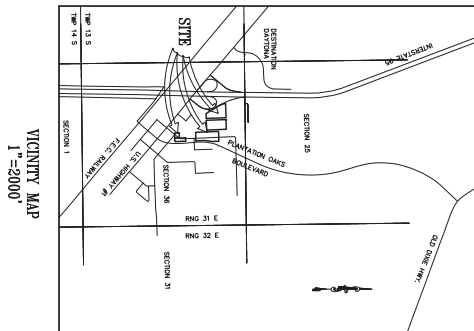
EXHIBIT "A"

Page 1 of 3

The map shows the coastal region of British Columbia, Canada. A shaded area in the south is labeled "JULIAN'S COUNTRY". A line labeled "CHINOOK BRIDGE" runs along the coast. A compass rose in the bottom right corner indicates North (N), South (S), East (E), and West (W).

[illegible]

ALTA / NSPS LAND TITLE SURVEY
FOR
RIDGE LAND HOLDINGS
A PORTION OF
SECTION 36 - TOWNSHIP 13 SOUTH - RANGE 31 EAST
VOLUSIA COUNTY, FLORIDA
LOCATION
PLANTATION OAKS BOULEVARD, ORMOND BEACH, FL.

[illegible]

THIS IS TO CERTIFY THAT THIS MAP OR PLAN AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALIENS LAND TITLE SURVEYS JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND ACCORDS ITEMS 1, 3, 8, 13, 14, 16, 17, 18, 19, AND 20 OF TABLE A THEREOF.

THE FIELDWORK WAS COMPLETED ON: 07-24-2021

DATE OF PLAN OR MAP: 08-23-2022

1. COVER SHEET (CURRENT), KEY SHEET, AND B-11 EXCEPTIONS.
2. ALTA/NSPS LAND TITLE SURVEY OF NATIONAL GARDENS LOTS 1-4, BLOCK 21, LOTS 4-7, BLOCK 7, LOTS 1-7, BLOCK 8, BLOCKS 9 AND 10.
3. ALTA/NSPS LAND TITLE SURVEY OF NATIONAL GARDENS LOTS 1-7, AND 24-25, BLOCK 34.

JOB: 21-1779 SCALE: N/A SHEET: 1 of 3	PROJ.: 00902	ALTA / NSPS LAND TITLE SURVEY	FIELD DATE: 07-26-2021	FIELD BOOK: 1477	△			
		RIDGE LAND HOLDINGS, LLC	PARTY CHIEF: JASON PENFIELD	PAGE (S): 48-51	△			
			DRAWN BY: JOHN MOLLER		△			
					△			
		CLIENT: RIDGE LAND HOLDINGS, LLC	CHECKED BY: JEFF BARNES	No.	Date	Revision	Approved	

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3
2
1

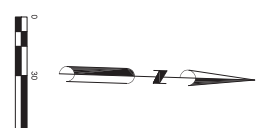
SLIGER & ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS
3811 N.W. 10th Ave.
P.O. Box 12, Ft. Lauderdale, FL 33322
(954) 331-1300
FAX (954) 331-1301
LICENSED BUSINESS CERTIFICATION NUMBER 3019
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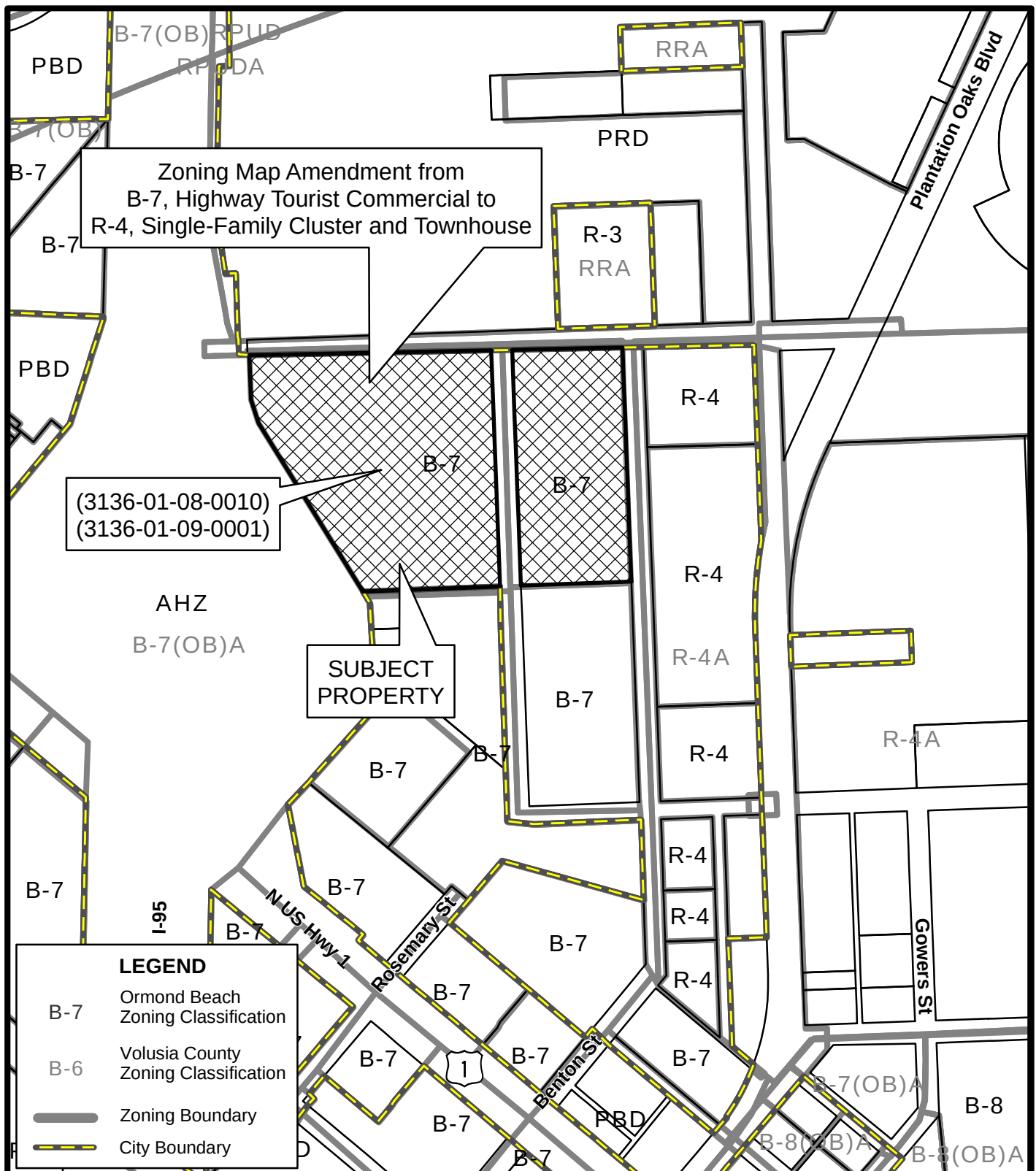
Page 1280 of 1280



JOB NO.
21-1779

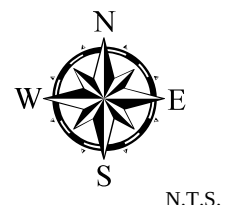
Page 1282 of 1733

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**RIDGEHAVEN WEST
(3136-01-08-0010 AND 3136-01-09-0001)
ZONING MAP**

Prepared By: The City of Ormond Beach
G.I.S. Department - November 9, 2022



STAFF REPORT

City of Ormond Beach Department of Planning

MEETING DATE: December 5, 2022

SUBJECT: RidgeHaven West, Zoning Map Amendment

APPLICANT: RCM Properties, LLC, property owner

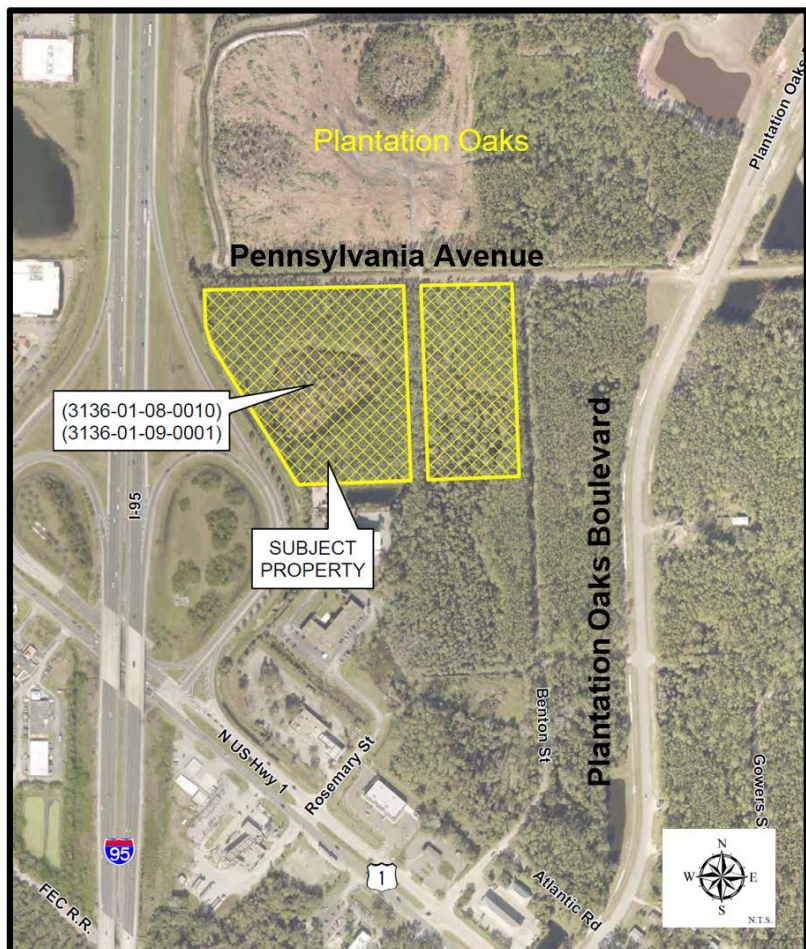
NUMBER: Z 2023-006

PROJECT PLANNER: Steven Spraker, AICP, Planning Director

INTRODUCTION: This is a request for a zoning map amendment submitted by RCM Properties, LLC, property owner, for a Zoning Map amendment for approximately 13.13-acres generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001, from B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse. The subject property is shown in Exhibit 1:

EXHIBIT 1: Subject properties:

Volusia County
Property Appraiser
parcel identification
numbers:
3136-01-08-0010
and
3136-01-09-0001



BACKGROUND: The subject property is approximately 13.13 acres and is currently vacant. The current land use map designation is “Low Intensity Commercial” and the zoning classification is B-7, Highway Tourist Commercial. There have been no previous development related applications with the subject property. The land area is part of the Interlocal Service Boundary Agreement (ISBA) adopted by the City of Ormond Beach Commission and by the Volusia County Council effective and recorded on August 28, 2014. As part of the adoption of the Interlocal Service Boundary Agreement Comprehensive Plan policies were established to maintain what was allowed by the Volusia County land use map entitlements. Policy 9.1.4 of the Comprehensive Plan Future Land Use Element contains table 4 that provides the following land use map annotations: “Density shall not exceed 8 dwelling units per acre. Maximum FAR shall not exceed 0.50 for Retail or 0.55 for all other Nonresidential uses.” The subject property is within unincorporated Volusia County and would require annexation prior to any utility connections. There are no current site plans submitted for the 13.13 acres under this application.

There is a companion land use map amendment to this zoning map amendment that seeks to amend the subject property from “Low Intensity Commercial” to “Medium Density Residential”. The land use amendment shall maintain the existing land use limitation of a maximum of eight (8) units per acre for residential development.

Application process: The proposed land use amendment schedule of the subject property is as follows:

EXHIBIT 2: Tentative zoning amendment schedule:

Action	Date
Planning Board	December 5, 2022
City Commission 1 st Reading	February 7, 2023
City Commission 2 nd Reading	February 21, 2023

The following public notices have or are required to occur:

EXHIBIT 3: Public Notice:

Public Notice	Date	Notes
Courtesy letters for Planning Board	November 16, 2022	300' radius
Newspaper advertisement for Planning Board	November 22, 2022	
Abutter letters for City Commission meetings	January 20, 2023	300' radius
Newspaper advertisement for City Commission, 1 st reading	January 27, 2023	
Newspaper advertisement for City Commission, 2 nd reading	February 10, 2023	

The project has also been posted on the city website under the Planning Department at:
(1) Development Reports, <https://www.ormondbeach.org/1033/RidgeHaven-West> and
(2) Public Hearing Advertisements and Notices, <https://www.ormondbeach.org/1000/Public-Hearing-Advertisements-and-Notice>.

CONCLUSION/CRITERIA FOR APPROVAL:

Section 1-15(D)(3) of the Land Development Code states that the Planning Board shall review non-planned development rezonings based on the Development Order criteria in Section 1-15(E) (1-10) of the Land Development Code which are analyzed below:

1. The proposed development conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the zoning district, or adversely affect the public health, safety, welfare, or quality of life.

The purpose of the zoning map amendment is to change the 13.13 acres to the R-4, Single-Family Cluster and Townhouse zoning classification. Based upon the land use map amendment from “Low Intensity Commercial” to “Medium Density Residential”, a corresponding zoning classification is required. This land area abuts Plantation Oaks, Phase 4, I-95 and other lands zoned R-4, Single-Family Cluster and Townhouse.

The existing B-7, Highway Tourist Commercial, zoning classification allows the following key uses (see ATTACHMENT 4 for all uses):

- Business and Professional Office
- Financial Institution
- Retail Sales and Services
- Transient Lodging
- Convenience store, Type “B” and “C” – conditional use
- Dwelling, Multi-family – conditional use
- Restaurants, Types “A”, “B”, and “C” – conditional use
- Shopping Center

The proposed R-4, Single-Family Cluster and Townhouse classification allows the following key uses (see ATTACHMENT 4 for all uses):

- Dwelling, Single-Family Detached
- Dwelling, Multi-family
- Townhouse

The Future Land Use Map designation is undergoing an amendment to “Medium Density Residential”. Section 2-02 of the Land Development Code, Future land use map designations and zoning districts, provides the following compatible zoning districts with the “Medium Density Residential”:

EXHIBIT 4: Section 2-02 of the Land Development Code, compatible land use designation and zoning districts:

MDR, Medium Density Residential	R-3, Single-Family Medium Density
	NP, Neighborhood Preservation
	R-4, Single-Family Cluster and Townhouse
	R-5, Multifamily Medium Density
	R-6, Multifamily Medium-High Density
	T-1, Manufactured/Mobile Home
	T-2, Manufactured Home

Based upon the existing and proposed residential use of a maximum of eight (8) units per acre and the exiting R-4, Single-Family Cluster and Townhouse zoning in the immediate areas, the R-4, Single-Family Cluster and Townhouse is the most appropriate zoning compatible with the “Medium Density Residential” land use. Planning staff concludes that the R-4, Single-Family Cluster and Townhouse zoning district is consistent with the existing development pattern in the area. The zoning map amendment will not adversely affect public health, safety, welfare, or the quality of life.

2. The proposed development is consistent with the Comprehensive Plan.

The zoning map amendment is consistent with the goal, objective, and policies of the Future land Use Element as shown below:

Future Land Use Element

GOAL 1. LAND USE DISTRIBUTION

FUTURE DEVELOPMENT AND REDEVELOPMENT ACTIVITIES SHOULD BE DIRECTED IN APPROPRIATE AREAS AS DEPICTED ON THE FUTURE LAND USE MAP TO MEET THE LAND USE NEEDS OF THE ANTICIPATED POPULATION, IN A MANNER CONSISTENT WITH SOUND PLANNING PRINCIPLES, THE GOALS, OBJECTIVES AND POLICIES CONTAINED HEREIN, AND THE DESIRED COMMUNITY CHARACTER.

THE FUTURE LAND USE ELEMENT SHOULD ALLOW LIMITED COMMERCIAL EXPANSION, PROMOTE INDUSTRIAL USE, AND MAINTAIN CURRENT RESIDENTIAL DENSITIES IN THE CORE AREA WHILE ESTABLISHING LOWER DENSITIES IN THE PERIMETER AREAS, FOCUSING REDEVELOPMENT IN THE DOWNTOWN COMMUNITY REDEVELOPMENT AREA, US1, AND SRA1A, AND PROVIDING OR A CONTINUED HIGH LEVEL OF OPEN SPACE. FUTURE GROWTH SHALL BE TIMED AND LOCATED TO MAXIMIZE EXISTING PUBLIC INFRASTRUCTURE.

OBJECTIVE 1.1. RESIDENTIAL LAND USE

Ensure the availability of adequate lands to meet the residential land use needs of the community.

POLICY 1.1.3.

Preserve the character of existing neighborhoods by not allowing intrusion of land uses that would threaten to alter the neighborhood character and by encouraging voluntary rehabilitation and sound maintenance programs in viable neighborhoods which are capable of self-renewal and establishing code enforcement or public redevelopment activities in areas not capable of self-renewal.

POLICY 1.1.5.

Encourage innovative design measures for new residential developments and ensure that adequate provision is made for neighborhood facilities suitable to the type of development proposed.

POLICY 1.1.6.

Provide the opportunity, through zoning and other land use controls, for the development of a variety of housing types (i.e., single-family, duplex, townhouse, multi-family) in both conventional, planned unit and cluster type developments, that will meet the varied needs of the citizens of Ormond Beach.

POLICY 1.1.14.

Enhance community livability in the central core and older sections of the City by encouraging infill as appropriate, transit-oriented development and walkable residential areas.

OBJECTIVE 9.1. NORTH US 1 MSA PLANNING, DEVELOPMENT AND ADMINISTRATIVE AUTHORITY

The City shall have sole and singular authority within the boundaries of the MSA to apply the City's Comprehensive Land Use Plan and Zoning Map categories over unincorporated parcels, to administer the codes and regulations, and provide for the enforcement codes pursuant to the Interlocal Service Boundary Agreement (ISBA) adopted by the City of Ormond Beach Commission and by the Volusia County Council effective and recorded on August 28, 2014, at Book 7026, Pages 878 through 895, of the Public Records of Volusia County, Florida and as amended effective and recorded on October 11, 2019, at Book 7758, Pages 4680 through 4683, of the Public Records of Volusia County, Florida.

POLICY 9.1.1.

The North US 1 Municipal Service Area (MSA), consistent with its related policies of the Intergovernmental Coordination Element, is hereby established between the City and Volusia County as a means to coordinate planning and delivery of services related to future land use, public facilities and services, and protection of natural resources in advance of annexation.

POLICY 9.1.2

Pursuant to the ISBA, the City may annex noncontiguous parcels and create enclaves within the MSA notwithstanding Policy 5.1.4.

POLICY 9.1.3.

The City shall be authorized to amend the City's zoning map for all unincorporated lands within the MSA after a City land use designation has been adopted.

POLICY 9.1.4.

The City's future land uses on Figure 11 are described under "Goal 1. Land Use Distribution" of the current adopted Comprehensive Plan. For the purposes of the MSA, the City and County future land use categories shall be considered equal with the land use restrictions as described by map annotation in Table 4.

TABLE 4
North US 1 MSA Future Land Use Categories

Existing Volusia County Land Use	Proposed City Land Use	City Map Annotation
Industrial (I)	Light Industrial/Utilities (LI/U)	Max. FAR shall not exceed 0.60
Agricultural Resource (AR)	Rural Estate/Agricultural (REA)	Density shall not exceed one (1) dwelling unit per 10 acres. Max. FAR shall not exceed 0.10
Mixed Use (MXZ)	Low Intensity Commercial (LIC)	Density shall not exceed 8 dwelling units per acre. Maximum FAR shall not exceed 0.50 for Retail or 0.55 for all other Nonresidential uses.
Commercial (C)	Low Intensity Commercial (LIC)	See Annotation above for LIC
Urban Medium Intensity (UMI)	Low Intensity Commercial (LIC)	See Annotation above for LIC
Low Impact Urban (LIU)	Low Intensity Commercial (LIC)	See Annotation above for LIC
Urban Low Intensity (ULI)	Low Intensity Commercial (LIC)	See Annotation above for LIC

Housing Element

OBJECTIVE 1.1. HOUSING SUPPLY

The City shall continue to facilitate the private production of a housing supply, including adequate sites for mobile homes or manufactured housing and low and moderate income housing, which will meet future community needs and offset housing deficiencies as noted in this Element.

OBJECTIVE 1.2. PROVISION OF ADEQUATE SERVICES AND FACILITIES

Each existing housing development and residential neighborhood along with all new housing development shall meet existing adopted level of service standards.

- 3. The proposed development will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells.**

Site development applications are required to provide analysis of environmentally sensitive lands or natural resources, including but not limited to water bodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells. The zoning map amendment does not approve a specific development plan and this criterion would be reviewed as part of a development application (Preliminary Plat).

- 4. The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties.**

The proposed zoning map amendment is consistent with the property's proposed future land use designation and staff does not believe the project would depreciate the value of surrounding vacant property. There is residential zoning abutting the property that includes the Plantation Oaks PRD and lands with the R-4, Single-Family Cluster and Townhouse zoning classification. The project will not create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties.

5. There are adequate public facilities to serve the development, including but not limited to roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds.

Adequate public facilities to serve the proposed development, including roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds would be reviewed at the submission of a Preliminary Plat. It is important to note that multi-family residential is already an allowed use under the B-7, Highway Tourist Commercial zoning classification. Based on the change of land use designation and zoning classification, the proposed residential use would have less infrastructure impacts than the current land use and zoning entitlements.

6. Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe. This finding shall be based on a traffic report where available, prepared by a qualified traffic consultant, engineer or planner which details the anticipated or projected effect of the project on adjacent roads and the impact on public safety.

The ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe would be reviewed with the submittal of a Preliminary Plat. The analysis with the land use amendment determined that the land use and zoning map amendments reduce the maximum traffic impacts allowed.

7. The proposed development is functional in the use of space and aesthetically acceptable.

There is no development proposed so the criterion is not applicable.

8. The proposed development provides for the safety of occupants and visitors.

There is no development proposed so the criterion is not applicable.

9. The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area.

There is no development proposed so the criterion is not applicable.

10. The testimony provided at public hearings.

There has not been a public hearing at this time. The comments from the Planning Board meeting will be incorporated into the City Commission packet.

Chapter 1, Article II, Section 1-18(e)(3) of the Land Development Code states that the City Commission shall consider rezonings based on the consistency with the Comprehensive Plan. The zoning map amendment is consistent based upon the following points:

- The impacts on facilities and services will be less as a result of the requested zoning map amendment from the existing zoning district designation of B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse; and
- The zoning request is consistent with the compatibility matrix outlined in the Land Development Code for the Future Land Use Map designation of "Medium Density Residential".

RECOMMENDATION:

Staff recommends that the Planning Board recommend **APPROVAL** to the City Commission for a zoning map amendment from the existing zoning district classification of B-7, Highway Tourist Commercial to R-4, Single-Family Cluster and Townhouse for Volusia County Property Appraiser parcel identification numbers: 3136-01-08-0010 and 3136-01-09-0001.

Attachments:

ATTACHMENT 1: Proposed Zoning Map

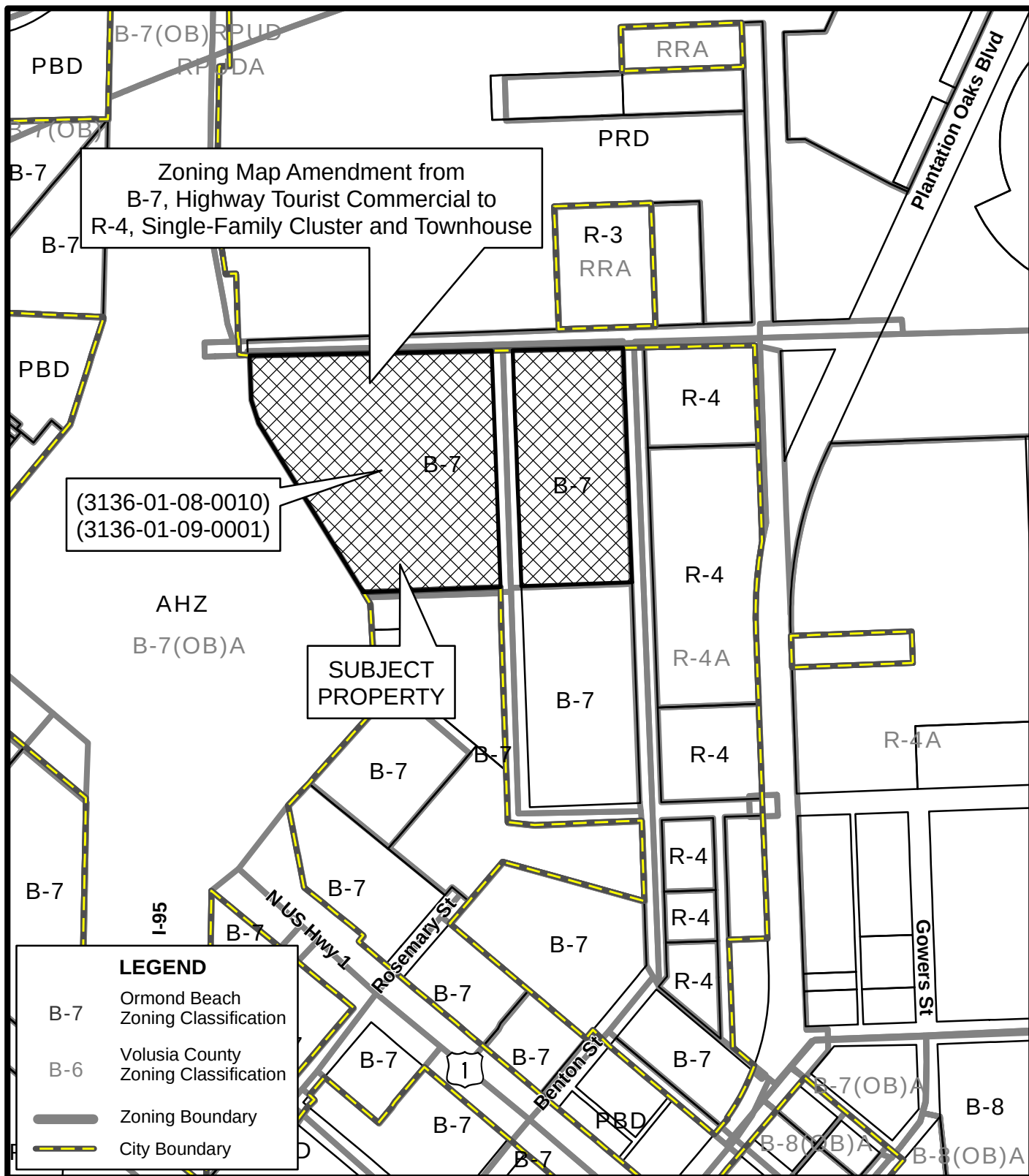
ATTACHMENT 2: Land Use, Location and Aerial maps

ATTACHMENT 3: Sketch & legal description

ATTACHMENT 4: Section 2-28, B-7, Highway Tourist Commercial and 2-16, R-3, Single-Family Cluster and Townhouse zoning districts

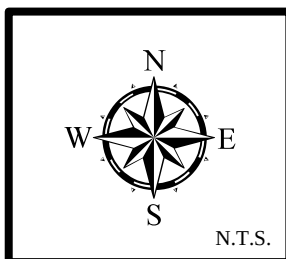
ATTACHMENT 1

Proposed Zoning Map



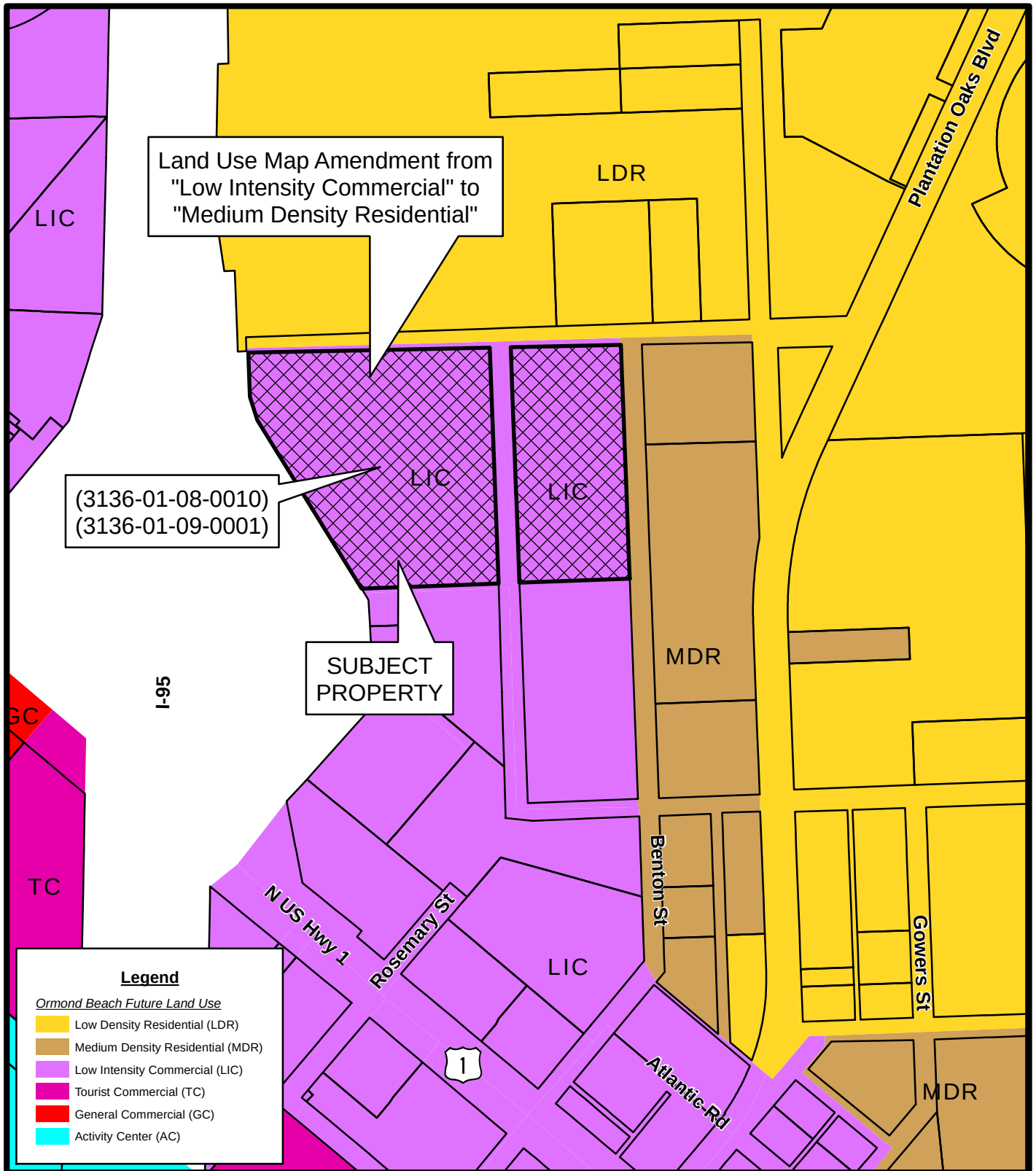
RIDGEHAVEN WEST
(3136-01-08-0010 AND 3136-01-09-0001)
ZONING MAP

Prepared By: The City of Ormond Beach
 G.I.S. Department - November 9, 2022



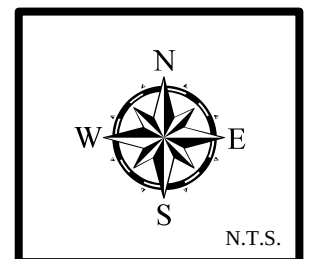
ATTACHMENT 2

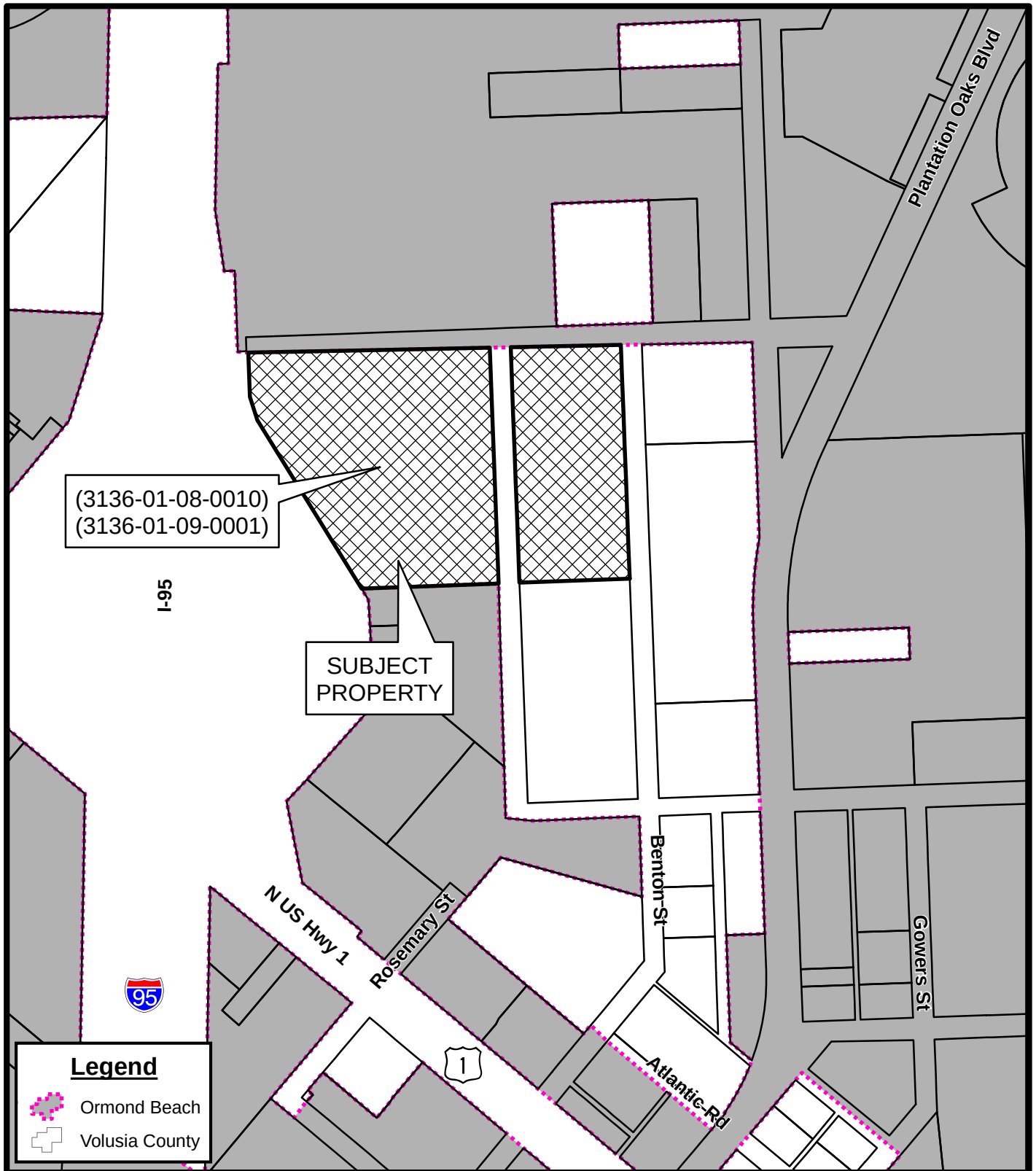
Land Use, Location and
Aerial maps



RIDGEHAVEN WEST
(3136-01-08-0010 AND 3136-01-09-0001)
FUTURE LAND USE MAP

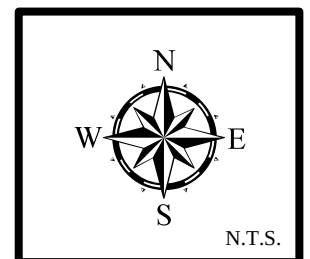
Prepared By: The City of Ormond Beach
G.I.S. Department - November 9, 2022





RIDGEHAVEN WEST
(3136-01-08-0010 AND 3136-01-09-0001)
LOCATION MAP

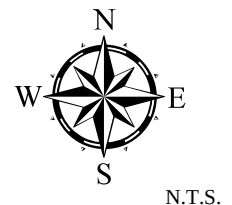
Prepared By: The City of Ormond Beach
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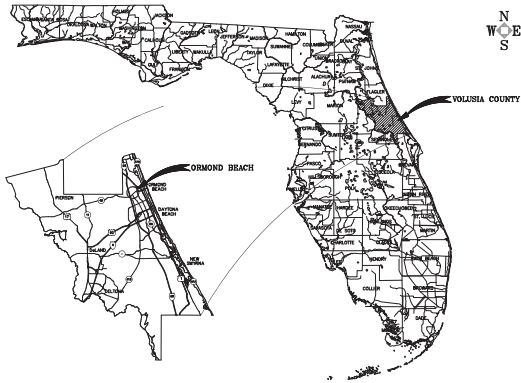
**RIDGEHAVEN WEST
(3136-01-08-0010 AND 3136-01-09-0001)
AERIAL MAP**

Prepared By: The City of Ormond Beach
G.I.S. Department - November 9, 2022



ATTACHMENT 3

Sketch and legal
description



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W
E
S

VOLUSIA COUNTY

ORMOND BEACH

U.S. HIGHWAY 1

U.S. HIGHWAY 17

U.S. HIGHWAY 1

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ALTA / NSPS LAND TITLE SURVEY

FOR

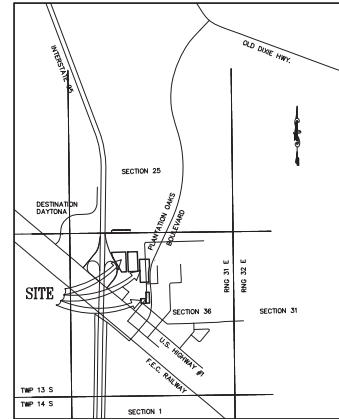
RIDGE LAND HOLDINGS

A PORTION OF

SECTION 36 – TOWNSHIP 13 SOUTH – RANGE 31 EAST
VOLUSIA COUNTY, FLORIDA

LOCATION

PLANTATION OAKS BOULEVARD, ORMOND BEACH, FL.



VICINITY MAP
1"=2000'

SURVEY NOTES:

SURVEYORS NOTES:

1. THIS SURVEY HAS BEEN PREPARED WITH BENEFIT OF A COMMITMENT FOR TITLE INSURANCE ISSUED BY: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY; COMMITMENT NO.12072339, COMMITMENT DATE: JANUARY 25, 2021 AT 11:00 P.M. UPDATED COMMITMENT NO. 1207339-A3, COMMITMENT DATE: FEBRUARY 4, 2022
2. DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
3. BEARING STRUCTURE ASSIGNED AND BASED ON THE SOUTH LINE OF SECTION 25, TOWNSHIP 13 SOUTH, RANGE 31 EAST, HAVING A BEARING OF BEING S88°20'29"W.
4. UNDERGROUND FOUNDATIONS, IF ANY, NOT LOCATED.
5. THIS PROPERTY IS LOCATED IN FLOOD INSURANCE RATE MAP (F.I.R.M.) ZONE X. THIS LOCATION IS DETERMINED BY SCALING FROM F.I.R.M. MAP NO. 121270182J MAP EFFECTIVE DATE: FEBRUARY 19, 2014, APPROXIMATE SCALE: 1"=500' & 121270201J MAP EFFECTIVE DATE: SEPTEMBER 29, 2017, APPROXIMATE SCALE: 1"=500'.
6. "NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER." OF ELECTRONIC SIGNATURE.
7. UNLESS OTHERWISE SHOWN, RECORD DISTANCES AND DIRECTIONS AND FIELD MEASURED DISTANCES AND DIRECTIONS ARE THE SAME.

DESCRIPTION OF PROPERTY SURVEYED:

PARCEL 11:
PART OF LOTS 1 THROUGH 7, BLOCK 34, REVISED PLAT OF NATIONAL GARDENS, AS RECORDED IN MAP BOOK 10, PAGES 250 THROUGH 253, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, LYING WESTERLY OF PLANTATION OAKS BOULEVARD A PROPOSED 100 FOOT RIGHT-OF-WAY AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGIN AT THE NORTHWEST CORNER OF SAID LOT 1, BLOCK 34, RUN THENCE SOUTH 02°05'06" EAST ALONG THE WESTERLY BOUNDARY LINE OF SAID LOTS 1 THROUGH 7 OF SAID BLOCK 34 TO THE SOUTHWEST CORNER OF LOT 7; THENCE RUN NORTH 87°58'56" EAST ALONG THE SAID SOUTHERLY BOUNDARY LINE OF SAID LOT 7, 110 FEET TO A POINT; THENCE RUN NORTH 02°05'06" WEST A DISTANCE OF 350 FEET TO THE NORTHERLY BOUNDARY LINE OF LOT 1, BLOCK 34; THENCE SOUTH 87°58'56" WEST ALONG SAID NORTHERLY BOUNDARY LINE OF LOT 1 A DISTANCE OF 110 FEET TO THE NORTHWEST CORNER THEREOF AND THE POINT OF BEGINNING.
PARCEL 2:
LOTS 4 THROUGH 7, BLOCK 7, AND LOTS 1 THROUGH 4, BLOCK 21, AS SHOWN ON THE REVISED PLAT OF NATIONAL GARDENS, AS RECORDED IN MAP BOOK 10, PAGES 250 THROUGH 253, PUBLIC RECORDS OF VOLUSIA, LESS AND EXCEPT THAT PORTION OF LOTS 6 AND 7, BLOCK 7 AND THAT PORTION OF LOTS 1 THROUGH 4, BLOCK 21, LYING WEST OF PLANTATION OAKS BOULEVARD RECORDED IN MAP BOOK 59 PAGES 138 THROUGH 154, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA.
PARCEL 3:
LOTS 25 THROUGH 27, BLOCK 34, REVISED PLAT OF NATIONAL GARDENS, AS RECORDED IN MAP BOOK 10, PAGES 250 THROUGH 253, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA,
BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT THE NORTHWEST CORNER OF LOT 27, BLOCK 34, SAID POINT BEING ON THE EASTERLY LINE OF BENTON STREET, A 60 FOOT PARTIALLY OPENED RIGHT OF WAY, RUN THENCE NORTH 87°58'56" EAST ALONG THE NORTHERLY LINE OF LOT 27 FOR A DISTANCE OF 150.00 FEET TO THE WESTERLY LINE OF A 15 FOOT UNNAMED ALLEY; THENCE SOUTH 02°05'06" EAST ALONG SAID WESTERLY LINE FOR A DISTANCE OF 150.00 FEET TO THE SOUTHEAST CORNER OF LOT 25; THENCE SOUTH 87°58'56" WEST ALONG THE SOUTHERLY LINE OF LOT 25 FOR A DISTANCE OF 150.00 FEET TO THE SOUTHWEST CORNER THEREOF AND THE EASTERLY LINE OF BENTON STREET ADJACENT; THENCE NORTH 02°05'06" WEST ALONG SAID EASTERLY LINE OF BENTON STREET FOR A DISTANCE OF 150.00 FEET TO THE POINT OF BEGINNING.
PARCEL 4:
ALL OF BLOCKS 8 AND 9 TOGETHER WITH THAT PORTION OF BLOCK 10 LYING EAST OF INTERSTATE NO. 95, ALL IN THE REVISED PLAT OF NATIONAL GARDENS RECORDED ON MAP BOOK 10, PAGES 250 THROUGH 253, PUBLIC RECORDS OF VOLUSIA COUNTY FLORIDA.

B II EXCEPTIONS:

1. DEFECTS, LIENS, ENCUMBRANCES, ADVERSE CLAIMS OR OTHER MATTERS, IF ANY, CREATED, FIRST APPEARING IN THE PUBLIC RECORDS OR ATTACHING SUBSEQUENT TO THE COMMITMENT DATE HEREOF BUT PRIOR TO THE DATE THE PROPOSED INSURED ACQUIRES FOR VALUE OF RECORD THE ESTATE OR INTEREST OR MORTGAGE THEREON COVERED BY THIS COMMITMENT.
2. a. GENERAL OR SPECIAL TAXES AND ASSESSMENTS REQUIRED TO BE PAID IN THE 2022 AND SUBSEQUENT YEARS.
b. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION NOT RECORDED IN THE PUBLIC RECORDS.
c. ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION OR ADVERSE CIRCUMSTANCE THAT WOULD BE DISCLOSED BY AN INSPECTION OR AN ACCURATE AND COMPLETE LAND SURVEY OF THE LAND AND INSPECTION OF THE LAND.
d. EASEMENTS OR CLAIMS OF EASEMENTS NOT RECORDED IN THE PUBLIC RECORDS.
e. ANY LIEN, OR RIGHT TO A LIEN, FOR SERVICES, LABOR OR MATERIAL FURNISHED, IMPOSED BY LAW AND NOT RECORDED IN THE PUBLIC RECORDS.
3. ANY OWNER'S POLICY ISSUED PURSUANT HERETO WILL CONTAIN UNDER SCHEDULE B THE FOLLOWING EXCEPTION: ANY ADVERSE OWNERSHIP CLAIM BY THE STATE OF FLORIDA BY RIGHT OF SOVEREIGNTY TO ANY PORTION OF THE LAND INSURED HEREUNDER, INCLUDING SUMMERED, FILLED AND ARTIFICIALLY EXPOSED LANDS, AND LANDS ACCREDITED TO SUCH LANDS.
4. ANY LIEN PROVIDED BY COUNTY ORDINANCE OR BY CHAPTER 159, F.S., IN FAVOR OF ANY CITY, TOWN, VILLAGE OR PORT AUTHORITY, FOR UNPAID SERVICE CHARGES FOR SERVICES BY ANY WATER SYSTEMS, SEWER SYSTEMS OR GAS SYSTEMS SERVING THE LAND DESCRIBED HEREIN AND ANY LIEN FOR WASTE FEES IN FAVOR OF ANY COUNTY OR MUNICIPALITY, ITEMS 1-4 STANDARD EXCEPTIONS, NOT A SURVEY MATTER.
5. ALL MATTERS AS CONTAINED ON THE PLAT OF REVISED NATIONAL GARDENS, AS RECORDED IN PLAT BOOK 10, PAGE 250, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, SHOWN HEREON.
6. RESERVATIONS AS CONTAINED IN DEED FROM TRUSTEES OF THE INTERNAL IMPROVEMENT FUND OF THE STATE OF FLORIDA AS RECORDED IN DEED BOOK 315, PAGE 225, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, DOES NOT AFFECT SUBJECT PROPERTY, NOT GRAPHICALLY DEPICTED.
7. EASEMENT IN FAVOR OF FLORIDA POWER AND LIGHT COMPANY RECORDED IN O.R. BOOK 7476, PAGE 43, PUBLIC RECORDS OF VOLUSIA COUNTY FLORIDA, SHOWN HEREON.
8. EASEMENT IN FAVOR OF FLORIDA POWER AND LIGHT COMPANY RECORDED IN O.R. BOOK 7476, PAGE 1048, PUBLIC RECORDS OF VOLUSIA COUNTY FLORIDA, SHOWN HEREON.
9. RIGHTS OF LESSEES UNDER UNRECORDED LEASES, NOT A SURVEY MATTER.

INDEX OF SHEETS:

1. COVER SHEET (CURRENT), KEY SHEET, AND B-11 EXCEPTIONS.
2. ALTA/NSPS LAND TITLE SURVEY OF NATIONAL GARDENS LOTS 1-4, BLOCK 21, LOTS 4-7, BLOCK 7, LOTS 1-7, BLOCK 8, BLOCKS 9 AND 10.
3. ALTA/NSPS LAND TITLE SURVEY OF NATIONAL GARDENS LOTS 1-7, AND 24-25, BLOCK 34.

SURVEYOR'S CERTIFICATION:

CERTIFIED TO AND FOR THE BENEFIT OF: RIDGE LAND HOLDINGS, LLC,
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, GLENN D. STORCH, P.A.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS: 1, 3, 8, 13, 14, 16, 17, 18, 19, AND 20 OF TABLE A THEREOF.
THE FIELDWORK WAS COMPLETED ON: 07-24-2021
DATE OF PLAT OR MAP: 08-23-2022

J.W. BARNES

P.S.M. NO. 5576

SLIGER & ASSOCIATES, INC.

PROFESSIONAL LAND SURVEYORS

PROFESSIONAL LAND SURVEYORS

PROFESSIONAL LAND SURVEYORS

PROFESSIONAL LAND SURVEYORS

PROFESSIONAL LAND SURVEYORS

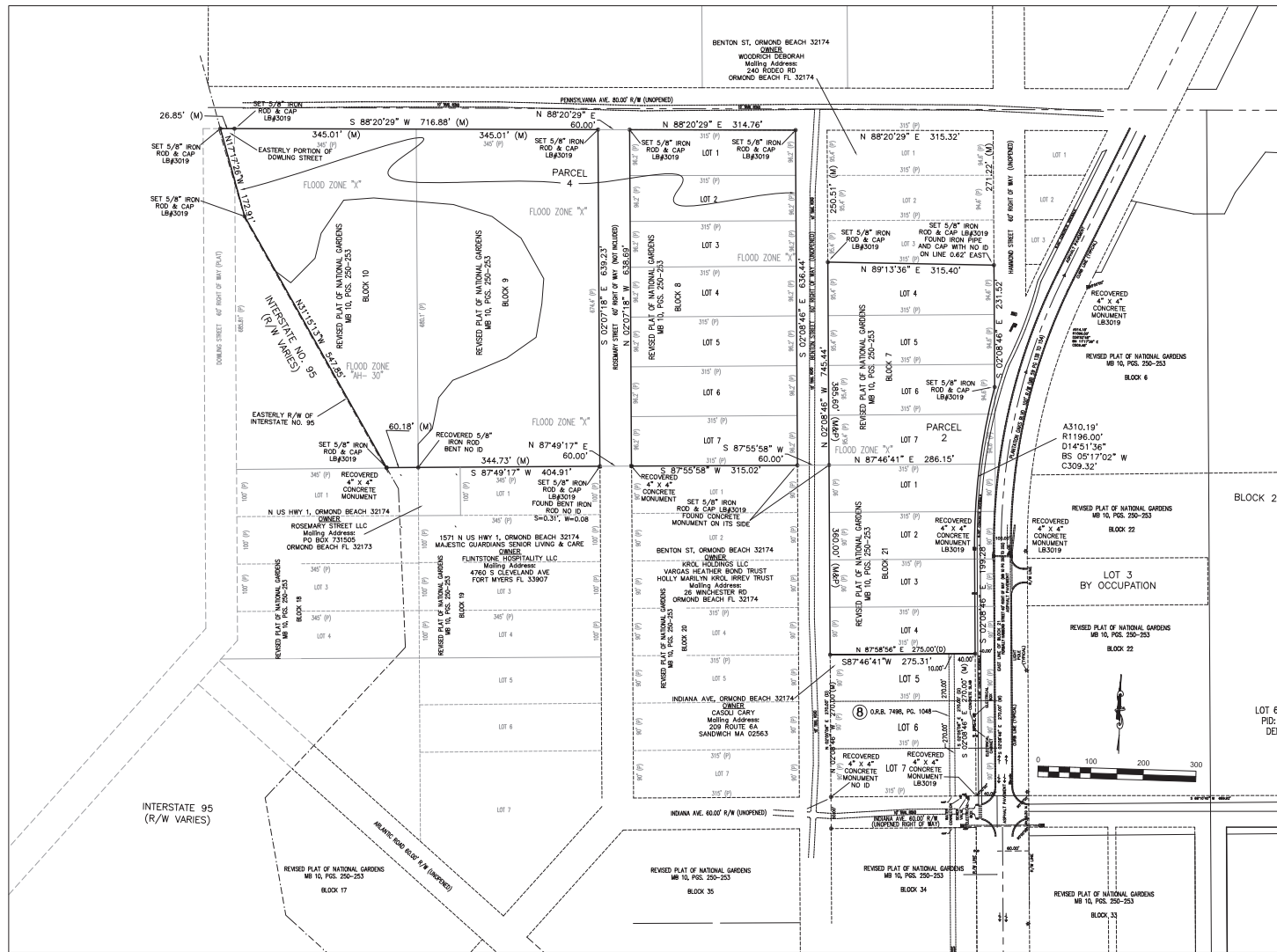
PROFESSIONAL LAND SURVEYORS



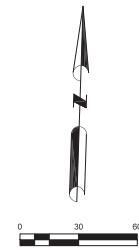
Field Date	Field Book	Page	Party Chief	Drawn By	Checked By	Revision	Approved
07-26-2021	FIELD BOOK 1477	PAGE (S) 46-51	JASON FENFIELD	JOHN MOLLER	JEFF BLENES		

ALTA / NSPS LAND TITLE SURVEY
RIDGE LAND HOLDINGS, LLC
CLIENT: RIDGE LAND HOLDINGS, LLC

PROJ.: 00902
JOB: 21-1779
SCALE: N/A
SHEET: 1 of 3



LEGEND 1" IRON ROD WITH CAP 1" IRON ROD 1" IRON PIPE WITH CAP 1" IRON PIPE 1" NAIL & DISK 1" 1/2" CUT IN CONCRETE 1" CONCRETE MONUMENT 1" MONUMENT 1" PERMANENT CONTROL POINT 1" SITE BENCHMARK 1" FIRE HYDRANT	1" GAS VALVE 1" REUSE VALVE 1" SANITARY SEWER VALVE 1" HAND HOLE (ELECTRIC) 1" WATER METER 1" GAS METER 1" TELEPHONE BOX 1" MAIL BOX 1" CABLE TELEVISION BOX 1" TRAFFIC SIGNAL BOX 1" WATER VALVE	1" DISK FLOOR FIBER OPTIC CABLE BOX 1" DISK FLOOR FIBER OPTIC CABLE VALVE 1" ELP - ELECTRIC PANEL 1" FLOOR FIBER OPTIC CABLE MANHOLE 1" TFM - TELEPHONE CABLE MANHOLE 1" SON 1" LIGHT POLE 1" YARD LIGHT 1" UTILITY POLE 1" GUY ANCHOR 1" ELEC. SERVICE BOX	1" SSMH - SANITARY SEWER MANHOLE 1" SSMH - STORM DRAIN MANHOLE 1" ETHH - ELECTRIC MANHOLE 1" ETHH - ELECTRIC MANHOLE 1" LHM - LIGHT MANHOLE 1" CO - CLEAN OUT 1" FIBER OPTIC CABLE MANHOLE 1" REUSE BLOWOFF ASSEMBLY 1" RETAINING WALL 1" EXISTING CONCRETE 1" EXISTING ELEVATION	UTILITY STATEMENT: THE INACCESSIBLE UNDERGROUND UTILITIES SHOWN ON THIS SURVEY HAVE BEEN LOCATED FROM ABOVE GROUND FIELD UTILITY LOCATIONS AND/OR EXISTING AS-BUILT DRAWINGS PROVIDED BY THE CLIENT. SLIGER & ASSOCIATES, INC. (S&A) MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. LIKEWISE S&A DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. ONLY THAT S&A HAS LOCATED THE UTILITIES AS ACCURATELY AS POSSIBLE FROM SAID FIELD LOCATIONS AND/OR AS-BUILT DRAWINGS PROVIDED BY OTHERS. S&A HAS NOT PHYSICALLY LOCATED THE ACTUAL INACCESSIBLE UNDERGROUND UTILITIES, EXCEPT AS SPECIFICALLY NOTED AND DEPICTED ON THIS DRAWING.	ADDITIONAL ABBREVIATIONS - TREE LEGEND CP CAMPHOR TREE MP MAPLE TREE STY SYCAMORE TREE QW CAYENNE TREE SG SWEET GUM TREE HK HICKORY TREE CB CHINABERRY TREE SB SUGARBERRY TREE CD CEDAR TREE EM ELM TREE CT CYPRESS TREE PM PINE TREE PN PALM TREE HY HOLLY TREE SIZE (INCHES) DIAMETER AT BREAST HEIGHT TREE TYPE MULTIPLE TRUNKS	SLIGER & ASSOCIATES, INC. PROFESSIONAL LAND SURVEYORS 3021 N. ROAD ROAD PORT CHARLOTTE, FL 33127 (813) 761-5385 (813) 761-5386 www.sligerandassociates.com NATIONAL GARDENS LOTS 1-4, BLOCK 21, LOTS 4-7, BLOCK 7, LOTS 1-7, BLOCK 8, BLOCKS 9 AND 10 FOR: RIDGE LAND HOLDINGS JOB NO. 21-1778 SEE SHEET 1 OF 3 FOR CERTIFICATION AND SIGNATURE SHEET 2 OF 3
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Page 1301 of 1733

ATTACHMENT 4

Section 2-28, B-7, Highway
Tourist Commercial and 2-
16, R-3, Single-Family
Cluster and Townhouse
zoning districts

Sec. 2-28. B-7, Highway Tourist Commercial Zoning District.

A. PURPOSE: The purpose of the B-7, Highway Tourist Commercial Zoning District is to provide for a variety of tourist facilities and tourist-related support activities in an attractive setting which will promote pedestrian activity and reinforce positive visitor experience. This district is designed for use within or in close proximity to other districts within which major transient lodging development has occurred or is permitted.																
B. DIMENSIONAL STANDARDS																
1. Type	2. Density	3. Maximum Building Height	4. Maximum Building Coverage	5. Maximum Impervious Lot Coverage	6. Minimum Lot Size	7. Minimum Lot Width	8. Minimum Lot Depth	9.								
								Setbacks								
								a. Front	b. Rear	c. Side	d. Street Side/Corner	e. Waterbody				
Nonresidential Uses	36 (transient lodging)	50'	40%	75%	20,000 SF	100'	N/A	20'	20'; 30' if abutting residential district; 5' additional combined side yard required for each story over 2.	10'; 20' when abutting a multifamily district; 25' when abutting a single-family district; 5' of additional combined yard area required for each story over 2.	20'	30'				
Multifamily	10	50'	40%	75%	20,000 SF	100'	N/A	20'	20'; 30' if abutting residential district.	10' when abutting a multifamily district; 25' when abutting a single-family district.	20'	30'				
C. PERMITTED USES			D. CONDITIONAL USES				E. SPECIAL EXCEPTION USES			F. OTHER STANDARDS						
1. Adult Day Care Center 2. Assisted Living Facility 3. Business and Professional Office 4. Business Service 5. Clubs and Fraternal Organization 6. Convenience Store, Type A 7. Financial Institution 8. Funeral Home 9. Instructional Physical Activity 10. Retail Sales and Service 11. School, Public 12. Transient Lodging 13. Veterinarian			1. Bar 2. Community Residential Home 3. Convenience Store, Type B 4. Convenience Store, Type C 5. Dwelling, Multifamily 6. Family Day Care Home 7. Golf Course, Contoured 8. Hospital 9. House of Worship 10. Nightclub 11. Parking Lot 12. Parking Garage 13. Parks and Recreation Facilities, Private 14. Parks and Recreation Facilities, Public 15. Personal Services 16. Public Facilities 17. Public Utilities 18. Recreational Facilities, Indoor 19. Restaurant, Type "A" 20. Restaurant, Type "B" 21. Restaurant, Type "C" 22. School, Private 23. Shopping Center 24. Telecommunications Towers, Camouflaged 25. Theater 26. Wind Energy System				1. Automatic Amusement Center 2. Nightclub 3. Outdoor Activity 4. Outdoor Storage 5. Recreational Facilities, Outdoor 6. Telecommunication Tower 7. Vehicle Rental			All development must comply with the following requirements: 1. Wetlands (chapter 3, article II). 2. Special corridors and buffer requirements (chapter 3, article I). 3. See conditional and special exception regulations (chapter 2, article IV). 4. Multifamily residential dwelling units shall have the following minimum square footage per bedroom: <table><tr><td>One Bedroom = 600 SF</td><td>Three Bedrooms = 900 SF</td></tr><tr><td>Two Bedrooms = 750 SF</td><td>Each Additional Bedroom = 150 SF</td></tr></table>			One Bedroom = 600 SF	Three Bedrooms = 900 SF	Two Bedrooms = 750 SF	Each Additional Bedroom = 150 SF
One Bedroom = 600 SF	Three Bedrooms = 900 SF															
Two Bedrooms = 750 SF	Each Additional Bedroom = 150 SF															
G. PERMITTED ACCESSORY USES: Accessory uses customarily associated with, dependent on and incidental to their permitted principal uses, provided that such uses conform to the regulations set forth in chapter 2, article III.																

(Ord. No. 2012-03, § 6, 2-7-2012; Ord. No. 2014-39, §§ 5, 6, 1-6-2015; Ord. No. 2015-11, § 6, 4-7-2015)

Sec. 2-17. R-4, Single-Family Cluster and Townhouse Zoning District.

A. PURPOSE: The purpose of the Single-Family Cluster and Townhouse (R-4) Zoning District is to provide for a variety of dwelling units in a highly aesthetic setting. The zoning district attempts to establish an optimum living environment between indoor and outdoor living, to encourage the establishment of on-site recreation areas and open space, and cluster developments on small lots, while maintaining the maximum possible privacy for each unit through quality of design.																																
B. DIMENSIONAL STANDARDS																																
1. Type	2. Density (units per acre)	3. Maximum Building Height	4. Maximum Building Coverage	5. Maximum Impervious Lot Coverage	6. Minimum Lot Size	7. Minimum Lot Width	8. Minimum Lot Depth	9. Setbacks																								
								a. Front	b. Rear	c. Side	d. Street Side/Corner	e. Waterbody																				
Single-Family	5.05	30'	35%	75%	8,625 SF	75'	115'	25'	20'	8' total 20'	20'	30'																				
Cluster	6.70	30'	35%	75%	6,500 SF	65'	—	25'	20'	8' total 20'	20'	30'																				
Patio	6.89	30'	35%	75%	6,325 SF	55'	115'	25'	20'	8' total 20'	20'	30' Zero Lot																				
Line	8.71	30'	35%	75%	5,000 SF	50'	—	25'	20'	0', 20'	20'	30'																				
Multifamily	8	30'	35%	75%	43,560 SF	125'	—	25'	20'	10'	20'	30'																				
Duplex	8.71	30'	35%	75%	10,000 SF	100'	—	30'	20'	20'	20'	30'																				
Triplex	8.7	30'	35%	75%	15,000 SF	150'	—	30'	20'	20'	20'	30'																				
Townhouse	6.31	30'	35%	75%	6,900 SF	60'	115'	25'	20'	15'	20'	30'																				
C. PERMITTED USES			D. CONDITIONAL USES			E. SPECIAL EXCEPTION USES		F. OTHER STANDARDS																								
1. Community Residential Home 2. Dwelling, Duplex 3. Dwelling, Single-Family, Detached 4. Dwelling, Triplex 5. School, Public			1. Adult Day Care Center 2. Adult Family Day Care 3. Assisted Living Facility 4. Cluster Subdivision, Single-Family 5. Dwelling, Multifamily 6. Dwelling, Quadraplex 7. Family Day Care Home 8. Foster Home 9. Group Home 10. Nursing Home 11. Parks and Recreation Facilities, Private 12. Parks and Recreation Facilities, Public 13. Patio Subdivision 14. Public Facilities 15. Public Utilities 16. School, Private 17. Telecommunication Tower or Antenna, Camouflaged 18. Townhouses 19. Water Survival Instruction 20. Wind Energy System 21. Zero Lot Line Subdivision			1. Bed and Breakfast Inn 2. Child Care Facilities 3. Historic Preservation Mixed Use 4. House of Worship		All development must comply with setback requirements: 1. Wetlands (chapter 3, article II). 2. Special corridors and buffer requirements (chapter 3, article I). 3. See conditional and special exception regulations (chapter 2, article IV). 4. Use of dwelling units for transient lodging is prohibited in order to protect and maintain the residential character of the zoning district. 5. Single-family residential buildings shall have the following minimum floor area: <table><tr><th>Zone Suffix</th><th>1-Story</th><th>Split Level</th><th>2-Story</th></tr><tr><td>A</td><td>1,500 SF</td><td>1,800 SF</td><td>2,100 SF</td></tr><tr><td>B</td><td>1,350 SF</td><td>1,650 SF</td><td>2,000 SF</td></tr><tr><td>C</td><td>1,150 SF</td><td>1,400 SF</td><td>1,750 SF</td></tr></table> 6. Multifamily, duplex and triplex residential dwelling units shall have the following minimum square footage per bedroom: <table><tr><td>One = 750 SF</td><td>Three = 1,050 SF</td></tr><tr><td>Two = 900 SF</td><td>Each Additional Bedroom = 150 SF</td></tr></table>					Zone Suffix	1-Story	Split Level	2-Story	A	1,500 SF	1,800 SF	2,100 SF	B	1,350 SF	1,650 SF	2,000 SF	C	1,150 SF	1,400 SF	1,750 SF	One = 750 SF	Three = 1,050 SF	Two = 900 SF	Each Additional Bedroom = 150 SF
Zone Suffix	1-Story	Split Level	2-Story																													
A	1,500 SF	1,800 SF	2,100 SF																													
B	1,350 SF	1,650 SF	2,000 SF																													
C	1,150 SF	1,400 SF	1,750 SF																													
One = 750 SF	Three = 1,050 SF																															
Two = 900 SF	Each Additional Bedroom = 150 SF																															
G. PERMITTED ACCESSORY USES: Accessory uses customarily associated with, dependent on and incidental to their permitted principal uses, provided that such uses conform to the regulations set forth in chapter 2, article III.																																
H. SPECIAL STANDARDS: Nonconformance: Single-family residential lots located within this district and having a minimum lot area of 7,500 square feet, a minimum width of 75', and located in areas of the city where established street patterns and lot configurations are generally consistent with the 7,500 square foot/75' width standard, shall be deemed to be conforming lots, subject to the setback and buffer requirements of Ordinance No. 78-35, as existed on December 31, 1991. Parcels within such districts may be divided into lots having minimum lot areas of 7,500 square feet and minimum widths of 75', provided the structure on each lot meets the setback and buffer requirements of Ordinance No. 78-35. However, where the recorded plat or covenants indicate front yards in excess of current city standards for principal buildings, said plat or covenants shall first be properly amended prior to the issuance of a building permit. Approved Plats: Setbacks that are less restrictive than the standards listed above are acceptable, provided that they are either shown on the approved plat or a less restrictive standard was in place at the time of recording the original plat.																																

(Ord. No. 2012-03, § 3, 2-7-2012; Ord. No. 2013-11, § 3, 2-5-2013; Ord. No. 2013-13, § 10, 2-5-2013)

DRAFT

Planning Board minutes from December 5, 2022

ITEM:

RZ 2023-006 – Zoning Map
amendment, RidgeHaven West

G. LUMA 2023-005: Small-Scale Comprehensive Plan Land Use Map amendment, RidgeHaven West

Mr. Spraker explained that process for LUMA 2023-005: Small-Scale Comprehensive Plan Land Use amendment application for RidgeHaven West. It is now going through the Planning Board for recommendation, City Commission in January 2023, and then on to the Volusia County Growth Management Commission and the Department of Economic Opportunity.

Mr. Steven Spraker, Planning Director, stated that the request is from RCM Properties, LLC, for a Small-Scale Comprehensive Plan Land Use Map amendment for approximately 13.13 acres, within the original Interlocal Service Boundary Agreement (ISBA), located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, from “Low Intensity Commercial” to “Medium Density Residential”. The land use amendment shall maintain the existing land use limitation of a maximum of eight units per acre for residential development.

Mr. Spraker stated that there is a limitation of 8 units per acre which was established in the original ISBA and has a Floor Area Ratio (FAR) of 0.5 that allows Retail/Offices/Professional Services/Residential/Transient Lodging and allows a variety of commercial and residential uses. He continued that it currently has a B-7 zoning classification. Mr. Spraker added that the “Medium Density Residential” land use allows 12 units per acre and in order match the existing land use, the applicant agreed to the condition of 8 units per acre and are not increasing the residential density at all and are decreasing the commercial land use. Their desire is to eventually build some type of residential subdivision. They have additional properties off of Plantation Oaks Boulevard. Mr. Spraker concluded that staff recommends approval and the readings are scheduled for January 2023 before the City Commission.

Chairman Thomas opened the public hearing.

Mr. Glenn Storch, P.A., Storch Law Firm, 420 S. Nova Road, Daytona Beach, introduced himself as a representative of the landowner.

Ms. Shull inquired if the project was planned to be townhomes and if there would be a HOA and rental restrictions. Mr. Storch confirmed that she was correct and that there would be an HOA and most likely restrictions as well.

Chairman Thomas opened it up to the Board and entertained a motion.

Mr. Jorczak motioned to approve LUMA 2023-005: Small-Scale Comprehensive Plan Land Use Map amendment, RidgeHaven West. Ms. Shull seconded it. Vote was called, and the motion was approved (5-0).

H. RZ 2023-006: Zoning Map amendment, RidgeHaven West

Mr. Steven Spraker, Planning Director, explained the request for a zoning map amendment submitted by RCM Properties, LLC, for a Zoning Map amendment for approximately 13.13 acres generally located south of the platted road of Pennsylvania Avenue and along the platted roadways of Rosemary Street and Benton Street, west of Plantation Oaks Boulevard, from the B-7, Highway Tourist Commercial, to the R-4, Single-Family Cluster and Townhouse zoning district. Mr. Spraker concluded that

staff believes the zoning is consistent with the proposed land use and existing pattern in the area recommends approval.

Chairman Thomas opened the public hearing.

Ms. Shull inquired about the difference between R-3 and R-4 zoning districts. Mr. Spraker replied that the R-4 zoning district has a higher density and allows townhouses, multi-family, duplexes and triplexes. The R-3 zoning district is primarily single-family and does not allow multi-family uses.

Mr. Jorczak asked if there is any chance that the state evaluation for the interchange will have impact on the property as he is aware of the redesign planning of the entrances and exits on the west side of Interstate 95. Mr. Spraker replied no, not in the concepts that he has seen, other than limited change with limited commercial along the interchange but then there would have to be a major redesign.

Chairman Thomas opened it up to the Board and entertained a motion.

Ms. Shull motioned to approve RZ-2023-006: Zoning Map amendment, RidgeHaven West. Mr. Galloway seconded it. Vote was called, and the motion was approved (5-0).

It was discussed and determined that the project would go through the permitting process in the next four to six months and is estimated to be completed over the next two years, depending on the market.

X. OTHER BUSINESS

None.

XI. MEMBER COMMENTS

Mr. Galloway inquired about the promotion of the neighborhood meetings and asked if there were any other methods of getting the information out. Mr. Spraker replied that an e-mail contact list is utilized to reach residents in the area, advertising the City of Ormond Beach website, the yellow information signs that are posted on the property with development related projects, and advertisements in the Daytona News Journal.

Mr. Galloway asked if the Engineering Department can evaluate the history of flooding on Beach Street and Old Dixie Highway. Mr. Spraker explained that the areas mentioned are in Volusia County and not under the City's jurisdiction.

Mr. Jorczak commended the City and their swift clean-up of the hurricane debris, thanks to the department and City Manager, Ms. Joyce Shanahan.

Attorney Hayes commented on how two Planning Board members were recently elected to the City Commission and how that has not been seen before; Mr. Harold Briley and Ms. Lori Tolland.

Chairman Thomas remarked about the dynamics of the Planning Board with its members over the past 4 years. He commented on how much fun he has had with them.

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 8.B
Section:	PUBLIC HEARINGS			
Item Category:	Public Hearing - Ordinances	Res./Ord. No:	2023-15	
Strategic Goal:	Community Development - Other			
Department :	Planning & Building			
Subject:	101 Fiesta Drive, Zoning Map Amendment			
Budget Impact:	There is no budget impact as the result of this zoning map amendment.			
Summary:	This is a request for a zoning map amendment submitted by the property owner, Murphy Dugan, LLC. The Planning Board recommended approval with a condition.			
Recommended Action:	Staff recommends that the City Commission approve the zoning map amendment for approximately 0.30 acres located at 101 Fiesta Drive from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital. The Planning Board recommended approval with a 5-0 vote with a condition that a covenant for a deed restriction and/or restrictive covenant be put in place to assure that the property could only be a parking lot.			
Staff Contact:	Steven Spraker, Planning Director, (386) 676-3341			
Approval:				
Kelly McGuire, Finance Director		1/23/2023		
Claire Whitley, Assistant City Manager		1/30/2023		
Joyce Shanahan, City Manager		2/2/2023		



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Steven Spraker, Planning Director
Date: February 21, 2023
Subject: 101 Fiesta Drive, Zoning Map Amendment
Commission Goal: Community Development - Other

Introduction

This is a request for a zoning map amendment submitted by the property owner, Murphy Dugan, LLC, for approximately 0.30 acres located at 101 Fiesta Drive from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital. The subject property is located at 101 Fiesta Drive.

Background

The subject property is approximately 0.30 acres and is currently a single-family house owned by the applicant. The current land use map designation is "Low Density Residential" and the zoning classification is R-3, Single-Family Medium Density. The property was platted as lot 45 of the Fiesta Heights subdivision, recorded on January 21, 1960. The single-family house was constructed in 1966, according to the Volusia County Property Appraiser website. The property survey shows the property is approximately 85' in width and 150' in depth.

Discussion

There is a Small-Scale Comprehensive Plan Land Use Map amendment, Ordinance 2023-08, for the property at 101 Fiesta Drive from "Low Density Residential" to "Residential, Office, Retail." The application limits the Floor Area Ratio to zero and the residential units allowed to zero with the intention of developing a parking lot in association with the Hamlin & Associates building at 801 West Granada Boulevard. The land use and zoning application are related to the property at 801 West Granada Boulevard, Hamlin and Associates. This property and building have been substantially renovated and there is a desire to expand the parking area of 801 West Granada Boulevard to include the property at 101 Fiesta Drive.

Planning Board

The Planning Board reviewed the zoning map amendment at the December 8, 2022 meeting and recommended approval with a 5-0 vote with the condition that a covenant for a deed restriction and/or restrictive covenant be put in place to assure that the property could only be a parking lot. There were no individuals who spoke for or against this item with the discussion intertwined with the land use amendment.

Budget Impact

There is no budget impact as the result of this zoning map amendment.

Citizen Impact

The land use amendment had discussion on the appropriateness of parking lot use at the Planning Board meeting. The policy decision, whether or not the proposed use is appropriate, occurred with the land use amendment. The zoning map amendment is required to ensure consistency between the land use and zoning.

Recommendation

Staff recommends that the City Commission approve the zoning map amendment for approximately 0.30 acres located at 101 Fiesta Drive from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital. The Planning Board recommended approval with a 5-0 vote with a condition that a covenant for a deed restriction and/or restrictive covenant be put in place to assure that the property could only be a parking lot.

Attachments:

1. 23-15 101 Fiesta Drive, ZMA (P23-0017G)
2. Exhibit A, 101 Fiesta Drive
3. Exhibit B, 101_FIESTA_ZONING_AMEND
4. 12.08.2022, Zoning Map Amendment, 101 Fiesta Drive, PB Staff Report
5. Draft PB Minutes, 101 Fiesta Drive, Zoning Map Amendment

Approvals:



Kelly McGuire, Finance Director

Date: January 23, 2023



Claire Whitley, Assistant City Manager

Date: January 30, 2023



Joyce Shanahan, City Manager

Date: February 02, 2023

ORDINANCE NO. 2023-15

AN ORDINANCE AMENDING PARAGRAPH C, OFFICIAL ZONING MAP, OF SECTION 2-01, ESTABLISHED, OF ARTICLE 1, ESTABLISHMENT OF ZONING DISTRICTS AND OFFICIAL ZONING MAP, OF CHAPTER 2, DISTRICT AND GENERAL REGULATIONS, OF THE CITY OF ORMOND BEACH *LAND DEVELOPMENT CODE*, BY AMENDING THE OFFICIAL ZONING MAP TO REZONE ONE PARCEL OF REAL PROPERTY TOTALING 0.30± ACRES LOCATED AT 101 FIESTA DRIVE (VOLUSIA COUNTY PARCEL NUMBER 4220-01-00-0450) FROM R-3, SINGLE-FAMILY MEDIUM DENSITY, TO B-1, PROFESSIONAL OFFICE/HOSPITAL; AUTHORIZING REVISION OF OFFICIAL ZONING MAP; REPEALING ALL INCONSISTENT ORDINANCES OR PARTS THEREOF; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, Murphy Dugan, LLC, a Florida limited liability company (“Property Owner/Applicant”) is the fee simple owner of certain real property consisting of approximately 0.30 acres located at 101 Fiesta Drive (Volusia County Property Appraiser parcel identification number: 4220-01-00-0450), which is legally described and depicted in Exhibit “A” (“Property”) attached hereto and incorporated herein, and

WHEREAS, the Property Owner has submitted an application to the city to re-zone the Property from R-3, Single-Family Medium Density, to B-1, Professional Office/Hospital, and

WHEREAS, the Property to be re-zoned is less than ten contiguous acres, consisting of approximately 0.30± contiguous acres, and

WHEREAS, the Planning Board held a public hearing regarding this matter as required by Chapter 1, Article II, Section 1-15(d)(3), of the *Land Development Code*, and

WHEREAS, the City Commission held a public hearing regarding this matter as required by Section 166.041(3)(c), *Florida Statutes*, and

WHEREAS, all applicable legal notice requirements have been complied with, and

WHEREAS, the City Commission finds the proposed rezoning to be consistent with the Future Land Use Element, and the Future Land Use Map, of the City's adopted *Comprehensive Plan*, now therefore,

BE IT ENACTED BY THE PEOPLE OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The foregoing recitals are incorporated herein as the findings of the City Commission.

SECTION TWO. Paragraph C, Official Zoning Map, of Section 2-01, Established, of Article I, Establishment of Zoning Districts and Official Zoning Map, of Chapter 2, District and General Regulations, of the *Land Development Code* of the City of Ormond Beach, Florida, is hereby amended by amending the Official Zoning Map, to change the zoning designation of one parcel located at 101 Fiesta Drive (Volusia County Property Appraiser parcel identification number: 4220-01-00-0450), as more particularly described and depicted in Exhibit

“A” from R-3, Single-Family Medium Density, to B-1, Professional Office/Hospital, as shown and depicted in Exhibit “B”.

SECTION THREE. Based upon the Applicant’s acceptance at the Planning Board meeting, a deed restriction and/or restrictive covenant shall be recorded by the Applicant that 101 Fiesta Drive can only be used as parking lot. The deed restriction and/or restrictive covenant shall be recorded prior to the issuance of a Certificate of Completion for the parking lot improvements.

SECTION FOUR. The change in zoning is contingent, and shall become effective, upon the proposed *Comprehensive Plan* amendment for the Property (Ordinance No. 2023-08) becoming effective.

SECTION FIVE. All Ordinances or parts of Ordinances in conflict herewith are hereby repealed to the extent of such conflict.

PASSED UPON at the first reading of the City Commission, this 21st day of February, 2023.

PASSED UPON at the second and final reading of the City Commission, this 7th day of March, 2023.

BILL PARTINGTON
Mayor

ATTEST:

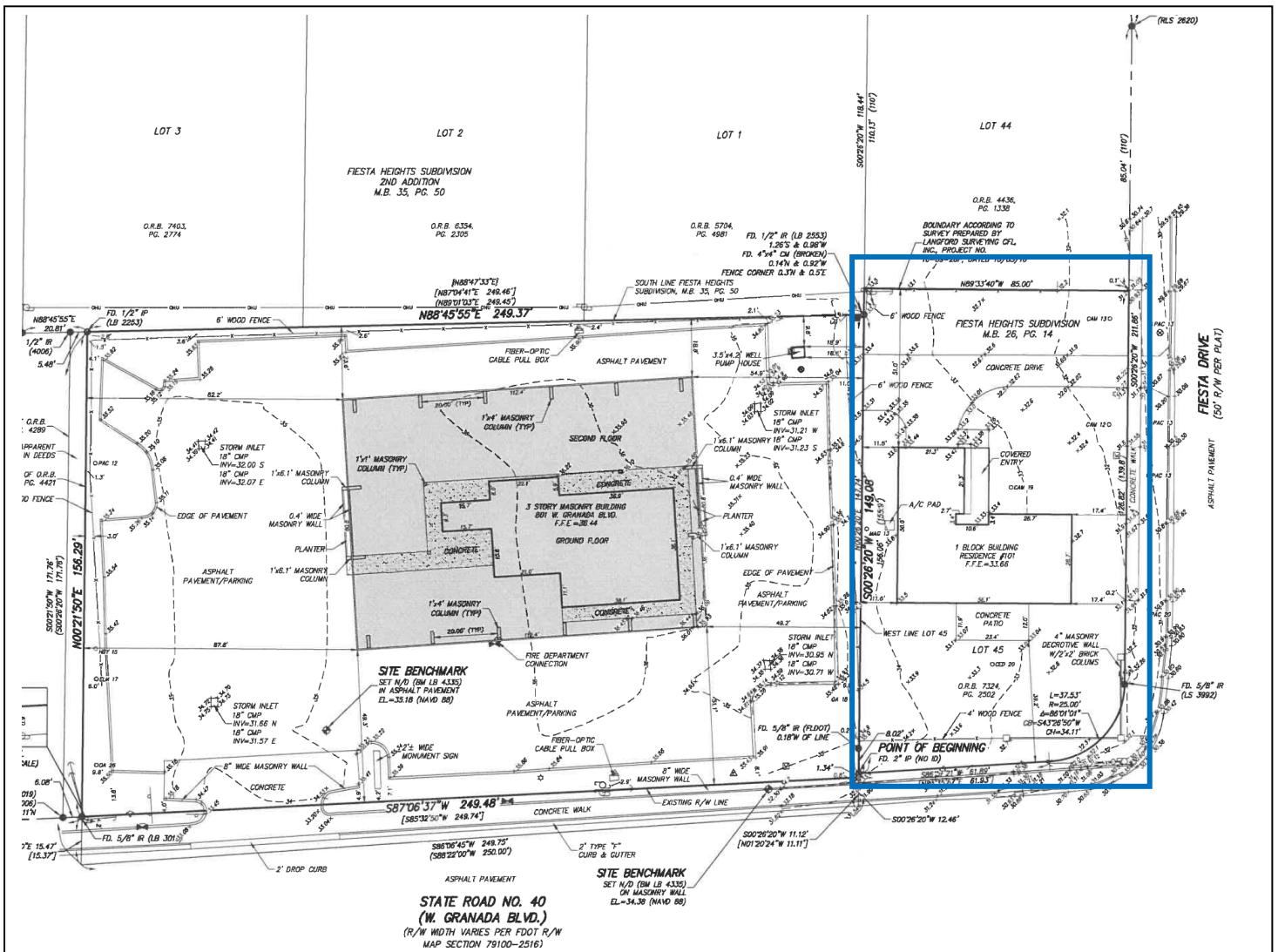
SUSAN CARROLL DAUDERIS
City Clerk

EXHIBIT "A"

LEGAL DESCRIPTION

LOT 45 FIESTA HTS SUB MB 26 PG 14 PER OR 4745 PG 4781 PER OR 7324 PG 2502
PER OR 7562 PG 311 PER OR 8248 PG 2208 PER OR 8251 PG 2475

DEPICTION OF AREA



OWNER:

PARCEL ID:

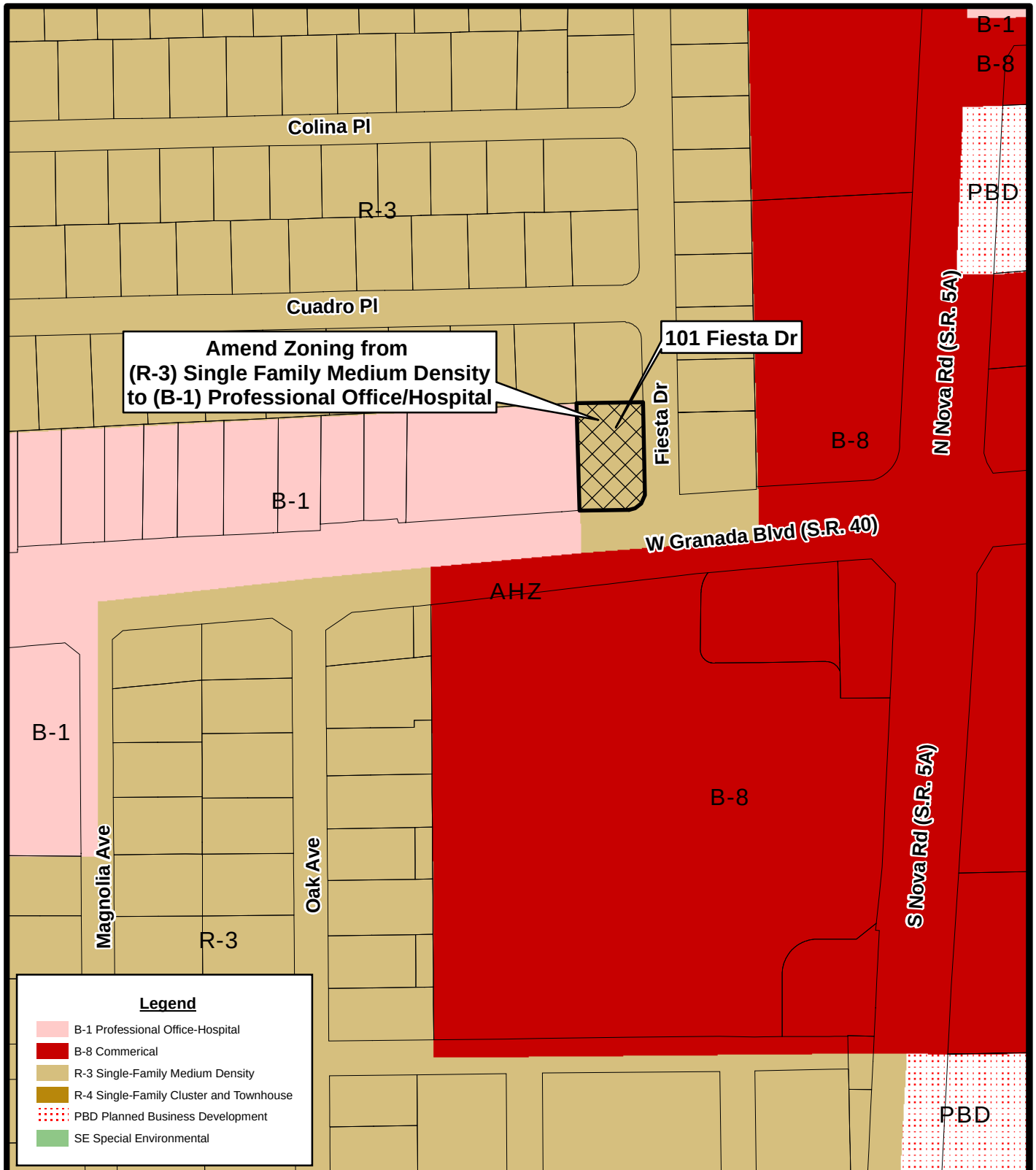
LOCATION ADDRESS:

MURPHY DUGAN LLC

4220-01-00-0450

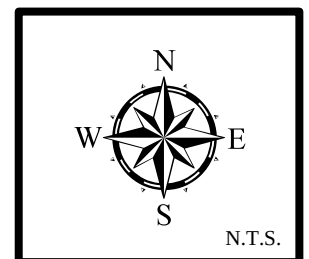
101 FIESTA DRIVE, ORMOND BEACH,
FLORIDA 32174

EXHIBIT "B"



PROPOSED ZONING MAP
101 FIESTA DR (4220-01-00-0450)

Prepared By: The City of Ormond Beach
 G.I.S. Department - November 7, 2022



STAFF REPORT

City of Ormond Beach Department of Planning

MEETING DATE: December 8, 2022

SUBJECT: 101 Fiesta Drive, Zoning Map Amendment

APPLICANT: Murphy Dugan, LLC, property owner

NUMBER: LUPA 2023-003

PROJECT PLANNER: Steven Spraker, AICP, Planning Director

INTRODUCTION: This is a request for a zoning map amendment submitted by the property owner, Murphy Dugan, LLC, for an approximately 0.30 acres located at 101 Fiesta Drive from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital. The subject property is located at 101 Fiesta Drive. The subject property is shown in Exhibit 1:

EXHIBIT 1: Subject property, 101 Fiesta Drive:



BACKGROUND: The subject property is approximately 0.30 acres and is currently a single-family house owned by the applicant. The current land use map designation is “Low Density Residential” and the zoning classification is R-3, Single-Family Medium Density. The property was platted as lot 45 of the Fiesta Heights Sub. recorded on January 21, 1960. The single family house was constructed in 1966 per the Volusia County Property Appraiser website. The property survey shows that the lot is approximately 85’ in width and 150 in depth.

The land use and zoning applications are related to the property at 801 West Granada Boulevard, Hamlin and Associates. This property and building have been substantially renovated and there is a desire to expand the parking area of 801 West Granada Boulevard to include the property at 101 Fiesta Drive. Below are Google pictures of the building renovations:

EXHIBIT 2: Google pictures of 801 West Granada Boulevard from 2017 and 2022:



There is a companion land use map amendment to this zoning map amendment that seeks to amend the subject property from “Low Density Residential” to “Residential, Office, Retail”. The land use application limits the Floor Area Ratio to zero and the residential units allowed to zero with the intention of developing a parking lot in association with the Hamlin & Associates building at 801 West Granada Boulevard.

Application process: The proposed land use amendment schedule of the subject property is as follows:

EXHIBIT 3: Tentative zoning amendment schedule:

Action	Date
Planning Board	December 8, 2022
City Commission 1 st Reading	February 21, 2023
City Commission 2 nd Reading	March 7, 2023

The following public notices have or are required to occur:

EXHIBIT 4: Public Notice:

Public Notice	Date	Notes
Courtesy letters for Planning Board	November 16, 2022	300' radius
Newspaper advertisement for Planning Board	November 22, 2022	
Abutter letters for City Commission meetings	February 11, 2023	300' radius
Newspaper advertisement for City Commission, 2 nd reading	February 24, 2023	

The project has also been posted on the city website under the Planning Department at: (1) Development Reports, <https://www.ormondbeach.org/1032/101-Fiesta-Drive> and (2) Public Hearing Advertisements and Notices, <https://www.ormondbeach.org/1000/Public-Hearing-Advertisements-and-Notice>.

CONCLUSION/CRITERIA FOR APPROVAL:

Section 1-15(D)(3) of the Land Development Code states that the Planning Board shall review non-planned development rezonings based on the Development Order criteria in Section 1-15(E) (1-10) of the Land Development Code which are analyzed below:

- 1. The proposed development conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the zoning district, or adversely affect the public health, safety, welfare, or quality of life.**

The purpose of the zoning map amendment is to make the 0.30 acres a B-1, Professional Office/Hospital zoning designation in order to allow a parking lot. The parking lot development would require approval of the Site Plan Review Committee (SPRC) after a neighborhood meeting. Based on the property characteristics, the site

plan would require a masonry wall along the rear and side corner property lines. Landscaping would be required on all property lines and the frontage along West Granada Boulevard is designated in the Greenbelt Gateway Preservation District. The existing development pattern along this portion of West Granada Boulevard has lands that are and used to be single-family homes designated as B-1, Professional Office/Hospital with policy direction to require commercial uses.

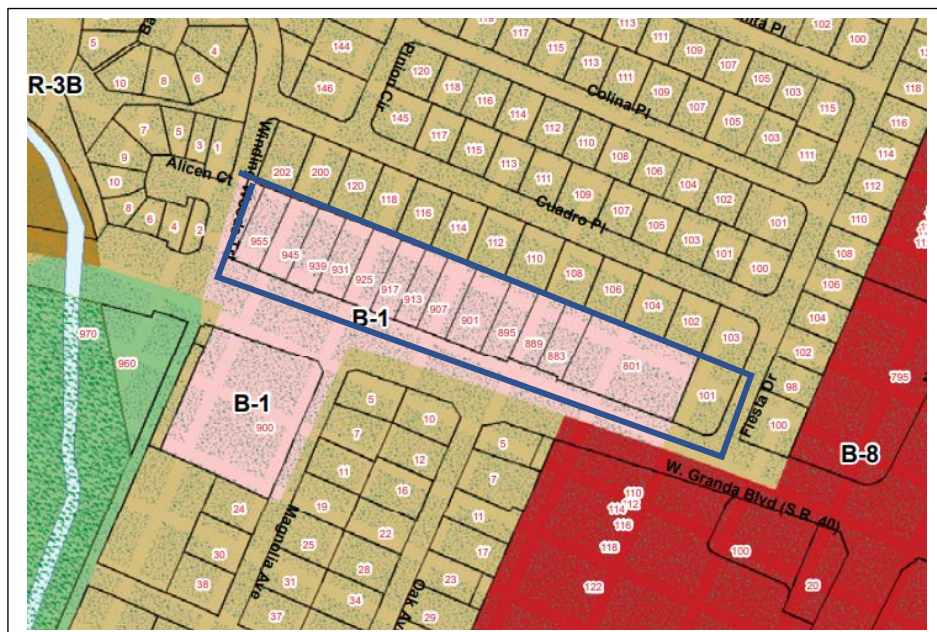
The Future Land Use Map designation is undergoing an amendment to “Residential, Office, Retail”. Section 2-02 of the Land Development Code, Future land use map designations and zoning districts, provides the following compatible zoning districts with the “Residential, Office, Retail”:

EXHIBIT 55: Section 2-02 of the Land Development Code, compatible land use designation and zoning districts:

ROR, Residential, Office, Retail	B-1, Professional Office/Hospital
	B-9, Boulevard
	B-10, Suburban Boulevard
	PBD, Planned Business Development

The “Residential, Office, Retail” land use offers several options for compatible zoning districts. The B-1, Professional Office/Hospital is the most appropriate based on the existence of other B-1, Professional Office/Hospital zoned properties in the immediate area. The B-9 Boulevard and B-10 Suburban Boulevard are utilized for larger parcels along the West Granada Boulevard and Clyde Morris Boulevard corridors. The zoning map amendment will not adversely affect public health, safety, welfare, or the quality of life.

EXHIBIT 6: Existing zoning map for the area:



2. The proposed development is consistent with the Comprehensive Plan.

The zoning map amendment is consistent with the goal, objective, and policies of the Future land Use Element as shown below:

Future Land Use Element

GOAL 1. LAND USE DISTRIBUTION

FUTURE DEVELOPMENT AND REDEVELOPMENT ACTIVITIES SHOULD BE DIRECTED IN APPROPRIATE AREAS AS DEPICTED ON THE FUTURE LAND USE MAP TO MEET THE LAND USE NEEDS OF THE ANTICIPATED POPULATION, IN A MANNER CONSISTENT WITH SOUND PLANNING PRINCIPLES, THE GOALS, OBJECTIVES AND POLICIES CONTAINED HEREIN, AND THE DESIRED COMMUNITY CHARACTER.

THE FUTURE LAND USE ELEMENT SHOULD ALLOW LIMITED COMMERCIAL EXPANSION, PROMOTE INDUSTRIAL USE, AND MAINTAIN CURRENT RESIDENTIAL DENSITIES IN THE CORE AREA WHILE ESTABLISHING LOWER DENSITIES IN THE PERIMETER AREAS, FOCUSING REDEVELOPMENT IN THE DOWNTOWN COMMUNITY REDEVELOPMENT AREA, US1, AND SRA1A, AND PROVIDING OR A CONTINUED HIGH LEVEL OF OPEN SPACE. FUTURE GROWTH SHALL BE TIMED AND LOCATED TO MAXIMIZE EXISTING PUBLIC INFRASTRUCTURE.

POLICY 1.2.5.

The redevelopment and renewal of blighted commercial areas shall be encouraged.

The redevelopment of building at 801 West Granada Boulevard was a substantial improvement in the West Granada Boulevard corridor. As an office use, the provision of parking is an important attribute. The expansion of the parking area in combination with the property at 801 West Granada Boulevard along a principal arterial road is appropriate.

3. The proposed development will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells.

Site development applications are required to provide analysis of environmentally sensitive lands or natural resources, including but not limited to water bodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells. The property is developed and there are no wetlands or environmentally sensitive attributes to the subject property. The zoning map amendment does not approve a specific development plan and this criterion would be reviewed as part of a development application.

4. The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties.

The proposed zoning map amendment is consistent with the property's proposed future land use designation and staff does not believe the project would depreciate the value of surrounding vacant property. The development of a site plan will be important in the development of the property and would include a neighborhood meeting. The project will not create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties.

5. There are adequate public facilities to serve the development, including but not limited to roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds.

Adequate public facilities to serve the proposed development, including roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds would be reviewed at the submission of a site plan. Based on the change of land use designation and zoning classification, the proposed parking lot use would have less infrastructure impacts than the current land use and zoning entitlements.

6. Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe. This finding shall be based on a traffic report where available, prepared by a qualified traffic consultant, engineer or planner which details the anticipated or projected effect of the project on adjacent roads and the impact on public safety.

The ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe would be reviewed with the submittal of a site plan. The analysis with the land use amendment determined that the land use and zoning map amendments reduce the maximum traffic impacts allowed.

7. The proposed development is functional in the use of space and aesthetically acceptable.

There is no development proposed so the criterion is not applicable.

8. The proposed development provides for the safety of occupants and visitors.

There is no development proposed so the criterion is not applicable.

9. The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area.

There is no development proposed so the criterion is not applicable.

10. The testimony provided at public hearings.

There has not been a public hearing at this time. The comments from the Planning Board meeting will be incorporated into the City Commission packet.

Chapter 1, Article II, Section 1-18(e)(3) of the Land Development Code states that the City Commission shall consider rezonings based on the consistency with the Comprehensive Plan. The zoning map amendment is consistent based upon the following points:

- The impacts on facilities and services be less as a result of the requested zoning map amendment from the existing zoning district designation of R-3, Single-Family Medium Density to B-1, Professional Office/Hospital; and
- The zoning request is consistent with the compatibility matrix outlined in the Land Development Code for the Future Plan Map designation of “Residential, Office, Retail”.

RECOMMENDATION:

Staff recommends that the Planning Board recommend **APPROVAL** to the City Commission for a zoning map amendment for an approximately 0.30 acres located at 101 Fiesta Drive from R-3, Single-Family Medium Density to B-1, Professional Office/Hospital.

Attachments:

ATTACHMENT 1: Proposed Zoning Map

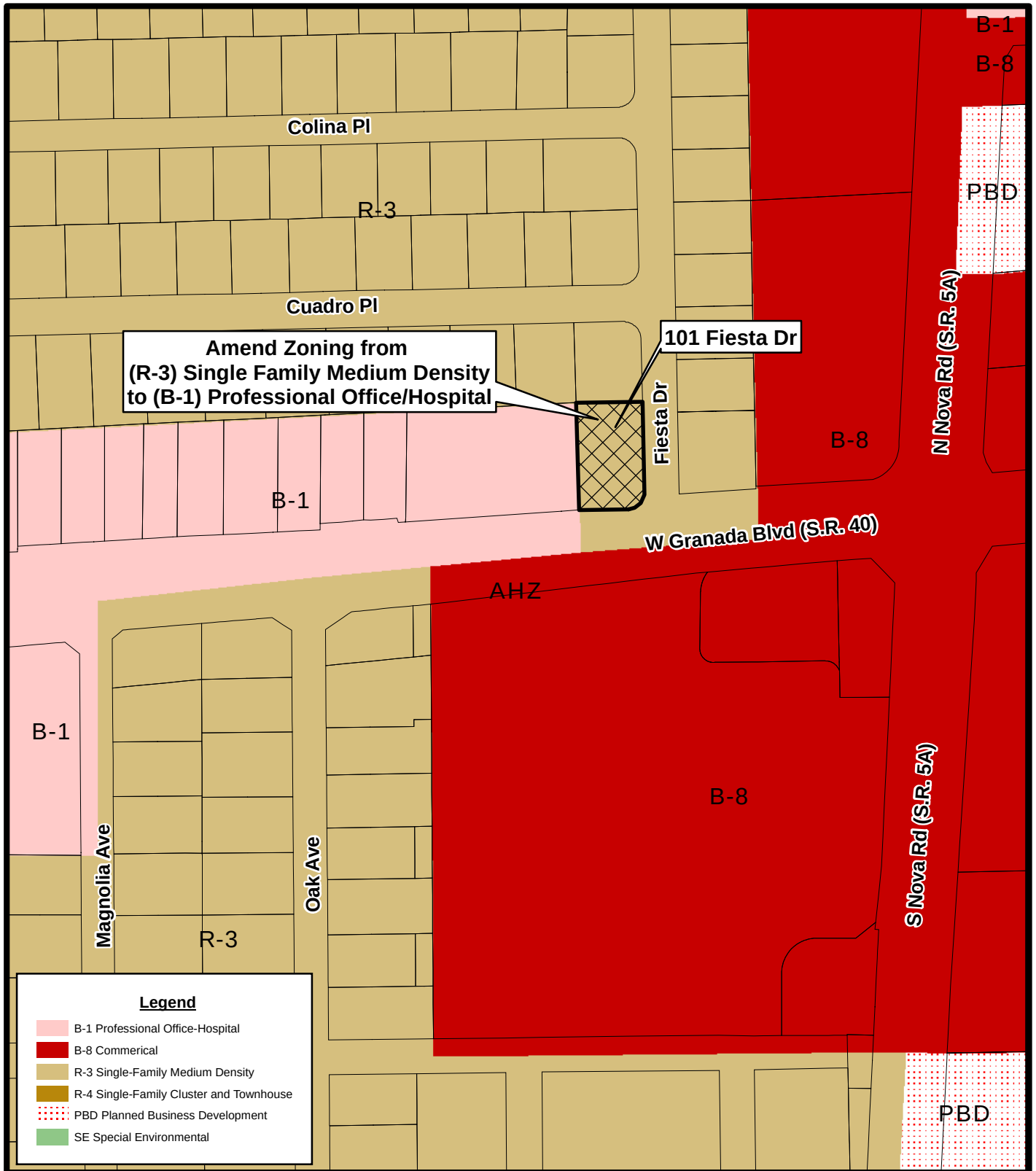
ATTACHMENT 2: Site pictures, Land Use, Location and Aerial maps

ATTACHMENT 3: Sketch & legal description

ATTACHMENT 4: Section 2-22, B-1, Professional Office/Hospital

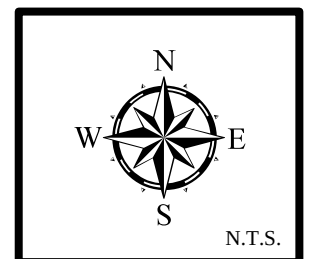
ATTACHMENT 1

Proposed Zoning Map



PROPOSED ZONING MAP
101 FIESTA DR (4220-01-00-0450)

Prepared By: The City of Ormond Beach
 G.I.S. Department - November 7, 2022



ATTACHMENT 2

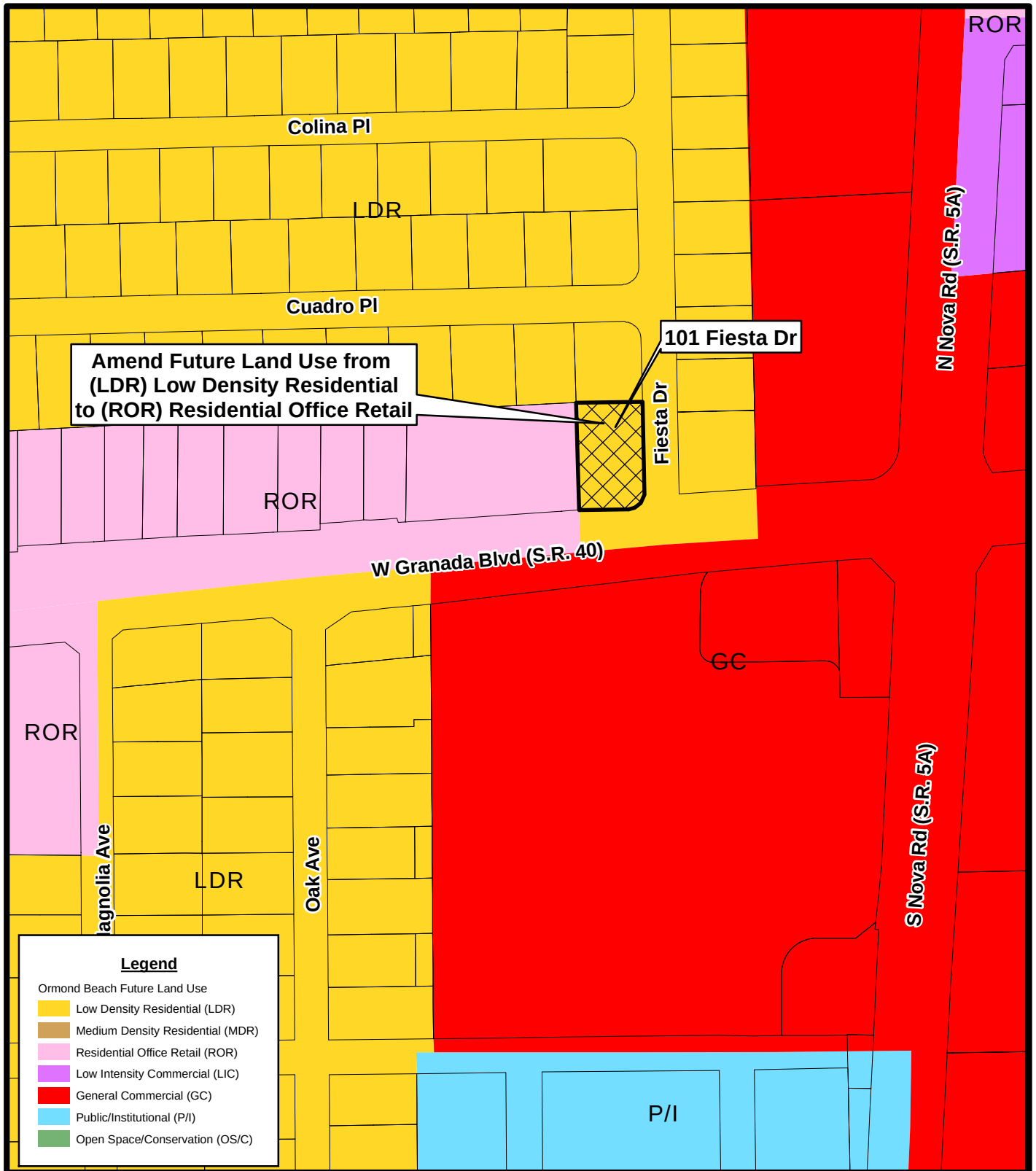
Land Use, Location and
Aerial maps



AERIAL MAP
101 FIESTA DR (4220-01-00-0450)

Prepared By: The City of Ormond Beach
G.I.S. Department - November 7, 2022

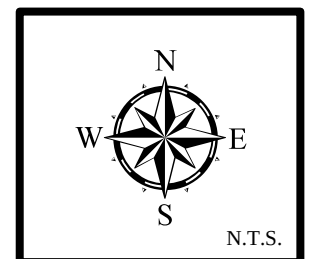


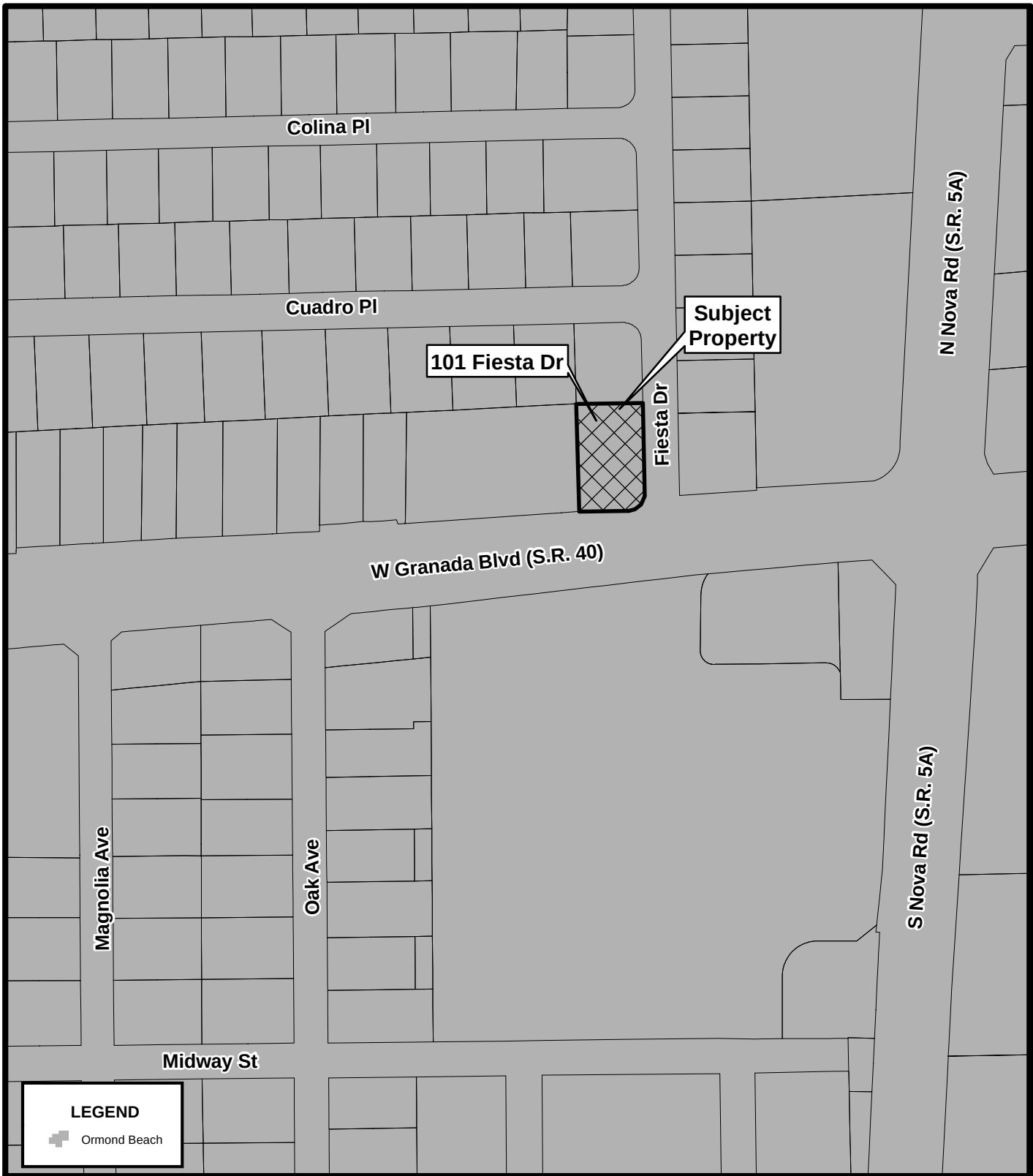


PROPOSED FUTURE LAND USE MAP

101 FIESTA DR (4220-01-00-0450)

Prepared By: The City of Ormond Beach
G.I.S. Department - November 7, 2022

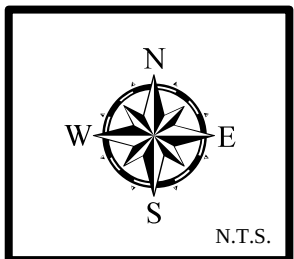




LOCATION MAP

101 FIESTA DR (4220-01-00-0450)

Prepared By: The City of Ormond Beach
G.I.S. Department - November 7, 2022





101 Feista Drive, looking west



101 Feista Drive, looking west

ATTACHMENT 3

Sketch and legal
description

LOT 45 FIESTA HTS SUB MB 26 PG 14 PER OR 4745 PG 4781 PER OR 7324
PG 2502 PER OR 7562 PG 311 PER OR 8248 PG 2208 PER OR 8251 PG 2475

LOT 3

LOT 2

LOT 1

LOT 44

PISTA HEIGHTS SUBDIVISION
2ND ADDITION
M.B. 35, PG. 50

O.R.B. 7403
PG. 2774

O.R.B. 6334
PG. 2305

O.R.B. 5704
PG. 4981

O.R.B. 4436
PG. 1338

BOUNDARY ACCORDING TO
SURVEY PREPARED BY
LANDFORD SURVEYING CO.,
INC., PROJECT NO. 10-20-200, DATED 10/10/2019

PISTA HEIGHTS SUBDIVISION
M.B. 26, PG. 14

CONCRETE DRIVE

COVERED ENTRY

1 BLOCK BUILDING
RESIDENCE #101
F.F.E.=31.66

LOT 45

O.R.B. 7324
PG. 2502

POINT OF BEGINNING
FD. 2" P (NG 6)

STATE ROAD NO. 40
(W. GRANADA BLVD.)
(R/W WIDTH VARIES PER FDOT R/W
MAP SECTION 79100-2516)

MURPHY DUGAN LLC
4220-01-00-0450
101 FIESTA DRIVE, OR
FLORIDA 32174

ATTACHMENT 4

Section 2-22, B-1,
Professional Office/Hospital

Sec. 2-22. B-1, Professional Office/Hospital Zoning District.

A. PURPOSE: The purpose of the Professional Office/Hospital (B-1) Zoning District is to provide areas primarily for professional offices, institutional uses, also allowing multifamily residential, and retail uses with special emphasis given to sound architectural design practices, site planning, landscaping and sign location.																
B. DIMENSIONAL STANDARDS																
1. Type	2. Density	3. Maximum Building Height	4. Maximum Building Coverage	5. Maximum Impervious Lot Coverage	6. Minimum Lot Size	7. Minimum Lot Width	8. Minimum Lot Depth	9. Setbacks								
								a. Front	b. Rear	c. Side	d. Street Side/Corner	e. Waterbody				
Nonresidential Uses	—	40', Hospitals may be 55'	35%	75%	20,000 SF	100'	—	20	20'; 30' if abutting residential district; 5' additional combined side yard required for each story over 2.	10'	20'	30'				
Multifamily	8 (10 units per acre if 2 stories)	30'	35%	75%	43,560 SF	125'	—	30	20'; 30' if abutting residential district.	20'; 25' if abutting a single-family residential district; 5' additional combined side yard required for each story over 2.	20'	30'				
C. PERMITTED USES			D. CONDITIONAL USES			E. SPECIAL EXCEPTION USES			F. OTHER STANDARDS							
1. Adult Day Care Center 2. Assisted Living Facility 3. Business/Professional Office 4. Business Service 5. Financial Institution 6. Hospital 7. Instructional physical activity 8. Medical Research Laboratory 9. Medical Supply/Rental 10. Nursing Home 11. Pharmacy 12. School, Public 13. Veterinarian			1. Child Care Facility 2. Community Residential Home 3. Dwelling, Multifamily 4. Family Day Care Home 5. Historic Preservation Mixed Use 6. House of Worship 7. Parks and Recreation Facilities, Private 8. Parks and Recreation Facilities, Public 9. Personal Services 10. Public Facilities 11. Public Utilities 12. Recreation Facilities 13. Restaurant, Type A 14. Restaurant, Type B 15. Retail Sales and Service 16. School, Private 17. Telecommunication Tower/Antennas, Camouflaged 18. Wind Energy System			1. Cemetery 2. Funeral Home 3. Outdoor Activity 4. Outdoor Storage 5. Recreation Facilities, Outdoor 6. Restaurant Type C			All development must comply with setback requirements: 1. Wetlands (chapter 3, article II). 2. Special corridors and buffer requirements (chapter 3, article I). 3. See conditional and special exception regulations (chapter 2, article IV). 4. Multifamily residential dwelling units shall have the following minimum square footage per bedroom: <table><tr><td>One = 750 SF</td><td>Three = 1,050 SF</td></tr><tr><td>Two = 900 SF</td><td>Each Additional Bedroom = 150 SF</td></tr></table>				One = 750 SF	Three = 1,050 SF	Two = 900 SF	Each Additional Bedroom = 150 SF
One = 750 SF	Three = 1,050 SF															
Two = 900 SF	Each Additional Bedroom = 150 SF															
G. PERMITTED ACCESSORY USES: Accessory uses customarily associated with, dependent on and incidental to their permitted principal uses, provided that such uses conform to the regulations set forth in chapter 2, article III.																

(Ord. No. 2015-11, § 2, 4-7-2015; Ord. No. 2015-16, §§ 3—5, 4-21-2015)

DRAFT

**Planning Board minutes
from
December 8, 2022**

ITEM:

Z 2023-003 – Zoning Map Amendment,
101 Fiesta Drive

notices that it does. Mr. Spraker continued that he cannot hold a neighborhood meeting but can communicate with the applicant to suggest one. He explained that a small scale and zoning map amendment go in front of the City Commission at different times, with the land use first and zoning after. He reiterated that the applicant understands the requests and hopes the applicant will hold a neighborhood meeting.

Mr. Allan Bonamy, 98 Fiesta Drive, commented that it does not make a difference if the neighborhood meeting is held later as the Planning Board has already voted to approve it. He continued that the neighborhood meeting should have been held prior. Chairman Thomas replied that the Board voted to approve the Comprehensive Plan use change to allow the parking lot. The next item is the zoning map where it is voted on whether to change the zoning of that piece of property. Chairman Thomas asked for Mr. Spraker to elaborate on the advantage of having the neighborhood meeting following the approvals.

Mr. Spraker stated while not required, staff would encourage the neighborhood meeting and participate and do anything to help. The LDC requires a neighborhood meeting when there is 'construction' and an associated 'site plan'. At this time there is a site plan for a concept to show that it will not be used for anything other than a parking lot.

Mr. Holub added that the risk is once the land use is changed and the zoning is changed with 0 density and 0 FAR, Mr. Hamlin is stuck with a piece of property that can only be used for the existing home, parking lot or vacant piece of land that nothing can ever be built on due to the deed-restriction. He concluded that Mr. Hamlin wants to be a good neighbor and renovated a building that was an eyesore for years with homeless living there as well as a rat-infestation.

Mr. Bonamy expressed his skepticism because 50 years ago when they moved into Fiesta Heights, the Mayor at that time Mayor Bailey, advised them to know the zoning around their property prior to buying it. Chairman Thomas reemphasized the definition of deed-restricted, explaining that it cannot be changed forever. Mr. Bonamy referenced another property in the past that he was concerned about and in communication on with the city, the Rivergate Shopping Plaza. It was said that they were not going to vacate the two streets that they needed to build the plaza and the next week it was a yes.

Mr. Holub concluded that Mr. Bonamy referenced a good point. The zoning can be changed down the road and reassured that with a restricted covenant cannot be changed. Although not required, he offered to record a deed-restricted covenant on the corner parcel once the site plan is approved as a part of the conditions.

Scott McKee, Assistant City Attorney, confirmed that it can be added as a condition to the next item that the property has a deed restriction or restricted covenant.

F. RZ 2023-004 – Zoning Map amendment, 101 Fiesta Drive

Chairman Thomas entertained a motion.

Mr. Jorczak motioned to approve RZ 2023-004 – Zoning Map amendment, 101 Fiesta Drive with the covenant of the deed restriction and/or restricted covenant. Mr. Scudiero seconded. Vote was called, and the motion was approved (5-0).

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 8.C
Section:	PUBLIC HEARINGS			
Item Category:	Public Hearing - Resolution	Res./Ord. No:	2023-55	
Strategic Goal:	Community Development – Other			
Department :	Planning & Building			
Subject:	1089 N. US Highway 1 Special Exception Request			
Budget Impact:	There is no direct budget impact as the result of this Special Exception request. There is the potential indirect impact if the proposed Development Order conditions are violated and police and neighborhood improvement staff are required to enforce the Development Order.			
Summary:	This is a request by Karin Gehris, Jackson Hole Saloon and Grille, Incorporated, d/b/a Boot Hill Saloon Outpost, for a Special Exception to: 1. Continue outdoor activities previously approved by Resolution 2020-37 approved on March 3, 2020 for: 1A. Itinerant vending of up to 24 vendors, including food trucks; and 1B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and 2. Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with a maximum of two (2) live performers.			
Recommended Action:	It is recommended the City Commission APPROVE the application for outdoor activity uses located at 1089 North US Highway 1 under certain conditions as follows: <u>(1)(A) Special event itinerant vending: APPROVE the Outdoor activity with the following conditions:</u> 1. During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for itinerant vending of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m. 2. The property owner shall file a site layout plan for a Master Vendor Permit at least 21 days prior to each event detailing the location of the itinerant vending, proposed structures, security plan, signage, parking plan and any other outdoor activities with the Planning Department. 3. With the Master Vendor Permit, the property owner is responsible for the management and policing of each Special Event. The property owner shall be held responsible if the itinerant vendors do not get the required permits or violations if these conditions			

	occur. 4. No more than 24 itinerant vendors (product and/or food) shall be permitted for any one event. 5. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable Health Department regulations and hold all valid food service licenses required for their operations. 6. Itinerant merchant activities which negatively affect public health or safety are prohibited as detailed in Section 2-89 of the Land Development Code. 7. The preparation, setup, inspections, and vacation of premises associated with vending in compliance with 2-89 of the City Land Development Code is as follows: a. The master vendor shall have the following set up times up to five (5) days prior to the official startup of the event. b. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours c. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the City's Building Division twenty-four (24) hours prior to operating. <u>(1)(B) Special event live outdoor music: APPROVE the Outdoor activity with the following conditions:</u> 1. During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for live outdoor music from 2:00 p.m. to 10:00 p.m. The live outdoor music will be staged under a tent nestled among the trees. 2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment. <u>(2) Weekend live outdoor music: APPROVE the Outdoor activity with the</u>
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	<u>following conditions:</u> 1. Hours of outdoor live entertainment: on Saturdays and Sundays, 2:00 p.m. to 7:00 p.m, with a maximum of two (2) live performers. The property owner shall notify, in writing, the City Building Department the event dates on or before the first day of each month for that month's planned music activities. If no activities are registered on or before the first day of the month, no activities shall be permitted that month. The Resolution is written per the Planning Board's recommendation to allow a maximum of two (2) live performers. 2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.
Staff Contact:	Steven Spraker, Planning Director, (386) 676-3341
Approval: Kelly McGuire, Finance Director 2/2/2023  Claire Whitley, Assistant City Manager 2/6/2023  Joyce Shanahan, City Manager 2/15/2023 	



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Steven Spraker, Planning Director
Date: February 21, 2023
Subject: 1089 N. US Highway 1 Special Exception Request
Commission Goal: Community Development – Other

Introduction

This is a request by Karin Gehris, President, Jackson Hole Saloon and Grille, Incorporated, d/b/a Boot Hill Saloon Outpost (applicant), for a Special Exception to:

1. Continue outdoor activities previously approved by Resolution 2020-37 approved on March 3, 2020 during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for:

- 1A. Itinerant vending of up to 24 vendors, including food trucks; and
- 1B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and

2. Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with a maximum of two (2) live performers. Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. with a maximum of two (2) live performers in association with the new Boot Hill Saloon Outpost.

Boot Hill Saloon Outpost, is located at 1089 North U.S. Highway 1, which lies within the larger parent property addressed as 1081 North U.S. Highway 1, and is zoned B-5 (Service Commercial). Boot Hill Saloon Outpost is located in the North US 1 Interlocal Service Boundary Agreement (ISBA) area where the City of Ormond Beach has established jurisdictional authority.

Background

The property owner purchased the Boot Hill Saloon Outpost in 2005 and participated in itinerant activities during recognized special events with live outdoor music in unincorporated Volusia County. The on-site restaurant burned beyond repair in 2008. The property owner continued to operate itinerant vending and live outdoor music during the recognized special event periods through itinerant and host permits from

Volusia County.

On August 19, 2014, The City adopted the North US 1 ISBA which became effective on August 28, 2014. Even though the subject property is in the unincorporated area, the City of Ormond Beach has land use and zoning jurisdiction over the property based on the ISBA. The property owner has continued itinerant and outdoor music activity with approved City permits since 2015.

The property was placed on the amortization list and was not able to establish a permanent use prior to the expiration date. For this reason, the owner submitted a Special Exception application in 2020 with the established business. On February 13, 2020, the Planning Board recommended approval for the requests with conditions. On March 3, 2020, the City Commission approved Resolution 2020-37 as recommended by the Planning Board. One condition was a three-year expiration of the Development Order on March 3, 2023. For this reason, the applicant has reapplied for another Special Exception to continue the itinerant merchant vending and live outdoor music as previously approved and allow live outdoor music on weekends from 2-7.

There are no outstanding violations or complaints related to outdoor activities at 1089 North US Highway 1 for the last three years. Therefore, no expiration of the new development order is recommended as a condition.

Discussion

Itinerant vending and outdoor entertainment activity are allowed in the North US 1 ISBA area for “Recognized Special Event Hosts” per Ordinance 2015-27 adopted June 23, 2015 and as amended per Ordinance 2021-04 on February 2, 2021. All other businesses in the North US 1 corridor must apply for a Special Exception as an outdoor activity use. Outdoor activity is regulated as a Special Exception under the B-5 Zoning District. The applicant is requesting a Special Exception to authorize three (3) outdoor activity uses under certain conditions as follows:

1. Continue outdoor activities previously approved by Resolution 2020-37 approved on March 3, 2020 during recognized special events of Bike Week; Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for:

- 1A. Itinerant vending of up to 24 vendors, including food trucks; and
- 1B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and

2. Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with a maximum of two (2) live performers. Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. with a maximum of two (2) live performers in association with the new Boot Hill Saloon Outpost.

Boot Hill Saloon Outpost, is located at 1089 North U.S. Highway 1, which lies within the larger parent property addressed as 1081 North U.S. Highway 1, and is zoned B-5 (Service Commercial). Boot Hill Saloon Outpost is located in the North US 1 Interlocal Service Boundary Agreement (ISBA) area where the City of Ormond Beach has

established jurisdictional authority.

As part of the review and the Special Exception criteria for live outdoor music, the applicant was required to perform another sound test simulating the outdoor entertainment request. On Monday, December 19, 2022, a sound test was conducted at 5:00 p.m. to establish a decibel range that would be acceptable on a continuous basis. A three-piece band was staged on the deck with speakers facing south.

There was very little variation in decibels when music was playing and when music was not playing due to the normal noise of traffic on N. U.S. Highway 1. The music at the time of the sound test was in compliance with the adopted maximum decibel limits on the residential, north, and south sides of the property. The highest decibel was 68 on the south and north sides with music playing. On the west side of the property along the highway, the highest decibel was 75 with no music and 76 with music playing. It is understood that outdoor music can be altered easily. The sound test did not show an impact based on the location of the stage. Only two people attended the neighborhood meeting, not including staff or owner representatives. There were no complaints from the participants. One commented that she enjoyed the special events with live outdoor music.

PLANNING BOARD REVIEWThe Planning Board reviewed the application for outdoor activity on January 21, 2023. There were no comments from the public or from the board members. The Planning Board voted unanimously (6-0) to approve all three of the outdoor requests with the conditions detailed in the Staff report and included in the attached Development Order.

Budget Impact

There is no direct budget impact as the result of this Special Exception request. There is the potential indirect impact if the proposed Development Order conditions are violated and police and neighborhood improvement staff are required to enforce the Development Order.

Citizen Impact

Outdoor activity is regulated as a Special Exception under the B-5 Zoning District. The intent of the Special Exception requests is to be able to continue outdoor activity that the property owner has been providing to the community since 2005 and to offer live music on weekends in association with the Boot Hill Saloon Outpost. The property owner has redeveloped the site in compliance with the Land Development Code with landscaping, new accessible restrooms and parking. Other businesses in the area were “grandfathered” for music whereas Boot Hill Saloon Outpost has gone through a Special Exception process to provide outdoor activity under specific conditions twice.

Recommendation

It is recommended the City Commission APPROVE the application for outdoor activity uses located at 1089 North US Highway 1 under certain conditions as follows:

(1)(A) Special event itinerant vending: **APPROVE** the Outdoor activity with the following conditions:

1. During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for itinerant vending of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m.
2. The property owner shall file a site layout plan for a Master Vendor Permit at least 21 days prior to each event detailing the location of the itinerant vending, proposed structures, security plan, signage, parking plan and any other outdoor activities with the Planning Department.
3. With the Master Vendor Permit, the property owner is responsible for the management and policing of each Special Event. The property owner shall be held responsible if the itinerant vendors do not get the required permits or violations if these conditions occur.
4. No more than 24 itinerant vendors (product and/or food) shall be permitted for any one event.
5. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable Health Department regulations and hold all valid food service licenses required for their operations.
6. Itinerant merchant activities which negatively affect public health or safety are prohibited as detailed in Section 2-89 of the Land Development Code.
7. The preparation, setup, inspections, and vacation of premises associated with vending in compliance with 2-89 of the City Land Development Code is as follows:
 - a. The master vendor shall have the following set up times up to five (5) days prior to the official startup of the event.
 - b. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours
 - c. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the City's Building Division twenty-four (24) hours prior to operating.

(1)(B) Special event live outdoor music: **APPROVE** the Outdoor activity with the following conditions:

1. During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for live outdoor music from 2:00 p.m. to 10:00 p.m. The live outdoor music will be staged under a tent nestled among the trees.
2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live

entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

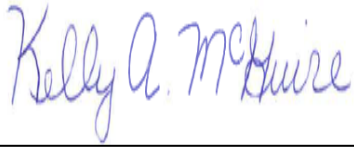
(2) Weekend live outdoor music: **APPROVE** the Outdoor activity with the following conditions:

1. Hours of outdoor live entertainment: on Saturdays and Sundays, 2:00 p.m. to 7:00 p.m., with a maximum of two (2) live performers. The property owner shall notify, in writing, the City Building Department the event dates on or before the first day of each month for that month's planned music activities. If no activities are registered on or before the first day of the month, no activities shall be permitted that month. The Resolution is written per the Planning Board's recommendation to allow a maximum of two (2) live performers.
2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

Attachments:

1. 23-55 1089 N US 1 Special Exception (P23-0018G)
2. 1089 N. US 1 SE DO
3. EXHIBIT A Legal
4. EXHIBIT B site plan
5. 01.12.2023 1089 N. US 1 Outdoor Activity SE Staff Report
6. 01.12.2023 PB Minutes Excerpt

Approvals:



Kelly McGuire, Finance Director

Date: February 02, 2023



Claire Whitley, Assistant City Manager

Date: February 06, 2023



Joyce Shanahan, City Manager

Date: February 15, 2023

RESOLUTION NO. 2023-55

A RESOLUTION AUTHORIZING THE EXECUTION AND ISSUANCE OF A DEVELOPMENT ORDER FOR A SPECIAL EXCEPTION TO ALLOW OUTDOOR ACTIVITY TO INCLUDE ITINERANT VENDING AND LIVE OUTDOOR MUSIC DURING RECOGNIZED SPECIAL EVENTS, AND LIVE OUTDOOR MUSIC ON SATURDAYS AND SUNDAYS AT “BOOT HILL SALOON OUTPOST” LOCATED AT 1089 NORTH US HIGHWAY 1, WITHIN THE B-5 (SERVICE COMMERCIAL) ZONING DISTRICT; ESTABLISHING CONDITIONS; AND SETTING FORTH AN EFFECTIVE DATE.

WHEREAS, Jackson Hole Saloon and Grille, Inc, a Florida corporation d/b/a Boot Hill Saloon Outpost, by and through Karin Gehris (“Applicant”), has applied for the issuance of a Special Exception Development Order to allow outdoor activity to include itinerant vending and live outdoor music during recognized special events, and live outdoor music on Saturdays and Sundays at “Boot Hill Saloon Outpost”, located at 1089 North US Highway 1, within the B-5 (Service Commercial) Zoning District, and

WHEREAS, the Applicant does not propose any new construction or additional building square footage, and

WHEREAS, the Applicant conducted a sound test on December 19, 2022, in accordance with Section 2-57(53) of the City of Ormond Beach *Land Development Code* (“the *Land Development Code*”), and

WHEREAS, the said application is in compliance with the provisions of the *Land Development Code* and the general laws of Florida, and

WHEREAS, the Planning Board held a public hearing on January 12, 2023, as required by Chapter 1, Article II, Section 1-15(d)(2), of the *Land Development Code*, and

WHEREAS, the City Commission has duly held a public hearing on the application and has considered the testimony and evidence presented, and

WHEREAS, the City Commission has considered the following:

- (1) The report and recommendations of the Planning Board;
- (2) The report and recommendations of the Site Plan Review Committee; and
- (3) The comments of governmental agencies, utility corporations and individuals, as received, and

WHEREAS, based upon all of the foregoing and in consideration thereof, the City Commission finds that:

- (1) The proposed use conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the B-5 (Service Commercial) zoning district, or adversely affect the public health, safety, welfare or quality of life;
- (2) The proposed use is consistent with the *Comprehensive Plan*;
- (3) The proposed use will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells;
- (4) The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light

and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties;

- (5) There are adequate public facilities to serve the development, including but not limited to, roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds;
- (6) Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe;
- (7) The proposed use is functional in the use of space and aesthetically acceptable;
- (8) The proposed use provides for the safety of occupants and visitors; and
- (9) The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area;

now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The above recitals are true and correct, shall serve as the legislative findings of the City Commission, and are incorporated herein by reference.

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute and issue a Development Order for a Special Exception to allow outdoor activity to include itinerant vending and live outdoor music during recognized special events, and

live outdoor music on Saturdays and Sundays, at “Boot Hill Saloon Outpost” which is located at 1089 North US Highway 1, within the B-5 (Service Commercial) zoning district, in accordance with the conditions and site plan exhibit described in the Special Exception Development Order, a copy of which is attached hereto and incorporated herein by reference.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 21st day of February, 2023.

BILL PARTINGTON
Mayor

ATTEST:

SUSAN CARROLL DAUDERIS
City Clerk

**BEFORE THE
CITY COMMISSION
OF THE
CITY OF ORMOND BEACH**

IN RE:

Applicant: Jackson Hole Saloon and Grille, Inc. d/b/a Boot Hill Saloon Outpost
Application No.: SE23-010
Project Name: “1089 North US Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity”
Property Address: 1089 North US Highway 1, Ormond Beach, FL 32174
Parcel ID No.: 4238-02-06-0110

**SPECIAL EXCEPTION
DEVELOPMENT ORDER**

This matter having come on for public hearing before the City Commission of the City of Ormond Beach, Florida, on February 21, 2023, and the City Commission having considered those items as required by Section 1-18(b) of the *Land Development Code*, and having heard testimony and evidence from all affected persons, the City Commission hereby finds that:

1. The proposed use conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the B-5 (Service Commercial) zoning district, or adversely affect the public health, safety, welfare or quality of life;
2. The proposed use is consistent with the *Comprehensive Plan*;
3. The proposed use will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells;
4. The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties;
5. There are adequate public facilities to serve the development, including but not limited to, roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds;
6. Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe;

7. The proposed use is functional in the use of space and aesthetically acceptable;
8. The proposed use provides for the safety of occupants and visitors; and
9. The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area.

Thereupon and in consideration thereof, the City Commission hereby orders

that:

A. The application submitted by Jackson Hole Saloon and Grille, Inc, d/b/a Boot Hill Saloon Outpost (the “Property Owner”) by and through Karin Gehris, for a Special Exception to allow outdoor activity to include (1)(A)itinerant vending and (1)(B)live outdoor music during recognized special events and (2) live outdoor music on Saturdays and Sundays at “Boot Hill Saloon Outpost”, which is located at 1089 North US Highway 1, and is in the B-5 (Service Commercial) zoning district on the parcel of real property described and depicted on Exhibit “A” attached hereto and incorporated herein by reference, is hereby granted, subject to the following conditions:

1. (1)(A) Special event itinerant vending:

- a. During recognized special events of Daytona Beach Bike Week Festival, as established by the Bike Week Executive Committee; Daytona Beach Biktoberfest Special Event, as established by the Biktoberfest Development Committee of the Daytona Beach Area Convention and Visitors Bureau; and Daytona Speed Weeks, encompassing that time period commencing with the Rolex 24 Hour Race and ending with the Daytona 500 Race, as established by the Daytona International Speedway, for itinerant vending of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m.
- b. The property owner shall file a site layout plan for a Master Vendor Permit at least 21 days prior to each event detailing the location of the itinerant vending, proposed structures, security plan, signage, parking plan and any other outdoor activities with the Planning Department. The location of vendors is depicted on the site plan in Exhibit “B” attached hereto and incorporated by reference.
- c. With the Master Vendor Permit, the property owner is responsible for the management and policing of each Special Event. The property owner shall be held responsible if the itinerant vendors do not get the required permits or violations if these conditions occur.

- d. No more than 24 itinerant vendors (product and/or food) shall be permitted for any one event.
- e. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable Health Department regulations and hold all valid food service licenses required for their operations.
- f. Itinerant merchant activities which negatively affect public health or safety are prohibited as detailed in Section 2-89 of the Land Development Code.
- g. The preparation, setup, inspections, and vacation of premises associated with vending in compliance with 2-89 of the City Land Development Code is as follows:
 - 1. The master vendor shall have the following set up times: up to five (5) days prior to the official startup of the event.
 - 2. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours
 - 3. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the City's Building Division twenty-four (24) hours prior to operating.

2. (1)(B) Special event live outdoor music:

- a. During recognized special events of Daytona Beach Bike Week Festival, as established by the Bike Week Executive Committee; Daytona Beach Biktoberfest Special Event, as established by the Biktoberfest Development Committee of the Daytona Beach Area Convention & Visitors Bureau; and Daytona Speed Weeks, encompassing that time period commencing with the Rolex 24 Hour Race and ending with the Daytona 500 Race, as established by the Daytona International Speedway, for live outdoor music from 2:00 p.m. to 10:00 p.m. The live outdoor music will be staged under a tent nestled among the trees.
- b. In the event a Special Magistrate determines through the City's code enforcement program that two (2) violations have occurred, within any continuous twelve month period, of the conditions in this development order allowing live outdoor music, which shall include but shall not be limited to the time limitation or maximum decibel level allowed by the

Land Development Code and/or the *Code of Ordinances*, then in such event the right to play outdoor live music as authorized by the Special Exception Development Order shall be automatically revoked without further action by the City Commission. Upon issuance of a second notice of code enforcement violation, the authority provided by this Special Exception Development Order shall be deemed to be automatically suspended pending a final outcome of the Special Magistrate code enforcement hearings. If the Special Magistrate determines that a violation did not occur, the Applicant shall be permitted to resume live outdoor music in accordance with this Special Exception Development Order.

3. (2) Weekend live outdoor music

- a. Hours of outdoor live entertainment: Saturdays and Sundays, 2:00 p.m. to 7:00 p.m., with a maximum of two (2) live performers. The property owner shall notify, in writing, the City Building Department the event dates on or before the first day of each month for that month's planned music activities. If no activities are registered on or before the first day of the month, no activities shall be permitted that month; and
- b. In the event a Special Magistrate determines through the City's code enforcement program that two (2) violations have occurred, within any continuous twelve month period, of the conditions in this development order allowing live outdoor music, which shall include but shall not be limited to the time limitation or maximum decibel level allowed by the *Land Development Code* and/or the *Code of Ordinances*, then in such event the right to play outdoor live music as authorized by the Special Exception Development Order shall be automatically revoked without further action by the City Commission. Upon issuance of a second notice of code enforcement violation, the authority provided by this Special Exception Development Order shall be deemed to be automatically suspended pending a final outcome of the Special Magistrate code enforcement hearings. If the Special Magistrate determines that a violation did not occur, the Applicant shall be permitted to resume live outdoor music in accordance with this Special Exception Development Order.

B. All applicable provisions of the *Land Development Code* shall be complied with at all times, such provisions being incorporated herein by reference and hereby specifically made a part of this Special Exception;

C. There are no outstanding Site Plan Review Committee comments to satisfy;

D. This Special Exception Development Order shall be recorded in the public records of Volusia County, Florida, at the expense of the Applicant, and shall be binding upon the Applicant, its successors and assigns, and shall run with the real property described and depicted in Exhibit “A” attached hereto and incorporated herein by reference. (Parcel ID No.: 4238-02-06-0110).

ORDERED this 21st day of February, 2023.

(CITY SEAL)

By: _____
BILL PARTINGTON
Mayor

Attest: _____
JOYCE A. SHANAHAN
City Manager

EXHIBIT "A"

LEGAL DESCRIPTION

LOTS 11 TO 13 INC BLK 6 TOMOKA ESTS MB 11 PGS 194-196 INC PER OR 4495 PG 4556 PER OR 5484 PGS 2508-2509 PER OR 6122 PG 3585 PER OR 6482 PG 3678.

APPLICANT: Karin Gehris

PROPERTY OWNER: Jackson Hole Saloon and Grille, d/b/a Boot Hill Saloon Outpost

LOCATION: 1089 North U.S. Highway 1, Ormond Beach, FL 32174

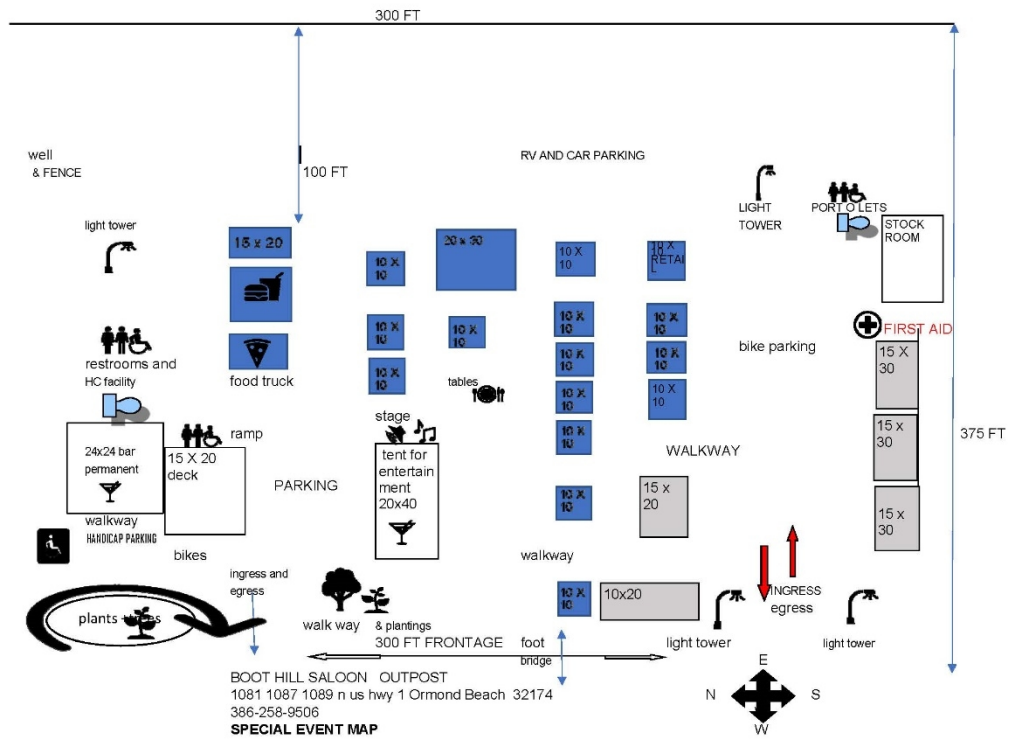
PARCEL ID NUMBER: 4238-02-06-0110

LOCATION MAP



EXHIBIT "B"

LOCATION OF OUTDOOR ACTIVITIES



STAFF REPORT

City of Ormond Beach Department of Planning

MEETING DATE: January 12, 2023

SUBJECT: 1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity

APPLICANT: Karin Gehris, Booth Hill Saloon Outpost, Owner

NUMBER: 2023-010

PROJECT PLANNER: Becky Weedon, AICP, CFM, Senior Planner

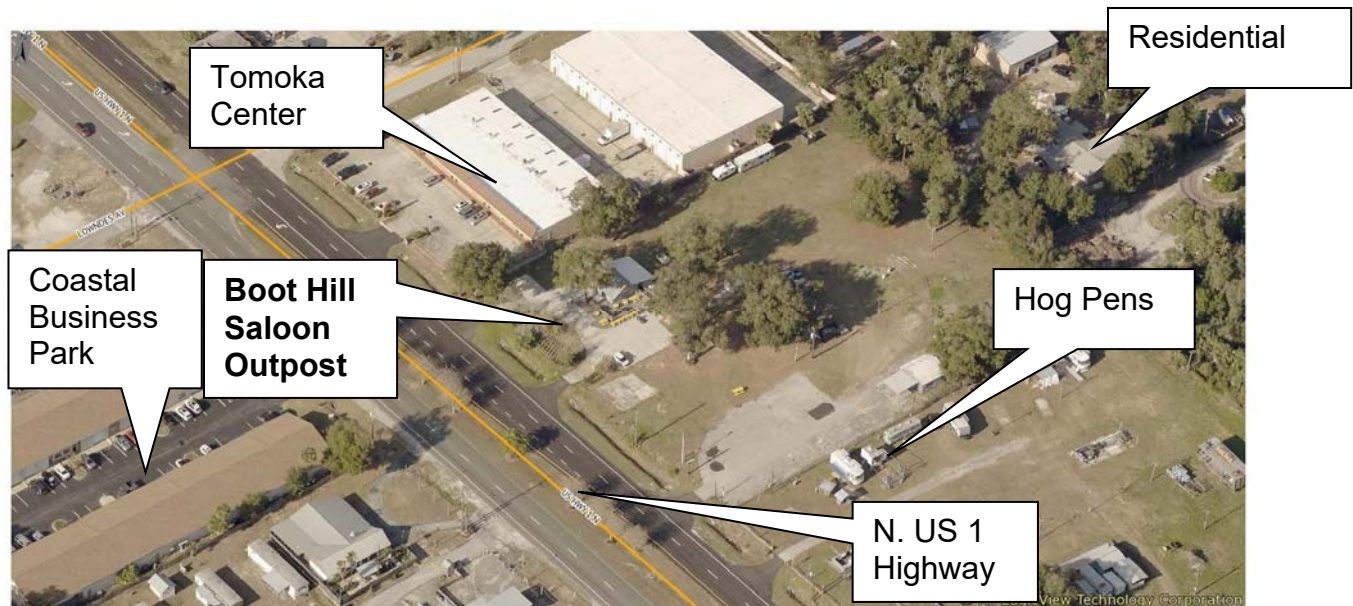
INTRODUCTION: This is a request by Karin Gehris, President, Jackson Hole Saloon and Grille, Incorporated, d/b/a Boot Hill Saloon Outpost (applicant), for a Special Exception to:

- 1.) **Continue outdoor activities previously approved by Resolution 2020-37 on March 3, 2020** during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for:
 - A. Itinerant vending of up to 24 vendors, including food trucks; and
 - B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and
- 2.) **Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with a maximum of two (2) live performers.** Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. with a maximum of two (2) live performers in association with the new Boot Hill Saloon Outpost.

Boot Hill Saloon Outpost, is located at 1089 North U.S. Highway 1, which lies within the larger parent property addressed as 1081 North U.S. Highway 1, and is zoned B-5 (Service Commercial). Boot Hill Saloon Outpost is located in the North US 1 Interlocal Service Boundary Agreement (ISBA) area which the City of Ormond Beach has established jurisdictional authority.

The property located at 1089 N. U.S. Highway 1 has approximately 300 linear feet along N. US Highway 1. Exhibit 1 is an aerial of the site and surrounding uses while Exhibit 2 is a table that provides the existing uses and land use/zoning designations surrounding the subject property.

Exhibit 1: 1089 N. US 1 Highway Site Aerial: Surrounding Uses



Source: Pictometry - <https://explorer.pictometry.com/index.php> - Dated 1.20.2022

Exhibit 2: 1089 N. U.S. Highway 1 with Surrounding Land Use and Zoning

Direction	Current Land Uses	Future Land Use Designation	Zoning Classification
North	Tomoka Center	City Low Intensity Commercial (LIC)	City Commercial (B-8)
South	Hog Pens	City Low Intensity Commercial (LIC)	City Commercial (B-8)
East	Residential	County Urban Low Intensity (ULI)	County Residential (R-3A)
West	Coastal Business Park	City Light Industrial/Utilities (LI/U)	City Light Industrial (I-1)

The subject property is located in unincorporated Volusia County with a city land use designation of “Low Intensity Commercial” and a B-5 (Service Commercial) zoning classification.

BACKGROUND:

On August 19, 2014, the City of Ormond Beach adopted the North US 1 Interlocal Service Boundary Agreement (ISBA) which became effective on August 28, 2014. The ISBA was adopted in an effort to coordinate planning, service delivery, and boundary adjustments; reduce Interlocal conflicts between the City and the County; and prevent inefficient service delivery.

Because special event activities occurred on improved and unimproved lands in the ISBA area, the City Commission desired to establish regulations for itinerant merchants consistent with the city's policies to eliminate blight and encourage economic revitalization in the ISBA area and along the North US Highway 1 gateway. On June 23, 2015, the City Commission approved Ordinance 2015-27 to amend the Land Development Code to include itinerant merchant regulations for recognized special events and outdoor entertainment activity and temporary campsites. All properties operating year-round businesses with documented Business Tax Receipts with Volusia County were placed on the "Recognized Special Event Host" list and allowed to continue operating itinerant activities with an approved City permit. The property at 1081, 1087, and 1089 North US 1 Highway was placed on the "Amortization Schedule for Vacant or Unimproved Land Category" since there was no business operating on the site year-round. The vacant or unimproved properties had a five (5) year period to establish a permanent business to be classified as a recognized special event host. Failure to establish a permanent business would not allow any itinerant vending activities after the five (5) year amortization period.

Even though the subject property is located within unincorporated Volusia County, the City of Ormond Beach has land use and zoning jurisdiction over the property based within the ISBA area. Itinerant vending is allowed in the North US 1 Interlocal Service Boundary Agreement (ISBA) area for "Recognized Special Event Hosts" per Ordinance 2015-27 adopted June 23, 2015 and as amended per Ordinance 2021-04 on February 2, 2021. All other businesses in the North US 1 corridor are required to apply for a Special Exception for outdoor activity uses. Since the property owner was unable to establish a year-round business by August 27, 2019, the site was not "Grandfathered" so a Special Exception was applied for.

The applicant originally requested a Special Exception to allow outdoor activities to include:

- 1) During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway; and Turkey Run as established by Daytona Beach Street Rods; and Jeep Beach established by Jeep Beach Incorporated for:
 - A. Itinerant vending of up to 24 vendors, including food trucks; and
 - B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and
- 2) Live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. with a maximum of two (2) live performers in association with the new Boot Hill Saloon Outpost.

On February 13, 2020, the Planning Board recommended approval (6-0) for requests 1A and 1B above but only for the recognized special events per Ordinance No. 2015-27. The recognized special events adopted in the Land Development Code are limited to Bike Week, Biktoberfest and Speed Week activity timeframes. Daytona Beach Street Rods or Jeep Beach activities are not included at this time.

The Planning Board also recommended approval (5-1) for request 2 above. Some concerns had been expressed primarily from Bear Creek residents about the additional noise from the live outdoor music on the weekends.

Finally, the Planning Board also recommended approval of the inclusion of the following conditions:

Requests 1.A. and 1.B. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

Requests 1.A. and 1.B. Since the live outdoor music activity is tied to the recognized special event periods, the Special Exception is valid through March 3, 2023 (three years). Any outdoor activity past this date shall require a new Special Exception application. The Planning Board and City Commission shall consider the record of events over the three-year period of the existing Special Exception, including any code violations, in determining the type of events and time frame that are allowed in the future.

Request 2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

On March 3, 2020, the City Commission approved (3-2) Resolution 2020-37 as recommended by the Planning Board. The request for live music on either Saturday or Sunday was the main concern.

PROJECT DESCRIPTION: The Development Order per Resolution 2020-37 expires on March 3, 2023. Therefore, the applicant is applying for another special exception requesting to allow the following:

1. **Continue outdoor activities previously approved by Resolution 2020-37 on March 3, 2020** during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for:
 - A. Itinerant vending of up to 24 vendors, including food trucks; and
 - B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and
2. **Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m with a maximum of two (2) live performers.** Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. in association with the new Boot Hill Saloon Outpost.

The outdoor activities require another Special Exception with review by the Planning Board and City Commission. Live outdoor music requires additional public participation through a sound test at an advertised neighborhood meeting.

ANALYSIS: The application contains three (3) distinct requests that should be acted upon, again, individually. The analysis of the application is divided into:

- (1)(A) Special event itinerant vending;
- (1)(B) Special event live outdoor music; and
- (2) Weekend live outdoor music.

(1)(A) Special event itinerant vending (1)(B) Special event live outdoor music: Planning staff has reviewed the itinerant vending and outdoor entertainment regulations per the adopted Resolution 2020-37. Staff could find no issues in maintaining the adopted standards in compliance with Chapter 2, Article VII, "North U.S. Highway 1 Interlocal Planning and Municipal Service Area" of the Land Development Code. Also, per the conditions of Resolution 2020-37, outdoor activities have been monitored. On November 28, 2022, it was confirmed by the Neighborhood Improvement Division Manager that there are no active/open code enforcement cases related to the subject address.

Since the property owner has met the requirements and conditions of Resolution 2020-37, the three year "probation" period has been completed. For this reason, staff recommends to maintain the adopted language except for the Term of Approval. Please see the language and conditions below:

1. When outdoor activity is allowed (Maintain adopted language):

- (1) During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as

established by the Daytona International Speedway for Itinerant vending of up to 24 vendors, including food trucks from 9:00 a.m. to 10:00 p.m.; and

- (2) During recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for live outdoor music from 2:00 p.m. to 10:00 p.m.

2. Process for event permits (Maintain adopted language):

1. The master vendor shall be responsible to ensure all individual itinerant vendors operating under the master vendor permit comply with these provisions.
2. A fully completed application for a master vendor permit shall include attachments containing the following information:
 - a. A single site plan 8.5 inches × 11 inches, drawn to scale must show all necessary elements and shall include the following, if applicable:
 1. Location of existing facilities/structures.
 2. Location of proposed temporary facilities/structures.
 3. Proposed traffic flow and provisions for ingress/egress.
 4. Measures for security/crowd control (i.e., arranged through Volusia County Sheriff's Office, Ormond Beach Police Department, or State Highway Patrol).
 5. Measures for the provision of medical care.
 6. Lighting.
 7. Solid waste disposal.
 8. Parking.
 9. Sanitation facilities.
 10. Vendor list with vendor names, goods and/or services to be provided.
 - b. At least 30 days prior to an event, approximate event dates and anticipated participant level shall be provided for each event. A permit and/or inspection shall be determined based upon the information provided.
 - c. The Master vendor will obtain one host permit for each event listing the individual itinerant vendors during the event.

3. Type and number of vendors (Maintain adopted language):

- a. No more than 24 itinerant vendors shall be permitted for any one event.
- b. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable health department regulations and hold all valid food service licenses required for their operations.

- c. Itinerant merchant activities which negatively affect public health or safety are prohibited as identified in Section 2-89 of the City's Land Development Code.

4. Vendor Setup (Maintain adopted language):

- a. The master vendor shall have the following set up times up to five (5) days prior to the official startup of the event.
- b. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours.
- c. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the city's building division twenty-four (24) hours prior to operating.

5. Length of approval:

Staff understood that with the cost of the \$1,650 application fee in 2020, the applicant was seeking to run a number of events to recover the cost of the zoning approval. Staff then proposed a three-year expiration date before the applicant had to re-apply for a Special Exception consistent with what was approved for Kickstart Saloon, Dairy Queen, and Ormond Outpost. During this time, Boot Hill was monitored for noncompliance and complaints and has no outstanding cases or violations.

The applicant met the requirements and conditions of the Special Exception approved per Resolution 2020-37. The Special Exception application fee charged in 2022 was \$1,700 to renew the Development Order approved three years ago. This renewal Special Exception is requesting a permanent length of approval. Therefore, staff recommends that the three-year length of approval be deleted and the property comply with the same regulations as required per Chapter 2, Article VII, "North U.S. Highway 1 Interlocal Planning and Municipal Service Area" of the Land Development Code as follows:

- a. ~~The Special Exception is valid through March 3, 2023 (three years). Any outdoor activity past March 3, 2023 shall require another Special Exception. The Planning Board and City Commission shall consider the record of events over the three-year period of the Special Exception, including any code violations, in determining the type of events and time frame that are allowed in the future.~~

Item (1)(B) Special Event live outdoor music and (2) Weekend live outdoor music analysis:

As part of the review and the Special Exception criteria for live outdoor music, the applicant was required to perform another sound test simulating the outdoor entertainment request. On Monday, December 19, 2022, a sound test was conducted at 5:00 p.m. to establish a decibel range that would be acceptable on a continuous basis. The sound test included a measurement of the sound by City of Ormond Beach Neighborhood Improvement Division, Planning Staff, and the applicant of a three-piece band per Section 14-30(d) of the Code of Ordinances per Exhibit 3 below:

Exhibit 3: Maximum sound levels:

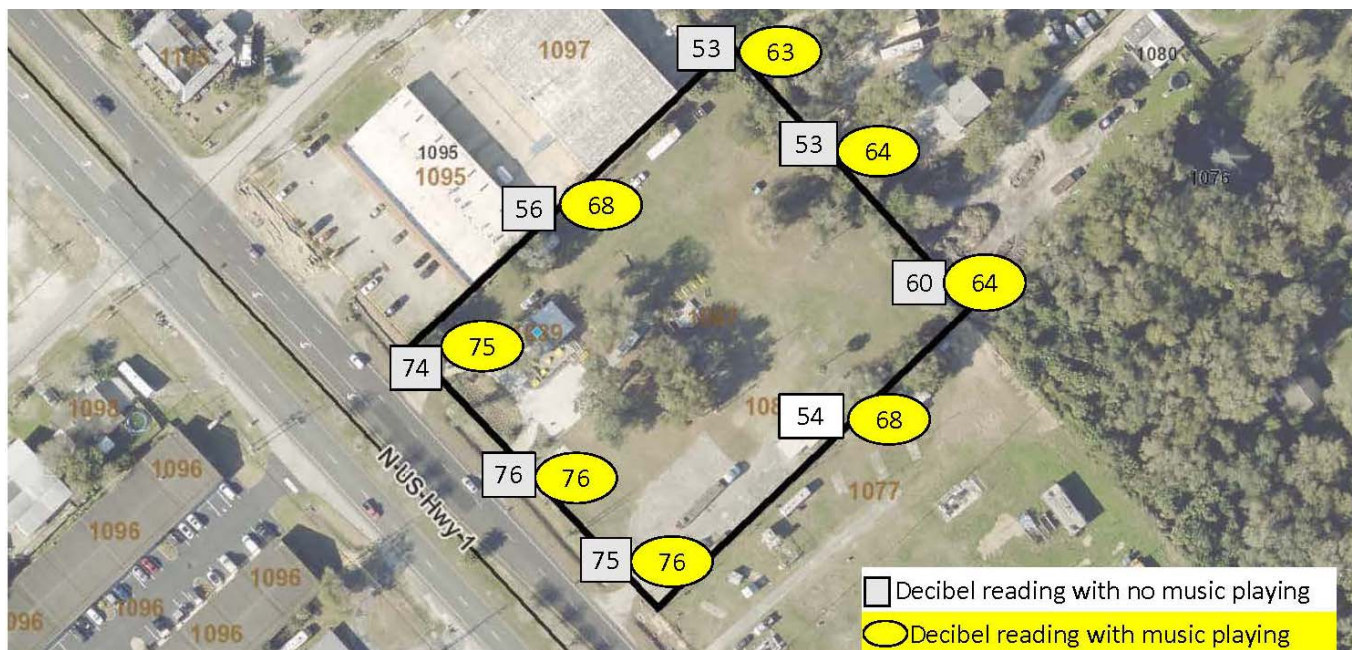
- (d) *Maximum permissible sound levels by use occupancy.* No person shall operate or cause to operate any source of sound from any occupancy in such a manner as to create a sound level which exceeds the limits set forth for the use occupancy category in Table 1, more than ten (10) per cent of any measurement period, which shall not be less than ten (10) minutes when measured at or beyond the property boundary of the land use from which the sound emanates.

TABLE 1

Use Occupancy Category	Time	Sound Level Limit dBA
Residential	7:00 a.m.-10:00 p.m.	60
	10:00 p.m.-7:00 a.m.	55
Commercial or tourist	7:00 a.m.-10:00 p.m.	65
	10:00 p.m.-7:00 a.m.	60
Manufacturing	At all times	75

During the sound test that the City performed on December 19, 2022, the readings of decibels ranged as detailed in Exhibit 4 below with and without music playing.

Exhibit 4: December 19, 2022 decibel measurements:



Source: VantagePoints by Geographic Technologies Group.

A three-piece band was staged on the deck with speakers facing south. It should be noted that the weekend live outdoor music request will be limited to a maximum of two (2) live performers. The band played off and on during the sound test. There was very little variation in decibel when music was and was not playing along the frontage of U.S. Highway 1. As shown in Exhibit 3, the Sound Level Limit for the commercial or tourist use occupancy category is 65 decibels. However, at the property line along North US Highway 1, the decibel range was above 65 decibels with or without music due to the normal noise of traffic. It was observed that the primary cause of high decibel readings was the traffic along U.S. Highway 1. Since the sound test began at 5:00 p.m., the noise would have been during peak traffic time. The decibel levels along the residential property line on the east side measured below 65 decibels when music was and was not playing. It is important to note that the playing of music may meet the decibel limitations and still be heard along the commercial side on the north and south sides measured below the 65 decibels when music was not playing and slightly above when the music was playing and includes the traffic from U.S. Highway 1.

Staff observed two people in attendance at the neighborhood meeting on December 19, 2022, not including staff or property owner representatives. One customer and neighbor commented that Boot Hill was her bar and she loved the music. Previously, at the January 2020 sound test, one person present commented that she would love to have the music play longer on the Saturday or Sunday per weekend days for potential birthday or holiday celebrations.

Other businesses have applied for Special Exception applications to allow live outdoor music. Eleven businesses applied for live outdoor music requests between the years of 2008-2022 (including Boot Hill) with one applicant denied. The businesses approved were granted approvals with restrictions as detailed in Exhibit 5.

Exhibit 5: Outdoor Live Music Special Exception Applications and Status:

Project	No more than two live performers	Code enforcement provision	Location of music	Hours	Other
River Grille 950 N. U.S. Highway 1	X	X	X	10:00 p.m., Monday through Thursday, and until 11:00 p.m., Friday through Sunday	
Caffeine's (Grind Gastropub & Kona Tiki Bar) 49 W. Granada Blvd.	X	X	X	4:00 p.m. to 10 p.m. Monday through Thursday, and 4:00 p.m. to 11 p.m. Friday and Saturday, Sunday noon to 8 p.m.	
Dimitri's Bar Deck and Grill 790 S. Atlantic Ave.	X	X	X	4:00 p.m. to 8:00 p.m., Sunday through Thursday and 11:00 a.m. to 11:00 p.m. Friday and Saturday	No karaoke allowed outside

Project	No more than two live performers	Code enforcement provision	Location of music	Hours	Other
Riptides 869 S. Atlantic Ave.	X	X	X	Sunday through Thursday from 4:00 p.m.- 8:00 p.m. and Friday and Saturday from 11:00 a.m. – 11:00 p.m.	No karaoke allowed outside
Beach Bucket 869 S. Atlantic Ave.	X	X	X	Sunday through Thursday from 4:00 p.m. - 8:00 p.m. and Friday and Saturday from 11:00 a.m. – 11:00 p.m.	No karaoke allowed outside
Woodstock South, Inc.	Denied	Denied	Denied	Denied	
Ormond Brewery 301 Division Ave, Unit #15	NA	X	X	Monday through Thursday 4:00 p.m.– 10:00 p.m. and Friday, Saturday, and Sunday 10:00 a.m. to 10:00 p.m.	
Boot Hill Saloon Outpost 1089 N. US 1 Hwy	NA for special event. No more than 2 on weekends.	X	X	During recognized special events from 2:00 p.m. - 10:00 p.m. and up to four (4) times per month on either Saturday or Sunday from 2:00 p.m. - 5:00 p.m.	
Ormond Garage 48 W. Granada Blvd.	No more than 3	X	X	Monday through Thursday: After school hours to 10:00 p.m.; Saturday: 2:00 p.m. to 11:00 p.m.; Sunday: 2:00 p.m. to 10:00 p.m.	No karaoke allowed outside
Ormond Memorial Museum & Gardens 78 E. Granada Blvd.	No more than 4	X	X	Sunday through Saturday: 11:00 a.m. to 10:00 p.m. (everyday) during scheduled events only.	No karaoke allowed outside

CRITERIA: Section 1-22 of the Land Development Code defines outdoor activity as “the display of merchandise offered for sale or any activity, such as live entertainment, outside the building walls of a completely enclosed building.” Within the B-5 zoning district outdoor activity is regulated as a Special Exception with review/recommendation by the Planning Board and a final decision by the City Commission. The Special Exception requires review of the criteria of the following Land Development Code Sections:

1. Section 2-57(53), Outdoor Activity (applies to specific use);
2. Section 2-56: General criteria and Special Exception review criteria (applies to all Special Exception requests);
3. Section 1-15.(e): Planned Developments and Special Exceptions (Planning Board criteria for all Special Exceptions); and

4. Section 1-18.(e): Criteria for Issuance of Development Order (City Commission criteria for all Special Exceptions).

Section 2-57(53), Outdoor Activity Criteria: Section 2-57(53) of the Land Development Code outlines the criteria for outdoor activity:

(53) OUTDOOR ACTIVITY

- a. **If located adjacent to a residential use, appropriate screening and buffering shall be provided to minimize noise and glare impact to the maximum extent feasible.**

(1)(A) Special event itinerant vending: The east property line of about 300 linear feet abuts residences. There is a natural buffer of trees along the east property line. The maximum of 24 itinerant vendor booths including food trucks will be located approximately 100 feet away from the east property line which will continue to provide buffering and minimize glare.

(1)(B) Special event live outdoor music: The east property line of about 300 linear feet abuts residences. There is a natural buffer of trees along the east property line. The outdoor music will be staged nestled among the trees to the south of the deck to provide buffering and minimize noise. It is understood that outdoor music can be altered easily, the sound test did not show an impact based on the location of the stage.

(2) Weekend live outdoor music: The east property line of about 300 linear feet abuts residences. There is a natural buffer of trees along the east property line. The outdoor music will be staged on the deck with the speakers facing south to minimize noise. It is understood that outdoor music can be altered easily, the sound test did not show an impact based on the location of the stage.

- b. **A site plan displaying the area for activity and pedestrian movement shall be required.**

(1)(A) Special event itinerant vending: When the individual events are permitted, the applicant shall provide a site plan with the location of the vendors, parking, and other site activities. Each event may have a different combination of vendors and would be reviewed individually and permitted by city staff.

(1)(B) Special event live outdoor music: The area for live outdoor music will be under a tent nestled among the trees south of the deck of the Boot Hill Saloon and would not impact pedestrian movement.

(2) Weekend live outdoor music: The area for live outdoor music will be on the deck of the Boot Hill Saloon and would not impact pedestrian movement.

c. Outdoor music shall provide a sound study demonstrating compliance with the adopted maximum decibel levels.

(1)(A) Special event itinerant vending: This criterion is not applicable.

(1)(B) Special event live outdoor music: A sound test was conducted on December 19, 2022, by the City Neighborhood Improvement Division and Planning staff. The music at the time of the sound test was in compliance with the adopted maximum decibel limits allowed by the Code of Ordinances on the residential side of the property. The music had little impact on the west side of the property due to the normal traffic noise along North U.S. Highway 1. In previous applications, staff has stated that live outdoor music could be operated in a manner not to exceed the allowable decibels as measured at the property line with management of music. Also, there exists the potential that mismanagement of live outdoor music can have a potential negative impact on the surrounding uses and additional code or police enforcement of the Development Order will occur if outdoor music is approved. The proposed conditions seek to continue to provide enforcement regulations that would gain compliance to the allowed decibel levels.

(2) Weekend live outdoor music: A sound test was conducted on December 19, 2022, by the City Neighborhood Improvement Division and Planning staff. The music at the time of the sound test was in compliance with the adopted maximum decibel limits allowed by the Code of Ordinances on the residential side of the property. The music had little impact on the north, west or south sides of the property due to the normal traffic noise along North U.S. Highway 1. Since the sound test included a three-piece band and the weekend music will have a maximum of two (2) live performers, the activity is expected to be compliant with the Code of Ordinances. In previous applications, staff has stated that live outdoor music could be operated in a manner not to exceed the allowable decibels as measured at the property line with management of music. Also, there exists the potential that mismanagement of live outdoor music can have a potential negative impact on the surrounding uses and additional code or police enforcement of the Development Order will occur if outdoor music is approved. The proposed conditions seek to provide enforcement regulations that would gain compliance to the allowed decibel levels.

Section 2-56: Special Exception Criteria: Section 2-56 of the Land Development Code outlines the general criteria for all Special Exception approvals:

(1) Off-street parking loading and service areas shall be provided and located such that there is no adverse impact on adjoining properties, beyond that generally experienced in the district.

(1)(A) Special event itinerant vending: The parking and loading areas will not impact adjoining properties. The request is for a maximum of 24 vendors on over 2.5 acres creating minimal impacts regarding parking.

(1)(B) Special event live outdoor music: The parking and loading areas will not impact adjoining properties.

(2) Weekend live outdoor music: The parking and loading areas will not impact adjoining properties.

(2) Required yards, screening or buffering, and landscaping shall be consistent with the district in general, the specific needs of the abutting land uses, Chapter 3, Article 1, and other applicable provisions of this Code.

(1)(A) Special event itinerant vending: The proposed Special Exception for itinerant vending shall not impact any landscaping or modify the existing buffers along property boundaries.

(1)(B) Special event live outdoor music: The proposed Special Exception for outdoor activity, live outdoor music, shall not impact any landscaping or modify the existing buffers along property boundaries.

(2) Weekend live outdoor music: The proposed Special Exception for outdoor activity, live outdoor music, shall not impact any landscaping or modify the existing buffers along property boundaries.

(3) Size, location, or number of conditional or Special Exceptions in an area shall be limited so as to maintain the overall character of the district in which said conditional or Special Exceptions are located.

(1)(A) Special event itinerant vending: The City has approved five (5) other applications for outdoor activity in the North U.S. 1 Highway corridor (including Boot Hill) with three-year expiration dates.

1. 2013, Kickstart Saloon at 906 North US Highway 1;
2. 2014, Dairy Queen at 1626 North US Highway 1;
3. 2018, Ormond Outpost at 1385 North US Highway 1;
4. 2020, Custom Lighting Efx at 1170 North US 1 Highway;
5. 2020, Boot Hill was granted approval for itinerant vending for a period of three (3) years. This Special Exception is for the permanent renewal of the outdoor activity.

The Kickstart, Dairy Queen, and Ormond Outpost Special Exception approvals expired and none of the businesses renewed due to transferring the properties. Boot Hill has been monitored for compliance and complaints and there have been no major issues. The property owner has reestablished a permanent business in association with the request for special event activities and is requesting a permanent renewal of what was previously approved. Itinerant vending is allowed in the North US 1 corridor during recognized special events where the subject property is located. The requested Special Exception will not negatively impact the character of this section of the North US 1 corridor.

(1)(B) Special event live outdoor music: Outdoor entertainment is allowed in the North US 1 corridor during recognized special events where the subject property is located. The requested Special Exception is not expected to negatively impact the character of this section of the North US 1 corridor. Other recognized host properties have Live Outdoor music and the dominant source of noise would be from the North US Highway 1 roadway traffic.

(2) Weekend live outdoor music: The City approved two other applications for outdoor music in the North US 1 Highway corridor:

- a. Kickstart Saloon at 906 North US1 – Special Event activities (Not renewed after the three-year period); and
- b. Rivergrille at 950 North US1 – Outdoor Music

The requested Special Exception is not expected to negatively impact the character of this section of the North US 1 corridor. The proposed hours of 2:00 p.m. to 7:00 p.m. are designed to not negatively impact surrounding properties.

(4) Hours of operation may be limited and the City may require additional information on structural design and site arrangement, to assure the compatibility of the development with existing and proposed uses in the surrounding area.

(1)(A) Special event itinerant vending: The Special Exception request is for a maximum of 24 food and/or product vendors including food trucks expected to operate from 9:00 am to 10:00 p.m. during recognized special events. This activity will continue to be consistent with the special event activities since 2005 and compatible with development in the surrounding area during its hours of operation.

(1)(B) Special event live outdoor music: The applicant has requested the ability to continue live outdoor music during recognized special events between 2:00 p.m. and 10:00 p.m. as approved in 2020.

(2) Weekend live outdoor music: The Planning Board and City Commission have the ability to limit the hours of operation of the proposed music or deny the application if there is a belief that the use will have an adverse impact to residential uses. The applicant previously was approved for live outdoor music up to 4 times per month on Saturday or Sunday afternoons between 2:00 p.m. and 5:00 p.m. The property owner would like to be allowed the option of providing live outdoor music on Saturdays and Sundays between the hours of 2:00 p.m. and 7:00 p.m.

(5) The Special Exception shall not generate hazardous waste or require use of hazardous materials in its operation without use of City-approved mitigative techniques.

(1)(A) Special event itinerant vending: This Special Exception request will not generate hazardous waste.

(1)(B) Special event live outdoor music: This Special Exception request will not generate hazardous waste.

(2) Weekend live outdoor music: This Special Exception request will not generate hazardous waste.

(6) All development proposed as a Special Exception within or adjacent to a historic district shall be reviewed based on applicable criteria stated herein for residential, commercial or mixed-use development and shall also comply with appearance and design guidelines for historic structures.

(1)(A) Special event itinerant vending: The subject project is not located within or adjacent to a historic district and this criterion does not apply to the project development.

(1)(B) Special event live outdoor music: The subject project is not located within or adjacent to a historic district and this criterion does not apply to the project development.

(2) Weekend live outdoor music: The subject project is not located within or adjacent to a historic district and this criterion does not apply to the project development.

(7) Outdoor lighting shall have no spillover onto adjacent property or rights-of-way beyond the building site property line and the lumens shall not exceed two (2) foot-candles at the property line.

(1)(A) Special event itinerant vending: No additional lighting is proposed at this time. Any additional lighting would be reviewed by the Site Plan Review Committee.

(1)(B) Special event live outdoor music: No additional lighting is proposed at this time. Any additional lighting would be reviewed by the Site Plan Review Committee.

(2) Weekend live outdoor music: No additional lighting is proposed at this time. Any additional lighting would be reviewed by the Site Plan Review Committee.

Section 1-15(e): Planning Board Criteria and Section 1-18(e): City Commission Criteria: Sections 1-15(e) and 1-18(e) of the Land Development Code establish the Planning Board and City Commission Development Order criteria. The Land Development Code states that the following criteria shall be considered:

1. The proposed development conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the zoning district, or adversely affect the public health, safety, welfare or quality of life.

(1)(A) Special event itinerant vending: The Land Development Code does not prohibit outdoor activity. Section 2-50(w) allows retailers temporary outdoor activity four times per year for 14 days for each event. Chapter 2, Article VII specifically allows itinerant vending in the North US 1 corridor under certain conditions. Within the B-5 zoning district, the outdoor activity use is allowed through a Special Exception with the criteria focusing on impacts to residential uses and the limits of the activity.

There are no outstanding violations or complaints associated with the property located at 1089 North US 1 Highway. Staff believes the property owner has complied with the approved conditions for the last three years and the renewal of the Special Exception request would not create negative impacts to residential uses or negatively impact the public health, safety, welfare or quality of life.

(1)(B) Special event live outdoor music: The Land Development Code does not prohibit outdoor activity. Within the B-5 zoning district, the outdoor activity use is allowed through a Special Exception with the criteria focusing on impacts to residential uses and the provision of an exhibit demonstrating the limits of the activity. Based upon the the history of no code enforcement violations over a three (3) year period with the previous pubic hearing approval, staff believes that the applicant has properly managed the special event activities. There are no expected impacts that will adversely affect the public health, safety, welfare or quality of life. The key consideration in the Special Exception for outdoor activity application is the ability to enforce the sound limits of the Land Development.

(2) Weekend live outdoor music: The Land Development Code does not prohibit outdoor activity. Within the B-5 zoning district, the outdoor activity use is allowed through a Special Exception with the criteria focusing on impacts to residential uses and the provision of an exhibit demonstrating the limits of the activity. Based upon the sound test and the past compliance with the existing Special Exception, there are no expected impacts that will adversely affect the public health, safety, welfare or quality of life. The key consideration in the Special Exception for outdoor activity application is the ability to enforce the sound limits of the Land Development.

2. The proposed development is consistent with the Comprehensive Plan.

(1)(A) Special event itinerant vending: The site has a Future Land Use designation of “Low Intensity Commercial”, which is consistent with the proposed use. The Future Land Use Element states that the “Low Intensity Commercial” land use category is designed for, “A multi-use land use category to depict those areas of the city that are now developed, or appropriate to be developed, for retail, office and professional services, residential, and restaurants consistent with the surrounding uses, transportation facilities and natural resource characteristics of such areas.”

(1)(B) Special event live outdoor music: The site has a Future Land Use designation of “Low Intensity Commercial”, which is consistent with the proposed use. The Future Land Use Element states that the “Low Intensity Commercial” land use category is designed for, “A multi-use land use category to depict those areas of the city that are now developed, or appropriate to be developed, for retail, office and professional services, residential, and restaurants consistent with the surrounding uses, transportation facilities and natural resource characteristics of such areas.”

(2) Weekend live outdoor music: The site has a Future Land Use designation of “Low Intensity Commercial”, which is consistent with the proposed use. The Future Land Use Element states that the “Low Intensity Commercial” land use category is

designed for, “A multi-use land use category to depict those areas of the city that are now developed, or appropriate to be developed, for retail, office and professional services, residential, and restaurants consistent with the surrounding uses, transportation facilities and natural resource characteristics of such areas.”

3. The proposed development will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells.

(1)(A) Special event itinerant vending: The proposed application for outdoor activity will not adversely impact environmentally sensitive lands or natural resources and is an existing developed site.

(1)(B) Special event live outdoor music: The proposed application for outdoor activity will not adversely impact environmentally sensitive lands or natural resources and is an existing developed site.

(2) Weekend live outdoor music: The proposed application for outdoor activity will not adversely impact environmentally sensitive lands or natural resources and is an existing developed site.

4. The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties.

(1)(A) Special event itinerant vending: Staff believes that the application with the recommended language and conditions would not depreciate the value of surrounding property or create negative impacts.

(1)(B) Special event live outdoor music: Staff believes that the application with the recommended language and conditions would not depreciate the value of surrounding property or create negative impacts.

(2) Weekend live outdoor music: Staff believes that the application with the recommended language and conditions would not depreciate the value of surrounding property or create negative impacts. Violations of the Development Order would be addressed through the code enforcement provision that could lead to the loss of live outdoor music.

5. There are adequate public facilities to serve the development, including but not limited to roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds.

(1)(A) Special event itinerant vending: Public facilities currently serve the site and there would be no impact to the existing infrastructure.

(1)(B) Special event live outdoor music: Public facilities currently serve the site and there would be no impact to the existing infrastructure.

(2) Weekend live outdoor music: Public facilities currently serve the site and there would be no impact to the existing infrastructure.

- 6. Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe. This finding shall be based on a traffic report where available, prepared by a qualified traffic consultant, engineer or planner which details the anticipated or projected effect of the project on adjacent roads and the impact on public safety.**

(1)(A) Special event itinerant vending: The Special Exception application would provide adequate access to the site and would provide adequate emergency access.

(1)(B) Special event live outdoor music: The Special Exception application would provide adequate access to the site and would provide adequate emergency access.

(2) Weekend live outdoor music: The Special Exception application would provide adequate access to the site and would provide adequate emergency access.

- 7. The proposed development is functional in the use of space and aesthetically acceptable.**

(1)(A) Special event itinerant vending: There is no new development proposed with the outdoor activity application.

(1)(B) Special event live outdoor music: There is no new development proposed with the outdoor activity application.

(2) Weekend live outdoor music: There is no new development proposed with the outdoor activity application.

- 8. The proposed development provides for the safety of occupants and visitors.**

(1)(A) Special event itinerant vending: The proposed traffic movement plan and the security plan will ensure safe movement on the site for occupants and visitors.

(1)(B) Special event live outdoor music: The proposed traffic movement plan and the security plan will ensure safe movement on the site for occupants and visitors.

(2) Weekend live outdoor music: The proposed traffic movement plan and the security plan will ensure safe movement on the site for occupants and visitors.

- 9. The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area.**

(1)(A) Special event itinerant vending: There is no new building development for the outdoor activity and this criterion is not applicable.

(1)(B) Special event live outdoor music: There is no new building development for the outdoor activity and this criterion is not applicable.

(2) Weekend live outdoor music: There is no new building development for the outdoor activity and this criterion is not applicable.

10. The testimony provided at public hearings.

(1)(A) Special event itinerant vending: This application has not been reviewed in a public forum and no testimony has been provided.

(1)(B) Special event live outdoor music: This application has not been reviewed in a public forum and no testimony has been provided.

(2) Weekend live outdoor music: This application has not been reviewed in a public forum and no testimony has been provided.

CONCLUSION:

(1)(A) Special event itinerant vending: The subject property has participated in itinerant vending since 2005 as an allowed use under Volusia County land development regulations. The subject property was subject to the ISBA regulations in 2014 that required a permanent business to maintain the itinerant vending use and provided an amortization date. The property owner failed to establish the permanent business by the amortization date, but has reestablished the bar by making site and building improvements. The Special Exception seeks to continue to allow the special event itinerant vending that historically occurred on the property and has been occurring for the last three years. The Land Development Code establishes outdoor activity as a Special Exception in the B-5 zoning district with specific criteria. Itinerant vending is allowed in the North US 1 corridor during recognized special events where the subject property is located. The requested Special Exception will not negatively impact the character of this section of the North US 1 corridor. The Special Exception request approved three years ago was monitored for noncompliance and complaints. There were no major issues during the three-year timeframe. Boot Hill Saloon is requesting the ability to continue the outdoor vending as previously allowed.

(1)(B) Special event live outdoor music: The Land Development Code establishes outdoor activity as a Special Exception in the B-5 zoning district with specific criteria. Outdoor entertainment is allowed in the North US 1 corridor during recognized special events where the subject property is located. The live outdoor music was part of the Volusia County allowed activity and the application seeks to continue the live outdoor music. The requested Special Exception will not negatively impact the character of this section of the North US 1 corridor. The sound test and experience through the special events show that the US Highway 1 traffic is a dominant noise generator. Other businesses in the area were “grandfathered” for music whereas Boot Hill Saloon Outpost went through a Special Exception process in 2020 to provide music under specific conditions including allowable hours from 2:00 p.m. until 10:00 p.m. during recognized special events. This application is to continue the activity as approved in 2020.

(2) Weekend live outdoor music: The Land Development Code establishes outdoor activity as a Special Exception in the B-5 zoning district with specific criteria.

As with other applications, live outdoor music is dependent on the music operators to conduct the music in a manner that ensures compliance. The approved hours of operation from 2:00 p.m. to 7:00 p.m. on Saturdays and Sundays is restrictive and seeks not to impact surrounding properties. The condition provisions previously

approved in 2020 will be included in the Development Order regarding violations as proven through the Special Master process and the risk of losing the ability to provide outdoor live entertainment.

RECOMMENDATION: It is expected that the application will be reviewed by the City Commission on February 21, 2023. Each application request shall be acted upon independent of the other. It is recommended that the Planning Board **APPROVE** the application for the outdoor activity uses located at 1089 North U.S. Highway 1 under certain conditions as follows:

(1)(A) Special event itinerant vending: **APPROVE** the Outdoor activity with the following conditions:

1. Continue as previously approved by Resolution 2020-37 during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for itinerant vending of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m.
2. The property owner shall file a site layout plan for a Master Vendor Permit at least 21 days prior to each event detailing the location of the itinerant vending, proposed structures, security plan, signage, parking plan and any other outdoor activities with the Planning Department.
3. With the Master Vendor Permit, the property owner is responsible for the management and policing of each Special Event. The property owner shall be held responsible if the itinerant vendors do not get the required permits or violations if these conditions occur.
4. No more than 24 itinerant vendors (product and/or food and food trucks) shall be permitted for any one event.
5. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable Health Department regulations and hold all valid food service licenses required for their operations.
6. Itinerant merchant activities which negatively affect public health or safety are prohibited as detailed in Section 2-89 of the Land Development Code.
7. The preparation, setup, inspections, and vacation of premises associated with vending in compliance with 2-89 of the City Land Development Code is as follows:
 - a. The master vendor shall have the following set up times up to five (5) days prior to the official startup of the event.
 - b. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours
 - c. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the City's Building Division twenty-four (24) hours prior to operating.

(1)(B) Special event live outdoor music: **APPROVE** the Outdoor activity with the following conditions:

1. Continue as previously approved by Resolution 2020-37 during recognized special events of Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway; for live outdoor music from 2:00 p.m. to 10:00 p.m. The live outdoor music will be staged under a tent nestled among the trees.

If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

(2) Weekend live outdoor music: **APPROVE** the Outdoor activity with the following conditions:

1. Hours of outdoor live entertainment: Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with a maximum of two (2) live performers. The property owner shall notify, in writing, the City Building Department the event dates on or before the first day of each month for that month's planned music activities. If no activities are registered on or before the first day of the month, no activities shall be permitted that month; and
2. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Master code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Master hearings are complete. If the Special Master determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Master determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.

Attachments:

- A. Proposed Site Plan
- B. Applicant provided information
- C. Maps/Pictures
- D. Resolution 2020-37

ATTACHMENT A

Proposed Itinerant Vendor Site Plan

ATTACHMENT B

Applicant Provided Information



Updated October 1, 2021

City of Ormond Beach Public Hearing Application

Planning Department

22 South Beach Street, Room 104, Ormond Beach, FL 32174

(386) 676-3238

www.ormondbeach.org

comdev@ormondbeach.org

INSTRUCTIONS

Public hearing applications require City Commission action with many types being reviewed by the Planning Board to provide a recommendation. Some public hearing items require site plan review. Please complete the application and fee worksheet. Assistance is available by e-mailing comdev@ormondbeach.org or calling (386) 676-3238.

PROJECT INFORMATION

Project Type:*	Special Exception	*Complete fee sheet (page 3)
Project Name:		
Project Address:	1081-1089 N. US Hwy 1, Ormond Beach 32174	
Volusia County parcel number(s):	423802060110	
Description:	LOTS 11 TO 13 INC BLK 6 TOMOKA ESTS MB 11 pages 184-196 INC PER OR 4495 PG 4556 PER OR 5484 PGS 2508-2509 PER OR 6122 PG 3585 PER OR 6482 PG 3678	
Pre-application date:		Pre-application waiver granted:

PROJECT COORDINATOR

Name:	KARIN GEHRIS
Address:	PO Box 7527
City, State, Zip code:	Daytona Beach FL 32116
Telephone:	cell 207-479-5408 WORK 386 258 9506
E-mail:	GehrisKa25@gmail.com

APPLICANT INFORMATION

Same as project coordinator	☒	Same as property owner	☒
Name:			
Address:			
City, State, Zip code:			
Telephone:			
E-mail:			

PROPERTY OWNER

Same as project coordinator	☒	Same as property owner	☒
Name:	Karen Gehris		
Address:	PO Box 7527		
City, State, Zip code:	Daytona Beach FL 32116		
Telephone:			
E-mail:			

VIEW ONLY ACCESS TO PROJECT DOX (Provides viewing access to project)

Name:	Karen Gehris	E-mail:	gehriska25@gmail.com
Name:		E-mail:	
Name:		E-mail:	
Name:		E-mail:	

CERTIFICATION

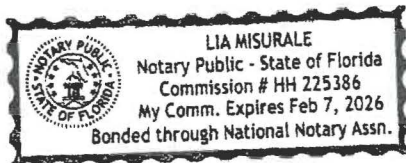
By submitting this application, I hereby certify that the information provided is true and correct to the best of my knowledge and that I am aware of the application submittal requirements and the review process for this application. I authorize Ormond Beach staff to access the subject property during typical business hours to review the public hearing application.

Signature: _____

STATE OF FLORIDA

COUNTY OF Volusia

The forgoing instrument was acknowledged before me this 23rd day of November, 2022, by Karen Gehris as _____ (title*) for _____ (name of corporation*), who (☒) provided driver license as identification, or () who is personally known to me.



[Signature]
Notary Public, State of Florida
My Commission Expires:

* If you are executing this document on behalf of a corporation please complete the spaces with your title and the name of your company as indicated.



Updated October 1, 2021

City of Ormond Beach Public Hearing Application Fees

Planning Department

22 South Beach Street, Room 104, Ormond Beach, FL 32174

(386) 676-3238

www.ormondbeach.org

comdev@ormondbeach.org

INSTRUCTIONS

Site plan submittals require the submittal of applications per Ordinance 2021-30, codified in Section 8-10, Application processing fees, of the Code of Ordinances. All applications shall calculate the fees which shall be verified by city staff. **Assistance is available by e-mailing comdev@ormondbeach.org or calling (386) 676-3238.**

PUBLIC HEARING FEES (Ordinance 2021-30 - Section 8-10 of Code of Ordinances)

Check all that apply	SPRC reviews	Fee	Advertising	Total fee
☐	Annexation	No fee	No fee	No fee
☐	Annexation Agreement	No fee	No fee	No fee
☐	Comprehensive Plan, small area amendment	\$2,000	\$1,025	\$3,025
☐	Comprehensive Plan, large-scale amendment	\$2,000	\$2,250	\$4,250
☐	Concurrency, traffic impact analysis	\$3,000 (deposit)	NA	\$3,000
☐	Development of Regional Impact amendment	\$600	\$2,250	\$2,850
☐	Planned Development	\$2,500	\$2,400	\$4,900
☐	Planned Development, major amendment	\$1,000	\$2,400	\$3,400
☐	Regulatory amendment, zoning map, under 10 acres	\$1,500	\$850	\$2,350
☐	Regulatory amendment, zoning map, over 10 acres	\$1,500	\$1,650	\$3,150
☐	Regulatory amendment, LDC amendment	\$1,000	\$700	\$1,700
☐	Regulatory amendment, LDC amendment (zoning districts)	\$1,000	\$1,500	\$2,500
☒	Special Exception	\$850	\$850	\$1,700
☐	Special Exception, CRA	\$400	\$850	\$1,250
☐	Street vacation	\$500	\$1,925	\$2,425
☐	Subdivision, Preliminary plat	\$1,500 plus \$25 per lot	NA	\$1,500 plus \$25 per lot
☐	Subdivision, Final plat	\$1,000 plus \$25 per lot	\$350	\$1,350 plus \$25 per lot
☐	Subdivision, city surveyor review	Actual costs	NA	Actual costs
☐	Subdivision, Recording of plat	Actual costs	NA	Actual costs
☐	Other:			
TOTALS:				

BOOT HILL SALOON OUTPOST

**1089 N. US HIGHWAY 1
ORMOND BEACH, FL 32174
386-258-9506**

**MAIL ADDRESS
PO BOX 7527
DAYTONA BEACH FL
32116**

NOVEMBER 30, 2022

Dear Neighbor,

The BOOT HILL SALOON OUTPOST, located at 1081-1089 North Us Highway 1, Ormond Beach, Florida 32174 in the B-5 zone, is applying for the permanent Special Exception Development Order to continue itinerant vendor uses and outdoor live entertainment

The BOOT HILL OUTPOST is open permanently during the year and would like to continue Itinerant Vendor Use, (Special Event Permit) to be able to participate in all special events recognized by the City of Ormond Beach, and surrounding cities for the citizens to enjoy.

We would also like to include charitable Poker Runs, Toys for Tots at Christmastime, King of the grill BBQ cook-off, Chili cookoff in the fall, Speed week, and Turkey Rod activities, Bike Week and Biketoberfest events with sound monitored music. We also request to be able to present live music on the deck between the hours of 2 pm and 10 pm for special recognized special events, during the year. We would like to include food trucks during special events and create an area for civic engagement events catering to a local artistic and musical scenario.

The community residents surrounding this project site are invited to discuss this Project and future development which has been stymied during the Covid epidemic, at a neighborhood meeting and sound test showing the live music complies with the City of Ormond Beach Land Development Code allowable guidelines for sound and itinerant vendor use. A brief presentation of live music will be played during this meeting for testing the compliance of the code volume in decibel levels on Monday, December 19, 2022, at 5pm on the property site located at 1089 N. US Hwy 1, Ormond Beach, FI 32174, the Boot Hill Saloon Outpost.

We will look forward to seeing you at this meeting if you would like to discuss this project. For further information, please email me at Gehriska25@gmail.com or call 386-258-9506.

Respectfully,

Karin Gehris

Karin Gehris

President, Jackson Hole Saloon and Grille

DbA Boot Hill Saloon Outpost

BOOT HILL SALOON OUTPOST

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DECEMBER 5, 2022

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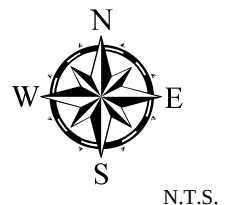
ATTACHMENT C

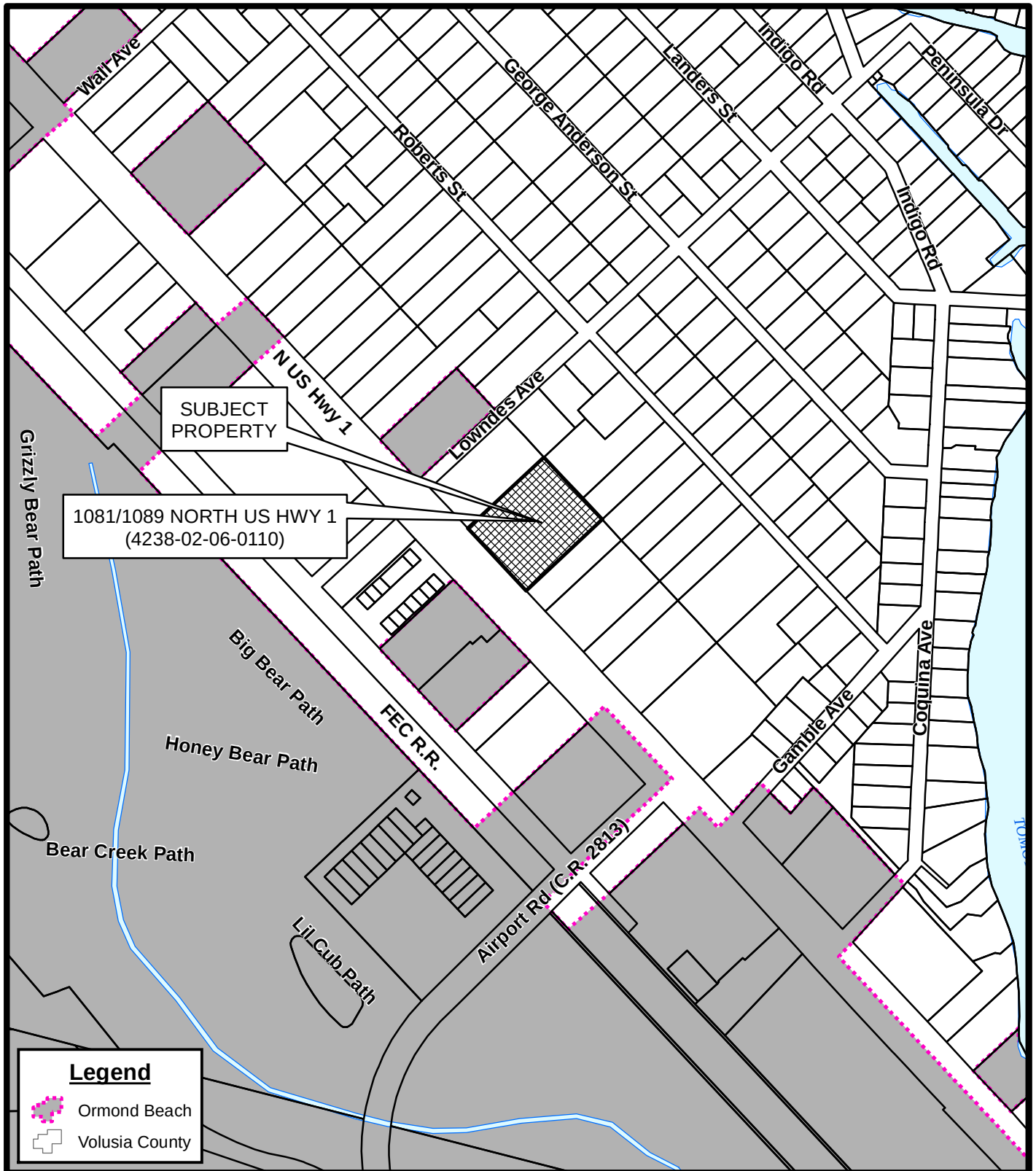
Maps and Photos



AERIAL MAP
1081/1089 NORTH US HWY 1
(4238-02-06-0110)

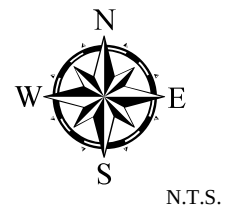
Prepared By: The City of Ormond Beach
G.I.S. Department - November 29, 2022

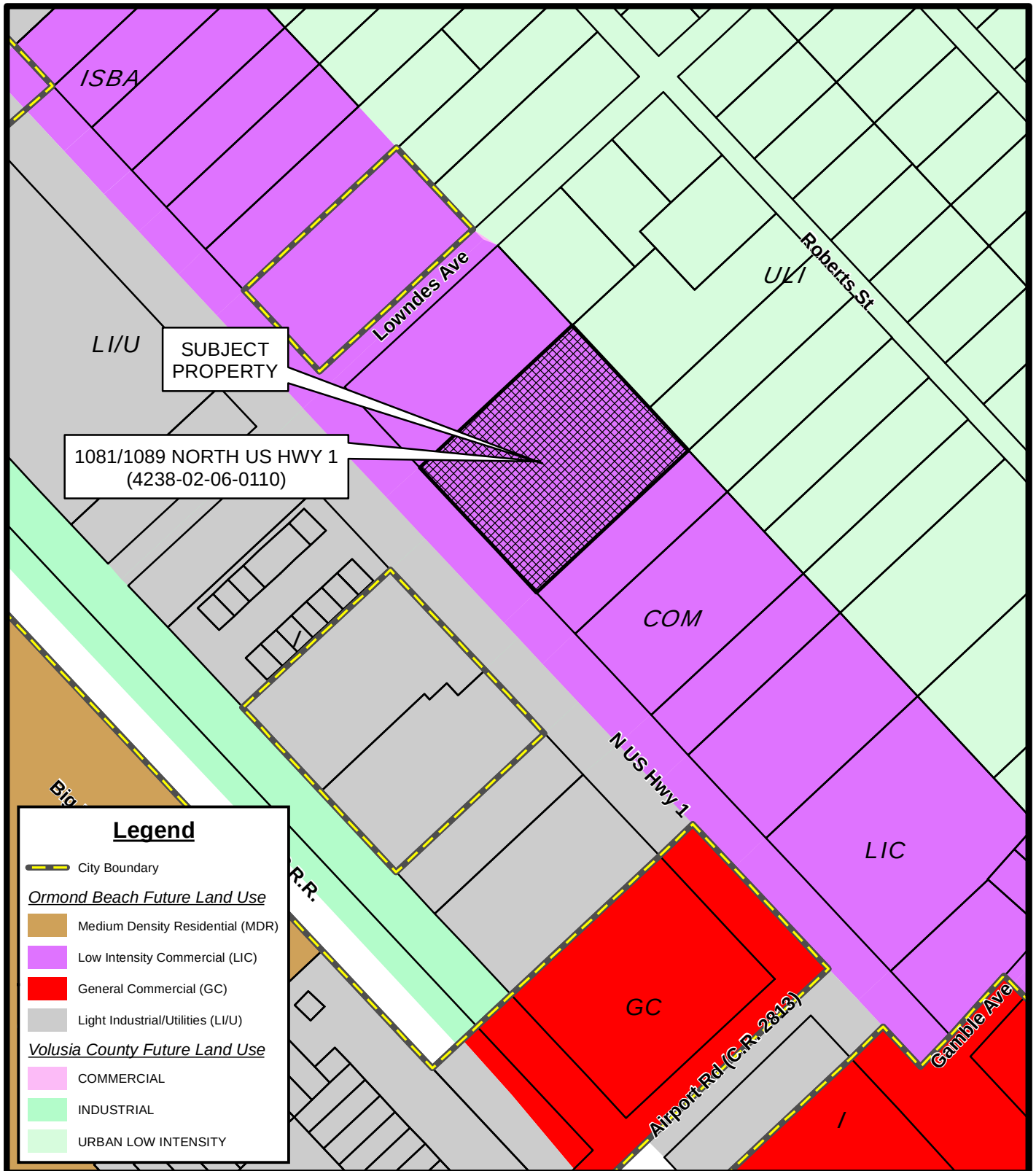




**1081/1089 NORTH US HWY 1
(4238-02-06-0110)
LOCATION MAP**

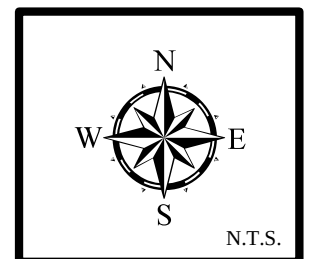
Prepared By: The City of Ormond Beach
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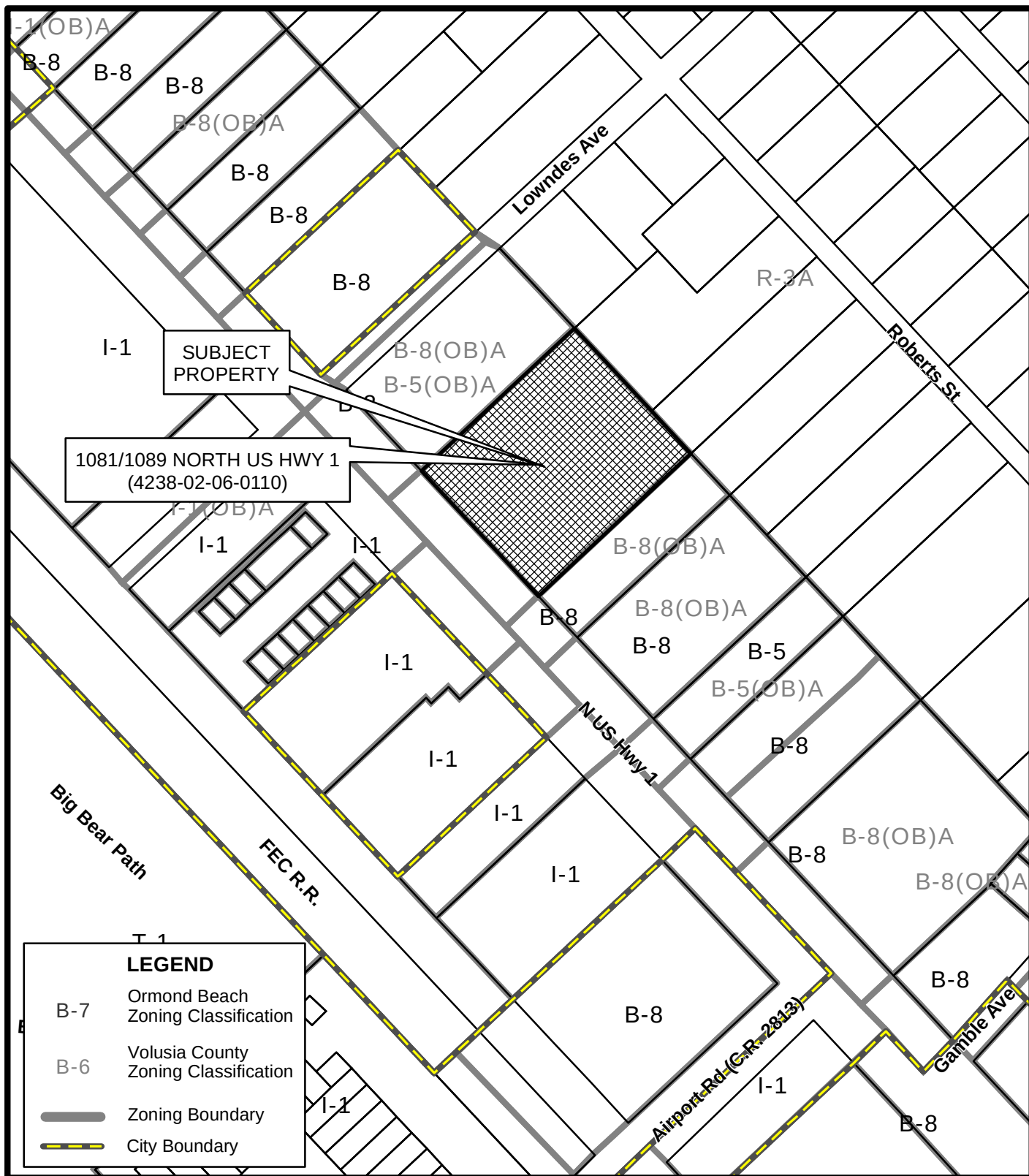




FUTURE LAND USE MAP
1081/1089 NORTH US HWY 1
(4238-02-06-0110)

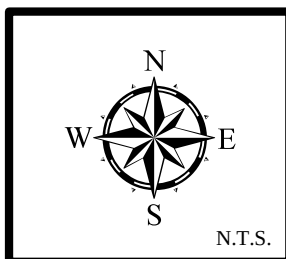
Prepared By: The City of Ormond Beach
 G.I.S. Department - November 29, 2022





ZONING MAP
1081/1089 NORTH US HWY 1
(4238-02-06-0110)

Prepared By: The City of Ormond Beach
 G.I.S. Department - November 29, 2022





BOOT HILL SALOON OUTPOST

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386-258-9506**

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Property Appraiser Larry Bartlett

DISCLAIMER: Surrounding Owners Request Prepared by Volusia County Property Appraisers Office

S22117

The Volusia County Property Appraiser and staff are constantly working to provide and publish the most current and accurate information possible. No warranties, expressed or implied are provided for the data herein, its use, or its interpretation.

Additionally, the Appraiser's data is not as current as the Clerk of the Court data causing mismatches - which are beyond our control

Again, one must remember that the primary use of the assessment data contained is for the preparation of the current year tax roll.
No responsibility or liability is assumed for inaccuracies or errors.

Yellow Highlighted Information is redacted pursuant to Florida Statute 119.071. Please provide a copy of the documents being mailed to our office at 123 W. Indiana Ave., Room 102, DeLand, FL 32720. We will mail the information to this property owner for you. If you have any questions, please call 386-822-5717.

Parcel Number of Subject Property: 4238-02-06-0110-Jackson Hole Saloon & Grill, Inc.-600' Radius-11/23/2022

PID	OWNER1	ADDR1	MAILCITY	MAILSTATE	MAILZIP
423802010050	CIRCLE K STORES INC	PO BOX 52085 DC-17	PHOENIX	AZ	85072
423802010070	IRON HORSE LAND CO LLC	1068 N US 1	ORMOND BEACH	FL	32174
423802010090	MAMANE PINCHAS	835 N BEACH ST	DAYTONA BEACH	FL	32114
423802010100	BABAJI RV PARK LLC	1452 ASPENWOOD DR	JACKSONVILLE	FL	32211
423802010120	KURRAS WILLIAM E	PO BOX 1442	ORMOND BEACH	FL	32175
423802010160	HARRISON ARCHIE B TR	1028 N US HWY 1	ORMOND BEACH	FL	32174
423802020010	HARRISON ARCHIE B TR	1098 N US HWY 1	ORMOND BEACH	FL	32174
423802020030	ROBBINS DENNIS A TR	55402 CLAIRE ST	ASTOR	FL	32102
423802050010	ROBBINS DENNIS A TR	55402 CLAIRE ST	ASTOR	FL	32102
423802050030	MALO ROLAND H JR & CLAUDIA J	PO BOX 731694	ORMOND BEACH	FL	32174
423802050040	KVG DEVELOPMENT LLC	3433 E GULF TO LAKE HWY	INVERNESS	FL	34453
423802050330	MYRICK BRENDA J	1112 ROBERTS ST	ORMOND BEACH	FL	32174
423802050340	CONN KOVIE	1108 ROBERTS ST	ORMOND BEACH	FL	32174
423802050350	MALO ROLAND H	PO BOX 731694	ORMOND BEACH	FL	32173
423802060020	BAY WILLIAM P JR	1065 N US 1	ORMOND BEACH	FL	32174
423802060050	BAY WILLIAM P JR	1065 N US 1	ORMOND BEACH	FL	32174
423802060070	BAY WILLIAM P JR	1065 N US 1	ORMOND BEACH	FL	32174
423802060080	KURRAS WILLIAM E	PO BOX 1442	ORMOND BEACH	FL	32175
423802060100	KURRAS WILLIAM E TR	PO BOX 1442	ORMOND BEACH	FL	32175
423802060110	JACKSON HOLE SALOON & GRILLE	PO BOX 7527	DAYTONA BEACH	FL	32116
423802060140	MATSON EDWARD A TR	9394 WINTERCREEK CT	TALLAHASSEE	FL	32309
423802060160	LAPLANTE CONCETTA MARIE BENTO	175 LOWNDES AVE	ORMOND BEACH	FL	32174
423802060161	HERBEIN DAVID M	177 LOWNDES	ORMOND BEACH	FL	32174
423802060170	KONTOMICHALOS KAREN FUGATE	179 LOWNDES AVE	ORMOND BEACH	FL	32174

423802060180	KINNEY TRICIA S	1088 ROBERTS ST	ORMOND BEACH	FL	32174
423802060190	KINNEY BRADLY	1084 ROBERTS ST	ORMOND BEACH	FL	32174
423802060200	DRIGGERS GREG	1080 ROBERTS ST	ORMOND BEACH	FL	32174
423802060210	MORGAN SHIRLEY E	1076 ROBERTS ST	ORMOND BEACH	FL	32174
423802060220	MATHEWS DONALD CHARLES	1072 ROBERTS ST	ORMOND BEACH	FL	32174
423802060230	ESPOSITO JOSEPH S JR	1068 ROBERTS ST	ORMOND BEACH	FL	32174
423802060240	NOVARIS ANITA C	1064 ROBERTS ST	ORMOND BEACH	FL	32174
423802060250	AWAN THERESA M SLOVAK	1921 PARK AVE SW	NORTON	VA	24273
423802060270	MOORE COBY K	1050 ROBERTS ST	ORMOND BEACH	FL	32174
423805100060	LONDONO VLADIMIR W	1063 ROBERTS ST	ORMOND BEACH	FL	32174
423805100070	ANDERSON DONNA L	1067 ROBERTS ST	ORMOND BEACH	FL	32174
423805100080	ANDERSON ROLF R	1071 ROBERTS ST	ORMOND BEACH	FL	32174
423805100100	ADAMS MARK ALLEN	1077 ROBERTS ST	ORMOND BEACH	FL	32174
423805100110	RUMNOCK AMBERLEY	1083 ROBERTS ST	ORMOND BEACH	FL	32174
423805100120	NGUYEN KRISTIAN K	1087 ROBERTS ST	ORMOND BEACH	FL	32174
423805100130	BERGERON LARRY J SR	1091 ROBERTS RD	ORMOND BEACH	FL	32174
423805100140	HIXON JOHN C	1096 SHOCKNEY DR	ORMOND BEACH	FL	32174
423805120010	SHOOP ALEX J	210 LOWNDES AVE	ORMOND BEACH	FL	32174
423805120011	KUFTIC VERNON A	1507 N PENINSULA DR	DAYTONA BEACH	FL	32118
423805120020	KUFFNER GREG W	1107 ROBERTS ST	ORMOND BEACH	FL	32174
423805100090	PERKINS LOGAN ROBERT	1073 ROBERTS ST	ORMOND BEACH	FL	32174
423813000101	JESKE FRANK	2772 S PENINSULA DR	DAYTONA BEACH	FL	32117
423813000102	HAGEN JAMES E TR	44 BAY POINTE DR	ORMOND BEACH	FL	32174
423813000103	HAGEN JAMES E TR	44 BAY POINTE DR	ORMOND BEACH	FL	32174
423813000104	HAGEN JAMES E TR	44 BAY POINTE DR	ORMOND BEACH	FL	32174
423813000105	CONTE ANTHONY J	450 JOHN ANDERSON DR	ORMOND BEACH	FL	32176
423813000106	ROGERS MICHELE S	456 SAULS ST	ORMOND BEACH	FL	32174
423813000107	ALBERT RICHARD	1096 N US HWY 1 UNIT 107	ORMOND BEACH	FL	32174
423813000108	VIA SPIAGGIA LLC	144 S BEACH ST	DAYTONA BEACH	FL	32114
423813000109	GALLUZZO DOMINICK ANTHONY	76 SHADOW CREEK WAY	ORMOND BEACH	FL	32174
423813000112	GALLUZZO DOMINICK ANTHONY	76 SHADOW CREEK WAY	ORMOND BEACH	FL	32174
423813000113	MAKO COMMERCIAL PROPERTIES LLC	527 N BEACH ST	ORMOND BEACH	FL	32174
423813000114	GALLUZZO DOMINICK ANTHONY	76 SHADOW CREEK WAY	ORMOND BEACH	FL	32174
423802050360	MALO ROLAND H & CLAUDIA J	PO BOX 731694	ORMOND BEACH	FL	32174
423813000001	COASTAL BUSINESS PARK ORMOND	1096 N US HIGHWAY 1	ORMOND BEACH	FL	32176

ATTACHMENT D

Resolution 2020-37

RESOLUTION NO. 2020-37

A RESOLUTION AUTHORIZING THE EXECUTION AND ISSUANCE OF A DEVELOPMENT ORDER FOR A SPECIAL EXCEPTION TO ALLOW OUTDOOR ACTIVITY TO INCLUDE ITINERANT VENDING AND LIVE OUTDOOR MUSIC DURING RECOGNIZED SPECIAL EVENTS; AND LIVE OUTDOOR MUSIC UP TO FOUR TIME PER MONTH AT “BOOT HILL SALOON OUTPOST” LOCATED AT 1089 NORTH US HIGHWAY 1, WHICH IS WITHIN THE B-5 (SERVICE COMMERCIAL) ZONING DISTRICT; ESTABLISHING CONDITIONS; AND SETTING FORTH AN EFFECTIVE DATE

WHEREAS, Jackson Hole Saloon and Grille, Inc, a Florida corporation d/b/a Boot Hill Saloon Outpost (the “Applicant”), has applied for the issuance of a Special Exception Development Order to allow outdoor activity to include itinerant vending and live outdoor music during recognized special events and monthly live outdoor music at “Boot Hill Saloon Outpost”, which is located at 1089 North US Highway 1 and is in the B-5 (Service Commercial) Zoning District, and

WHEREAS, the Applicant does not propose any new construction or additional building square footage, and

WHEREAS, the Applicant conducted a sound test on January 23, 2020, in accordance with section 2-57.O.1(3) of the City of Ormond Beach *Land Development Code* (“the *Land Development Code*”), and

WHEREAS, the said application is in compliance with the provisions of the *Land Development Code* and the general laws of Florida, and

WHEREAS, the Planning Board held a public hearing on February 13, 2020, as required by Chapter 1, Article II, Section 1-15D(2), of the *Land Development Code*, and

WHEREAS, the City Commission has duly held a public hearing on the application and has considered the testimony and evidence presented, and

WHEREAS, the City Commission has considered the following:

- (1) The report and recommendations of the Planning Board;
- (2) The report and recommendations of the Site Plan Review Committee; and
- (3) The comments of governmental agencies, utility corporations and individuals, as received, and

WHEREAS, based upon all of the foregoing and in consideration thereof, the City Commission finds that:

- (1) The proposed use conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the B-5 (Service Commercial) zoning district, or adversely affect the public health, safety, welfare or quality of life;
- (2) The proposed use is consistent with the *Comprehensive Plan*;
- (3) The proposed use will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells;
- (4) The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light

and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties;

- (5) There are adequate public facilities to serve the development, including but not limited to, roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds;
- (6) Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe. This finding shall be based on a traffic report where available, prepared by a qualified traffic consultant, engineer or planner which details the anticipated or projected effect of the project on adjacent roads and the impact on public safety;
- (7) The proposed development is functional in the use of space and aesthetically acceptable;
- (8) The proposed development provides for the safety of occupants and visitors;
- (9) The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area; and
- (10) The testimony provided at public hearings,

now therefore,

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF ORMOND BEACH, FLORIDA, THAT:

SECTION ONE. The above recitals are true and correct, shall serve as the legislative findings of the City Commission, and are incorporated herein by reference.

SECTION TWO. The Mayor and the City Manager are hereby authorized and directed to execute and issue a Development Order for a Special Exception to allow outdoor activity to include itinerant vending and live outdoor music during recognized special events Bike Week, Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway, and live outdoor music up to four (4) times per month at “Boot Hill Saloon Outpost” which is located at 1089 North US Highway 1 in accordance with the conditions and site plan exhibit described in the Special Exception Development Order, for “Boot Hill Saloon Outpost, located at 1089 North US Highway 1, within the B-5 (Service Commercial) zoning District, a copy of which is attached hereto and incorporated herein by reference.

SECTION THREE. This Resolution shall take effect immediately upon its adoption.

APPROVED AND AUTHENTICATED this 3rd day of March 2020.



BILL PARTINGTON
Mayor

ATTEST:



COLBY CILENTO
City Clerk

**BEFORE THE
CITY COMMISSION
OF THE
CITY OF ORMOND BEACH**

IN RE: Jackson Hole Saloon and Grille, Inc. d/b/a Boot Hill Saloon Outpost
SE 20-017 “1089 North US Highway 1, Boot Hill Saloon Outpost: Special
Exception for Outdoor Activity”
1089 North US Highway 1, Ormond Beach, FL 32174
PARCEL ID NO: 4238-02-06-0110

**SPECIAL EXCEPTION
DEVELOPMENT ORDER**

This matter having come on for public hearing before the City Commission of the City of Ormond Beach, Florida, on March 3, 2020, and the City Commission having considered those items as required by Section 1-18(B) of the *Land Development Code*, and having heard testimony and evidence from all affected persons, the City Commission hereby finds that:

1. The proposed use conforms to the standards and requirements of this Code and will not create undue crowding beyond the conditions normally permitted in the B-5 (Service Commercial) zoning district, or adversely affect the public health, safety, welfare or quality of life;
2. The proposed use is consistent with the *Comprehensive Plan*;
3. The proposed use will not adversely impact environmentally sensitive lands or natural resources, including but not limited to waterbodies, wetlands, xeric communities, wildlife habitats, endangered or threatened plants and animal species or species of special concern, wellfields, and individual wells;
4. The proposed use will not substantially or permanently depreciate the value of surrounding property; create a nuisance; or deprive adjoining properties of adequate light and air; create excessive noise, odor, glare, or visual impacts on the neighborhood and adjoining properties;
5. There are adequate public facilities to serve the development, including but not limited to, roads, sidewalks, bike paths, potable water, wastewater treatment, drainage, fire and police safety, parks and recreation facilities, schools, and playgrounds;
6. Ingress and egress to the property and traffic patterns are designed to protect and promote motorized vehicle and pedestrian/bicycle safety and convenience, allow for desirable traffic flow and control, and provide adequate access in case of fire or catastrophe. This finding

shall be based on a traffic report where available, prepared by a qualified traffic consultant, engineer or planner which details the anticipated or projected effect of the project on adjacent roads and the impact on public safety;

7. The proposed development is functional in the use of space and aesthetically acceptable;
8. The proposed development provides for the safety of occupants and visitors;
9. The proposed use of materials and architectural features will not adversely impact the neighborhood and aesthetics of the area; and
10. The testimony provided at public hearings.

Thereupon and in consideration thereof, the City Commission hereby orders that:

A. The application submitted by Jackson Hole Saloon and Grille, Incorporated, d/b/a Boot Hill Saloon Outpost (the “Property Owner”) by and through Karin Gehris, for a Special Exception to allow outdoor activity to include (1)(A)itinerant vending and (1)(B)live outdoor music during recognized special events and (2) live outdoor music up to four (4) time per month at “Boot Hill Saloon Outpost”, which is located at 1089 North US Highway 1 and is in the B-5 (Service Commercial) zoning district on the parcel of real property described and depicted on Exhibit “A” attached hereto and incorporated herein by reference, is hereby granted, subject to the following conditions:

1. **(1)(A) Special event itinerant vending:**
 - a. During recognized special events of Daytona Beach Bike Week Festival, as established by the Bike Week Executive Committee; Daytona Beach Biketoberfest Special Event, as established by the Biketoberfest Development Committee of the Daytona Beach Area Convention & Visitors Bureau; Daytona Speed Weeks, encompassing that time period commencing with the Rolex 24 Hour Race and ending with the Daytona 500 Race, as established by the Daytona International Speedway; and Pepsi 400 Race, as established by the Daytona International Speedway; for itinerant vending of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m.
 - b. The property owner shall file a site layout plan for a Master Vendor Permit at least 21 days prior to each event detailing the location of the itinerant vending, proposed structures, security plan, signage, parking plan and any

other outdoor activities with the Planning Department. The location of vendors is depicted on the site plan in Exhibit “B” attached hereto and incorporated by reference.

- c. With the Master Vendor Permit, the property owner is responsible for the management and policing of each Special Event. The property owner shall be held responsible if the itinerant vendors do not get the required permits or violations if these conditions occur.
- d. No more than 24 itinerant vendors (product and/or food) shall be permitted for any one event.
- e. Food vendors must operate in compliance with all the requirements of the Division of Hotels and Restaurants of the Florida Department of Business and Professional Regulation, and any other applicable state laws. Food vendors must show proof that they meet all applicable Health Department regulations and hold all valid food service licenses required for their operations.
- f. Itinerant merchant activities which negatively affect public health or safety are prohibited as detailed in Section 2-89 of the Land Development Code.
- g. The preparation, setup, inspections, and vacation of premises associated with vending in compliance with 2-89 of the City Land Development Code is as follows:
 - 1. The master vendor shall have the following set up times up to five (5) days prior to the official startup of the event.
 - 2. Individual vendors shall physically vacate the vending space after the event officially closes within seventy-two (72) hours
 - 3. All vendors setting up outside a permanent building, using a tent or other temporary structure shall have a fire safety inspection by the City's Building Division twenty-four (24) hours prior to operating.

- h. The Special Exception is valid through March 3, 2023 (three years). Any outdoor activity past this date shall require a Special Exception. The Planning Board and City Commission shall consider the record of events over the three-year period of the Special Exception, including any code violations, in determining the type of events and time frame that are allowed in the future.

2. (1)(B) Special event live outdoor music:

- a. During recognized special events of Daytona Beach Bike Week Festival, as established by the Bike Week Executive Committee; Daytona Beach Biketoberfest Special Event, as established by the Biketoberfest Development Committee of the Daytona Beach Area Convention & Visitors Bureau; Daytona Speed Weeks, encompassing that time period commencing with the Rolex 24 Hour Race and ending with the Daytona 500 Race, as established by the Daytona International Speedway; and Pepsi 400 Race, as established by the Daytona International Speedway for live outdoor music from 2:00 p.m. to 10:00 p.m. The live outdoor music will be staged under a tent nestled among the trees.
- b. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Magistrate code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Magistrate hearings are complete. If the Special Magistrate determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Magistrate determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment.
- c. The Special Exception is valid through March 3, 2023 (three years). Any outdoor activity past this date shall require a Special Exception. The Planning Board and City Commission shall consider the record of events over the three-year period of the Special Exception, including any code

violations, in determining the type of events and time frame that are allowed in the future.

3. (2) Weekend live outdoor music

- a. Hours of outdoor live entertainment: up to four (4) times per month on either Saturday or Sunday, 2:00 p.m. to 5:00 p.m., with a maximum of two (2) live performers. The property owner shall notify, in writing, the City Building Department the event dates on or before the first day of each month for that month's planned music activities. If no activities are registered on or before the first day of the month, no activities shall be permitted that month; and
- b. If within any one (1) year period, there are two (2) demonstrated code violations of the outdoor live entertainment exceeding the time limitation or the maximum decibel levels, defined in the Code of Ordinances, as proven through the Special Magistrate code enforcement system, the right to have any outdoor live entertainment under the Special Exception Development Order shall be automatically revoked without further action of the City Commission. Upon the issuance of a second notice of code enforcement violation by either a Neighborhood Improvement Officer or Police Officer, the ability to have the outdoor live entertainment shall be suspended until the finding of the Special Magistrate hearings are complete. If the Special Magistrate determines that a second violation has occurred, the ability to have outdoor live entertainment shall thereafter be deemed to have been revoked. If the Special Magistrate determines that no violation occurred, the applicant shall be permitted to resume outdoor live entertainment

B. All applicable provisions of the *Land Development Code* shall be complied with at all times, such provisions being incorporated herein by reference and hereby specifically made a part of this Special Exception;

C. There are no outstanding Site Plan Review Committee comments to satisfy;

D. This Special Exception Development Order shall be recorded in the public records of Volusia County, Florida, at the expense of Jackson Hole Saloon and Grille, Inc, a Florida corporation d/b/a Boot Hill Saloon Outpost, and shall be binding upon Jackson Hole Saloon and Grille, Inc, a Florida corporation d/b/a Boot Hill Saloon Outpost, its successors and assigns, and shall run with the real property described and depicted in Exhibit "A" attached hereto and incorporated herein by reference. (Parcel ID No.: 423802060110).

ORDERED this 3rd day of March, 2020.

(CITY SEAL)

By: Bill Partington
BILL PARTINGTON
Mayor

Attest: Joyce A. Shanahan
JOYCE A. SHANAHAN
City Manager

EXHIBIT "A"

LEGAL DESCRIPTION

LOTS 11 TO 13 INC BLK 6 TOMOKA ESTS MB 11 PGS 194-196 INC PER OR 4495 PG 4556 PER OR 5484 PGS 2508-2509 PER OR 6122 PG 3585 PER OR 6482 PG 3678.

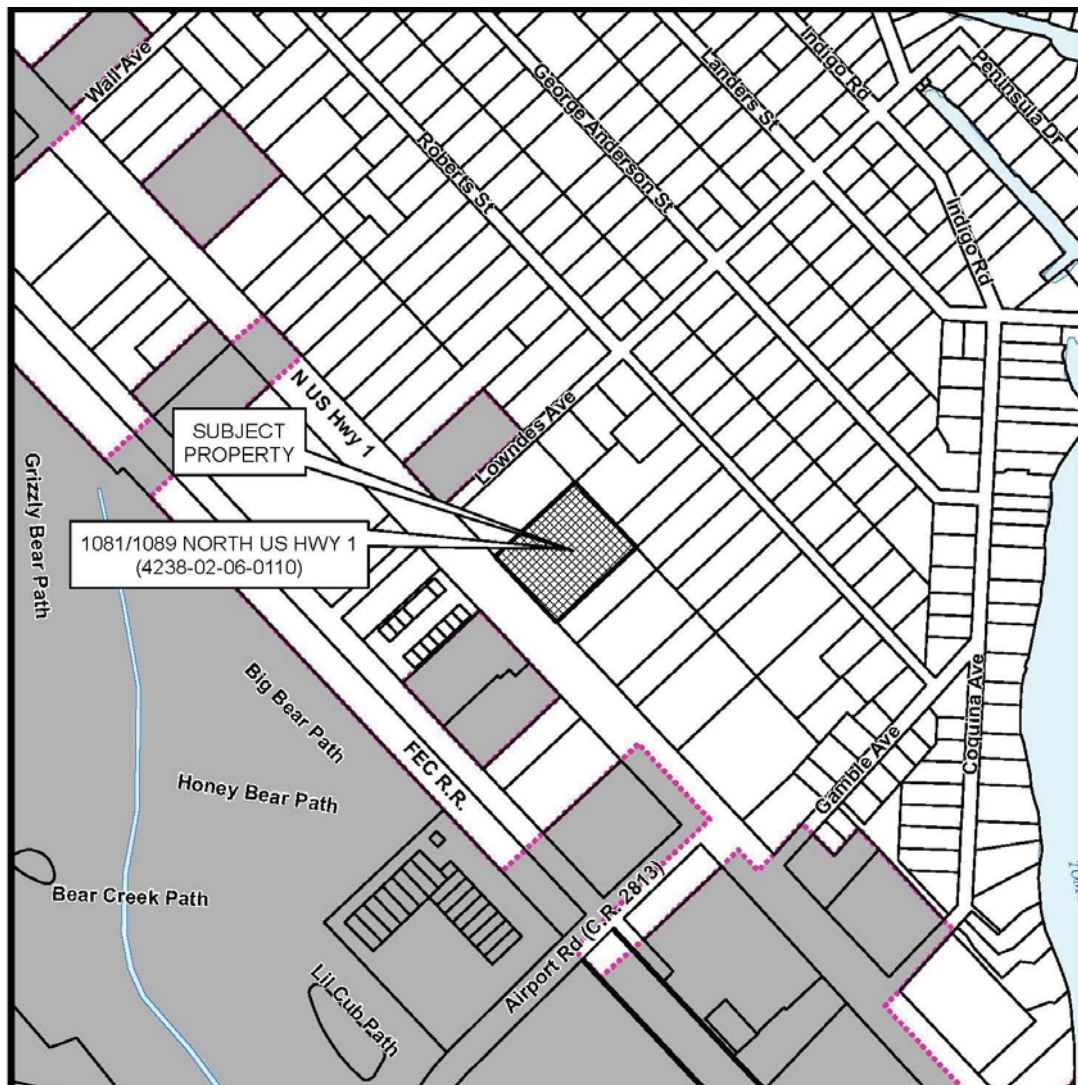
APPLICANT: Karin Gehris

PROPERTY OWNER: Jackson Hole Saloon and Grille, d/b/a Boot Hill Saloon Outpost

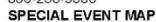
LOCATION: 1089 North U.S. Highway 1, Ormond Beach, FL 32174

PARCEL ID NUMBER: 4238-02-06-0110

LOCATION MAP



LOCATION OF OUTDOOR ACTIVITIES



M I N U T E S
ORMOND BEACH PLANNING BOARD
Regular Meeting

January 12, 2023

6:00 PM

City Commission Chambers
22 South Beach Street
Ormond Beach, FL 32174

PURSUANT TO SECTION 286.0105, FLORIDA STATUTES, IF ANY PERSON DECIDES TO APPEAL ANY DECISION MADE BY THE PLANNING BOARD WITH RESPECT TO ANY MATTER CONSIDERED AT THIS PUBLIC MEETING, THAT PERSON WILL NEED A RECORD OF THE PROCEEDINGS AND FOR SUCH PURPOSE, SAID PERSON MAY NEED TO ENSURE THAT A VERBATIM RECORD OF THE PROCEEDING IS MADE, INCLUDING THE TESTIMONY AND EVIDENCE UPON WHICH THE APPEAL IS TO BE BASED.

PERSONS WITH A DISABILITY, SUCH AS A VISION, HEARING OR SPEECH IMPAIRMENT, OR PERSONS NEEDING OTHER TYPES OF ASSISTANCE, AND WHO WISH TO ATTEND CITY COMMISSION MEETINGS OR ANY OTHER BOARD OR COMMITTEE MEETING MAY CONTACT THE CITY CLERK IN WRITING, OR MAY CALL 677-0311 FOR INFORMATION REGARDING AVAILABLE AIDS AND SERVICES.

I. ROLL CALL

Members Present

Angeline Shull, Vice Chair
Al Jorczak
GG Galloway (absent)
Mike Scudiero
Troy Railsback
Barry du Moulin
Doug Thomas, Chair

Staff Present

Steven Spraker, Planning Director
Becky Weedon, Senior Planner
Robin Gawel, Senior Planner
Cara Culliver, Landscape Architect RC
David Allen, Planning Civil Engineer
Tom Griffith, Chief Building Official
Brian Rademacher, Economic Development
Mike Stephenson, Utilities Engineer
Randy Hayes, City Attorney
Marcella Miller, Recording Technician

II. ADMINISTRATIVE ITEMS

A. Election of Chairperson and Vice Chairperson

Mr. Jorczak moved to appoint Doug Thomas as Chair. Ms. Shull seconded the motion. Vote was called, and the motion unanimously approved. (6-0)

Mr. du Moulin moved to appoint Angie Shull as Vice-Chair. Mr. Scudiero seconded the motion. Vote was called, and the motion unanimously approved. (6-0)

New Planning Board members Mr. Troy Railsback and Mr. Barry du Moulin, introduced themselves.

B. Adoption of the Planning Board Rules of Procedures

Mr. Jorczak moved to adopt the amended Planning Board Rules of Procedures. Ms. Shull seconded the motion. Vote was called, and the motion unanimously approved. (6-0)

C. Adoption of the 2023 Planning Board Calendar

Mr. Jorczak moved to adopt the 2023 Planning Board Calendar. Mr. Scudiero seconded the motion. Vote was called, and the motion unanimously approved. (6-0)

III. INVOCATION

Chairman Thomas led the invocation.

IV. PLEDGE OF ALLEGIANCE

V. NOTICE REGARDING ADJOURNMENT

NEW ITEMS WILL NOT BE HEARD BY THE PLANNING BOARD AFTER 9:00 PM UNLESS AUTHORIZED BY A MAJORITY VOTE OF THE BOARD MEMBERS PRESENT. ITEMS WHICH HAVE NOT BEEN HEARD BEFORE 10:00 PM MAY BE CONTINUED TO THE FOLLOWING THURSDAY OR TO THE NEXT REGULAR MEETING, AS DETERMINED BY AFFIRMATIVE VOTE OF THE MAJORITY OF THE BOARD MEMBERS PRESENT (PER PLANNING BOARD RULES OF PROCEDURE, SECTION 2.7).

VI. APPROVAL OF MINUTES

December 5, 2022

Mr. Jorczak moved to approve the December 5, 2022 Minutes. Mr. Scudiero seconded the motion. The minutes were unanimously approved. (6-0)

December 8, 2022

Mr. Railsback stated that his comments from the December 8, 2022 Planning Board meeting required revision. He added that his dialogue in the second sentence of his comments on page 8, should be written as:

If building #8 is gone, there is area to shift building #9 to minimize its visual impacts to Indian Springs.

Mr. Scudiero moved to approve the amended December 8, 2022 Minutes. Ms. Shull seconded the motion. The amended minutes were unanimously approved. (6-0)

VII. PLANNING DIRECTOR'S REPORT

Mr. Spraker, Planning Director, thanked the Planning Board members for their time and recommendations. He apprised the Board of neighborhood meetings on January

17, 2023 at 6:00 p.m. for Ormond Enclave at the Trails Clubhouse and January 23, 2023 at 6:00 p.m. for MetroNet at the Hampton Inn on Interchange Boulevard. These neighborhood meetings are also advertised on the City of Ormond Beach website.

VIII. PUBLIC HEARINGS

A. SE 2023-010: 1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity

Ms. Becky Weedo, Senior Planner, explained three requests from Ms. Karin Gehris, President, Jackson Hole Saloon and Grille, Incorporated, dba Boot Hill Saloon Outpost, for a Special Exception to:

- 1) Continue outdoor activities previously approved by Resolution 2020-37 on March 3, 2020 during recognized special events of Bike Week, and Biketoberfest established by the Daytona Beach Area Convention and Visitors Bureau; and Speed Weeks as established by the Daytona International Speedway for:
 - A. Itinerant vending of up to 24 vendors, including food trucks; and
 - B. Live outdoor music from 2:00 p.m. to 10:00 p.m.; and
- 2) Allow Live outdoor music on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. Previously approved by Resolution 2020-37 was live outdoor music up to four (4) times per month, either Saturday or Sunday afternoon, from 2:00 p.m. to 5:00 p.m. in association with the new Boot Hill Saloon Outpost.

Ms. Weedo stated that each of the three requests are considered under the umbrella of outdoor activity and are described and analyzed separately and require separate votes for each use. Boot Hill Saloon Outpost, is located at 1089 North U.S. Highway 1, which lies within the larger parent property addressed as 1081 North U.S. Highway 1, and is zoned B-5 (Service Commercial). The property is located in the North US1 Interlocal Service Boundary Agreement (ISBA) area which the City of Ormond Beach has established jurisdictional authority. Ms. Weedo continued that the property abuts residential to the east, The Hog Pen to the south, Tomoka Center to the north and Coastal Business Park across the street.

Ms. Weedo explained the history of the property with the owner purchasing the Boot Hill Saloon Outpost in 2005. The property participated in itinerant activities during recognized special events with live outdoor music in unincorporated Volusia County. The onsite restaurant was burned beyond repair in 2008 and the property owner continued to operate itinerant vending and live outdoor music during the recognized special event periods through itinerant and host permits from Volusia County. Ms. Weedo continued that on August 19, 2014, the City adopted the North US1 Interlocal Service Boundary Agreement (ISBA) which became effective on August 28, 2014. Even though the subject property is in the unincorporated area, the City of Ormond Beach has land use and zoning jurisdiction over the property based on the ISBA. The property owner has continued itinerant and outdoor music activity with approved city permits since 2015. The property was placed on the amortization list and was not able to establish a permanent use prior to the expiration date, and for this reason the owner submitted a Special Exception application in 2020 with an established business.

Ms. Weedo stated that on February 13, 2020, the Planning Board recommended approval for the requests with conditions and on March 3, 2020, The City Commission approved Resolution 2020-37 as recommended by the Planning Board. Ms. Weedo explained that one condition was a three-year expiration of the development order on March 3, 2023. For this reason, the applicant has reapplied for another Special Exception to continue the itinerant merchant vending and live outdoor music as previously approved and allow live outdoor music on weekends from 2:00 p.m. to 7:00 p.m. Ms. Weedo noted that live music not associated with special events was previously approved was on Saturdays and Sundays up to four times per month from 2:00 p.m. to 5:00 p.m. She added that there have been no open code violations for the outdoor activities at the property in the last three years, therefore staff is not recommending an expiration date. Ms. Weedo reviewed slides overhead illustrating requests #1A, #1B, and #2. She added that for the live entertainment requests, the City completed a sound test on December 19, 2022 at 5:00 p.m. with a three-piece band staged on the deck with speakers facing south as part of the review and Special Exception criteria. The purpose of the test was to establish a decibel level that would be acceptable on a continuous basis. Ms. Weedo commented that there was very little variation in decibel when music was playing and when music was not playing due to the normal noise of traffic on North U.S. Highway 1. The music was said to be in compliance with the adopted maximum decibel limits on the residential side, north and south sides of the property. The highest decibel was 68 on the south and north sides with music playing. On the west side along the highway, the highest decibel was 75 with no music and 76 with music. The sound test did not show an impact based on the location of the stage. Only two people attended the neighborhood meeting not including staff or owner representatives, and there were no complaints by the participants. Ms. Weedo added that one person there commented that she enjoyed the special events with live outdoor music.

Ms. Weedo explained the public hearing notification process. For the neighborhood meeting, the applicants mailed letters to the abutters within 600' of the property and a Daytona Beach News-Journal ad is published. Notices were also posted to the City website. For the Planning Board meeting, the applicant posted the property, letters were mailed, a Daytona Beach News-Journal ad was published and notices and Planning Board packets were posted to the City website. For the City Commission meeting, letters will be mailed, appropriate Daytona Beach News-Journal ads will be published and notices will be posted on the City website.

Ms. Weedo stated that for the first vote, staff recommends approval of the itinerant vending with the following conditions:

1. *During recognized special events of up to 24 vendors, including food trucks operating from 9:00 a.m. to 10:00 p.m.;*
2. *And in compliance with Section 2-89 of the LDC related to:*
 - a. *Submittal of site plans;*
 - b. *Host and Vendor Permits;*
 - c. *Food vendors;*
 - d. *Prohibited activities; and*
 - e. *Preparation, setup, inspections, and vacation of premises.*

Ms. Weedo stated that for the second vote, staff recommends approval of the outdoor live entertainment with the following two conditions:

1. *Hours of entertainment during recognized special events from 2:00 p.m. to 10:00 p.m.*
2. *If there are two code violations pertaining to the outdoor entertainment, the applicant will lose the right to continue to have outdoor entertainment as described in the conditions stated in the staff report.*

Ms. Weedo stated that for the third vote, staff recommends approval of the outdoor live entertainment with the following two conditions:

1. *Hours of entertainment on Saturdays and Sundays from 2:00 p.m. to 7:00 p.m. with up to two live performers.*
2. *If there are two code violations pertaining to the outdoor entertainment, the applicant will lose the right to continue to have outdoor as described in the conditions stated in the staff report.*

Ms. Weedo concluded that the Land Development Code (LDC) requires the application be reviewed by the City Commission. The City Commission hearing date is scheduled tentatively for February 21, 2023.

Board Questions

Ms. Shull inquired about the itinerant vending and asked if it was only for time during special events. Ms. Weedo confirmed that the itinerant vending is only for the recognized special events.

Mr. du Moulin asked for confirmation of any outstanding violations. Ms. Weedo replied that there have been no outstanding violations or complaints.

Mr. Railsback asked if there is a year-round established business on the property now. Ms. Weedo answered that there is. Mr. Railsback inquired if there are any other properties with a similar status with Special Exception approval that have gone through the same process. Ms. Weedo replied that when the ISBA was adopted and became effective, the businesses that had been providing itinerant vending and live outdoor music were on a five-year amortization schedule and included Broken Spoke and they established a business before the five years expired. They did not have to apply for a Special Exception. She concluded that there are no other properties with similar scenarios.

Applicant's presentation

Ms. Karen Gehris, President, Jackson Hole Saloon and Grille, Inc., dba Boot Hill Saloon Outpost, 1089 N. U.S. Highway 1, stated that she owned the property since 2005 and reiterated that a fire demolished the structure in 2008 and reviewed the challenges of the property since. Ms. Gehris commented that the business is permanent and open for business.

Mr. Jorczak inquired if Ms. Gehris anticipates using the Special Exception every weekend or if a schedule would be put together where it will not take place 52

weekends per year of live music. Ms. Gehris replied that it will most probably not be every weekend. She noted that it will be a two-piece band with a guitar and at times only one musician.

Chairman Thomas questioned if two performers was her or the City's suggestion. Ms. Gehris answered that it was suggested and added that normally, afternoons during these times there is acoustic music and not a band.

Mr. Scudiero commented that the number of two performers may be to keep the decibel level closer to what everyone can live with.

Chairman Thomas stated that there are no audience comment cards and opened it up to the public for any comments. Hearing none, he opened it up to the Board for discussion and entertained a motion.

Mr. Jorczak motioned to approve staff's recommendations with the conditions for SE 2023-010: 1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity, 1A, for itinerant vending of up to 24 vendors, including food trucks. Ms. Shull seconded it. Vote was called, and the motion was approved (6-0).

Ms. Shull motioned to approve SE 2023-010: 1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity, 1B, for live outdoor music. Mr. Jorczak seconded it. Vote was called, and the motion was approved (6-0).

Mr. Jorczak motioned to approve staff's recommendations for the conditions for SE 2023-010: 1089 N. U.S. Highway 1, Boot Hill Saloon Outpost: Special Exception for Outdoor Activity, 2, for live outdoor music on Saturdays and Sundays, from 2:00 p.m. to 7:00 p.m. with up to two live performers. Mr. Scudiero seconded it. Vote was called, and the motion was approved (6-0).

IX. PUBLIC COMMENTS

None

X. OTHER BUSINESS – SITE PLAN REVIEW COMMITTEE (SPRC)

Mr. Spraker delivered a general overview of the SPRC and the development process guided by the Comprehensive Plan displayed in a PowerPoint presentation overhead. He explained the Land Development Code (LDC) and Interlocal Service Boundary Area (ISBA). Mr. Spraker noted that the Planning Board will be working on the Comprehensive Plan update over the next year and a half for 2025. He advised that the City and Ms. Gawel specifically, is preparing for transitioning from using the Naviline program for the permitting process to Tyler EnerGov. The Planning Department is also working on the updated impact fee analysis.

Members of the Site Plan Review Committee (SPRC) introduced themselves and their role in the committee. Mr. Spraker explained the SPRC process further stating that every Wednesday morning SPRC meetings are held and are available both in-person and via Zoom. Applicants get placed on the agenda by reaching out to the Planning Department by phone or e-mail and the agendas are published to the City

Meeting Date: 2/21/2023		AGENDA ITEM		Number: 9.A
Section:	DISCUSSION AND DIRECTION ITEMS			
Item Category:	Discussion Item	Res./Ord. No:		
Strategic Goal:	Community Development - Other			
Department :	Planning & Building			
Subject:	Impact Fee Update, including Police and Fire Impact Fees			
Budget Impact:	Impact fees are a key component of the City's capital infrastructure that is budgeted within the Capital Improvement Program. Capital projects are reflected in the Comprehensive Plan in the Capital Improvement Elements. Impact fees assist the City in maintaining adopted LOS and providing capacity to provide service to new growth as established in the Comprehensive Plan. Impact fees are assessed on new development to fund capital projects needed based on the additional demands from new development. Impact fees are not used for operating expenses or recurring maintenance.			
Summary:	This is a discussion item to (1) review and reaffirm policy direction from the September 7, 2022 City Commission discussion on the draft "Water and Wastewater Utility System Connection Fee Study" and "Municipal Impact Fee Study" and (2) to review the Police & Fire Impact Fees Study. The studies were prepared by Raftelis Financial Consultants "Raftelis" for the city's connection and impact fees.			
Recommended Action:	The following policies are sought for City Commission direction: 1. Should the impact fee credit revision occur now (could be completed by May 2, 2023) versus the fall of 2023. 2. Staff is seeking verification that the desired park and recreation impact fee is the maximum supportable fee and if the fee should be implemented in one year or two years. 3. Should the local road impact fee schedule include fast food drive-thru restaurants in the restaurant fee category? 4. Should the local road impact fee schedule include convenience stores in the retail fee category? 5. What mobility fee per person trip mobility fee should be assessed? 6. Any comments/concerns on the new analysis presented for police and fire impact fees?			
Staff Contact:	Steven Spraker, Planning Director, (386) 676-3341			

Approval:

Kelly McGuire, Finance Director

2/14/2023

Handwritten signature of Kelly A. McGuire in blue ink.

Claire Whitley, Assistant City
Manager

2/16/2023

Handwritten signature of Claire Whitley in blue ink.

Joyce Shanahan, City Manager

2/16/2023

Handwritten signature of Joyce Shanahan in blue ink.



CITY OF ORMOND BEACH

22 South Beach Street • Ormond Beach, FL 32174 • (386) 677-0311 • Fax (386) 676-3330

CITY MANAGER MEMORANDUM

To: The Honorable Mayor Partington and City Commissioners
Through: Joyce Shanahan, City Manager
From: Steven Spraker, Planning Director
Date: February 21, 2023
Subject: Impact Fee Update, including Police and Fire Impact Fees
Commission Goal: Community Development - Other

Introduction

This is a discussion item to **(1)** review and reaffirm policy direction from the September 7, 2022 City Commission discussion on the draft “Water and Wastewater Utility System Connection Fee Study” and “Municipal Impact Fee Study” and **(2)** to review the Police & Fire Impact Fees Study. The studies were prepared by Raftelis Financial Consultants “Raftelis” for the city’s connection and impact fees.

Background

Impact fees are collected from builders or developers for new construction to help pay for increased infrastructure demands created by the new growth. The City of Ormond Beach has assessed impact fees for water and sewer since 1974. An impact fee for recreational facilities was added in 1987 and a comprehensive impact fee ordinance was adopted in 1990. The 1990 ordinance included impact fees for the full range of capital facilities (administrative facilities, conservation land, cultural facilities, fire protection, law enforcement, local roads, solid waste, road/drainage maintenance and stormwater).

Impact fees are an important component of the city’s comprehensive planning process and a necessary tool to ensure that new growth pays its fair share of capital improvement costs. The Comprehensive Plan identifies the future growth that is projected to occur, the capital facilities required to serve that growth, and a minimum level-of-service (LOS) standard that will be provided for new development. The city has adopted LOS standards for potable water, sanitary sewer, solid waste, drainage, parks, roads and firefighting, but only collects impact fees for some of these services. The city has adjusted water and sewer impact fees annually based upon increases to the Engineering News Record Construction Cost Index (ENR CCI).

In 1996, the city reviewed its impact fee ordinance and determined that the projected capital improvement needs for the following five years did not warrant collection of

certain fees. The city eliminated impact fees for administrative facilities, conservation land, fire protection, law enforcement, solid waste and road/drainage maintenance. The cultural facilities impact fee was not eliminated, but reduced to \$0 because of potential conflicts with the adopted Comprehensive Plan.

In 2009, the City of Ormond Beach was designated as a Dense Urban Land Area requiring the city to adopt a financially feasible multimodal strategy. The city adopted the Mobility Strategy and 2025 Comprehensive Plan amendments in 2010. The mobility fee replaced concurrency and the imposition of city road impact fees on certain state roads in Transportation Concurrency Exception Areas (TCEA). Elsewhere, the city's road impact fee applies. An amendment to Section 1-27 of the Land Development Code was adopted per Ordinance No. 2015-44 to allow the City Commission to approve impact fee credit agreements that prevent credits from declining ten (10%) percent yearly over ten (10) years after the final inspection date of the demolition for land with building improvements.

On May 18, 2021, the City Commission authorized Resolution 2021-86 to accept a bid proposal from Raftelis for an impact fee study update to review and amend the water, sewer, park & recreation, stormwater, local road and mobility fees. The scope-of-work also provided a task for a feasibility analysis to add fire and police impact fees and make a recommendation if these fees should be pursued with a separate work authorization. The total fee for the impact fee study is \$99,445. On October 5, 2022, the City Commission authorized Resolution 2022-121 that authorized \$31,555 for the development of Police and Fire impact fees by Raftelis.

Impact fees and connection fees for residential uses are measured based on residential units. Water and sewer connection fees for non-residential uses are based on the number of fixtures (sinks, toilets, hose bibs). The road impact fee and mobility fee are based upon the use. Park and Recreation impact fees are assessed only for residential uses. The city's current impact fee regulations allow impact fee credits for a period of ten years and decrease the credit 10% each year after the final inspection date of the demolition. The city has amended the impact fee regulation to preserve impact fee credits by action of the City Commission. One discussion/direction point listed below is whether to remove the provision that the impact fee credits expire.

September 7, 2022 discussion item:

The City Commission discussion item from September 7, 2022 provided the following policy direction as detailed in Exhibit 1:

EXHIBIT 1: Summary of fees discussion/direction points

#	Area	Discussion/Direction Point
1.	Overall	<u>Direction requested:</u> Current regulations decrease impact fee credits for demolished buildings by 10% per year until all the impact fee credits expired. The "Municipal Impact Fee Study" recommends no expiration of impact fee credits. <u>City Commission direction:</u> The City Commission was

		supportive of elimination of the impact fee expiration.
2.	Parks & Recreation	<u>Direction requested:</u> Should the maximum supportable fee be assessed or cap the increase at 50% of the maximum supportable fee considering comparability with neighboring jurisdictions? <u>City Commission direction:</u> The City Commission was supportive of the maximum supportable fee.
3.	Parks & Recreation	<u>Direction requested:</u> Should the impact fee increase be increased over a two-year or multi-year period or a one-time increase? <u>City Commission direction:</u> The City Commission was supportive of a one-time increase, but would like to see the revenue projections prior to deciding.
4.	Stormwater	<u>Direction requested:</u> Recommendation to eliminate the stormwater impact fee. <u>City Commission direction:</u> The City Commission was supportive of the elimination of the stormwater impact fee.
5.	Local Roads	<u>Direction requested:</u> Should the impact fee increase be increased over a two-year or longer period or a one-time increase? <u>City Commission direction:</u> The City Commission agreed to a one-time increase. The City Commission expressed concern about the fast-food and convenience store impact fee increases.
6.	Mobility Fee	<u>Direction requested:</u> Should the impact fee increase be increased over a two-year or multi-year period or a one-time increase? <u>City Commission direction:</u> The City Commission agreed to a one-time increase. The City Commission expressed concern about the fast-food and convenience store increases.
7.	Police	<u>Direction requested:</u> Should an additional work authorization be approved (separate Resolution presented to the City Commission) to create a police impact fee. <u>City Commission direction:</u> The City Commission agreed to approve an authorization to create a police impact fee.
8.	Fire	<u>Direction requested:</u> Should an additional work authorization be approved (separate Resolution presented to the City Commission) to create a fire impact fee. <u>City Commission direction:</u> The City Commission agreed to approve an authorization to create a fire impact fee.

Discussion

Follow up items to the September 7, 2022 City Commission discussion item:

1. Impact fee credits: At the September 7th City Commission discussion item, the City Commission was supportive of the elimination in the loss of impact fee credits at a rate of 10% per year. Staff is interested to determine if the impact fee credit revision should occur now (could be completed by May 2, 2023) versus the fall of 2023. There are redevelopment projects such as the Ormond Beach Holdings hotel project that would be affected.
2. Recreation Impact Fees: At the September 7th City Commission discussion item there were comments regarding seeing the revenue generation options with the (1) maximum supportable fee, (2) 50% of the supportable fee, and (3) a two-year implementation of either proposed option. The options were applied to the last five calendar years of residential permitting. The chart below details the park and recreation with the following options:

EXHIBIT 2: Park & Recreation impact fee options

Residential Type	Existing Park & Recreation Fee	Proposed Park & Recreation Fee, Maximum Supportable Fee - Year 1 of 2 Year Implementation	Proposed Park & Recreation Fee, Maximum Supportable Fee, Final Fee	Proposed Park & Recreation Fee, 50% Maximum Supportable Fee - Year 1 of 2 Year Implementation	Proposed Park & Recreation Fee, 50% of Maximum Supportable Fee, Final Fee
Single-Family	\$1,312.24	\$1,906.12	\$2,500.00	\$1,640.12	\$1,968.00
Multi-Family	\$1,048.42	\$1,534.71	\$2,021.00	\$1,310.21	\$1,572.00
Mobile Home	\$785.74	\$1,221.87	\$1,658.00	\$981.87	\$1,178.00

EXHIBIT 3: Impact fee projections based on fee options

Year	Single-Family Permits	Multi-Family Permits	Mobile Homes Permits	Existing	Maximum Supportable Fee		50% of Maximum Supportable Fee	
					Year One	Year Two or Final One Year Amount	Year One	Year Two or Final One Year Amount
NA	NA	NA	NA	\$1,312	\$1,906	\$2,500	\$1,640	\$1,968
2018	66	43	0	\$131,690	\$191,796	\$251,903	\$164,587	\$197,484
2019	49	41	0	\$107,285	\$156,323	\$205,361	\$134,084	\$160,884
2020	134	4	7	\$185,534	\$270,112	\$354,690	\$231,890	\$278,246
2021	135	18	7	\$201,524	\$293,504	\$385,484	\$251,873	\$302,222
2022	47	54	18	\$132,433	\$194,456	\$256,478	\$165,511	\$198,588
TOTAL	431	160	32	\$758,466	\$1,106,191	\$1,453,916	\$947,945	\$1,137,424

At the September 7, 2022 meeting, it was stated that the City Commission was supportive of the maximum supportable fee. Staff is seeking verification that the desired fee is a maximum supportable fee and if the fee should be implemented in one year or two years.

3. Local Road impact fee: At the September 7, 2022 meeting there was discussion regarding the increase of the local road impact fee, especially with the fast-food and convenience store fees. The table below displays a review of other jurisdictions.

EXHIBIT 4: Local Road impact fee comparison with other jurisdictions

City	Single Family Dwelling Unit	Multi-family Dwelling Unit	Medical office Per 1,000 SF	Retail Per 1,000 SF (10,000-99,999 SF)	Industrial Per 1,000 SF	Fast Food Per 1,000 SF	Convenience Store Per 1,000 SF
Ormond Beach (current)	\$162.61	\$162.61	\$1,014.31	\$834.64	\$100.07	\$881.26	\$834.64
Ormond Beach (proposed)	\$864.59	\$548.32	\$3,434.79	\$3,736.72	\$450.23	\$25,155.10 (study) \$5,593.44 (restaurant)	\$26,948.94 (study) \$3,736.72 (retail)
Daytona Beach	\$380.00 (2,000-2,999 SF)	\$247.00	\$405.00	\$977.00	\$255.00	\$977.00	\$977.00
Deltona	\$1,044.00	\$888.00	\$1,530.00	\$2,075.00	\$1,308.00	\$14,461.00	\$6,968.00
Edgewater	\$1,737.34	\$1,001.28 (3+ story)	\$7,149.02	\$6,556.00	\$1,120.48	\$15,594.34	\$23,613.52
New Smyrna Beach	\$1,752.00	\$632.00 (3+ story)	\$4,762.00	\$2,080.00	\$519.00	\$15,413.00	\$7,814.00
Palm Coast	\$3,139.00	\$1,809.00	\$3,798.00	\$6,936.00	\$1,773.00	\$20,780.00	\$23,830.00
Port Orange	\$902.00	\$665.00	\$2,573.00	\$1,415.00	\$657.00	\$9,939.00	\$5,801.00

An option for the fast-food local road impact is to assess the restaurant's local road impact fee. The existing impact fee schedule does not include a separate fast-food with drive thru local road impact fee. An option for the convenience store fee would be to assess the retail impact fee.

4. Mobility Fee: The city adopted Multi-Modal Strategies including mobility fees with TCEA. The roadways where the mobility fees are assessed include State Road SR 40 (SR A1A to Williamson Boulevard), U.S. Highway 1 (Wilmette Avenue to the southern City limit) and SR A1A (SR 40 to the southern City limit) and are along Votran's eastside route network. In these areas, proportionate fair share contributions are replaced with a mobility fee based on a per trip basis. The city developed and adopted a multi-modal strategy for these corridors and applied the mobility fee instead of the local road impact fee. Section 1-27 of the Land Development Code contains the mobility fee calculation and it includes a fee based on per person trips. The original analysis in the adoption calculated a per person trip fee of \$77.82. The per person trip rate fee in 2011 was reduced to \$16.00 in response to economic conditions to allow redevelopment in these corridors.

The consultant's analysis determined a per person trip fee of \$85.67. Policy direction is needed to determine the appropriate fee that should be assessed within the Transportation Concurrency Exception Areas. Assessing the full mobility fee would be a substantial increase. Options for the mobility fee per person trip assessment have been provided below.

EXHIBIT 5: Mobility fee options

Type of Fee	Single Family Dwelling Unit	Multi-family Dwelling Unit	Medical office Per 1,000 SF	Retail Per 1,000 SF	Industrial Per 1,000 SF	Restaurant Per 1,000 SF
Ormond Beach Local Road (proposed)	\$864.59	\$548.32	\$3,434.79	\$3,736.72	\$450.23	\$5,559.09
Ormond Beach Mobility Fee (current)	\$240.00	\$130.56	\$751.68	\$628.64	\$107.14	\$1,507.70
Option 1 - Proposed full mobility fee (\$85.67)	\$1,285.05	\$699.07	\$4,024.78	\$3,365.98	\$573.65	\$8,072.79
Option 2 - Proposed mobility fee (\$59.00) - 69%	\$870.00	\$481.44	\$2,771.82	\$2,318.12	\$395.06	\$5,559.64
Option 3 - Proposed mobility fee (\$42.84) - 50%	\$642.60	\$349.57	\$2,012.62	\$1,683.19	\$286.86	\$4,036.86
Option 4 - Proposed mobility fee (\$32.00) - 37%	\$480.00	\$261.12	\$1,503.36	\$1,257.28	\$214.27	\$3,015.40
Option 5 - Proposed mobility fee (\$24.00) - 28%	\$360.00	\$195.84	\$1,127.52	\$942.96	\$160.70	\$2,261.55

The options include a percentage of the full mobility fee, starting at \$59.00 per person trip (69% of the full mobility fee) to \$24.00 per person trip (28% of the full mobility fee). The City Commission can select one of these options or determine another option for implementation. The selected per person trip must apply to all the use types equally.

Police and Fire Impact Fee Analysis

At the September 7, 2022 City Commission discussion item, the consultant presented a feasibility analysis and recommended the development of police and fire impact fees. An additional work authorization was approved to develop the data and analysis for the police and fire impact fees. Raftelis provided the Police & Fire Impact Fees Study dated January 27, 2023. The study discussed:

1. Level of Service;
2. Existing and Future Investment;
3. Calculation Methodology;
4. Proposed Impact Fees; and
5. Comparison with other jurisdictions.

The study recommended the following impact fee schedule:

EXHIBIT 6: Proposed Police and Fire Impact Fees

Description	Impact Fee Unit	Proposed Police Impact Fee	Proposed Fire Impact Fee
Single-Family	Dwelling Unit	\$240.00	\$292.00
Multi-Family	Dwelling Unit	\$198.00	\$262.00
Mobile Home	Dwelling Unit	\$166.00	\$240.00
Industrial/Warehousing	Per Square Foot	\$0.015	\$0.019
Institutional	Per Square Foot	\$0.249	\$0.320
Hotel/Motel	Per Room	\$130.00	\$167.00
Office	Per Square Foot	\$0.191	\$0.245
Retail	Per Square Foot	\$0.336	\$0.432

Cumulative connection and impact fee changes:

Exhibit 7 shows the proposed connection and impact fee changes on a single-family residential home:

EXHIBIT 7: Connection and impact fee changes, Single-Family Residential

Fee	Existing	Proposed	Change
Water	\$2,902.00	\$2,333.00	-\$569.00
Sewer	\$2,829.00	\$3,577.00	\$748.00
Local Road	\$162.61	\$864.59	\$701.98
Park & Recreation	\$1,132.00	\$2,500.00	\$1,188.00
Police	\$0.00	\$240.00	\$240.00
Fire	\$0.00	\$292.00	\$292.00
Stormwater	\$119.39	\$0.00	-119.39
Total	\$7,325.00	\$9,806.59	\$2,481.49
	Increase in fees:	\$2,481.59	

The following exhibit shows the tentative impact fee update schedule:

EXHIBIT 8: Tentative Impact Fee Update Schedule

Tentative Date	Meeting
March 9, 2023	Planning Board discussion item
Week of March 20, 2023	1st public meeting - extraordinary circumstances public meeting (state statute)
Week of March 27, 2023	2nd public meeting - extraordinary circumstances public meeting (state statute)
April 13, 2023	Planning Board meeting - Impact Fee Ordinance (LDC portion)
May 16, 2023	City Commission (1st) - Impact Fee Ordinance
June 6, 2023	City Commission (2nd) - Impact Fee Ordinance
September 4, 2023	Effective date of Impact Fee Ordinance

Budget Impact

Impact fees are a key component of the City's capital infrastructure that is budgeted within the Capital Improvement Program. Capital projects are reflected in the Comprehensive Plan in the Capital Improvement Elements. Impact fees assist the City in maintaining adopted LOS and providing capacity to provide service to new growth as established in the Comprehensive Plan. Impact fees are assessed on new development to fund capital projects needed based on the additional demands from new development. Impact fees are not used for operating expenses or recurring maintenance.

Citizen Impact

There is an expectation that new construction should pay for the costs associated with its infrastructure impact. The impact fee study update would provide an update to establish impact fees based on the infrastructure impacts of new development.

Recommendation

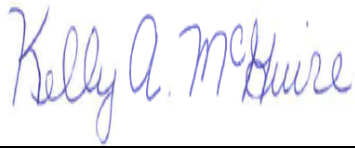
The following policies are sought for City Commission direction:

1. Should the impact fee credit revision occur now (could be completed by May 2, 2023) versus the fall of 2023.
2. Staff is seeking verification that the desired park and recreation impact fee is the maximum supportable fee and if the fee should be implemented in one year or two years.
3. Should the local road impact fee schedule include fast food drive-thru restaurants in the restaurant fee category?
4. Should the local road impact fee schedule include convenience stores in the retail fee category?
5. What mobility fee per person trip mobility fee should be assessed?
6. Any comments/concerns on the new analysis presented for police and fire impact fees?

Attachments:

1. Summary & Police and Fire Impact Fee Study - Workshop Presentation
2. 09.07.2022, City Commission discussion item packet information
3. Police & Fire Impact Fee Study Report - Draft 1

Approvals:



Kelly McGuire, Finance Director

Date: February 14, 2023



Claire Whitley, Assistant City Manager

Date: February 16, 2023



Joyce Shanahan, City Manager

Date: February 16, 2023

CITY OF Ormond Beach

Connection and Impact Fee Summary and
Police & Fire Impact Fee Study



Agenda

- Study background
- Connection fee background
- Impact fee background
 - › Impact fee considerations and criteria
- Recap prior presentation and decision points
- Review police and fire impact fee analyses
- Questions and answers



Study Background

- Utility connection fee and municipal impact fee study was initiated in June of 2021
- Study scope included the following tasks
 - › Review and update of water and wastewater utility connection fees
 - › Review and update recreation, stormwater, and transportation impact fees
 - › Conduct feasibility analysis regarding potential implementation of police and fire impact fees
- Collaborative process with City Staff to develop analysis and recommendations
- Recommendations presented in September of 2022



Connection Fee Background

- Utility connection fees
 - Fees charged to new growth and redevelopment
 - Purpose of connection fees are to assign, to the extent practical, growth-related capital costs to new development responsible for such additional costs
 - Avoids passing growth-related costs from burdening existing users



Impact Fee Background

- Municipal impact fees
 - › Fees are paid by new development and expansions that results in an increased demand for services
 - › Fees are used to pay for growth-related facilities



Legal Considerations and Criteria

The basis for impact fees and related criteria have been developed under Florida Statutes and case law

Florida Impact Fee Act History

- Florida Legislature created section 163.31801 of the Florida Statutes governing impact fees
- Created June 14, 2006
- Amended 2009, 2011, 2019, and most recently in 2021



Legal Considerations and Criteria

Florida Impact Fee Act

- Requires the calculation of impact fees to be based on the most recent and localized data
- Provides for accounting and reporting of impact fee revenues and expenditures in a separate fund
- Limits administrative charges for the collection of impact fees to actual costs
- Requires 90 days notice before imposing a new or increased fee
- Annual affidavit on compliance signed by the city
- Government has the burden of proof in any challenge of an impact fee
- Cannot be charged before issuance of building permit
- Statute also provides rules regarding fee increases, phasing-in of proposed fees, fee maximums, and frequency of fee adjustments



Legal Considerations and Criteria

- Dual rational nexus (based on cost of capacity to serve new growth)
- Impact fees must be based on the capital cost requirements anticipated for providing service to new development
- Impact fees must be based upon reasonable level of service standards that meet the needs of the City
- Impact fees cannot be used to fund deficiencies in capital needs of the city or pay for any operating costs



Prior Presentation and Decision Points

- Existing and proposed utility connection fees

Description	Proposed ELU Factor	Existing Fees	Proposed Fees	Increase / (Decrease)
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Residential Water / Irrigation Connection Fees

Single Family per Unit	1.0	\$2,902.00	\$2,333.00	(\$569.00)
Multi-Family per Unit	0.80 (was 0.50)	\$1,451.00	\$1,866.00	\$415.00
Mobile Home per Unit	0.90 (was 0.60)	\$1,741.20	\$2,099.00	\$358.00

Residential Wastewater Connection Fees

Single Family per Unit	1.0	\$2,829.00	\$3,577.00	\$748.00
Multi-Family per Unit	0.80 (was 0.50)	\$1,414.00	\$2,861.00	\$1,447.00
Mobile Home per Unit	0.90 (was 0.60)	\$1,697.40	\$3,219.00	\$1,522.00

- New non-residential utility customers charged based on an ELU factor based on a fixture count



Prior Presentation and Decision Points

- Utility connection fee study recommendations
 - › The City should consider adopting the proposed water and wastewater utility connection fees
 - › The City should review the utility connection fees periodically
 - › The City should consider the creation of two service area districts / zones with one being for the existing City service area and one being for the Western Service Area
 - Apply proposed fees outlined in this presentation to both districts until a specific connection fee analysis for the Western Service Area can be completed
 - › Modification of ELU factors: Multifamily from 0.50 to 0.80 and mobile home from 0.60 to 0.90
 - Based on analysis of City customer billing data and existing fee relationships



Prior Presentation and Decision Points

- Impact Fee Expiration
 - › Current regulations decrease impact fee credits for demolished buildings by 10% per year until all the impact fee credits expired. The “Municipal Impact Fee Study” recommends no expiration of impact fee credits.
 - › The City Commission was supportive of elimination of the impact fee expiration
 - › **Should the impact fee credit revision should occur now (could be completed by May 2, 2003) versus the fall of 2023**



Prior Presentation and Decision Points

- Existing and proposed parks and recreation impact fees

Description	Existing Fees	Maximum Supportable Fees	50% Increase Proposed Fees	Increase / (Decrease)
Single Family per Unit	\$1,312.24	\$2,500.00	\$1,968.00	\$655.76
Multi-Family per Unit	\$1,048.42	\$2,021.00	\$1,572.00	\$449.00
Mobile Home per Unit	\$785.74	\$1,658.00	\$1,178.00	\$392.26

- **Decision Points:**

- › Propose fee increase through extraordinary circumstance provisions in impact fee statutes
- › Should maximum supportable fee be assessed or cap increase at 50% of maximum supportable fee considering comparability with neighboring jurisdictions?
- › Should the impact fee increase be increased over a two-year period or a one-time increase?



Prior Presentation and Decision Points

- Park and Recreation Impact Fees
 - › The City Commission was supportive of maximum supportable fee.
 - › The City Commission was supportive of a one-time increase, but would like to see the revenue prior to deciding.

Park and Recreation Impact Fees Options and Revenue Generation

Year	Single-Family Permits	Multi-Family Permits	Mobile Homes Permits	Existing	Maximum Supportable Fee		50% of Maximum Supportable Fee	
					Year One	Year Two or Final One Year Amount	Year One	Year Two or Final One Year Amount
NA	NA	NA	NA	\$1,312	\$1,906	\$2,500	\$1,640	\$1,968
2018	66	43	0	\$131,690	\$191,796	\$251,903	\$164,587	\$197,484
2019	49	41	0	\$107,285	\$156,323	\$205,361	\$134,084	\$160,884
2020	134	4	7	\$185,534	\$270,112	\$354,690	\$231,890	\$278,246
2021	135	18	7	\$201,524	\$293,504	\$385,484	\$251,873	\$302,222
2022	47	54	18	\$132,433	\$194,456	\$256,478	\$165,511	\$198,588
TOTAL	431	160	32	\$758,466	\$1,106,191	\$1,453,916	\$947,945	\$1,137,424

Prior Presentation and Decision Points

- Stormwater impact fee overview and recommendations
 - › The City currently charges a stormwater drainage impact fee of \$119.39 per unit
 - › Due to data and other limitations, it is difficult to identify growth related projects and impacts
 - › Could not find any other Florida municipalities that charge stormwater impact fees
 - Most fund needs through recurring fees, grants, general tax revenues, and other sources
 - › Monthly stormwater fees tend to generate more consistent revenue than Impact fees
 - › **Decision Point:** Recommendation to discontinue stormwater impact fees



Prior Presentation and Decision Points

- Existing and proposed local road impact fees

Land Use	Unit	Proposed Fee	Current Fee
Single Family	DU	\$864.59	\$162.61
Multi-Family	DU	\$548.32	\$162.61
Mobile/Manufactured Home	DU	\$740.33	\$162.61
Hotel/Motel	Rooms	\$355.87	\$114.85
General/Government Office	KSF	\$1,709.28	\$230.83
Medical Office	KSF	\$3,434.79	\$1,014.31
Hospital	KSF	\$1,114.66	\$212.64
Nursing Home	Beds	\$268.79	n/a
Industrial	KSF	\$450.23	\$100.07
Warehouse	KSF	\$176.56	\$100.07

Land Use	Unit	Proposed Fee	Current Fee
General Commercial (<40,000)	KSF	\$3,736.72	\$834.64
General Commercial (40,000-150,000)	KSF	\$5,559.09	\$802.81
General Commercial (<150,000)	KSF	\$2,539.87	\$602.67
Fast-Food	KSF	\$25,155.10	n/a
Restaurant	KSF	\$5,593.44	\$881.26
General Recreation	KSF	\$2,996.69	\$59.13
Schools	Students	\$226.79	n/a
Church	KSF	\$790.25	\$150.09
Day Care	KSF	\$4,951.51	\$329.27
Convenience Store	KSF	\$26,948.94	\$1,355.44
Bank	KSF	\$6,782.33	\$1,355.44

- Existing and proposed mobility fee
 - Existing fee - \$16.00 per person trip
 - Proposed fee - \$85.67 per person trip



Prior Presentation and Decision Points

- Local roads and mobility fee decision points
 - › Should the impact fee increase be adopted in the full recommended amount and then applied based on some percentage of the total due to increase amount and comparability?
 - › Should the impact fee and mobility fee increase be increased over a two-year period or a one-time increase?



Prior Presentation and Decision Points

- Local roads decision points
 - › Concern expressed about the fast-food local road impact fee at the September 7, 2022 discussion item. An option for the fast-food local road impact is to assess the restaurant local road impact fee. The existing impact fee schedule does not call a separate fast food with drive thru local road impact fee.
 - › Concern expressed about the convenience store local road impact fee at the September 7, 2022 discussion item. An option for the convenience store fee would be to assess the retail impact fee.



Prior Presentation and Decision Points

- Local roads decision points

Local Road Impact Fee - Other Jurisdictions

City	Single Family Dwelling Unit	Multi-family Dwelling Unit	Medical office Per 1,000 SF	Retail Per 1,000 SF (10,000-99,999 SF)	Industrial Per 1,000 SF	Fast Food Per 1,000 SF	Convenience Store Per 1,000 SF
Ormond Beach (current)	\$162.61	\$162.61	\$1,014.31	\$834.64	\$100.07	\$881.26	\$834.64
Ormond Beach (proposed)	\$864.59	\$548.32	\$3,434.79	\$3,736.72	\$450.23	\$25,155.10 (study) \$5,593.44 (restaurant)	\$26,948.94 (study) \$3,736.72 (retail)
Daytona Beach	\$380.00 (2,000-2,999 SF)	\$247.00	\$405.00	\$977.00	\$255.00	\$977.00	\$977.00
Deltona	\$1,044.00	\$888.00	\$1,530.00	\$2,075.00	\$1,308.00	\$14,461.00	\$6,968.00
Edgewater	\$1,737.34	\$1,001.28 (3+ story)	\$7,149.02	\$6,556.00	\$1,120.48	\$15,594.34	\$23,613.52
New Smyrna Beach	\$1,752.00	\$632.00 (3+ story)	\$4,762.00	\$2,080.00	\$519.00	\$15,413.00	\$7,814.00
Palm Coast	\$3,139.00	\$1,809.00	\$3,798.00	\$6,936.00	\$1,773.00	\$20,780.00	\$23,830.00
Port Orange	\$902.00	\$665.00	\$2,573.00	\$1,415.00	\$657.00	\$9,939.00	\$5,801.00



Prior Presentation and Decision Points

- Mobility fee decision points
 - › The analysis determined a per person trip fee of \$85.67. Policy direction is needed to determine the appropriate fee that should be assessed within the Transportation Concurrency Exception Areas.

Mobility Fee Options						
Type of Fee	Single Family Dwelling Unit	Multi-family Dwelling Unit	Medical office Per 1,000 SF	Retail Per 1,000 SF	Industrial Per 1,000 SF	Restaurant Per 1,000 SF
Ormond Beach Local Road (proposed)	\$864.59	\$548.32	\$3,434.79	\$3,736.72	\$450.23	\$5,559.09
Ormond Beach Mobility Fee (current)	\$240.00	\$130.56	\$751.68	\$628.64	\$107.14	\$1,507.70
Option 1 - Proposed full mobility fee (\$85.67)	\$1,285.05	\$699.07	\$4,024.78	\$3,365.98	\$573.65	\$8,072.79
Option 2 - Proposed mobility fee (\$59.00) - 69%	\$870.00	\$481.44	\$2,771.82	\$2,318.12	\$395.06	\$5,559.64
Option 3 - Proposed mobility fee (\$42.84) - 50%	\$642.60	\$349.57	\$2,012.62	\$1,683.19	\$286.86	\$4,036.86
Option 4 - Proposed mobility fee (\$32.00) - 37%	\$480.00	\$261.12	\$1,503.36	\$1,257.28	\$214.27	\$3,015.40
Option 5 - Proposed mobility fee (\$24.00) - 28%	\$360.00	\$195.84	\$1,127.52	\$942.96	\$160.70	\$2,261.55

Prior Presentation and Decision Points

- Police and fire impact fee feasibility analysis
- The City can provide the necessary data to develop and support police and fire impact fees
- The police and fire departments are generally configured in a manner that would support the charging of an impact fee
- Using an assumed fee level based on a comparison of neighboring municipalities the implementation of a fee would likely benefit the City
- **Decision Point:** It is recommended that the City consider calculating and establishing police and fire impact fees



Police and Fire Impact Fee Analyses



Fee Calculation Methodology

- Identify existing and future investment to serve growth
- Determine the allocation of costs to be recovered from residential and non-residential customer classes
 - › Functional population approach
 - › Call data
- Rate calculated
 - › Per residential dwelling unit (for single family, multi-family, and mobile home)
 - › Per unit of measure for non-residential properties



Functional Population

- Functional population to account for location of population over a 24-hour period
 - › Functional population factors include number of trips generated, average number of people per trip, and time spent on location
- Approach differentiates between major property types / uses and recognizes that demand for services differ by property type / use
 - › Residential – single family vs. multi-family vs. mobile home
 - › Non-residential classes – proposes 5 different land use categories
 - › Based on trip generation and City call data
 - ITE 11th Edition revised trip generation data
 - Call Data for 2021 and 2022



City Service Area Forecast

Existing and Projected Population and Dwelling Units ^[1]			
Year	Total Population	Total Dwelling Units	Average Persons per Household [2]
2020	43,080	18,489	2.33
2021	44,041	18,902	2.33
2022	44,677	19,175	2.33
2025	45,829	19,669	2.33
2030	48,167	20,673	2.33
2040	50,630	21,730	2.33

[1] Future population estimates based on a review of historical population growth as obtained from the US Census Bureau and from projections from the City.

[2] Average persons per household shown is the weighted average between single family at 2.53 persons per unit, multifamily at 2.05 persons per unit, and mobile home at 1.68.



Police Services



Level of Service

- Department provides law enforcement and crime prevention services to the community
- Existing level of service
 - › City currently provides 1.66 officers per 1,000 residents
 - › Total of 94 police personnel
 - 74.0 officers – included in level of service calculation
 - 14 administrative / support staff – not included in level of service calculation

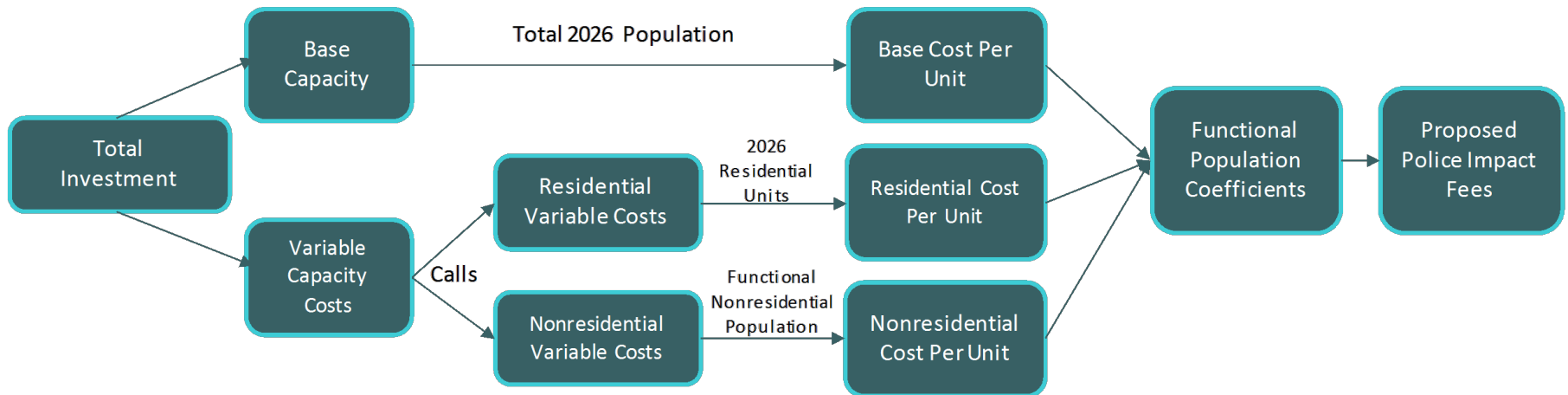


Existing and Future Investment

- Existing investment in department of \$7.25 million
 - › Equipment – \$0.42 million
 - › Vehicles – \$3.19 million
 - › Facilities and Other Capital Equipment – \$3.64 million
- Total planned future investment of \$3.2 million
 - › Projects include vehicles replacements, roof replacement, police impound lot, and others
 - › \$0.28 million recognized to serve growth
- City does not anticipate any grants
- Total costs recognized in fee calculation – \$6.82 million
 - › Equipment costs have been excluded from the fee calculation per impact fee statute



Calculation Methodology

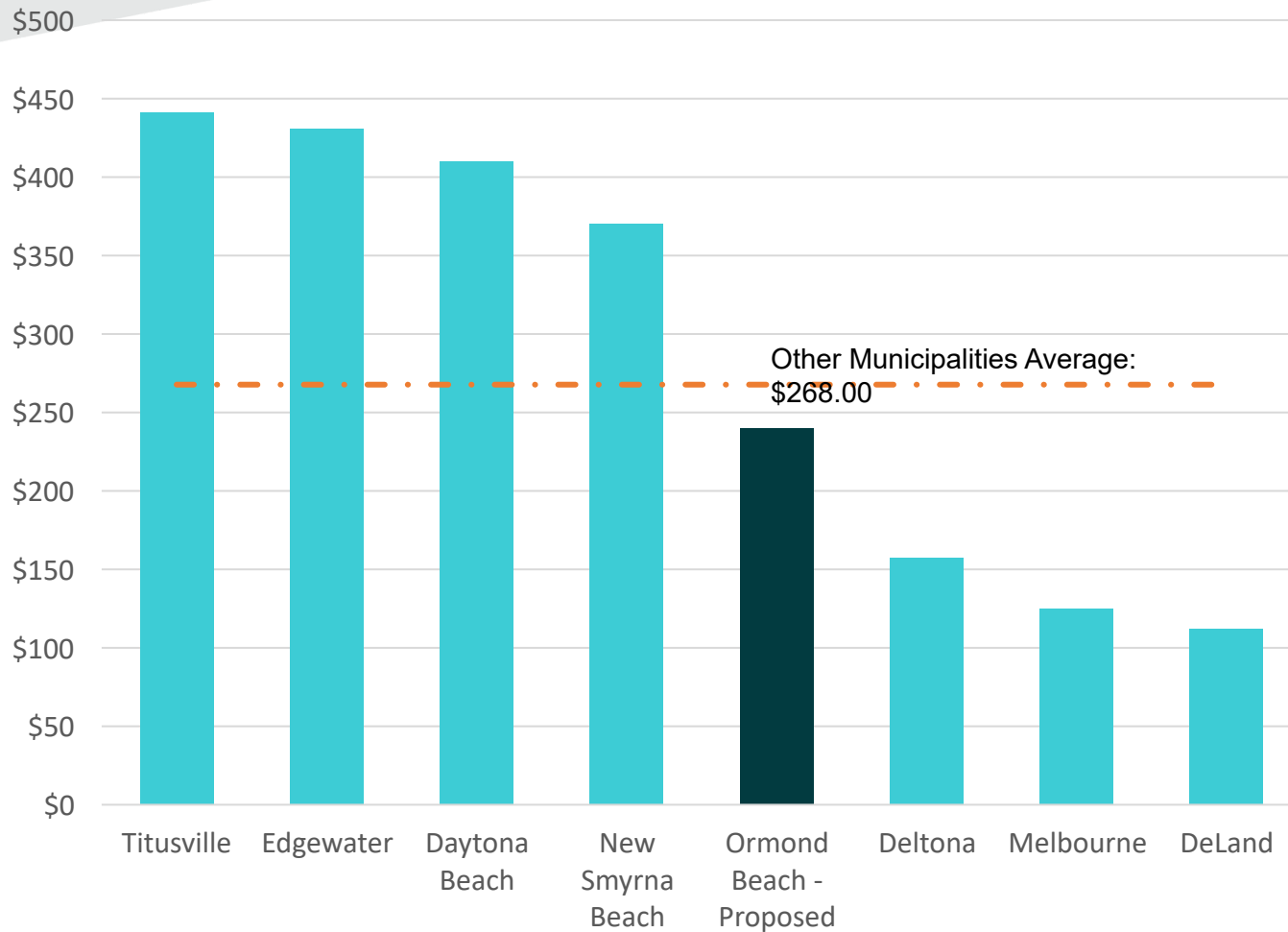


Proposed Police Impact Fees

Description	Impact Fee Unit	Proposed Fee
Residential		
Single Family	Dwelling Unit	\$240.00
Multi-Family	Dwelling Unit	198.00
Mobile Home	Dwelling Unit	166.00
Non-residential		
Industrial / Warehousing	Per Sq. Ft.	\$0.015
Institutional	Per Sq. Ft.	0.249
Hotel / Motel	Per Room	130.00
Office Building	Per Sq. Ft.	0.191
Retail	Per Sq. Ft.	0.336

Should none of the above land uses adequately define a proposed non-residential development as determined by the City Manager, at the Manager's discretion the following average charge per square foot of non-residential development is considered appropriate: \$0.220 per sq. ft.

Police Impact Fee Comparison – Single Family



Fire Protection Services



Level of Service

- Department provides fire suppression and rescue services to the community
- Existing level of service
 - › Response target of four minutes with a one-minute turnout or less
 - › ISO rating of 3/3X
 - › City currently has a total of 48 fire department related personnel
 - 47 primary and 1 support
 - › Response calls – 61.3% residential / 38.7% non-residential

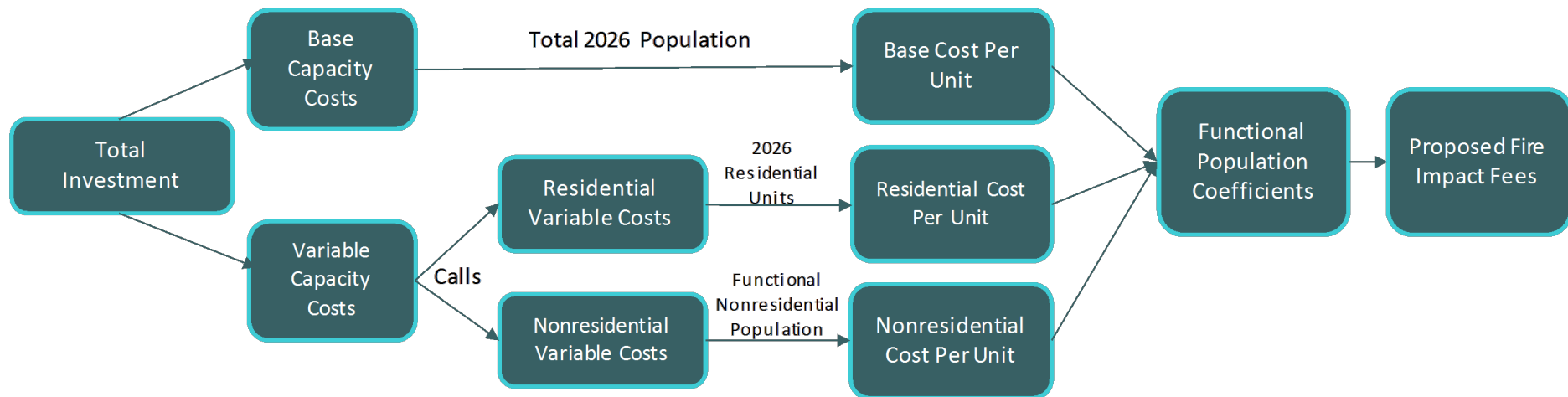


Existing and Future Investment

- Existing investment in department of \$9.0 million
 - › Equipment – \$0.70 million
 - › Vehicles – \$3.23 million
 - › Facilities and Other Capital Equipment – \$5.09 million
- Total planned future investment of \$1.73 million
 - › Projects include new apparatus, generators, station alerting, and others
 - › \$0.68 million recognized to serve growth
- City does not anticipate any grants
- Total costs recognized in fee calculation – \$9.0 million
 - › Equipment costs have been excluded from the fee calculation per impact fee statute



Calculation Methodology

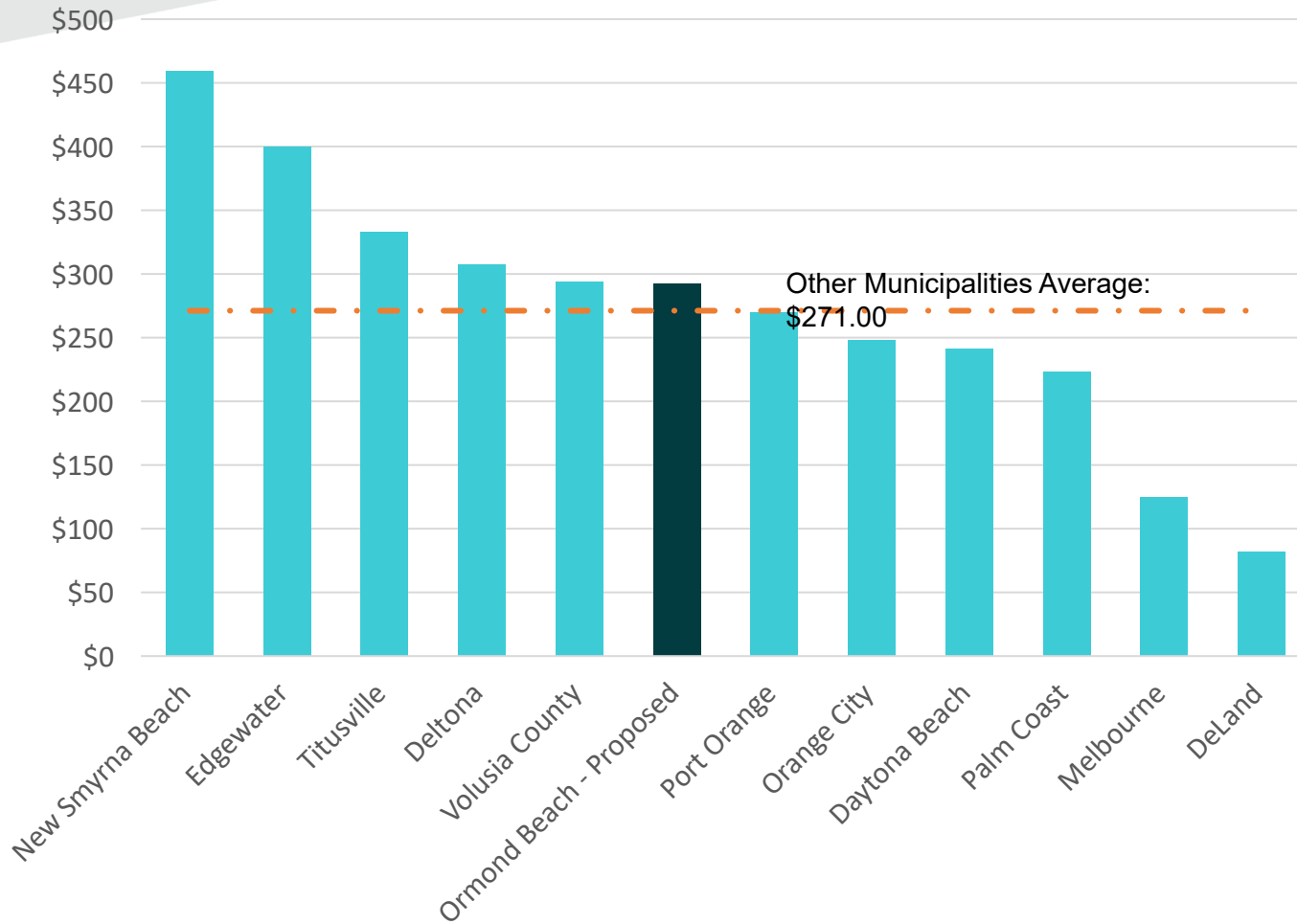


Proposed Fire Impact Fees

Description	Impact Fee Unit	Proposed Fee
Residential		
Single Family	Dwelling Unit	\$292.00
Multi-Family	Dwelling Unit	262.00
Mobile Home	Dwelling Unit	240.00
Non-residential		
Industrial / Warehousing	Per Sq. Ft.	\$0.019
Institutional	Per Sq. Ft.	0.320
Hotel / Motel	Per Room	167.00
Office Building	Per Sq. Ft.	0.245
Retail	Per Sq. Ft.	0.432

Should none of the above land uses adequately define a proposed non-residential development as determined by the City Manager, at the Manager's discretion the following average charge per square foot of non-residential development is considered appropriate: \$0.454 per sq. ft.

Fire Impact Fee Comparison – Single Family



Recommendations

- Adopt proposed police and fire impact fees
- Review fees periodically development trends
 - › Level of service requirements
 - › Capital needs
 - › Major changes in growth projections
- 90 Day grace period from City approval to effective date



Tentative Schedule

Tentative Date	Meeting
March 9, 2023	Planning Board discussion item
Week of March 20, 2023	1st public meeting - Extraordinary circumstances public meeting (state statute)
Week of March 27, 2023	2nd public meeting - Extraordinary circumstances public meeting (state statute)
April 13, 2023	Planning Board -Impact Fee Ordinance (LDC portion)
May 16, 2023	City Commission (1st) - Impact Fee Ordinance
June 6, 2023	City Commission (2nd) - Impact Fee Ordinance
September 4, 2023	Effective date of Impact Fee Ordinance

Policy Direction Sought

1. Should the impact fee credit revision occur now (could be completed by May 2, 2003) versus the fall of 2023.
2. Staff is seeking verification that the desired park and recreation impact fee is the maximum supportable fee and if the fee should be implemented in one year or two years.
3. Should the local road impact fee schedule include drive thru restaurants in the restaurant fee category?
4. Should the local road impact fee schedule include convenience stores in the retail fee category?
5. What mobility fee per person trip mobility fee should be assessed?
6. Any comments/concerns on the new analysis presented for police and fire impact fees.



Q&A



Thank you!

Contact: Anthony Hairston / Shawn Ocasio

407 628 2600 / ahairston@raftelis.com / socasio@raftelis.com

**From September 7, 2022
Discussion Item**

City Commission Minutes

	Commissioner Kent	Yes
	Commissioner Persis	Yes
	Commissioner Littleton	Yes
Carried.	Mayor Partington	Yes

Item #11 – Discussion and Direction Items

Item #11A – Impact Fee Update Study

Mr. Steven Spraker, Planning Director, stated the discussion item was to review the Impact Fee Update study that was previously approved to be conducted. He reviewed the process if the Commission agreed to move forward. He explained where the impact fees would be utilized including growth-related facilities. He stated the first recommendation from the study was for no expiration of impact fee credits.

Mr. Tony Hairston, Raftelis Financial Consultants (Raftelis), reviewed the water and wastewater utility connection fee analysis. He discussed the existing and proposed water and irrigation connection fees as well as the wastewater connection fees and the comparison between the fees with other local municipalities. He explained the study recommended the creation of a Western Service Area.

Commissioner Selby inquired why the water connection fees were going down; whereby, Mr. Hairston stated the recommendation was based on current plans for improvements and funds needed. Commissioner Selby inquired if the city owed a refund to the citizens; whereby, Mr. Hairston stated that was not the case but could be in a few years if the fees were not amended. Commissioner Selby inquired how Raftelis came up with the equivalent living unit (ELU) factors for the multi-family and mobile homes and requested Raftelis and staff provide the calculations that justify the increased ELU factor.

Mr. Hairston reviewed the municipal impact fee analysis and the city service area forecast, parks and recreation impact fee analysis and stormwater impact fee analysis.

Mayor Partington inquired if Raftelis helped other municipalities find extraordinary circumstances; whereby, Mr. Hairston confirmed they had. Mayor Partington asked if there were examples of extraordinary circumstances; whereby, Mr. Hairston stated cost and growth increases.

Commissioner Selby stated he agreed with the stormwater impact fee removal and to start recurring stormwater fees, as the city needed a program to assist with the runoff water.

Commissioner Persis agreed with Commissioner Selby.

Ms. Stephanie Shealey, Kittleson and Associates, reviewed the local roads and mobility fee analysis. She explained there were significant increases to the local road impact fees based on current costs and new calculation methods. She reviewed the comparison of the local road fees with nearby municipalities.

Commissioner Selby inquired if the mobility impact fees were restricted to alternative methods; Ms. Shealey stated the funds could be used for methods, such as trails or parallel facilities. He inquired about the roads the city previously built; whereby, Mr. Spraker stated the extension of Division Avenue, Wilmette Avenue and local roads in the north United States Highway One (U.S.-1) corridor. Commissioner Selby inquired if there were zones related to the mobility and local road impact fees; whereby, Mr. Spraker stated there were no zones and they could be applied city wide.

Commissioner Persis inquired if a trail would be considered a road; whereby, Ms. Shealey stated it would be considered a passing improvement.

Commissioner Littleton inquired if the funds could be utilized for land acquisition; whereby, Mr. Spraker stated if the land was for road capacity improvement then it would be allowed.

Commissioner Selby reviewed the formula and inquired why the number of trips per household were so high; whereby, Ms. Shealey stated the trips included deliveries, garbage trucks, school buses and others.

Mr. Hairston reviewed the police and fire impact fee feasibility analysis and reviewed the comparison between local municipalities. He reviewed the comparison of all proposed fees combined with other local municipalities.

Mr. Spraker noted there were eight discussion points that needed direction.

Mayor Partington suggested they review each point and allow each Commissioner to comment.

The Commission supported the first discussion point of eliminating the penalty for the impact fee credit.

The Commissioners stated they could support the maximum supportable fee with the one time increase for discussion point two, noting they would like to see what the revenue would be.

Mayor Partington stated he could support the 50 percent of the maximum supportable fee over a four-year time frame, noting he would like to see the revenue before deciding on the second discussion point.

The Commission supported discussion point four, eliminating the stormwater impact fee.

Commissioner Selby inquired on discussion point five and six, if the maximum increase was over a period of time or a one time increase; whereby, Mr. Spraker stated it would be a one-time increase.

Ms. Joyce Shanahan, City Manager, explained Volusia County was undergoing an impact fee study as well, noting she did not think the city's rate increase would lead to contractors looking at other municipalities to build within.

Mr. Spraker noted with the proposed local road and mobility fee increases the City of Daytona Beach was the only local municipality at a lower rate.

Commissioner Selby inquired if the city could temporarily suspend the impact fees, if needed, in an emergency situation; whereby, Mr. Spraker stated staff would look into it.

Commissioner Kent expressed his concerns with the increases on the fast food and convenience stores local road impact fees. He stated the impact fees do need to increase but had concerns on multiple local road impact fee items.

Commissioner Littleton inquired what roads would need to be improved; whereby, Mr. Spraker stated the north U.S.-1 corridor had many roads that need improvement.

The Commission agreed on discussion points five and six for a one time increase.

Mr. Spraker explained discussion points seven and eight were for an authorization to create police and fire impact fees.

The Commission agreed to approve an authorization for police and fire impact fees as public safety was very important for new equipment, technology and vehicles.

Item #11 – Reports, Suggestions, Requests

Impact Fees

Ms. Shanahan thanked the Commission for their input and reviewed the process for moving forward.

Commissioner Selby discussed the possible local road fees for various businesses around the city and thanked staff for the creation of the Western Service Area.

Events

Ms. Shanahan informed the Commission of the Commemorative 9/11 event on September 11, 2022 at 8:30 a.m. She explained there were a couple of upcoming public meetings including a Planning Board meeting for Tattersall and neighborhood meetings for self-storage buildings and vacant properties for a hotel and single-family homes. She stated there was an email at their seats from a City of Deltona Commissioner who was starting a First Responder Challenge.

**From September 7, 2022
Discussion Item**

**PowerPoint
Utility Connection fee and
Municipal Impact Fee Study**

CITY OF Ormond Beach

Utility Connection Fee and Municipal Impact Fee Study

Presented – September 7th, 2022



RAFTELIS



Agenda

- Review Water and Wastewater Utility Connection Fee Analysis
- Review Municipal Impact Fee Analysis
- Questions and Answers



Water and Wastewater Utility Connection Fee Analysis



Connection Fee Background

- Purpose of connection fees are to assign, to the extent practical, growth-related capital costs to new development responsible for such additional costs
- Avoids passing growth-related costs from burdening existing users



Major Assumptions

- Water system treatment / production capacity and flow
 - › Permitted capacity of 12.0 MGD ADF
 - › Average Flow – 6.729 MGD
 - › Available capacity for growth – 44%
- Wastewater system treatment capacity and flow
 - › Permitted capacity of 8.0 MGD ADF
 - › Average flow – 4.465 MGD
 - › Available capacity for growth – 44%
- Reclaimed water system treatment capacity and flow
 - › Permitted capacity of 9.98 MGD ADF
 - › Average flow – 3.769 MGD
 - › Available capacity for growth – 62%



Major Assumptions (Cont.)

- Existing Level of service (gallons per day per capita)
 - › Level of service based on review of comprehensive plan / master plan documents, customer usage demands, demographic information
 - › Water – 300 gallons per day per unit
 - 124 gallons per day per capita
 - › Wastewater – 280 gallons per day unit



Major Assumptions (Cont.)

- Existing investment in utility assets - \$251.5 million
 - › \$75.2 Million excluded from fee calculations as misc. equipment, non-backbone distribution and collection lines
- Planned future investment of \$48.2 million
 - › \$21.4 Million recognized in fee calculation
 - › (\$6.8) Million in assumed existing asset retirements
 - › \$14.6 Million net increase in installed infrastructure



Western Service Area

- Avalon Park
- Consider separate service area / district
- Can be completed with separate study once capital costs and density/intensity confirmed



Existing and Proposed Water / Irrigation Connection Fees

Description	Proposed ELU Factor	Existing Fees	Proposed Fees	Increase / (Decrease)
Residential				
Single Family per Unit	1.0	\$2,902.00	\$2,333.00	(\$569.00)
Multi-Family per Unit	0.80 (was 0.50)	\$1,451.00	\$1,866.00	\$415.00
Mobile Home per Unit	0.90 (was 0.60)	\$1,741.20	\$2,099.00	\$358.00

- New non-residential customers charged based on an ELU factor based on a fixture count



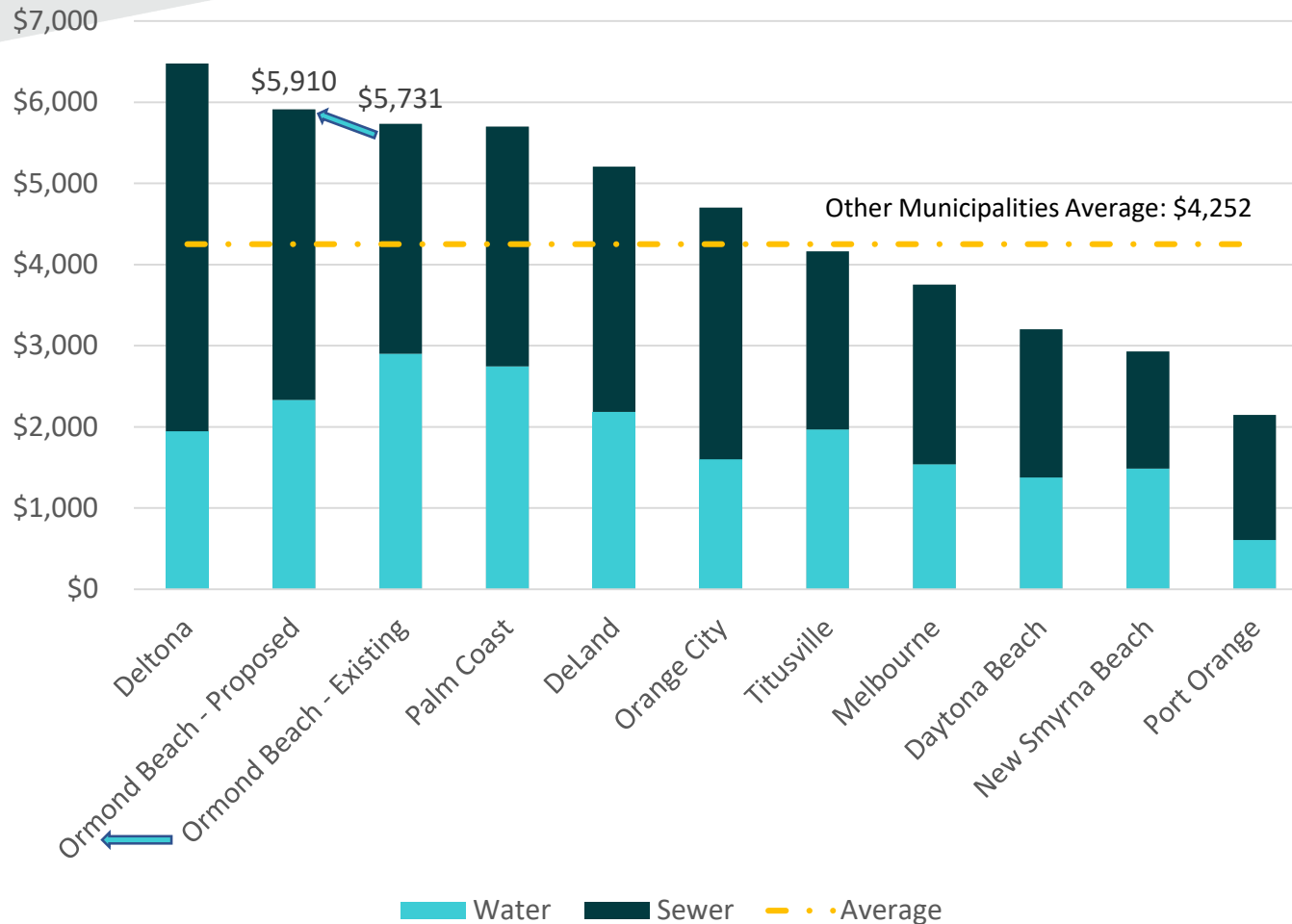
Existing and Proposed Wastewater Connection Fees

Description	Proposed ELU Factor	Existing Fees	Proposed Fees	Increase / (Decrease)
Residential				
Single Family per Unit	1.0	\$2,829.00	\$3,577.00	\$748.00
Multi-Family per Unit	0.80 (was 0.50)	\$1,414.00	\$2,861.00	\$1,447.00
Mobile Home per Unit	0.90 (was 0.60)	\$1,697.40	\$3,219.00	\$1,522.00

- New non-residential customers charged based on an ELU factor based on a fixture count



Water and Wastewater Service Connection Fees Comparison



Recommendations

- The City should consider adopting the proposed water and wastewater utility connection fees
- The City should review the utility connection fees periodically
- The City should consider the creation of two service area districts / zones with one being for the existing City service area and one being for the Western Service Area
 - › Apply proposed fees outlined in this presentation to both districts until a specific connection fee analysis for the Western Service Area can be completed
- Modification of ELU factors: Multifamily from 0.50 to 0.80 and mobile home from 0.60 to 0.90



Municipal Impact Fee Analysis



Purpose and Background

- Provide the basis for proposed development municipal impact fees
 - › Fees are paid by new development and expansions that results in an increased demand
 - › Fees are used to pay for growth-related facilities



Legal Considerations

The basis for impact fees and related criterial have been developed under Florida Statutes and case law

Florida Impact Fee Act History

- Florida Legislature created section 163.31801 of the Florida Statutes governing impact fees
- Created June 14, 2006
- Amended 2009, 2011, 2019, and most recently in 2021



Legal Considerations (Cont.)

Florida Impact Fee Act

- Requires the calculation of impact fees to be based on the most recent and localized data
- Provides for accounting and reporting of impact fee revenues and expenditures in a separate fund
- Limits administrative charges for the collection of impact fees to actual costs
- Requires 90 days notice before imposing a new or increased fee
- Annual affidavit on compliance signed by the city
- Government has the burden of proof in any challenge of an impact fee
- Cannot be charged before issuance of building permit



Legal Considerations (Cont.)

Limitations on Increasing Impact Fees

- An increase not more than 25 percent of the current rate must be implemented in two equal annual increments beginning with the date on which the increased fee is adopted
- An increase that exceeds 25 percent but not more than 50 percent of the current rate must be implemented in four equal installments beginning with the date the increased fee is adopted
- An impact fee increase may not exceed 50 percent of the current impact fee rate
 - › Unless considered an extraordinary circumstance
- An impact fee may not be increased more than once every 4 years



Impact Fee Criteria

- Dual rational nexus (based on cost of capacity to serve new growth)
- Impact fees must be based on the capital cost requirements anticipated for providing service to new development
- Impact fees must be based upon reasonable level of service standards that meet the needs of the City
- Impact fees cannot be used to fund deficiencies in capital needs of the city or pay for any operating costs



Fee Calculation Methodology

- Develop population and unit forecast
- Review levels of service
- Identify existing investment and future projects to serve growth
- Rate calculated per residential dwelling unit (single family, multi-family, and mobile home) for parks and recreation
- Rate calculated for residential and non-residential developments uniquely based on type of customer for transportation



City Service Area Forecast

Existing and Projected Population and Dwelling Units ^[1]			
Year	Total Population	Total Dwelling Units	Average Persons per Household ^[2]
2020	43,080	18,489	2.33
2021	44,041	18,902	2.33
2025	45,829	19,669	2.33
2030	48,167	20,673	2.33
2040	50,630	21,730	2.33

[1] Future population estimates based on a review of historical population growth as obtained from the US Census Bureau and from projections from the City.

[2] Average persons per household shown is the weighted average between single family at 2.53 persons per unit, multifamily at 2.05 persons per unit, and mobile home at 1.68.



Parks and Recreation Impact Fee Analysis



Open Space Level of Service

- Existing level of service – 13.0 acres per 1,000 residents
- City currently has approximately 56 parks with a total of 604.11 acres
- Major parks include:
 - › Central Park I-IV – 152 acres
 - › Ormond Beach Sports Complex – 130 acres
 - › Riverbend Nature Park – 82 acres
 - › Nova Community Park – 64 acres
- Currently City has a surplus of approximately 34.92 total acres based on current level of service requirements
- The City will need to acquire an additional 50.74 acres by 2040 to maintain its level of service



Calculation of Maximum Supportable Impact Fee

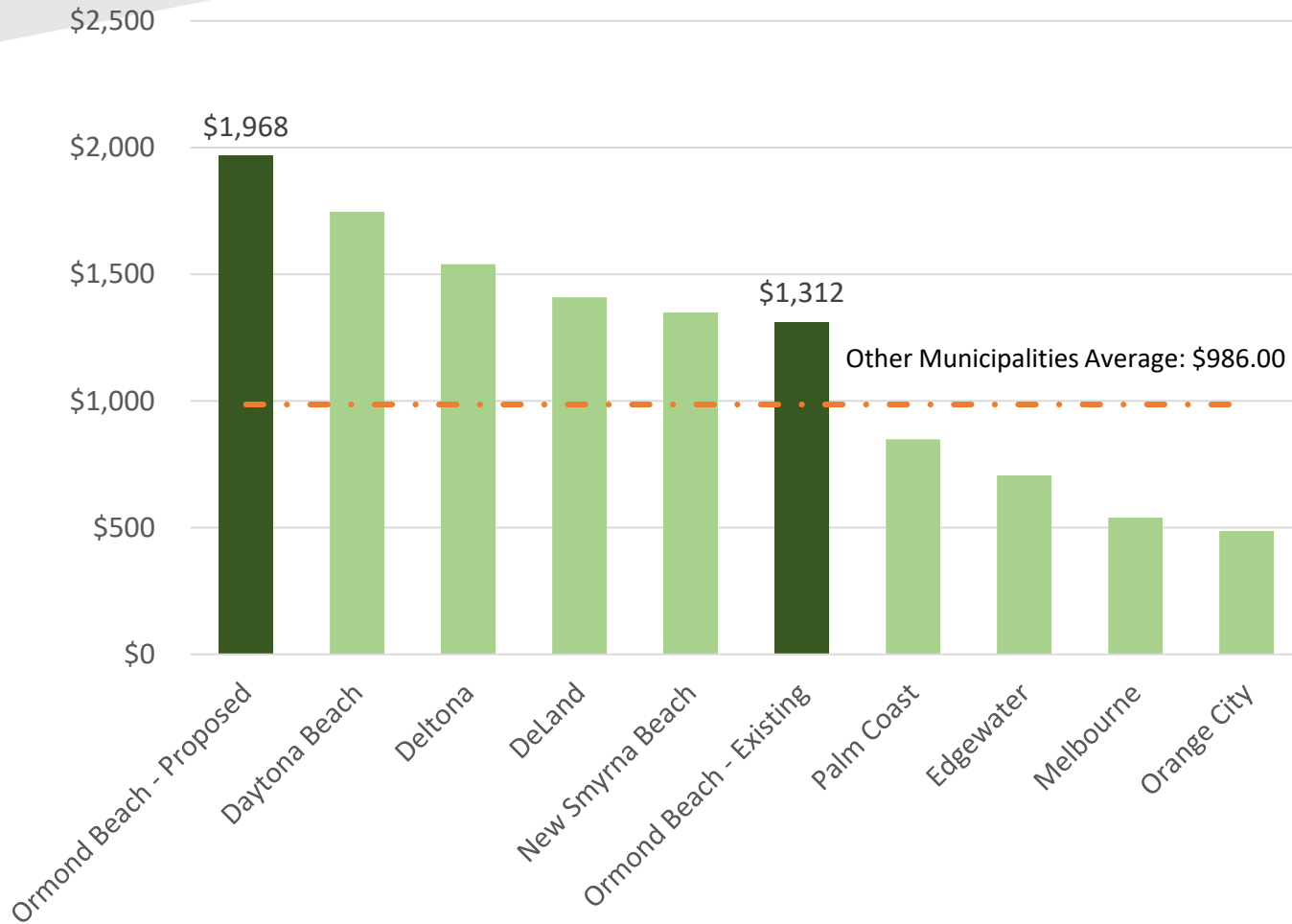
Summary of Capital Costs	
Existing Facilities	\$55,638,123
Future Facilities	<u>4,160,001</u>
Total Cost of Facilities	\$59,798,124
Retirements / Grants	<u>(9,855,920)</u>
Net Facilities Cost	\$49,942,204
Total Projected 2040 Population	<u>50,630</u>
Total Cost Per Person	\$986.41
Residential at 2.53 Persons per Unit	\$2,500.00
Multi-Family at 2.05 Persons per Unit	\$2,021.00
Mobile Home at 1.68 Persons per Unit	\$1,658.00

Existing and Proposed Impact Fees

Description	Existing Fees	Maximum Supportable Fees	50% Increase Proposed Fees	Increase / (Decrease)
Single Family per Unit	\$1,312.24	\$2,500.00	\$1,968.00	\$655.76
Multi-Family per Unit	\$1,048.42	\$2,021.00	\$1,572.00	\$449.00
Mobile Home per Unit	\$785.74	\$1,658.00	\$1,178.00	\$392.26

- Propose fee increase through extraordinary circumstance provisions in impact fee statutes
- Should maximum supportable fee be assessed or cap increase at 50% of maximum supportable fee considering comparability with neighboring jurisdictions?

Parks and Recreation Impact Fee Comparison – Single Family



Parks and Recreation Decision Points

- Should maximum supportable fee for Parks & Recreation be assessed (\$2,500) or cap increase at 50% of maximum supportable fee (\$1,968) considering comparability with neighboring jurisdictions?
- Should the impact fee increase be increased over a two-year period or a one-time increase?



Stormwater Impact Fee Analysis

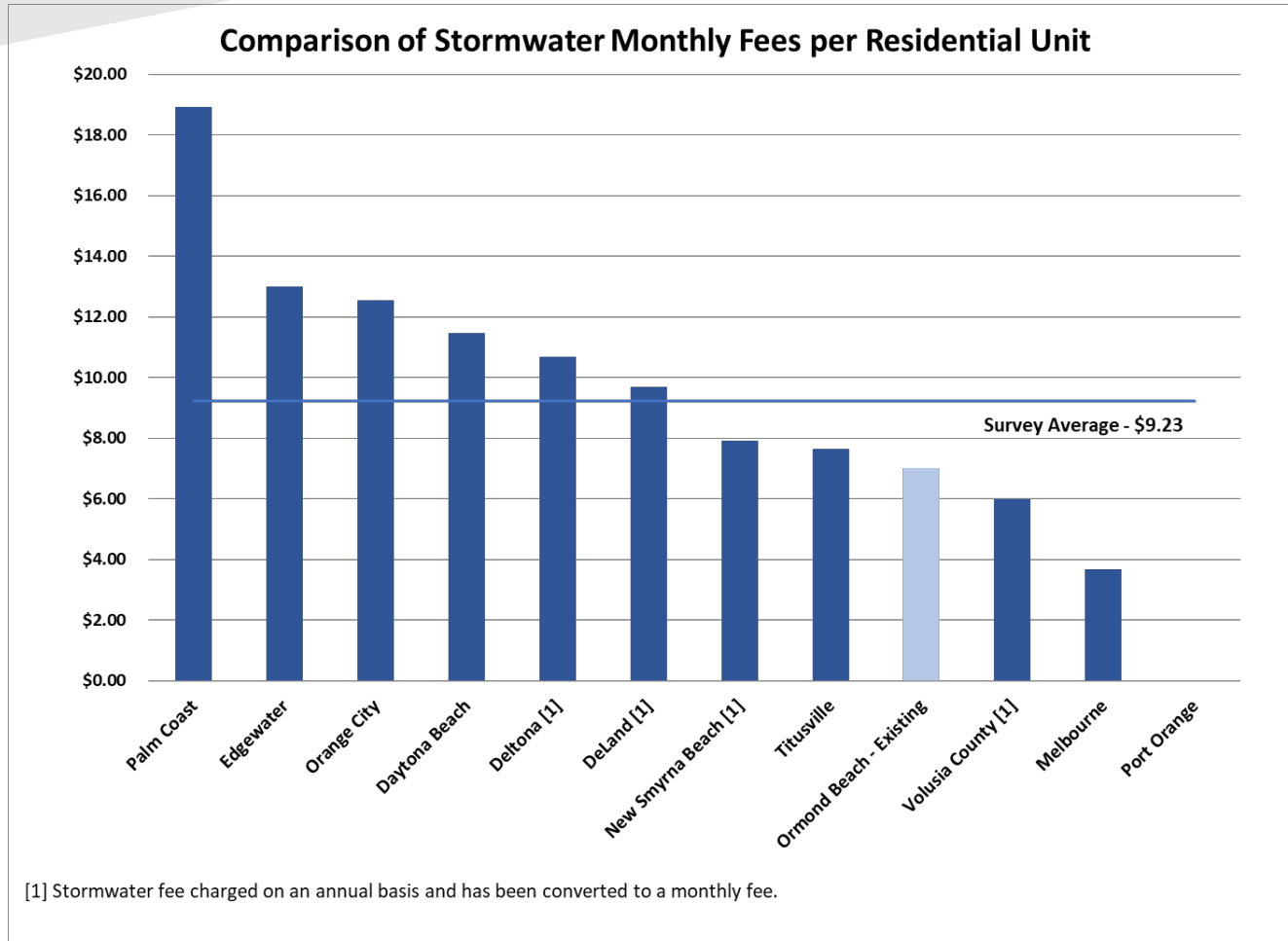


Overview and Recommendations

- The City currently charges a stormwater drainage impact fee of \$119.39 per unit
- Due to data and other limitations, it is difficult to identify growth related projects and impacts
- Could not find any other Florida municipalities that charge stormwater impact fees
 - › Most fund needs through recurring fees, grants, general tax revenues, and other sources
- Monthly stormwater fees tend to generate more consistent revenue than Impact fees
- **Decision Point:** Recommendation to discontinue stormwater impact fees



Recurring Stormwater Fee Comparison



Local Roads and Mobility Fee Analysis



Land Use Changes

- Single-Family Residential
 - › Includes duplexes & townhomes – anything with shared walls, but not shared ceiling/floor
- Warehouse
 - › Mini-warehouse included within warehouse due to similar rates
- Nursing Home
 - › Now based on number of beds rather than square feet
- Commercial
 - › Revised to break intensities at the same places as 11th Edition ITE
 - › <40 KSF; 40-150 KSF; >150 KSF
- Fast Food
 - › Includes coffee/donut shops
 - › Pulled separate from other restaurants due to large differences in trip gen
- CBD Sandwich Shop
 - › Removed as separate use, combined with restaurant
- Local Park
 - › Removed as municipal projects don't pay fees and parks aren't represented by square footages
- School/Church
 - › Broken into 2 categories
 - › Schools now based on number of students
 - › Church still based on area
- Bank
 - › Both bank uses combined into one land use



Demand Data from Model

- Based on trips starting or ending in the City of Ormond Beach
- Total of 312,315 trips per day
- Total of 3,070,798 vehicle miles traveled (VMT)
- Average Total Trip Length = 9.83 miles
- 5.9% of VMT is on City roads
- Assessed Trip Length = $9.83 * 5.9\% = 0.58$ miles



Local Roadway Cost Data

Project	Description	Length	Total Project Cost	Cost Per Lane Mile	Source
SR 40 SR 15/US 17 to SR 11	2-4 Lane	6.376	\$59,007,114	\$4,627,283	River to Sea TIP
SR 40 SR 11 to Cone Rd	2-4 Lane	7.64	\$65,965,724	\$4,317,129	River to Sea TIP
Beresford Ave Blue Lake Ave to MLK Jr. Beltway	New 2 Lane	0.88	\$3,709,304	\$2,116,396	Volusia CIP
Blue Lake Extension Blue Lake to SR 472	New 2 Lane	0.33	\$3,395,594	\$5,119,571	Volusia CIP
Howland Boulevard Providence to Elkcam	2-4 Lane	2.17	\$17,528,420	\$4,038,806	Volusia CIP
Orange Camp Road MLK Blvd to I-4	2-4 Lane	1.51	\$12,760,375	\$4,224,124	Volusia CIP
Williamson Blvd Strickland Range Rd to Hand Ave	2-4 Lane	1.12	\$8,198,000	\$3,659,821	Volusia CIP
Average Cost Per Lane Mile				\$4,073,885	

Roadway Capacity Estimate

Project	Description	Length	Existing Capacity	Proposed Capacity	New Capacity Lane Miles
SR 40 SR 15/US 17 to SR 11	2-4 Lane	6.38	17,700	39,800	140,910
SR 40 SR 11 to Cone Rd	2-4 Lane	7.64	17,700	39,800	168,844
Beresford Ave Blue Lake Ave to MLK Jr. Beltway	New 2 Lane	0.88	0	15,600	13,671
Blue Lake Extension Blue Lake to SR 472	New 2 Lane	0.33	0	15,600	5,173
Howland Boulevard Providence to Elkcarn	2-4 Lane	2.17	15,600	33,800	39,494
Orange Camp Road MLK Blvd to I-4	2-4 Lane	1.51	17,700	39,800	33,380
Williamson Blvd Strickland Range Rd to Hand Ave	2-4 Lane	1.12	17,700	39,800	24,752
Total		20.02			426,224

Gas Tax Credit

- Ormond Beach share of gas tax by 2026: \$0.0045
- 25 year planning horizon
- 365 days/year operation
 - › Conservative estimate – not all land uses operate 365 days/year
- 4.5% municipal bond rate
 - › Estimated from current Daytona Beach municipal bonds
- 18.2 miles/gallon
 - › Average fuel efficiency of vehicles per Federal Highway
- 9.83 mile average trip length
 - › Used since Ormond Beach share is taken in gas tax



Local Road Impact Fee Calculations

$$\text{Total Impact Cost} = \frac{(\text{Daily Trips} * \text{Assessed Trip Length} * \% \text{ New Trips})}{2} * \frac{\text{Lane – Mile Cost}}{\text{Lane Mile Capacity}}$$

$$\text{Capital Improvement Credit} = \frac{\text{Daily Trips} * \text{Avg Trip Length} * \% \text{ New Trips}}{2} * 365 * \frac{\text{Gas Tax}}{\text{Fuel Efficiency}}$$

$$\text{Impact Fee} = \text{Total Impact Cost} - \text{Capital Improvement Credit}$$



Comparison of Existing & Proposed Local Road Impact Fees

Land Use	Unit	Proposed Fee	Current Fee
Single Family	DU	\$864.59	\$162.61
Multi-Family	DU	\$548.32	\$162.61
Mobile/Manufactured Home	DU	\$740.33	\$162.61
Hotel/Motel	Rooms	\$355.87	\$114.85
General/Government Office	KSF	\$1,709.28	\$230.83
Medical Office	KSF	\$3,434.79	\$1,014.31
Hospital	KSF	\$1,114.66	\$212.64
Nursing Home	Beds	\$268.79	n/a
Industrial	KSF	\$450.23	\$100.07
Warehouse	KSF	\$176.56	\$100.07

Land Use	Unit	Proposed Fee	Current Fee
General Commercial (<40,000)	KSF	\$3,736.72	\$834.64
General Commercial (40,000-150,000)	KSF	\$5,559.09	\$802.81
General Commercial (<150,000)	KSF	\$2,539.87	\$602.67
Fast-Food	KSF	\$25,155.10	n/a
Restaurant	KSF	\$5,593.44	\$881.26
General Recreation	KSF	\$2,996.69	\$59.13
Schools	Students	\$226.79	n/a
Church	KSF	\$790.25	\$150.09
Day Care	KSF	\$4,951.51	\$329.27
Convenience Store	KSF	\$26,948.94	\$1,355.44
Bank	KSF	\$6,782.33	\$1,355.44



Mobility Fees

- Based off of the same variables as the local roads impact fee, but calculated on a person-trip basis
- Fee is given in number of person-trips
- Applicants can calculate person-trip generation rates for each land use using the ITE Trip Generation Manual, 11th Edition
 - › Use person-trip rates when available
 - › Use vehicle-trip rates when person-trip rates are not available, using the average vehicle occupancy (1.47)

$$\frac{\text{Total Impact Cost}}{\text{Person-Trip}} = \frac{\text{Assessed Trip Length}}{2 * \text{Vehicle Occupancy}} * \frac{\text{Lane-Mile Cost}}{\text{Lane Mile Capacity}}$$

$$\text{Mobility Fee} = \frac{0.58}{2 * 1.47} * \frac{\$4,073,885}{9,381} = \$85.67 / \text{person - trip}$$

Local Roads and Mobility Fee Decision Point

- Should the impact fee increase be adopted in the full recommended amount and then applied based on some percentage of the total due to increase amount and comparability?
- Should the impact fee and mobility fee increase be increased over a two-year period or a one-time increase?



Police Impact Fee Feasibility Analysis

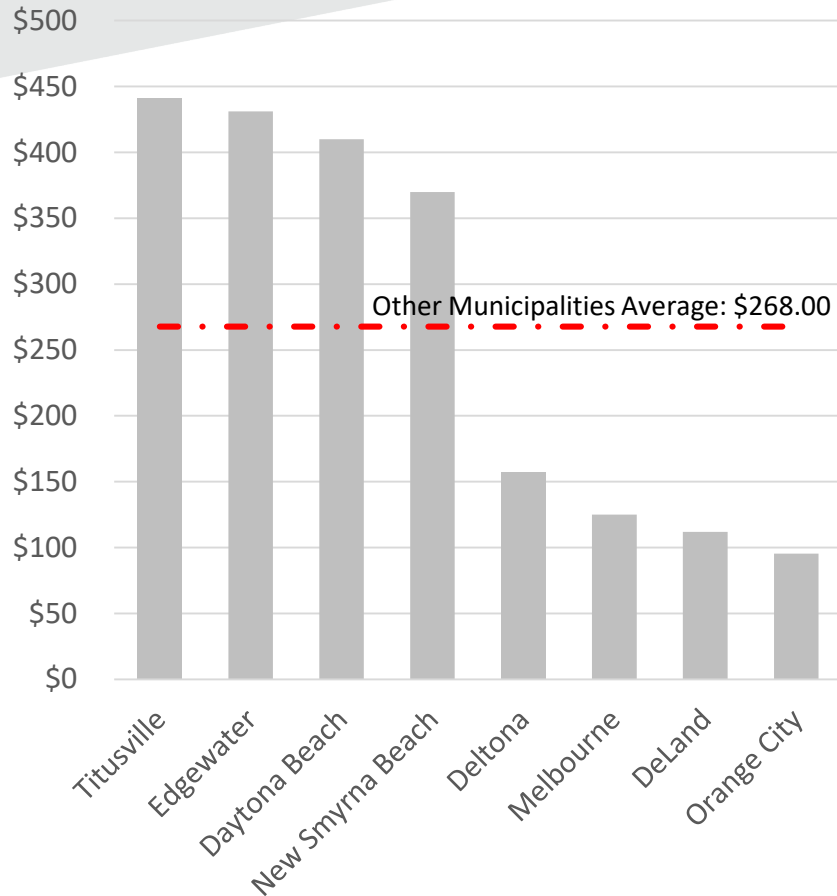


Feasibility Analysis Process

- Request and review the availability of necessary data required to calculate and support potential impact fees
- Review general configuration of the police department
 - › Current staffing and level of service (LOS) goals in officers per 1,000 population
 - Current LOS 1.42 / Funded LOS 1.75 / Target 1.95
 - › Existing & planned investments in department
 - Existing investment of \$6.8 million (before grants)
 - Planned investment of \$2.0 million
- Neighboring jurisdiction fee comparison and high-level estimated potential financial benefit analysis
- Develop Recommendation



Police Impact Fee Comparison & Estimated Financial Benefit Analysis



- Surveyed 11 neighboring communities
 - › 8 charge police impact fees
- Assuming a hypothetical fee of \$250 per residential unit applied to projected residential growth would provide an estimated \$0.8 Million in fees by 2040



Observations and Recommendations

- The City can provide the necessary data to develop and support police impact fees
- The police department is generally configured in a manner that would support the charging of a fee
- Using an assumed fee level based on a comparison of neighboring municipalities the implementation of a fee would likely benefit the City
- **Decision Point:** It is recommended that the City consider calculating and establishing police impact fees



Fire Impact Fee Feasibility Analysis

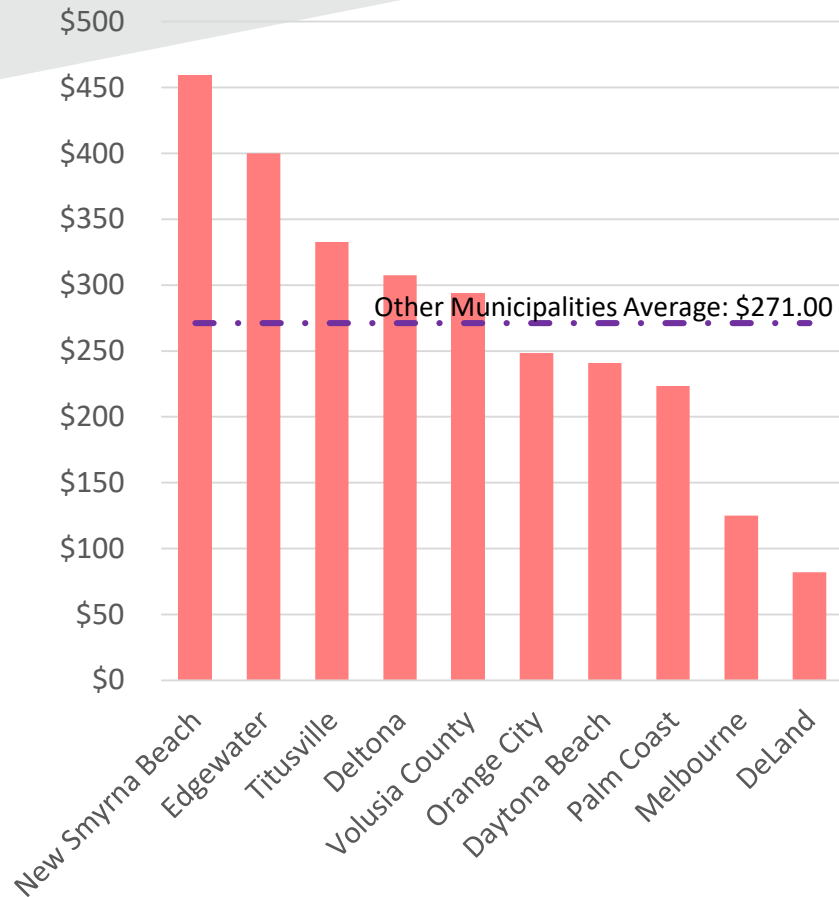


Feasibility Analysis Process

- Request and review the availability of necessary data required to calculate and support potential impact fees
- Review general configuration of the fire department
 - › Current staffing and level of service (LOS) goals in firefighters per 1,000 population and ratings
 - Current LOS 1.07 / ISO Rating 3/3X
 - › Existing & planned investments in department
 - Existing investment of \$8.2 million (before grants)
 - No current planned investments aside from replacements
- Neighboring jurisdiction fee comparison and high-level estimated potential financial benefit analysis
- Develop Recommendation



Fire Impact Fee Comparison & Estimated Financial Benefit Analysis



- Surveyed 11 neighboring communities
 - › 10 charge fire impact fees
- Assuming a hypothetical fee of \$250 per residential unit applied to projected residential growth would provide an estimated \$0.8 Million in fees by 2040



Observations and Recommendations

- The City can provide the necessary data to develop and support fire impact fees
- The fire department is generally configured in a manner that would support the charging of a fee
- Using an assumed fee level based on a comparison of neighboring municipalities the implementation of a fee would likely benefit the City
- **Decision Point:** It is recommended that the City consider calculating and establishing fire impact fees



Summary Results and Recommendations

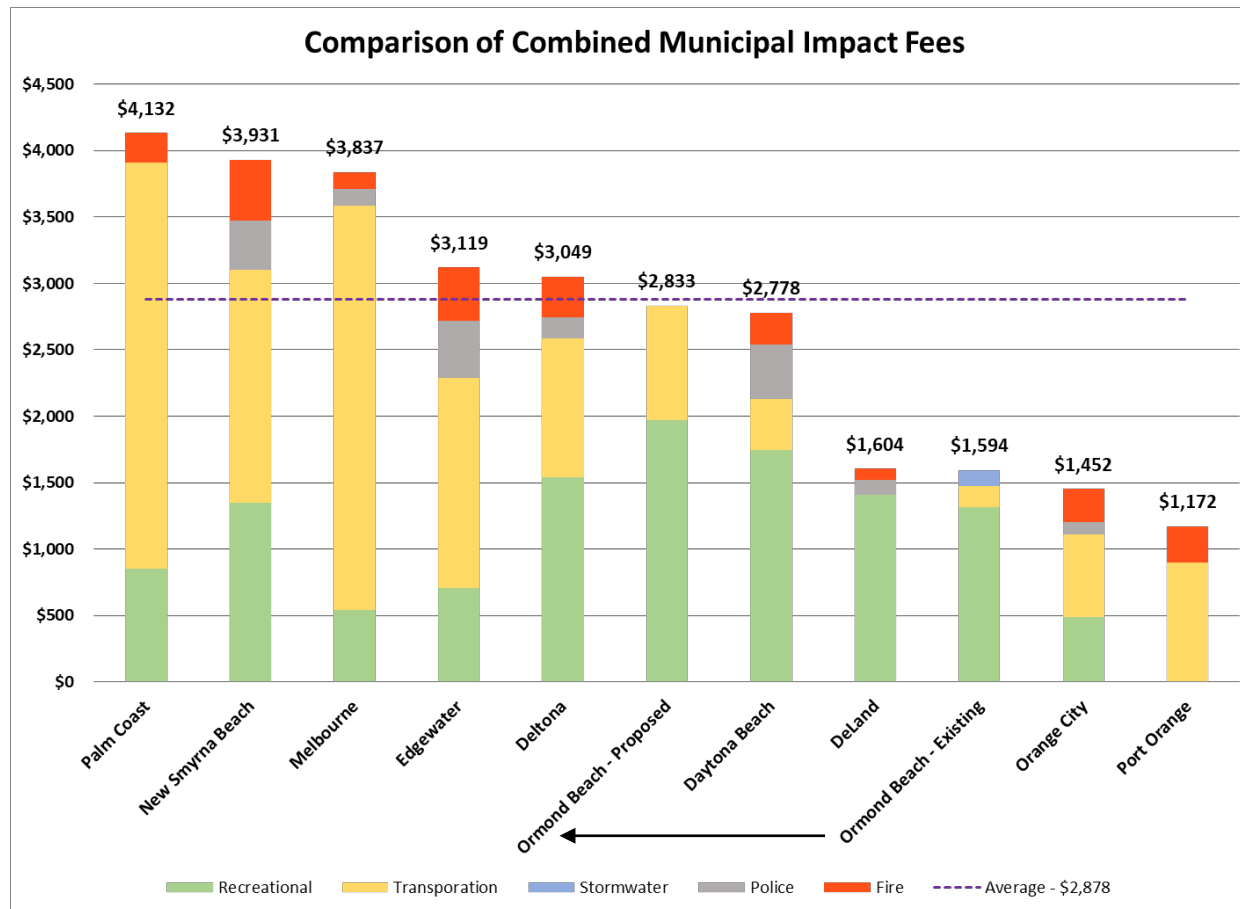


Existing and Proposed Development Impact Fees

Single Family Impact Fee Type	Existing Fees	Proposed Fees	\$ Amount of Change	Percent Change
Parks & Recreation	\$1,312.24	\$1,968.00	\$655.76	50.0%
Stormwater	\$119.39	\$0.00	(\$119.39)	(100.0%)
Local Roads	\$162.61	\$864.59	\$701.98	432.7%
Mobility Fees per P/T	\$85.67	\$16.00	\$69.67	335.4%



Existing and Proposed Combined Municipal Impact Fees Comparison



Recommendations

- Adopt proposed municipal impact fees
 - › Parks and recreation, local roads and mobility fees, and elimination of stormwater impact fee
- Consider establishment and development of police and fire impact fees
- Review fees periodically development trends
 - › Level of service requirements
 - › Capital needs
 - › Major changes in growth projections
- 90 Day grace period from City approval to effective date



Direction Requested

- **OVERALL:** Confirmation that impact fee credits should not have an expiration date
- **PARK & RECREATION:** Should maximum supportable fee for Parks & Recreation be assessed (\$2,500) or cap increase at 50% of maximum supportable fee (\$1,968) considering comparability with neighboring jurisdictions?
- **PARK & RECREATION:** Should the impact fee increase be increased over a two-year period or a one-time increase?
- **STORMWATER:** Eliminate the stormwater impact fee and the utilize of the existing stormwater fee



Direction Requested

- **LOCAL ROAD AND MOBILITY:** Should the impact fee increase be adopted in the full recommended amount and then applied based on some percentage of the total due to increase amount and comparability?
- **LOCAL ROAD AND MOBILITY:** Should the impact fee increase be increased over a two-year period or a one-time increase?
- **POLICE:** Should an additional work authorization be approved (separate Resolution presented to the City Commission) to create a police impact fee?
- **FIRE:** Should an additional work authorization be approved (separate Resolution presented to the City Commission) to create a fire impact fee?





Thank you!

Contact: Anthony Hairston / Shawn Ocasio

407 628 2600 / ahairston@raftelis.com / socasio@raftelis.com

Q&A

**From September 7, 2022
Discussion Item**

08.03.2022

**Water and Wastewater Utility
System Connection Fee Study**

CITY OF **ORMOND BEACH**

Water and Wastewater Utility System Connection Fee Study

Report Draft 2 / August 3, 2022

August 3, 2022

Mr. Steven S. Spraker
Planning Director
City of Ormond Beach
22 South Beach Street, Room 104
Ormond Beach, FL 32175

Subject: **Water and Wastewater Utility System Connection Fee Study**

Dear Mr. Spraker:

We have completed our study of the water and wastewater utility connect fees (Connection Fees) for the City of Ormond Beach (City) and have summarized the results of our analysis, assumptions, and conclusions in this report, which is submitted for your consideration. This report summarizes the basis for the proposed water and wastewater utility connection fees, which provide funds to help meet the City's growth-related capital expenditure requirements.

During the course of the study, it was determined that the proposed Connection Fees should meet a number of goals and objectives. These goals and objectives dealt primarily with fee sufficiency and level. Specifically, the major objectives considered in this study included:

- The Connection Fees should be sufficient to fund the projected capital requirements associated with providing service to new growth and development;
- The Connection Fees should not be used to fund any capital deficiencies associated with providing services to existing customers; and
- The Connection Fees should be based upon reasonable level of service standards that meet the needs of the City, do not create an unfair burden relative to capital needs, and are similar to industry standards.

The proposed Connection Fees presented in this report are designed to meet the above objectives. As such, based on information provided by the City and the assumptions and considerations outlined in this report, Raftelis Financial Consultants, Inc. considers the proposed fees to be cost-based, reasonable, and representative of the capital funding requirements of the City.

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Mr. Steven S. Spraker
City of Ormond Beach
August 3, 2022
Page 2

DRAFT 2

We appreciate the cooperation and assistance given to us by the City and its staff in the completion of the study.

Very truly yours,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Anthony Hairston
Vice President

Shawn Ocasio
Manager

AH/dc
Attachments

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5	Development of Wastewater System Connection Fees
6	Comparison of Connection Fees for Water and Wastewater Service

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A	Fixed Asset Data and Asset Functionalization

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

The purpose of an connection fee is to assign, to the extent practical, growth-related capital costs to those new customers responsible for such costs. Similar to most municipalities in Florida, the City of Ormond Beach (City) has recognized this capital funding strategy as being an appropriate method of funding growth-related capital requirements of the water and wastewater utility systems (hereafter referred to individually as the “Water System” and “Wastewater System” or, collectively, as the “System”).

This report addresses the connection fees associated with water and wastewater utility service (Connection Fees). The City retained Raftelis Financial Consultants, Inc. (Raftelis) to review its existing Connection Fees and recommend changes as necessary.

The following is a summary of the major assumptions, considerations and conclusions developed during the preparation of the study:

1. For purposes of this report the term “Fiscal Year” is defined as the 365-day period beginning October 1 of a specific year and ending September 30 of the subsequent calendar year (e.g., October 1, 2021 to September 30, 2022 is Fiscal Year 2022).
2. The City’s current method of connection fee application for water and wastewater utility connection fees is based on applying a fee per Equivalent Living Unit (ELU) times an assigned number of ELUs based on the type of construction and standard fee per ELU. Treating single-family residences as one ELU, multi-family units as 0.5 of an ELU, mobile / manufactured homes as 0.6 of an ELU, and non-residential units based on number of fixtures. For non-residential properties the total fixture value of a property (which is based on a count of the number of water fixtures in a property) is then compared to ELU ranges as set and adopted by the City to determine the number of applicable ELUs. The fee per ELU is then applied to the resulting number of applicable ELUs for the property. The utilization of these units for the application of such fees is common and is used by many public agencies across the state and it is recommended that the City continue to apply Connection Fees based on this method.
3. As of September 30, 2020, the City currently has approximately \$251.5 million invested in water and wastewater system-related infrastructure and supporting equipment. The City also has \$48.2 million in renewal and replacements, upgrades and other capital projects planned over the next 5 years.
4. The City owns and operates its own water treatment plant and transmission and distribution system. The water plant is designed to treat 12.0 million gallons per day on an average daily flow basis. Based on information provided by the City, the water treatment facilities are currently approximately 56% utilized leaving 44% available for new growth.
5. The City owns and operates its own wastewater treatment plant and transmission and collection system. The wastewater plant is designed to treat 8.0 million gallons per day of flow on an average daily flow basis. Based on information provided by the City, the wastewater treatment facilities are currently approximately 56% utilized leaving 44% available for new growth.

6. Based on the costs of the existing System infrastructure, the projected expansion-related capital costs anticipated by the City, and a review of the remaining water and wastewater capacity available in the System to serve new growth a fee per ELU was developed. The proposed connection fees are shown below:

Connection Fees (per ELU)			
	Existing	Proposed	Increase/(Decrease)
Water/Irrigation Services	\$2,902.00	\$2,333.00	(\$569.00)
Wastewater Service	2,829.00	3,577.00	748.00
Total	<u>\$5,731.00</u>	<u>\$5,910.00</u>	<u>\$179.00</u>

Conclusions and Recommendations

Based on our assumptions, considerations, and analyses as summarized herein Raftelis offers the following findings, conclusions and recommendations for consideration by the City Commission:

- The City should consider adopting the proposed water and wastewater utility connection fees as shown above and discussed later in this report.
- The City should consider the creation of two utility service area districts or zones with one being for the existing City service area and one being for the Western Service Area and apply the proposed fees to both districts until such time as a connection fee analysis for the Western Service Area can be completed.
- The City should review the water and wastewater utility connection fees periodically (every three to five years) to account for recent development trends, changes in capital needs, and cost allocations.
- The City should maintain separate accounting for the collection and usage of the Connection Fees by fee type.
- The City should collect connection fees only once the building permit is issued and not beforehand.
- The City should set an effective date for collection of the new Connection Fees 90 days from the date of adoption. This is to allow for a “grace period” for possible in-progress development.

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SECTION 1 – INTRODUCTION

General

The City of Ormond Beach (City) is located in the northeastern portion Volusia County along the Atlantic Coast. Based on information obtained from the United States Census Bureau, the permanent population of the City for 2021 is estimated to be 44,041 residents. and the City's population in 2040 is expected to be approximately 50,630 permanent residents. The City currently provides water services to approximately 24,300 accounts and wastewater service to approximately 17,800 accounts. In order to provide funding of anticipated capital needs, the City authorized Raftelis to review the water and wastewater utility connection fees in order to meet the funding goals and objectives of the City.

Authorization

Raftelis was authorized by the City to review and recommend revisions to the water and wastewater utility services connection fees pursuant to a letter of agreement between the City and Raftelis. The scope of work for this project, as defined in the letter of agreement, was to:

1. Analyze the capital requirements of the City, which are needed to meet the level of service (LOS) standards of the City. This analysis included a review of: i) the existing and future facility and equipment needs as defined by the multi-year capital improvement plan (CIP) for each utility function; and ii) the currently utilized and remaining capacities of the System facilities.
2. Develop and recommend appropriate fee levels to be charged to new development in order to recover the capital costs associated with providing utility service. This analysis includes the apportionment of costs and the development of the fee per equivalent billing unit.
3. Develop a comparison of the connection fees and associated billing attributes of similar charges imposed by other jurisdictions.
4. Prepare a report that documents our analyses, assumptions, and conclusions for consideration by the City.

Connection Fees Background

The purpose of water and wastewater connection fees are to assign, to the extent practical, growth-related capital costs to those new customers or development responsible for such additional costs. To the extent new population growth and associated development imposes identifiable capacity-related capital costs to water and wastewater utility services, modern capital funding practices include the assignment of such costs to those new residents and commercial entities responsible for those costs rather than the existing population base. Generally, this practice has been labeled as “growth paying its own way” to avoid overburdening existing users with the cost of expansion.

Connection Fee Methodology

There are several different methods generally recognized for the calculation of connection fees. The calculation is dependent on multiple variables such as cost and engineering data available, and the availability of other local data such as household and population projections, current levels of service, and other related items. The proposed connection fees reflected in this report generally considered the blending of two methods. These two methods are:

i) the improvements-driven method; and ii) and the “buy-in” method. These two methods have been utilized in the development of connection fees for local governments in Florida.

The improvements-driven method is an approach that utilizes a specific list of planned capital improvements over a period of time. For example, the fee may correspond to the level of capital improvements that have been identified in the capital improvements element of the Comprehensive Land Use Plan or capital improvement budget of the local government. The buy-in approach recognizes the existing historical investment in the currently-in-service capital facilities that have capacity available to serve new customers. The primary difference between the three methodologies is how the capital costs, which must be recovered from the application of the fee, are calculated.

The development of the Connection Fees in this report was primarily based on a hybrid or blending of these improvements-driven and System buy-in methods. This hybrid methodology recognizes the cost of existing available and unused capacity available from existing facilities, which are currently in service and available to meet near-term growth requirements, along with incremental costs for new facilities to derive a blended cost allocable to new growth over the next several years.

The following section of this report, Section 2, will address the development and design of the water and wastewater utility service connection fees. It will include a discussion on level of service requirements, capital costs, and the design of the fees themselves.

Acknowledgments

This report was prepared with the valuable cooperation and assistance of the staff of the City of Ormond Beach.

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SECTION 2 – WATER AND WASTEWATER UTILITY CONNECTION FEES

General

This section provides a discussion of the development and design of the connection fee for water and wastewater services (Connection Fees). Included in this section is a discussion of the level of service requirements, capital costs, included as the basis for the determination of the fee, and the design of the fee to be applied to new growth within the City.

Water System Overview

The City's water system (Water System) includes water treatment, supply and storage, transmission mains and finished water distribution facilities. These water treatment facilities are capable of treating 12.0 million gallons per day (MGD) average daily flow (ADF). The City's water conveyance system is comprised of approximately 395 miles of transmission and distribution lines that provide service throughout the City.

Wastewater System Overview

The City's wastewater system (Wastewater System) includes wastewater treatment, transmission, and collection facilities. These wastewater treatment facilities are capable of treating 8.0 MGD ADF. The City's wastewater transmission and collection system is comprised of approximately 282 miles of gravity and force mains along with lift stations and other supporting infrastructure. Additionally, as a means of wastewater effluent disposal the City also provides reclaimed water service. The reclaimed water system is comprised of certain additional treatment processes at the wastewater plant and a reclaimed water conveyance system, which includes approximately 85 miles of transmission and distribution lines.

Level of Service Requirements

In the evaluation of the capital facility needs for providing water and wastewater utility services, level of service (LOS) standards must be established. Pursuant to Section 163.3164 of the Florida Statutes, the level of service means an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of service shall indicate the capacity demand per unit for each public facility. The level of service standards are established in order to ensure that adequate facility capacity will be provided for future development and for purposes of issuing development orders or permits, pursuant to F.S. Section 163.3202(2)(g). As further stated in the statutes, each local government shall establish a LOS standard for each public facility located within the boundary for which such local government has authority to issue development orders or permits.

For water and wastewater service, the level of service that is commonly used in the industry is the amount of capacity (service) allocable to an equivalent residential connection (ERC) or Equivalent Living Unit (ELU) expressed as the amount of capacity (gallons) allocated on an average daily basis. The level of service generally represents the amount of capacity allocable to an ELU, whether or not such capacity is actually used (commonly referred to as the "readiness-to-serve"). As previously discussed, an ELU is representative of the average capacity required to service a typical individually-metered single-family residential connection. This class of users represents the largest number

of customers served by the System and generally the lowest level of usage requirements for a specifically metered account. The City's current method of connection fee application for water and wastewater utility connection fees is based on applying a fee per ELU times an assigned number of ELUs based on the type of construction and a standard fee per ELU. Treating single-family residences as one ELU, multi-family units as 0.5 of an ELU, mobile / manufactured homes as 0.6 of an ELU, and non-residential units based on number of fixtures. For non-residential properties the total fixture value of a property (which is based on a count of the number of water fixtures in a property) is then compared to ELU ranges as set and adopted by the City to determine the number of applicable ELUs. The fee per ELU is then applied to the resulting number of applicable ELUs for the property. The following table summarizes the System's LOS levels:

Existing Levels of Service for Residential Customers	
Existing Service Levels:	
1 Water ELU = 300 gpd (ADF)	
1 Wastewater ELU = 280 gpd (ADF)	
gpd = gallons per day ADF = Average Daily Flow	

These LOS standards are consistent with the capacity planning and Florida Department of Environmental Protection (FDEP) permitting requirements for the City and are also generally comparable with those utilized by other utilities throughout the state of Florida.

As mentioned previously, the City currently uses a reduced ELU factor for Multi-family and Mobile / Manufactured Homes of 0.5 and 0.6, respectively. Based on a review of the City's existing factors and historical data /class usage relationships data we would recommend an adjustment to these factors as shown below.

Existing and Proposed Residential Equivalent Living Unit Factors		
Residential Customer Class	Existing Factor	Proposed Factor
Single-family	1.0 ELU	1.0 ELU
Multi-family	0.5 ELU	0.8 ELU
Mobile/Manufactured Home	0.6 ELU	0.9 ELU

Existing Plant-in-Service

In the determination of the Connection Fees associated with the servicing of future customers, any excess capacity of the existing utility system available to serve such growth was considered. Since this capacity is available to serve the near-term customer growth of the System, it is appropriate to evaluate the cost and capacity availability of such facilities. In order to evaluate the availability of the existing utility plant-in-service to meet future capacity needs, it was necessary to functionalize the plant by specific plant requirement. The functionalization of the existing plant is necessary to: i) identify those assets that should be included in the determination of the connection fees; and ii) match existing plant type to the capital improvements to meet future service needs.

The functional cost categories are based on the purpose of the assets and the utility function that such assets serve. The following is a general summary of the functional cost categories for the utility plant-in-service identified in this report.

Functional Plant Categories		
Water Service [*]	Wastewater [*]	Other Plant
Supply/Treatment/Transmission	Treatment/Disposal/Reclaimed Treatment	General Plant
Storage/Local Distribution	Transmission/Master & Local Lift Stations	Indirect
Hydrants/Meters	Collection/Reclaimed Conveyance	Other

[*] Amounts shown would not include any assets that were contributed by a developer (primarily water distribution and wastewater collection lines) or grant funded.

It is necessary to categorize the utility plant assets into functional cost categories so that a proper fee can be developed. Generally, the costs of on-site facilities that serve a specific development or customer such as water distribution and wastewater collection lines, meters and services, and fire hydrants are usually: i) donated by a developer (a contribution of the plant); ii) recovered from the individual properties through an assessment program based on those properties that receive special benefit from such facilities or from the application of a main line extension fee to recover the specific cost of such facilities; or iii) funded from the customer directly (e.g., by a “front-foot” charge where the on-site lines were initially financed by the utility and then paid by the customer or an installation charge to recover the cost of a new service line and/or the meter) and the cost of such on-site facilities are not included in Connection Fees. Water and wastewater Connection Fees are typically based on the cost of facilities that serve the entire utility system such as bulk transmission lines and treatment plants.

The City provided Raftelis with a fixed asset register report identifying the fixed assets in service by function as of September 30, 2020 for the System. The summary of the functionalization of the existing utility plant is included in Table 1 at the end of this section. This functionalization of the existing utility plant-in-service represents the original cost of such assets (gross book value) and was based on the reported in-service values as of September 30, 2020 (the most recent Fixed Asset records available at the time of the study). The following is a summary of the functionalization of the System’s existing utility plant-in-service as shown in Table 1:

System Fixed Assets				
	Water System [1]		Wastewater System [1]	
Function	Amount	Percent	Amount	Percent
Supply	\$5,270,426	4.6%	\$0	0.0%
Treatment Plant	66,204,344	57.7%	76,896,737	56.2%
Transmission Lines	8,606,122	7.5%	19,308,495	14.1%
Distribution/Collection Lines	19,778,945	17.3%	31,690,524	23.2%
Hydrants/Meter Services	7,347,008	6.4%	0	0.0%
Miscellaneous Departmental Capital	7,491,064	6.5%	8,936,699	6.5%
Totals	<u>\$114,697,909</u>	<u>100.00%</u>	<u>\$136,832,456</u>	<u>100.00%</u>

[1] Amounts as provided by City staff and found on Table 1.

Additional Capital Investment

The City’s System CIP for the Fiscal Years 2021 through 2025, as prepared and estimated by the utility staff outlines the best estimate of future capital improvements for the System. These capital projects include: i) upgrades and expansion of existing assets to accommodate both new and existing customers; and ii) replacements of existing assets

or projects that generally are deemed to benefit current users of the System (e.g., existing plant renewal and replacement, reliability projects).

As shown on Tables 2 and 3 at the end of this section, The CIP totals approximately \$21.6 million in capital projects to be completed over the five-year period for the Water System and \$26.6 million in capital projects for the Wastewater System, totaling \$48.2 million for the combined System.

In our analysis only production / treatment and major backbone transmission costs were recognized in the water and wastewater connection fee calculations. General transmission and distribution / collection project costs were not recognized because they: i) generally are not System-wide costs (i.e., distribution / collection project costs tend to benefit specific customer locale); ii) in many instances, are funded by a specific charge applied to a customer (e.g., water meter installation fee); and iii) are often contributed as part of the development process (e.g., it would not be fair for a developer who has contributed the distribution / collection assets to pay an connection fee which includes recovery of distribution / collection projects).

A summary of all the adjustments that were made in order to arrive at the treatment and major transmission costs recognized for the calculation of connection fees are shown as follows:

Derivation of Treatment and Major Transmission Capital Costs Recognized in Connection Fee Study [1]		
	Water System	Wastewater System
Projects in Utility's Five-year CIP	\$21,627,758	\$26,617,767
Adj. to Remove Distribution/Collection and R&R Related Projects	(8,359,690)	(20,612,194)
Total Treatment and Major Transmission Capital Costs Recognized in Connection Fees	<u>\$13,268,068</u>	<u>\$6,005,573</u>

[1] Amounts shown derived from Tables 2 and 3.

Western Service Area

It should be noted that the City anticipates the need for major capital projects to develop water and wastewater treatment and transmission related facilities to provide wholesale utility service to developments in the Western Service Area (which is comprised of Avalon Park) on behalf of the City of Daytona Beach, Florida (Daytona Beach) per a 2006 settlement agreement between the two cities. These projects have not been included in our connection fee analysis at this time as additional information is needed to define the entitlements and utility projects to serve these entitlements. It is our initial recommendation that the City consider creating two distinct utility system connection fee zones or districts with one being for the current City service area and one for the Western Service Area. The fees that are currently being proposed as a part of our analysis would be applied to growth in both zones. Subsequently, once the Avalon Park entitlements are clarified and the capital projects needed to serve the developments are identified, then a connection fee analysis for the Western Service Area could be completed, which would include those costs and related capacity and the fees for that zone to be updated accordingly.

Design of Water System Connection Fee

As shown on Table 4 at the end of this report, the calculated connection fee for the treatment and transmission component of the Water System is \$2,333.00 per ELU. This represents a decrease in the fee of \$569 or 19.6% below the current fee of \$2,902.00 per ELU.

In the development of the proposed Water System Connection Fee, several assumptions were utilized or incorporated. The major assumptions utilized in the design of the calculated Water System Connection Fee are:

1. The existing assets of the Water System as provided by the City were reviewed and categorized by function in order to identify those assets that should be included in the determination of the connection fee. The major categories were: i) Supply; ii) Treatment Plant; iii) Transmission System; iv) Distribution Lines; v) Hydrants / Meter Services; and vi) Equipment. For the assets identified as Supply, Treatment Plant, and Transmission System, which benefit both existing and future users, the total cost of such assets have been recognized in the analysis.
2. The Water System capital improvement program as prepared by staff for the Fiscal Years 2021 through 2025 was reviewed and the capital costs were apportioned: i) by functional category; and ii) to existing and future users in the determination of the Water System Connection Fee. Those facilities that were considered to be allocable to growth were included in the fee determination at full cost (i.e., 100% of the total cost). For capital expenditures that were solely for the replacement of existing assets such amounts were only partially reflected (i.e., the incremental change in asset basis associated with the replacement of an old asset with a new one) as an appropriate cost to be recovered from the application of the Water System Connection Fee. The CIP capital costs recognized in the Water System connection fee analysis are shown on Table 2 and Table 4 at the end of this report.
3. For the capital improvements identified as major treatment or transmission system upgrades, which would benefit both existing and future users, the total cost of such improvements has been recognized in the analysis. These costs were allocated to existing and future customers based on the nature and purpose of the project as described to us by the City.
4. No capital facility expansion costs associated with existing distribution facilities, including meters, hydrants, on-site distribution facilities, and services, have been included in the calculation of the Water System Connection Fee since developers typically contribute such facilities or the City has adopted a separate fee (e.g., water meter installation fee) to recover the cost of such capital additions.
5. Because: i) the Water System is operated as an enterprise fund; ii) all financial resources received by the utility stay within the fund for the benefit of such system; iii) the costs reflected in the fee are at original cost and not adjusted for any fair market value to reflect current cost conditions; iv) there is no interest-expense carry in the connection fee associated with the financing of the capital investment to serve new development; and v) there are no other revenues received by the Water System from new development for the capital costs / utility plant reflected in the connection fee (e.g., ad valorem taxes on the property), no credit for the future payment of debt service allocable to the properties has been recognized. All Connection Fee funds remain in the System and the long-term capital financing costs for infrastructure construed and available to serve new growth are mitigated by using the connection fees for ongoing expansion-related capital project financing or for the direct payment of the annual expansion-related debt service payments.

As shown on Table 4 at the end of this section, the Water System Connection Fee was calculated utilizing: i) estimated capital costs for the supply, treatment and transmission system; and ii) current fixed asset and capacity data available to Raftelis regarding the Water System. By designing the Water System Connection Fee to recover costs on a prospective basis, an attempt is made to design a charge that will provide funds on a reasonable basis in order to meet the future needs of the Water System. It should be noted that in the event the construction costs,

capacity requirements, or utility service area materially change from what is reflected on Table 4, the Water System Connection Fee might need to be adjusted accordingly.

The proposed connection fee for the Water System is \$2,333 per ELU. This represents a decrease in the fee of \$569 or 19.6% below the current fee of \$2,902 per ELU. This fee would be the per ELU amount that a new account would be charged in accordance with the City's connection fee methodology and revised ELU factors. Based on the capital facilities associated with the determination of the charge, the functional breakdown of the components of the rate is as follows:

Calculation of Water System Connection Fee	
Fee Component	Cost
Water Treatment Component	\$2,085.44
Water Major Transmission Component	248.28
Total	\$2,333.78
Total Proposed Water System Connection Fee (Rounded)	<u>\$2,333.00</u>

Design of Wastewater System Connection Fee

As shown on Table 5 at the end of this section, the total calculated connection fee for the Wastewater System is \$3,577 per ELU. This represents an increase in the fee of \$748 or 26.4% when compared with the current fee of \$2,829 per ELU. The reason for this increase is that the System has a higher cost per unit of capacity than what was calculated previously due to the increased costs associated with Wastewater System capacity.

In the development of the proposed Wastewater System Connection Fee, several assumptions were utilized or incorporated in the analysis. The major assumptions utilized in the design of the proposed Wastewater System Connection Fee are:

1. The existing assets of the Wastewater System as provided by the City were reviewed and categorized by function in order to identify those assets that should be included in the determination of the connection fee. The major categories were: i) Treatment Plant; ii) Transmission Lines; iii) Collection Lines; and iv) Equipment. For the assets identified as treatment plant and transmission system, which benefit both existing and future users, the total cost of such assets have been recognized in the analysis.
2. The Wastewater System capital improvement program (CIP) as prepared by staff for the Fiscal Years 2021 through 2025 was reviewed and the capital costs were apportioned: i) by functional category; and ii) to existing and future users in the determination of the Wastewater System Connection Fee. Those facilities that were considered to be allocable to growth were included in the fee determination at full cost (i.e., 100% of the total cost). For capital expenditures that were solely for the replacement of existing assets such amounts were only partially reflected (i.e., the incremental change in asset basis associated with the replacement of an old asset with a new one) as an appropriate cost to be recovered from the application of the Wastewater System Connection Fee. The CIP capital costs recognized in the Wastewater System Connection Fee analysis are shown on Table 3 and Table 5 at the end of this report.
3. For the capital improvements identified as major treatment or transmission system upgrades, which would benefit both existing and future users, the total cost of such improvements has been recognized in the

analysis. These costs were allocated to existing and future customers based on the nature and purpose of the project as described to us by the City.

4. No capital facility costs associated with the existing collection facilities, including local lift stations, manholes, laterals, and on-site collection facilities have been included in the calculation of the Wastewater System Connection Fee since the developer generally contributes such facilities, or City has adopted a separate fee (e.g., wastewater tap-on fee) to recover such capital additions. All capital improvements to such respective facilities in the CIP were also not recognized in the Wastewater System Connection Fee analysis.
5. Because: i) the System is operated as an enterprise fund; ii) all financial resources received by the System stay within the fund for the benefit of such System; iii) the costs reflected in the fee are at original cost and not adjusted for any fair market value to reflect current cost conditions; iv) there is no interest-expense carry in the impact associated with the financing of the capital investment to serve new development; and v) there are no other revenues received by the City from new development for the capital costs / utility plant reflected in the tap-on (e.g., ad valorem taxes on the property), no credit for the future payment of debt service allocable to the properties has been recognized. All connection fee funds remain in the System and the long-term capital financing costs for infrastructure construed and available to serve new growth are mitigated by using the connection fees for ongoing expansion-related capital project financing or for the direct payment of the annual expansion-related debt service payments.

As shown on Table 5 at the end of this section, the Wastewater System Connection Fee was calculated utilizing: i) the estimated transmission-related capital costs of the Wastewater System; ii) the treatment / disposal-related capital costs for the Wastewater System; and iii) current fixed asset and plant capacity data available to Raftelis regarding the City's Wastewater System. By designing the Wastewater System Connection Fees to recover costs on a prospective basis, an attempt is made to design a charge that will provide funds on a reasonable basis in order to meet the future needs of the Wastewater System. It should be noted that in the event the construction costs, capacity requirements, or utility service area materially change from what is reflected on Tables 2, the Wastewater System Connection Fees may need to be adjusted accordingly.

As shown on Table 5 at the end of this section, the calculated Wastewater System Connection fee \$3,577 per ELU, which is \$748 or 26.4% higher than the existing Wastewater System Connection Fee of \$2,829 per ELU. This fee would be the per ELU amount that an account would be charged in accordance with the City's connection fee application methodology and revised ELU factors. Based on the capital facilities associated with the determination of the charge, the functional breakdown of the components of the rate is as follows:

Calculation of Wastewater System Connection Fee	
Fee Component	Cost
Wastewater Treatment Component	\$2,785.16
Wastewater Major Transmission Component	792.23
Total	\$3,577.39
Total Proposed Wastewater System Connection Fee (Rounded)	<u>\$3,577.00</u>

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Connection Fee Comparisons

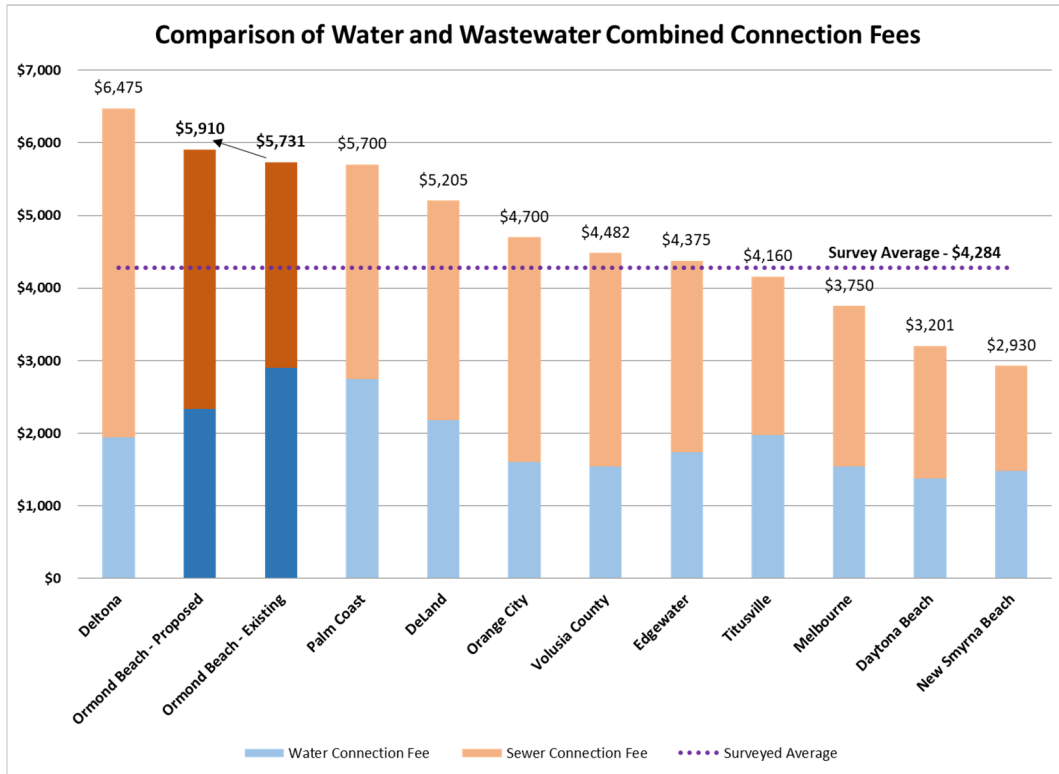
In order to provide additional information to City regarding the existing and proposed Connection Fees, a comparison of the existing and calculated fees for the City with similar related capital charges imposed by of other Florida jurisdictions was prepared. Table 6 at the end of this section, provides a comparison of the City's existing and proposed Connection Fees for single-family residential connections (i.e., one ELU of 300 gpd for the Water System and 280 gpd for the Wastewater System) with the fees or comparable charges currently imposed by other municipal / governmental water and wastewater systems located across Florida. It is important to note that utilities may be different from a facility standpoint, and the methods used in the development of the water and wastewater connection fees imposed may vary. Moreover, no analysis has been performed to determine whether 100% of the cost of new facilities is recovered from connection fees or some percentage less than 100% with the balance recovered through the user charges. Additionally, the types of capital facilities currently in service or planned for the utility may have a material impact on the fee charged by a local government. For example, the costs of wastewater effluent disposal utilizing a deep injection well system generally has a higher capital cost per unit of capacity than use of a surface water discharge such as an outfall to a bay or river. The capital costs associated with constructing reverse osmosis water treatment facilities, which treat brackish water, are higher than those of lime softening facilities, which treat freshwater.

Some reasons why connection fees differ among utilities:

- Source of Supply
- Proximity to source of supply
- Type of treatment
- Effluent disposal method
- Density of service area
- Availability of grant funding to finance CIP
- Age of system
- Utility life cycle (e.g., growth-oriented vs. mature)
- Level of service standards
- Administrative policies

As shown on Table 6, the average System Connection Fee per ELU for the 11 governmental entities selected for this comparison are \$4,284 per ELU. Of the surveyed utilities, the City of Deltona has the highest combined water and wastewater fees at \$6,475 per ELU. City of New Smyrna Beach with a combined fee of \$2,930 had the lowest of the surveyed utilities. The proposed water and wastewater connection fees are higher than the average of similar fees charged by the surveyed utilities. Below is a comparison of the existing and proposed fees to the surveyed entities for reference.

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LIST OF TABLES AND APPENDICES

Table No.	Description
1	Summary of Fixed Asset Allocation
2	Summary of Water Capital Improvement Program by Plant Function Through Fiscal Year 2025
3	Summary of Wastewater Capital Improvement Program by Plant Function Through Fiscal Year 2026
4	Development of Water System Connection Fees
5	Development of Wastewater System Connection Fees
6	Comparison of Connection Fees per ELU for Water and Wastewater Service

Appendix No.	Description
A	Fixed Asset Data and Asset Functionalization

Table 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Summary of Existing Water and Wastewater Fixed Assets

Line No.	Function	Fixed Assets at Current Cost [1]			Percentage of Total	
		Water	Wastewater	Total	Water	Wastewater
	<u>Existing Assets Included in Connection Fees</u>					
1	Supply	\$5,270,426	\$0	\$5,270,426	4.6%	0.0%
2	Treatment Plant	66,204,344	76,896,737	143,101,082	57.7%	56.2%
3	Transmission System	8,606,122	19,308,495	27,914,618	7.5%	14.1%
4	Total Assets Included in Connection Fees	\$80,080,893	\$96,205,233	\$176,286,125	69.8%	70.3%
	<u>Existing Assets Excluded from Connection Fees</u>					
5	Hydrants/Meter Services	\$7,347,008	\$0	\$7,347,008	6.4%	0.0%
6	Equipment	7,491,064	8,936,699	16,427,763	6.5%	6.5%
7	Distribution / Collection Lines	19,778,945	31,690,524	51,469,469	17.2%	23.2%
8	Total Assets Excluded from Connection Fees	\$34,617,017	\$40,627,223	\$75,244,240	30.2%	29.7%
9	Total Existing Fixed Assets	\$114,697,909	\$136,832,456	\$251,530,365	100.0%	100.0%

Footnotes:

[1] Reported by the City as of September 30, 2020.

Table 2
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Summary of Water Capital Improvement Program By Plant Function Through Fiscal Year 2025

Line No.	Project Description	Type	Purpose			2021 - 2025		Net Amount For Future Expenditures	Functional Category [3]				Retirement Adjustment			
			Expansion	Existing	Replace	Estimated Capital Cost [1]	Adjustments [2]		Supply and Treatment	Storage, Pumping & Transmission	Distribution/ Other	Total	Supply and Treatment	Storage, Pumping & Transmission		
									Existing	Expansion	Existing	Expansion				
Water System																
1	Vehicle Replacement	Other	0.00%	0.00%	100.00%	\$165,000	(\$165,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Consumptive Use Permit Renewal	Other	0.00%	100.00%	0.00%	350,000	(350,000)	0	0	0	0	0	0	0	0	0
3	Water Reclamation Facility	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
4	City-Wide Meter Replacement	Distribution	0.00%	0.00%	100.00%	458,500	(458,500)	0	0	0	0	0	0	0	0	0
5	General Facility and System Upgrades	Treatment	0.00%	0.00%	100.00%	875,000	0	875,000	875,000	0	0	0	0	875,000	443,355	0
6	Lift Station Rehabilitation	Trans	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
7	Meter Installation	Distribution	0.00%	0.00%	100.00%	180,000	(180,000)	0	0	0	0	0	0	0	0	0
8	Pretreatment Effluent Pump Replacement	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
9	Sanitary Sewer Inflow Infiltration	WW T&C	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
10	Water Main Replacement	Trans	0.00%	0.00%	100.00%	3,700,000	0	3,700,000	0	0	3,700,000	0	0	3,700,000	0	2,374,889
11	Reclaimed Water System Improvement	Supply	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
12	Water Treatment Plant Splitter Box Rehab	Treatment	0.00%	0.00%	100.00%	213,500	0	213,500	213,500	0	0	0	0	213,500	108,179	0
13	WTP Aeration Repl. & Clearwell Rehab	Treatment	0.00%	0.00%	100.00%	1,707,000	0	1,707,000	1,707,000	0	0	0	0	1,707,000	864,923	0
14	Hudson Wellfield Expansion	Supply	0.00%	100.00%	0.00%	4,955,000	0	4,955,000	4,955,000	0	0	0	0	4,955,000	0	0
15	WRF Clarifier Rehab and Weir Covers	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
16	Relocation of SCADA Radios	Treatment	0.00%	0.00%	100.00%	30,000	(30,000)	0	0	0	0	0	0	0	0	0
17	Water Reclamation Facility Chlorine Contact	Treatment	0.00%	100.00%	0.00%	395,000	0	395,000	395,000	0	0	0	0	395,000	0	0
18	Reuse Master Metering	Trans	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
19	WTP Chemical Feed System Upgrades	Treatment	0.00%	0.00%	100.00%	634,500	0	634,500	634,500	0	0	0	0	634,500	321,496	0
20	WTP Filter Media Replacement	Treatment	0.00%	0.00%	100.00%	141,750	0	141,750	141,750	0	0	0	0	141,750	71,824	0
21	WTP Thickener Wetwell Discharge Relocation	Treatment	0.00%	0.00%	100.00%	34,500	0	34,500	34,500	0	0	0	0	34,500	17,481	0
22	Shadow Crossing Reuse Pump Facility	Trans	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
23	Utility Master Plan Update	Other	0.00%	0.00%	100.00%	73,333	(73,333)	0	0	0	0	0	0	0	0	0
24	Water Storage Tank Repairs	Supply	0.00%	0.00%	100.00%	300,000	0	300,000	300,000	0	0	0	0	300,000	152,008	0
25	WWTP Laboratory Upgrades	Treatment	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
26	New Reuse Ground Storage Tank	Supply	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
27	WTP Replace Lime Softening Filters 5 & 6	Treatment	0.00%	0.00%	100.00%	3,000,000	0	3,000,000	3,000,000	0	0	0	0	3,000,000	1,520,075	0
28	WTP Scrubbers and De-gasifiers Rehab	Treatment	0.00%	0.00%	100.00%	1,625,500	0	1,625,500	1,625,500	0	0	0	0	1,625,500	823,627	0
29	WWTP Generator Room Roof Replacement	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
30	WWTP Odor Control	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
31	WWTP Screw Pump Roof Modification	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
32	Airport Road Reclaim Water Main PH 2	Trans	0.00%	37.50%	62.50%	0	0	0	0	0	0	0	0	0	0	0
33	Filter Demolition and New Storage Bldg	Other	0.00%	0.00%	100.00%	405,000	(405,000)	0	0	0	0	0	0	0	0	0
34	Halifax River Force Main Crossing	Trans	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
35	Septic to Sewer Conversion	Other	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
36	Secondary Raw Water Main	Supply	0.00%	100.00%	0.00%	2,384,175	0	2,384,175	2,384,175	0	0	0	0	2,384,175	0	0
37	TOTAL WATER CIP PROJECTS					\$21,627,758	(\$1,661,833)	\$19,965,925	\$16,265,925	\$0	\$3,700,000	\$0	\$0	\$19,965,925	\$4,322,967	\$2,374,889
38	PERCENT OF TOTAL							100.00%	81.47%	0.00%	18.53%	0.00%	0.00%	100.00%	21.65%	11.89%

Footnotes:

- [1] Amounts shown reflect the Five-Year Capital Program as provided by the City.
- [2] Downward adjustments reflect projects: i) anticipated to be funded by grants as identified by the City; ii) recognized in the existing assets summary (Fixed Asset Data and Asset Functionalization) to be consistent with existing capacity assumptions; or iii) not considered applicable to the fee determination process.
- [3] Assets are categorized based on information provided by the City.

Table 3
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Summary of Wastewater Capital Improvement Program By Plant Function Through Fiscal Year 2025

Line No.	Project Description	Type	Purpose			2021 - 2025		Net Amount For Future Expenditures	Functional Category [3]				Retirement Adjustment			
			Expansion	Existing		Estimated Capital Cost [1]	Adjustments [2]		Wastewater Treatment		Transmission		Collection/ Other	Total	Treatment	Transmission
				New	Replace				Existing	Expansion	Existing	Expansion				
Wastewater System																
1	Vehicle Replacement	Other	0.00%	0.00%	100.00%	\$732,000	(\$732,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Consumptive Use Permit Renewal	Other	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
3	Water Reclamation Facility	Treatment	0.00%	0.00%	100.00%	1,470,000	0	1,470,000	1,470,000	0	0	0	0	1,470,000	767,182	0
4	City-Wide Meter Replacement	Distribution	0.00%	0.00%	100.00%	458,500	(458,500)	0	0	0	0	0	0	0	0	0
5	General Facility and System Upgrades	Treatment	0.00%	0.00%	100.00%	875,000	0	875,000	875,000	0	0	0	0	875,000	456,656	0
6	Lift Station Rehabilitation	Trans	0.00%	0.00%	100.00%	880,000	0	880,000	0	0	880,000	0	0	880,000	0	532,414
7	Meter Installation	Distribution	0.00%	0.00%	100.00%	180,000	(180,000)	0	0	0	0	0	0	0	0	0
8	Pretreatment Effluent Pump Replacement	Treatment	0.00%	0.00%	100.00%	450,000	0	450,000	450,000	0	0	0	0	450,000	234,852	0
9	Sanitary Sewer Inflow Infiltration	WW T&C	0.00%	0.00%	100.00%	1,500,000	0	1,500,000	0	0	598,627	0	901,373	1,500,000	0	362,179
10	Water Main Replacement	Trans	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
11	Reclaimed Water System Improvement	Supply	0.00%	0.00%	100.00%	130,000	0	130,000	0	0	0	0	130,000	130,000	0	0
12	Water Treatment Plant Splitter Box Rehab	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
13	WTP Aeration Repl. & Clearwell Rehab	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
14	Hudson Wellfield Expansion	Supply	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
15	WRF Clarifier Rehab and Weir Covers	Treatment	0.00%	0.00%	100.00%	1,548,000	0	1,548,000	1,548,000	0	0	0	0	1,548,000	807,890	0
16	Relocation of SCADA Radios	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
17	Water Reclamation Facility Chlorine Contact	Treatment	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
18	Reuse Master Metering	Trans	0.00%	100.00%	0.00%	360,000	0	360,000	0	0	360,000	0	0	360,000	0	0
19	WTP Chemical Feed System Upgrades	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
20	WTP Filter Media Replacement	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
21	WTP Thickener Wetwell Discharge Relocation	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
22	Shadow Crossing Reuse Pump Facility	Trans	0.00%	0.00%	100.00%	240,000	0	240,000	0	0	240,000	0	0	240,000	0	145,204
23	Utility Master Plan Update	Other	0.00%	0.00%	100.00%	146,667	0	146,667	0	0	0	0	146,667	146,667	0	0
24	Water Storage Tank Repairs	Supply	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
25	WWTP Laboratory Upgrades	Treatment	0.00%	100.00%	0.00%	445,000	0	445,000	445,000	0	0	0	0	445,000	0	0
26	New Reuse Ground Storage Tank	Supply	0.00%	100.00%	0.00%	385,000	0	385,000	0	0	0	0	385,000	385,000	0	0
27	WTP Replace Lime Softening Filters 5 & 6	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
28	WTP Scrubbers and De-gasifiers Rehab	Treatment	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
29	WWTP Generator Room Roof Replacement	Treatment	0.00%	0.00%	100.00%	32,100	0	32,100	32,100	0	0	0	0	32,100	16,753	0
30	WWTP Odor Control	Treatment	0.00%	0.00%	100.00%	220,000	0	220,000	220,000	0	0	0	0	220,000	114,816	0
31	WWTP Screw Pump Roof Modification	Treatment	0.00%	0.00%	100.00%	78,000	0	78,000	78,000	0	0	0	0	78,000	40,708	0
32	Airport Road Reclaim Water Main PH 2	Trans	0.00%	100.00%	0.00%	1,230,500	0	1,230,500	0	0	1,230,500	0	0	1,230,500	0	0
33	Filter Demolition and New Storage Bldg	Other	0.00%	0.00%	100.00%	0	0	0	0	0	0	0	0	0	0	0
34	Halifax River Force Main Crossing	Trans	0.00%	100.00%	0.00%	1,057,000	0	1,057,000	0	0	1,057,000	0	0	1,057,000	0	0
35	Septic to Sewer Conversion	Other	0.00%	100.00%	0.00%	14,200,000	0	14,200,000	0	0	0	0	14,200,000	14,200,000	0	0
36	Secondary Raw Water Main	Supply	0.00%	100.00%	0.00%	0	0	0	0	0	0	0	0	0	0	0
37	TOTAL WASTEWATER PROJECTS					\$26,617,767	(\$1,370,500)	\$25,247,267	\$5,118,100	\$0	\$4,366,127	\$0	\$15,763,040	\$25,247,267	\$2,438,856	\$1,039,797
38	PERCENT OF TOTAL							100.00%	20.27%	0.00%	17.29%	0.00%	62.43%	100.00%	9.66%	4.12%

Footnotes:

- [1] Amounts shown reflect the Five-Year Capital Program as provided by the City.
- [2] Downward adjustments reflect projects: i) anticipated to be funded by grants as identified by the City; ii) recognized in the existing assets summary (Fixed Asset Data and Asset Functionalization) to be consistent with existing capacity assumptions; or iii) not considered applicable to the fee determination process.
- [3] Assets are categorized based on information provided by the City.

Table 4
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Development of Water System Connection Fees

Line No.	Description	Water Amount
Total Estimated Cost of Existing Water Production and Treatment Facilities:		
1	Installed Cost - Existing Facilities [1]	\$71,474,770
2	Additional Costs Capitalized - CIP [2]	16,265,925
3	Less Anticipated Retirements [3]	(4,322,967)
4	Less Receipt of Grant Funds [4]	0
5	Subtotal Water Production and Treatment Facilities	\$83,417,728
6	Existing Permitted Capacity of Plant Facilities (MGD) (ADF) [5]	12.000
7	Existing Average Daily Flow for FY 2016-2020 (MGD) (ADF) [6]	6.729
8	Equivalent Living Unit Factor - (GPD) (ADF) [7]	300.0
9	Estimated Dwelling Units Permitted to be Served by Existing Facilities	40,000
10	Percent Remaining Capacity of Existing Facilities	43.93%
11	Allocation of Existing Facilities to Incremental Growth	\$36,644,472
12	Rate per Living Unit Associated with Existing Facilities	\$2,085.44
Total Estimated Cost of Additional Water Production and Treatment Facilities:		
13	Additional Costs Capitalized - CIP [8]	\$0
14	Less Receipt of Grant Funds [4]	0
15	Cost of Additional Water Production/Treatment Facilities	\$0
16	New Plant Capacity (MGD) (ADF) [9]	0.000
17	Estimated Dwelling Units to be Served by Additional Facilities	0.00
18	Rate per Dwelling Units Associated with Additional Facilities	\$0.00
19	Rate per Living Units Allocable to Water Production/Treatment Facilities	\$2,085.44
Primary Transmission System:		
20	Existing Facilities [10]	\$8,606,122
21	Additional Costs Capitalized - CIP [11]	3,700,000
22	Less Anticipated Retirements [3]	(2,374,889)
23	Less Receipt of Grant Funds [4]	0
24	Total Primary Transmission Facility Costs	\$9,931,233
25	Estimated Dwelling Units Served by Existing Facilities [12]	40,000
26	Estimated Future Dwelling Units served by Transmission Facilities [12]	0
27	Total Estimated Dwelling Units served by Transmission Facilities [12]	40,000
28	Net Rate per Dwelling Unit of Primary Transmission Facilities	\$248.28
29	Total Combined Rate per Dwelling Unit After Rate Adjustment	\$2,333.72
30	Rounded Water Fee per Living Unit	\$2,333.00
31	Cost Per Gallon	\$7.78
32	Existing Rate per Gallon	\$9.67
33	Existing Rate per Living Unit	\$2,902.00
34	Proposed Increase / (Decrease)	(\$569.00)
35	Proposed Connection Fees	ELU Factor Amount
36	Single Family Residential	1.00 \$2,333.00
37	Multi-Family Residential	0.80 \$1,866.00
38	Mobile Home Residential	0.90 \$2,099.00

MGD = Million Gallons per Day

ADF = Average Daily Flow

GPD = Gallons per Day

Footnotes continued on the following page.

Table 4
City of Ormond Beach
Water and Wastewater System Connection Fee Study
Development of Water System Connection Fees

Footnotes:

- [1] Amount based on Table 1 and reflects water production and treatment assets currently in service.
- [2] Amount derived from Table 2 and reflects the planned upgrades to the existing water production and treatment facilities.
- [3] Amounts derived from City of Ormond Beach fixed asset data and reflect estimated fixed asset retirements due to the imposition of the capital improvement plan of the City which recognizes the replacement of such assets classified in the total treatment and/or transmission function.
- [4] Total cost of facilities is reduced by grants and other outside funding sources, if any, as provided by the City.
- [5] Amount reflects the rated permitted capacity of the existing facilities and is shown in detail as follows:

<u>Description</u>	<u>Plant Capacity</u>
Lime Softening Plant Capacity (MGD) (ADF)	8.000
Low Pressure Reverse Osmosis Capacity (MGD) (ADF)	4.000
Total Capacity (MDG) (MDF)	<u>12.000</u>

- [6] Based on the average daily flow for the period fiscal year 2016-2020.
- [7] Amount reflects the City's proposed level of service provided for a residential dwelling unit.
- [8] Amount derived from Table 2, if any, and reflects the cost of additional water treatment capacity.
- [9] Amount as provided by City staff and reflects the amount of additional water treatment capacity expressed on an average daily flow basis, if any.
- [10] Amount based on Table 1 and reflects water transmission assets currently in service.
- [11] Amount derived from Table 2 and reflects the planned upgrades to the existing water transmission system.
- [12] Amount assumes transmission capacity is consistent with the existing and estimated future water treatment capacity.

Table 5
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Page 1 of 2

Development of Wastewater System Connection Fees

Line No.	Description	Amount
Total Estimated Cost of Existing Wastewater Treatment Facilities		
1	Cost of Existing Facilities [1]	\$76,896,737
2	Additional Costs Capitalized - CIP [2]	5,118,100
3	Less Anticipated Retirements [3]	(2,438,856)
4	Less Receipt of Grant Funds [4]	0
5	Subtotal Wastewater Treatment Facilities	\$79,575,982
6	Existing Permitted Capacity of Plant Facilities (MGD) (ADF) [5]	8.000
7	Existing Average Daily Flow FY 2016-2020 (MGD) (ADF) [6]	4.465
8	Dwelling Unit Factor - (GPD) [7]	280.0
9	Estimated Dwelling Units Permitted to be Served by Existing Facilities	28,571
10	Percent Remaining Capacity of Existing Facilities	44.19%
11	Allocation of Existing Facilities to Incremental Growth	\$35,161,394
12	Rate per Dwelling Unit Associated with Existing Facilities	\$2,785.16
Total Estimated Cost of Additional Wastewater Treatment Facilities		
13	Additional Costs Capitalized - CIP [8]	\$0
14	Less Receipt of Grant Funds [4]	0
15	Cost of Additional Wastewater Treatment Facilities	\$0
16	New Plant Capacity (MGD) [9]	0.000
17	Estimated Dwelling Units to be Served by Additional Facilities	0.00
18	Rate per Dwelling Units Associated with Additional Facilities	\$0.00
19	Rate per Dwelling Units Allocable to Wastewater Treatment Facilities	\$2,785.16
Primary Transmission System:		
20	Existing Facilities [10]	\$19,308,495
21	Additional Costs Capitalized - CIP [11]	4,366,127
22	Less Anticipated Retirements [3]	(1,039,797)
23	Less Receipt of Grant Funds [4]	0
24	Total Primary Transmission Facility Costs	\$22,634,825
25	Estimated Dwelling Units Served by Existing Facilities [12]	28,571
26	Estimated Future Dwelling Units served by Transmission Facilities [12]	0
27	Total Estimated Dwelling Units served by Transmission Facilities [12]	28,571
28	Net Rate per Dwelling Unit of Primary Transmission Facilities	\$792.23
29	Total Combined Rate per Dwelling Unit After Rate Adjustment	\$3,577.39
30	Rounded Rate per Dwelling Unit	\$3,577.00
31	Cost Per Gallon	\$12.78
32	Existing Rate per Gallon	\$10.10
33	Existing Rate per Dwelling Unit	\$2,829.00
34	Proposed Increase / (Decrease)	\$748.00
35	Proposed Connection Fees	
36	Single Family Residential	ELU Factor 1.00 \$3,577.00
37	Multi-Family Residential	0.80 \$2,861.00
38	Mobile Home Residential	0.90 \$3,219.00

MGD = Million Gallons per Day
ADF = Average Daily Flow
GPD = Gallons per Day

Footnotes continued on the following page.

Table 5
City of Ormond Beach
Water and Wastewater System Connection Fee Study
Development of Wastewater System Connection Fees

Footnotes:

- [1] Amount based on Table 1 and reflects wastewater treatment assets currently in service.
- [2] Amount derived from Table 3 and reflects the planned upgrades to the existing wastewater treatment facilities.
- [3] Amounts derived from City of Ormond Beach fixed asset data and reflect estimated fixed asset retirements due to the imposition of the capital improvement plan of the City which recognizes the replacement of such assets classified in the total treatment and/or transmission function.
- [4] Total cost of facilities is reduced by grants and other outside funding sources, if any, as provided by the City.
- [5] Amount reflects the permitted capacity of the existing facilities and is shown in detail as follows:

Description	Plant Capacity
Wastewater Plant Capacity (MDG) (ADF)	8.000
Total Capacity (MDG)	8.000

- [6] Amount reflects the average daily flow for Fiscal Years 2015 through 2019.
- [7] Amount reflects the City's level of service provided for a residential dwelling unit.
- [8] Amount derived from Table 3, if any, and reflects the cost of additional wastewater treatment capacity.
- [9] Amount as provided by City staff and reflects the amount of additional wastewater treatment capacity expressed on an average daily flow basis, if any.
- [10] Amount based on Table 1 and reflects wastewater transmission assets currently in service.
- [11] Amount derived from Table 3 and reflects the planned upgrades to the existing wastewater collection system.
- [12] Amount assumes transmission capacity is consistent with the existing and estimated future wastewater treatment capacity.

Table 6
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Utility Connection Fee Comparison [*]

Line No.	Municipality	Residential Single Family Service		Total
		Water	Wastewater	
1	Ormond Beach - Existing	\$2,902.00	\$2,829.00	\$5,731.00
2	Ormond Beach - Proposed	\$2,333.00	\$3,577.00	\$5,910.00
3	New Smyrna Beach	\$1,485.00	\$1,445.00	\$2,930.00
4	Daytona Beach	\$1,376.00	\$1,825.00	\$3,201.00
5	DeLand	\$2,184.20	\$3,021.00	\$5,205.20
6	Deltona	\$1,944.00	\$4,531.00	\$6,475.00
7	Edgewater	\$1,740.72	\$2,634.35	\$4,375.07
8	Melbourne	\$1,540.00	\$2,210.00	\$3,750.00
9	Orange City	\$1,600.00	\$3,100.00	\$4,700.00
10	Palm Coast	\$2,745.89	\$2,954.57	\$5,700.46
11	Port Orange	\$605.00	\$1,540.00	\$2,145.00
12	Titusville	\$1,970.00	\$2,190.00	\$4,160.00
13	Volusia County	\$1,546.04	\$2,935.96	\$4,482.00
14	Survey Average Fee	\$1,703.35	\$2,580.63	\$4,283.98

[*] As of October 2021

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

[illegible]

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant		Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	
97	10001176	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	4/29/1994	137	0	0	0	0	0	0	0	0	0	0	0	0	137	0
98	10001177	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/29/1994	1,017	0	0	0	0	0	0	0	406	611	0	0	0	0	0
99	10001178	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/1/1994	599	0	0	0	0	0	0	0	239	360	0	0	0	0	0
100	10001179	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	4/1/1994	18	0	0	0	0	0	0	0	0	0	0	0	0	18	0
101	10001180	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/4/1994	1,232	0	0	0	0	0	0	0	492	740	0	0	0	0	0
102	10001181	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	3/4/1994	63	0	0	0	0	0	0	0	0	0	0	0	0	63	0
103	10001182	Effluent Reuse Engineering	20	209	3502	WW COLLECTION AND REUSE	GENERAL	2/4/1994	3,093	0	0	0	0	0	0	0	0	0	0	0	0	3,093	0
104	10001183	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	2/4/1994	466	0	0	0	0	0	0	0	0	0	0	0	0	466	0
105	10001184	Effluent Reuse Engineering	20	209	3502	WW COLLECTION AND REUSE	GENERAL	1/7/1994	1,061	0	0	0	0	0	0	0	0	0	0	0	0	1,061	0
106	10001185	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	1/7/1994	12	0	0	0	0	0	0	0	0	0	0	0	0	12	0
107	10001186	Effluent Reuse Design	20	209	3502	WW COLLECTION AND REUSE	GENERAL	7/19/1994	2,872	0	0	0	0	0	0	0	0	0	0	0	0	2,872	0
108	10001187	Effluent Reuse Engineering	20	209	3502	WW COLLECTION AND REUSE	GENERAL	3/4/1994	831	0	0	0	0	0	0	0	0	0	0	0	0	831	0
109	10001188	Effluent Reuse Reimburse Expenses	20	209	3502	WW COLLECTION AND REUSE	GENERAL	3/4/1994	22	0	0	0	0	0	0	0	0	0	0	0	0	22	0
110	10001189	Effluent Reuse Drawings	20	209	3502	WW COLLECTION AND REUSE	GENERAL	12/10/1993	642	0	0	0	0	0	0	0	0	0	0	0	0	642	0
111	10001190	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/30/1994	39,178	0	0	0	0	0	0	0	15,635	23,543	0	0	0	0	0
112	10001191	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/27/1994	11,343	0	0	0	0	0	0	0	4,527	6,816	0	0	0	0	0
113	10001192	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/27/1994	56,993	0	0	0	0	0	0	0	22,745	34,248	0	0	0	0	0
114	10001193	Effluent Reuse Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/3/1993	3,159	0	0	0	0	0	0	0	1,261	1,898	0	0	0	0	0
115	10001194	Effluent Reuse System Imp - Fy 1997	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/1997	224,220	0	0	0	0	0	0	0	89,483	134,737	0	0	0	0	0
116	10001197	Wtr Water System Imp (Old \$ Total By Fy	20	208	3301	WATER PLANT	W Treatment	10/1/1941	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	10001198	Water System Improvements - Fy Prior To	20	208	3301	WATER PLANT	W Treatment	10/1/1941	105,180	0	105,180	0	0	0	0	0	0	0	0	0	0	0	0
118	10001199	Water System Improvements - Fy 1942	20	208	3301	WATER PLANT	W Treatment	9/30/1942	4,006	0	4,006	0	0	0	0	0	0	0	0	0	0	0	0
119	10001200	Water System Improvements - Fy 1943 Thru	20	208	3301	WATER PLANT	W Treatment	9/30/1948	59,846	0	59,846	0	0	0	0	0	0	0	0	0	0	0	0
120	10001201	Water System Improvements - Fy 1949	20	208	3301	WATER PLANT	W Treatment	9/30/1949	79,720	0	79,720	0	0	0	0	0	0	0	0	0	0	0	0
121	10001202	Water System Improvements - Fy 1950	20	208	3301	WATER PLANT	W Treatment	9/30/1950	8,653	0	8,653	0	0	0	0	0	0	0	0	0	0	0	0
122	10001203	Water System Improvements - Fy 1951	20	208	3301	WATER PLANT	W Treatment	9/30/1951	9,263	0	9,263	0	0	0	0	0	0	0	0	0	0	0	0
123	10001204	Water System Improvements - Fy 1952	20	208	3301	WATER PLANT	W Treatment	9/30/1952	234,451	0	234,451	0	0	0	0	0	0	0	0	0	0	0	0
124	10001205	Water System Improvements - Fy 1953	20	208	3301	WATER PLANT	W Treatment	9/30/1953	26,545	0	26,545	0	0	0	0	0	0	0	0	0	0	0	0
125	10001206	Water System Improvements - Fy 1954	20	208	3301	WATER PLANT	W Treatment	9/30/1954	10,166	0	10,166	0	0	0	0	0	0	0	0	0	0	0	0
126	10001207	Water System Improvements - Fy 1955	20	208	3301	WATER PLANT	W Treatment	9/30/1955	21,112	0	21,112	0	0	0	0	0	0	0	0	0	0	0	0
127	10001208	Water System Improvements - Fy 1956	20	208	3301	WATER PLANT	W Treatment	9/30/1956	31,763	0	31,763	0	0	0	0	0	0	0	0	0	0	0	0
128	10001209	Water System Improvements - Fy 1957	20	208	3301	WATER PLANT	W Treatment	9/30/1957	33,233	0	33,233	0	0	0	0	0	0	0	0	0	0	0	0
129	10001210	Water System Improvements - Fy 1958	20	208	3301	WATER PLANT	W Treatment	9/30/1958	183,198	0	183,198	0	0	0	0	0	0	0	0	0	0	0	0
130	10001211	Water System Improvements - Fy 1959	20	208	3301	WATER PLANT	W Treatment	9/30/1959	524,534	0	524,534	0	0	0	0	0	0	0	0	0	0	0	0
131	10001212	Water System Improvements - Fy 1961	20	208	3301	WATER PLANT	W Treatment	9/30/1961	63,086	0	63,086	0	0	0	0	0	0	0	0	0	0	0	0
132	10001213	Water System Improvements - Fy 1962	20	208	3301	WATER PLANT	W Treatment	9/30/1962	103,177	0	103,177	0	0	0	0	0	0	0	0	0	0	0	0
133	10001214	Water System Improvements - Fy 1963	20	208	3301	WATER PLANT	W Treatment	9/30/1963	70,178	0	70,178	0	0	0	0	0	0	0	0	0	0	0	0
134	10001215	Water System Improvements - Fy 1964	20	208	3301	WATER PLANT	W Treatment	9/30/1964	36,265	0	36,265	0	0	0	0	0	0	0	0	0	0	0	0
135	10001216	Water System Improvements - Fy 1965	20	208	3301	WATER PLANT	W Treatment	9/30/1965	134,316	0	134,316	0	0	0	0	0							

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant			
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
195	10001276	Dedicated Wtr - Breakaway Trails Plant -	20	208	3301	WATER PLANT	W Treatment	9/30/1990	40,208	0	40,208	0	0	0	0	0	0	0	0	0	0	0	0	0
196	10001277	Land Dedicated Wtr - Breakaway Trails Pl	70	701	3301	WATER PLANT	W Treatment	9/30/1990	124,650	0	124,650	0	0	0	0	0	0	0	0	0	0	0	0	0
197	10001278	Land Dedicated Wtr - Breakaway Trails -	70	701	3301	WATER PLANT	W Treatment	9/30/1990	3,300	0	3,300	0	0	0	0	0	0	0	0	0	0	0	0	0
198	10001279	Dedicated Wtr - Breakaway Trails - Fy 90	20	208	3301	WATER PLANT	W Treatment	9/30/1990	153,900	0	153,900	0	0	0	0	0	0	0	0	0	0	0	0	0
199	10001280	Dedicated Wtr - Breakaway Trails Wells -	20	208	3301	WATER PLANT	W Treatment	9/30/1990	58,426	0	58,426	0	0	0	0	0	0	0	0	0	0	0	0	0
200	10001281	Dedicated Wtr - Pine Trail School - Fy 9	20	208	3301	WATER PLANT	W T&D	9/30/1990	123,526	0	0	36,608	86,917	0	0	0	0	0	0	0	0	0	0	0
201	10001282	Dedicated Wtr - Shadow Crossings - Fy 91	20	208	3301	WATER PLANT	W T&D	9/30/1991	114,187	0	0	33,841	80,346	0	0	0	0	0	0	0	0	0	0	0
202	10001283	Dedicated Wtr - Pine Trails Phase I - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/1992	23,791	0	0	7,051	16,740	0	0	0	0	0	0	0	0	0	0	0
203	10001284	Dedicated Wtr - Breakaway Trails Ph Iii	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/1992	114,726	0	0	34,000	80,726	0	0	0	0	0	0	0	0	0	0	0
204	10001285	Dedicated Wtr - Broadwater Subdivision-9	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/1992	63,650	0	0	18,863	44,787	0	0	0	0	0	0	0	0	0	0	0
205	10001286	Dedicated Wtr - Coquina Point - Fy 1992	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/1992	83,790	0	0	24,832	58,958	0	0	0	0	0	0	0	0	0	0	0
206	10001287	Dedicated Wtr - Addt'L Water Lines Fy 19	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/1992	97,240	0	0	28,818	68,422	0	0	0	0	0	0	0	0	0	0	0
207	10001288	Dedicated Wtr - Pine Trails Ph Iii - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	11/20/2000	29,450	0	0	8,728	20,722	0	0	0	0	0	0	0	0	0	0	0
208	10001289	Dedicated Wtr - Ormond Lakes Unit Ix - F	20	208	3302	WATER DISTRIBUTION	W T&D	1/15/2001	69,445	0	0	20,581	48,864	0	0	0	0	0	0	0	0	0	0	0
209	10001290	Dedicated Wtr - Breakaway Trls Ph Iii -	20	208	3302	WATER DISTRIBUTION	W T&D	4/20/2001	37,670	0	0	11,164	26,506	0	0	0	0	0	0	0	0	0	0	0
210	10001291	Dedicated Wtr - Publix @ Holly Hill - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2002	65,000	0	0	19,263	45,737	0	0	0	0	0	0	0	0	0	0	0
211	10001292	Dedicated Wtr - Avalon-Marlin Dr/On Aia	20	208	3302	WATER DISTRIBUTION	W T&D	8/24/2001	16,780	0	0	4,973	11,807	0	0	0	0	0	0	0	0	0	0	0
212	10001293	Dedicated Wtr - Ormond Lakes Unit Xb - F	20	208	3302	WATER DISTRIBUTION	W T&D	9/1/2001	18,214	0	0	5,398	12,816	0	0	0	0	0	0	0	0	0	0	0
213	10001294	Dedicated Wtr - Latulippe Office/Pearl D	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2002	25,000	0	0	7,409	17,591	0	0	0	0	0	0	0	0	0	0	0
214	10001295	Dedicated Wtr - Ormond Lakes Unit Xii -	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2002	195,568	0	0	57,959	137,609	0	0	0	0	0	0	0	0	0	0	0
215	10001296	Dedicated Wtr - Briargate Ph 1 & 2 - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	7/26/2005	114,392	0	0	33,901	80,491	0	0	0	0	0	0	0	0	0	0	0
216	10001297	Dedicated Wtr - Creekside - Fy 2005	20	208	3302	WATER DISTRIBUTION	W T&D	8/15/2005	99,020	0	0	29,346	69,674	0	0	0	0	0	0	0	0	0	0	0
217	10001298	Dedicated Wtr - Tuscanny Shoppes - Fy 20	20	208	3302	WATER DISTRIBUTION	W T&D	7/6/2005	500	0	0	148	352	0	0	0	0	0	0	0	0	0	0	0
218	10001299	Dedicated Wtr - Ormond Ace - Fy 2005	20	208	3302	WATER DISTRIBUTION	W T&D	9/27/2005	800	0	0	237	563	0	0	0	0	0	0	0	0	0	0	0
219	10001300	Dedicated Wtr - Harley Davidson Cmplx -	20	208	3302	WATER DISTRIBUTION	W T&D	8/31/2005	103,660	0	0	30,721	72,939	0	0	0	0	0	0	0	0	0	0	0
220	10001301	Dedicated Wtr - Med Center-Hand/Clyde -	20	208	3302	WATER DISTRIBUTION	W T&D	5/25/2005	24,850	0	0	7,365	17,485	0	0	0	0	0	0	0	0	0	0	0
221	10001302	Dedicated Wtr - Capriana Condo - Aia - F	20	208	3302	WATER DISTRIBUTION	W T&D	7/3/2006	2,700	0	0	800	1,900	0	0	0	0	0	0	0	0	0	0	0
222	10001303	Dedicated Wtr - Calvary Chapel - Fy 06	20	208	3302	WATER DISTRIBUTION	W T&D	5/31/2006	4,000	0	0	1,185	2,815	0	0	0	0	0	0	0	0	0	0	0
223	10001304	Dedicated Wtr - Broken Spoke - N Us 1 -	20	208	3302	WATER DISTRIBUTION	W T&D	2/14/2006	3,700	0	0	1,097	2,603	0	0	0	0	0	0	0	0	0	0	0
224	10001305	Dedicated Wtr - Hunter Ridge - Flgtr Cty	20	208	3302	WATER DISTRIBUTION	W T&D	1/30/2006	3,400	0	0	1,008	2,392	0	0	0	0	0	0	0	0	0	0	0
225	10001306	Dedicated Wtr - Chelsea Place - Ph 1/2 -	20	208	3302	WATER DISTRIBUTION	W T&D	3/2/2006	352,700	0	0	104,526	248,174	0	0	0	0	0	0	0	0	0	0	0
226	10001307	Dedicated Wtr - Tuscany Sub - Fy 07	20	208	3302	WATER DISTRIBUTION	W T&D	11/16/2006	132,644	0	0	39,310	93,334	0	0	0	0	0	0	0	0	0	0	0
227	10001308	Dedicated Wtr - 1425 Hand Ave Ctrc - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	1/2/2007	7,600	0	0	2,252	5,348	0	0	0	0	0	0	0	0	0	0	0
228	10001309	Dedicated Wtr - Fun Coast Medical - Fy 0	20	208	3302	WATER DISTRIBUTION	W T&D	11/30/2006	10,120	0	0	2,999	7,121	0	0	0	0	0	0	0	0	0	0	0
229	10001310	Dedicated Wtr - Tatto Tavern - N Us 1 -	20	208	3302	WATER DISTRIBUTION	W T&D	3/6/2007	7,760	0	0	2,300	5,460	0	0	0	0	0	0	0	0	0	0	0
230	10001311	Dedicated Wtr - Saddle Jacks - Us 1 - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	8/16/2007	11,460	0	0	3,396	8,064	0	0	0	0	0	0	0	0	0	0	0
231	10001312	Dedicated Wtr - Majik Market - N Yonge S	20	208	3302	WATER DISTRIBUTION	W T&D	8/24/2007	1,170	0	0	347	823	0	0	0	0	0	0	0	0	0	0	0
232	10001313	Dedicated Wtr - Tomoka Landing - Fy 07	20	208	3302	WATER DISTRIBUTION	W T&D	8/24/2007	4,440	0	0	1,316	3,124	0	0	0	0	0	0	0	0	0	0	0
233	10001314	Dedicated Wtr - Destination Daytona/Ph 2	20	208	3302	WATER DISTRIBUTION	W T&D	10/23/2006	127,905	0	0	37,906	89,999	0	0	0	0	0	0	0	0	0	0	0
234	10001315	Dedicated Wtr - Westland Village - Fy 07	20	208	3302	WATER DISTRIBUTION	W T&D	10/1/2006	166,034	0	0	49,206	116,828	0	0	0	0	0	0	0	0	0	0	0
235	10001316	Dedicated Wtr - Deer Creek/Ph 1&2 - Fy 0	20	208	3302	WATER DISTRIBUTION	W T&D	8/17/2007	490,370	0	0	145,326	345,044	0	0	0	0	0	0	0	0	0	0	0
236	10001317	Dedicated Wtr - Progressive Bus Park - F	20	208	3302	WATER DISTRIBUTION	W T&D	6/27/2007	8,000	0	0	2,371	5,629	0	0	0	0	0	0	0	0	0	0	0
237	10001318	Dedicated Wtr - Capital Plaza/Ph 1 - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	1/5/2007	25,680	0	0	7,611	18,069	0	0	0	0	0	0	0	0	0	0	0
238	10001319	Dedicated Wtr - East Coast Comm Bank - F	20	208	3302	WATER DISTRIBUTION	W T&D	10/10/2007	1,100	0	0	326	774	0	0	0	0	0	0	0	0	0	0	0
239	10001320	Dedicated Wtr - Capri Drive - Fy 07	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2007	103,950	0	0	30,807	73,143	0	0	0	0	0	0	0	0	0	0	0
240	10001321	Dedicated Wtr - Ormond Lakes/Unit Iiib -	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	73,350	0	0	21,738	51,612	0	0	0	0	0	0	0	0	0	0	0
241	10001322	Dedicated Wtr - Saddlers Run Ph Iii - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	31,400	0	0	9,306	22,094	0	0	0	0	0	0	0	0	0	0	0
242	10001323	Dedicated Wtr - Ormond Lakes Unit 8 - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	69,000	0	0	20,449	48,551	0	0	0	0	0	0	0	0	0	0	0
243	10001324	Dedicated Wtr - Breakaway Trl Iii/2B - F	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	42,198	0	0	12,506	29,692	0	0	0	0	0	0	0	0	0	0	0
244	10001325	Dedicated Wtr - Southern Pines/Unit Iii	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	82,043	0	0	24,314	57,729	0	0	0	0	0	0	0	0	0	0	0
245	10001326	Dedicated Wtr - Mirror Lake Medical - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	9,250	0	0	2,741	6,509	0	0	0	0	0	0	0	0	0	0	0
246	10001327	Dedicated Wtr - Oak Point - Fy 04	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	3,750	0	0	1,111	2,639	0	0	0	0	0	0	0	0	0	0	0
247	10001328	Dedicated Wtr - Gardens Business Ctr - F	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2004	32,550	0	0	9,647	22,903	0	0	0	0	0	0	0	0	0	0	0
248	10001329	Dedicated Wtr - Tymber Crossings/Ph 1 -	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2003	73,350	0	0	21,738	51,612	0	0	0	0	0	0	0	0	0	0	0
249	10001330	Dedicated Wtr - Ormond Lakes/Unit 3 - Fy	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2003	35,470	0	0	10,512	24,958	0	0	0	0	0	0	0	0	0	0	0
250	10001331	Dedicated Wtr - Ormond Lakes/Unit Ii - F	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2003	66,450	0	0	19,693	46,757	0	0	0	0	0	0	0	0	0	0	0
251	10001332	Dedicated Wtr - Tymber Crossings/Ph 2 -	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2003	3,720	0	0	1,102	2,618	0	0	0	0	0	0	0	0	0	0	0
252	10001333	Dedicated Wtr - Certified Screen - Fy 03	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2003	2,200	0	0	652	1,548	0	0	0	0	0	0	0	0	0		

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater		Reclaimed		Other Plant			Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect		General
293	10001374	Dedicated Ww - Breakaway Tr Ph Iii - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/20/2001	51,964	0	0	0	0	0	0	0	20,738	31,226	0	0	0	0	0	0
294	10001375	Dedicated Ww - Pine Trails Ph Iii - Fy 2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/20/2000	32,140	0	0	0	0	0	0	0	12,827	19,313	0	0	0	0	0	0
295	10001376	Dedicated Ww - Ormond Lakes Unit Ix - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/15/2001	75,245	0	0	0	0	0	0	0	30,029	45,216	0	0	0	0	0	0
296	10001377	Dedicated Ww - Ormond Lakes Unit Ix - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/1/2001	35,927	0	0	0	0	0	0	0	14,338	21,589	0	0	0	0	0	0
297	10001378	Dedicated Ww - Briargate/Ph 1 & 2 - Fy 2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/26/2005	86,900	0	0	0	0	0	0	0	34,680	52,220	0	0	0	0	0	0
298	10001379	Dedicated Ww - Briargate/Ph 1 & 2 - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/26/2005	32,600	0	0	0	0	0	0	0	13,010	19,590	0	0	0	0	0	0
299	10001380	Dedicated Ww - Creekside - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/15/2005	99,000	0	0	0	0	0	0	0	39,509	59,491	0	0	0	0	0	0
300	10001381	Dedicated Ww - Creekside - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/15/2005	8,858	0	0	0	0	0	0	0	3,535	5,323	0	0	0	0	0	0
301	10001382	Dedicated Ww - Creekside - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/15/2005	41,000	0	0	0	0	0	0	0	16,362	24,638	0	0	0	0	0	0
302	10001383	Dedicated Ww - Creekside - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/15/2005	75,819	0	0	0	0	0	0	0	30,258	45,561	0	0	0	0	0	0
303	10001384	Dedicated Ww - Ormond Ace - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/27/2005	15,000	0	0	0	0	0	0	0	5,986	9,014	0	0	0	0	0	0
304	10001385	Dedicated Ww - Bus Ctr/Addison-Destiny -	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/15/2005	16,050	0	0	0	0	0	0	0	6,405	9,645	0	0	0	0	0	0
305	10001386	Dedicated Ww - Tomoka Crk Plaza - Fy 200	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/27/2005	2,200	0	0	0	0	0	0	0	878	1,322	0	0	0	0	0	0
306	10001387	Dedicated Ww - Harley Davidson - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/31/2005	99,900	0	0	0	0	0	0	0	39,869	60,031	0	0	0	0	0	0
307	10001388	Dedicated Ww - Harley Davidson - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/31/2005	25,500	0	0	0	0	0	0	0	10,177	15,323	0	0	0	0	0	0
308	10001389	Dedicated Ww - Harley Davidson - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/31/2005	101,780	0	0	0	0	0	0	0	40,619	61,161	0	0	0	0	0	0
309	10001390	Dedicated Ww - Harley Davidson - Fy 2005	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/31/2005	47,500	0	0	0	0	0	0	0	18,957	28,543	0	0	0	0	0	0
310	10001391	Dedicated Ww - Tymber Xings/Ph 1 - Fy 20	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	34,880	0	0	0	0	0	0	0	13,920	20,960	0	0	0	0	0	0
311	10001392	Dedicated Ww - Orm Lakes/Unit 3 - Fy 200	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	45,300	0	0	0	0	0	0	0	18,079	27,221	0	0	0	0	0	0
312	10001393	Dedicated Ww - Orm Lakes/Unit Ii - Fy 20	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	84,550	0	0	0	0	0	0	0	33,743	50,807	0	0	0	0	0	0
313	10001394	Dedicated Ww - Tymber Xings/Ph 2 - Fy 20	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	44,520	0	0	0	0	0	0	0	17,767	26,753	0	0	0	0	0	0
314	10001395	Dedicated Ww - Philopatry - Fy 2003	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	5,120	0	0	0	0	0	0	0	2,043	3,077	0	0	0	0	0	0
315	10001396	Dedicated Ww - Med Ctr/Clyde Morris - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2003	2,300	0	0	0	0	0	0	0	918	1,382	0	0	0	0	0	0
316	10001397	Dedicated Ww - Orm Lakes Unit Iii-B - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	34,880	0	0	0	0	0	0	0	13,920	20,960	0	0	0	0	0	0
317	10001398	Dedicated Ww - Saddlers Run/Ph Iii - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	12,647	0	0	0	0	0	0	0	5,047	7,600	0	0	0	0	0	0
318	10001399	Dedicated Ww - Ormond Lakes/Unit 8 - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	100,310	0	0	0	0	0	0	0	40,032	60,278	0	0	0	0	0	0
319	10001400	Dedicated Ww - Breakaway Tr Iii/2B - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	36,624	0	0	0	0	0	0	0	14,616	22,008	0	0	0	0	0	0
320	10001401	Dedicated Ww - Breakaway Tr Iii/2C - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	48,561	0	0	0	0	0	0	0	19,380	29,181	0	0	0	0	0	0
321	10001402	Dedicated Ww - Southern Pines/Unit Iii -	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	133,331	0	0	0	0	0	0	0	53,210	80,121	0	0	0	0	0	0
322	10001403	Dedicated Ww - Mirror Lake Medical - Fy	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	14,550	0	0	0	0	0	0	0	5,807	8,743	0	0	0	0	0	0
323	10001404	Dedicated Ww - Oak Point - Fy 2004	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	3,750	0	0	0	0	0	0	0	1,497	2,253	0	0	0	0	0	0
324	10001405	Dedicated Ww - Seminole Center - Fy 2004	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	54,500	0	0	0	0	0	0	0	21,750	32,750	0	0	0	0	0	0
325	10001406	Dedicated Ww - Gardens Business Center -	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2004	16,190	0	0	0	0	0	0	0	6,461	9,729	0	0	0	0	0	0
326	10001407	Dedicated Ww - Caprina Condo - Fy 2006	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2006	366,859	0	0	0	0	0	0	0	146,408	220,451	0	0	0	0	0	0
327	10001408	Dedicated Ww - Winchester Manor - Fy 200	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/31/2006	1,800	0	0	0	0	0	0	0	718	1,082	0	0				

Appendix I
City of Ormond Beach
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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater			Reclaimed			Other Plant			
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
391	10001472	Wastewater System Improvements - Fy 1994	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1994	580,269	0	0	0	0	0	0	580,269	0	0	0	0	0	0	0	0
392	10001473	Wastewater System Improvements - Fy 1993	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1993	1,393,476	0	0	0	0	0	0	1,393,476	0	0	0	0	0	0	0	0
393	10001474	Wastewater System Improvements - Fy 1991	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1991	714,039	0	0	0	0	0	0	714,039	0	0	0	0	0	0	0	0
394	10001475	Ww Hcharlie Damage Neptune Ave-A1A Sewer	20	209	3501	WASTERWATER PLANT	WW Treatment	9/24/2004	23,250	0	0	0	0	0	0	23,250	0	0	0	0	0	0	0	0
395	10001476	Wastewater System Improvements - Fy 1995	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1995	472,790	0	0	0	0	0	0	472,790	0	0	0	0	0	0	0	0
396	10001477	Ww System Shipping	20	209	3501	WASTERWATER PLANT	OTHER	7/27/2006	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
397	10001478	Ww System 5 Hp Vertical Solid Shaft Pump	20	209	3501	WASTERWATER PLANT	GENERAL	7/27/2006	2,264	0	0	0	0	0	0	0	0	0	0	0	0	0	2,264	0
398	10001479	Ww Repair Of Clarifiers #1 & #3 (Res# 20	20	209	3501	WASTERWATER PLANT	WW Treatment	8/2/2006	42,009	0	0	0	0	0	0	42,009	0	0	0	0	0	0	0	0
399	10001480	Ww Repair Of Clarifiers #1 & #3 (Res# 20	20	209	3501	WASTERWATER PLANT	WW Treatment	8/2/2006	16,900	0	0	0	0	0	0	16,900	0	0	0	0	0	0	0	0
400	10001481	Dedicated Eff Reuse System - Base Asset	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1990	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
401	10001482	Dedicated Eff Reuse Lines - Breakaway/Ph	20	209	3501	WASTERWATER PLANT	W T&D	9/30/1990	102,600	0	0	30,407	72,193	0	0	0	0	0	0	0	0	0	0	0
402	10001483	Dedicated Eff Reuse Lines - Shadow Xings	20	209	3501	WASTERWATER PLANT	W T&D	9/30/1991	191,393	0	0	0	134,672	0	0	0	0	0	0	0	0	0	0	0
403	10001484	Dedicated Eff Reuse Lines - Breakaway Tr	20	209	3501	WASTERWATER PLANT	W T&D	9/30/1992	135,000	0	0	40,009	94,991	0	0	0	0	0	0	0	0	0	0	0
404	10001485	Land Dedicated Eff Reuse Lines - Breakaw	70	701	3502	WW COLLECTION AND REUSE	WW T&C	9/30/1990	3,000	0	0	0	0	0	0	0	1,197	1,803	0	0	0	0	0	0
405	10001486	Dedicated Eff Br Trls Ph Iii-8"" Pvc Mai	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/20/2001	77,129	0	0	0	0	0	0	0	30,781	46,348	0	0	0	0	0	0
406	10001494	Veh 98 Jeep Cherokee 4X4	40	401	3401	SOLID WASTE COLLECTION	OTHER	4/9/1998	20,731	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20,731
407	10001644	Ww Wwtp Wastewater Treatment Plant Wilme	20	209	3501	WASTERWATER PLANT	WW Treatment	6/7/1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
408	10001645	Ww Wwtp Casual Worker Maint Upgrades	20	209	3501	WASTERWATER PLANT	WW Treatment	3/13/1998	347	0	0	0	0	0	0	347	0	0	0	0	0	0	0	0
409	10001646	Ww Wwtp Repair Rotating Element	20	209	3501	WASTERWATER PLANT	WW Treatment	8/16/2005	12,755	0	0	0	0	0	0	12,755	0	0	0	0	0	0	0	0
410	10001647	Ww Wwtp Facility Upgrade	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2000	6,585	0	0	0	0	0	0	6,585	0	0	0	0	0	0	0	0
411	10001648	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	9/13/2005	12,384	0	0	0	0	0	0	0	0	0	0	0	0	12,384	0	0
412	10001649	Ww Wwtp Bar Screen Cat Walk	20	209	3501	WASTERWATER PLANT	WW Treatment	9/13/2005	5,800	0	0	0	0	0	0	5,800	0	0	0	0	0	0	0	0
413	10001650	Ww Wwtp Cleaning Sand Filtration Chamber	20	209	3501	WASTERWATER PLANT	WW Treatment	9/26/2005	9,860	0	0	0	0	0	0	9,860	0	0	0	0	0	0	0	0
414	10001651	Ww Wwtp Allum System Replacement	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2005	7,900	0	0	0	0	0	0	7,900	0	0	0	0	0	0	0	0
415	10001652	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	12/29/2005	28,532	0	0	0	0	0	0	0	0	0	0	0	0	0	28,532	0
416	10001653	Ww Wwtp Ss Sleeve W/Packing 756.0415.108	20	209	3501	WASTERWATER PLANT	WW Treatment	1/3/2006	1,877	0	0	0	0	0	0	1,877	0	0	0	0	0	0	0	0
417	10001654	Ww Wwtp Ss Shaft 728.0515.104	20	209	3501	WASTERWATER PLANT	WW Treatment	1/3/2006	6,479	0	0	0	0	0	0	6,479	0	0	0	0	0	0	0	0
418	10001655	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	2/16/2006	11,875	0	0	0	0	0	0	0	0	0	0	0	0	0	11,875	0
419	10001656	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	1/25/2006	7,396	0	0	0	0	0	0	0	0	0	0	0	0	0	7,396	0
420	10001657	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	5/22/2006	1,069	0	0	0	0	0	0	0	0	0	0	0	0	0	1,069	0
421	10001658	Ww Wwtp Repair Clarifiers #1 & #3 (Res#	20	209	3501	WASTERWATER PLANT	WW Treatment	6/9/2006	75,925	0	0	0	0	0	0	75,925	0	0	0	0	0	0	0	0
422	10001659	Ww Wwtp Repair Clarifiers #1 & #3 (Res#	20	209	3501	WASTERWATER PLANT	WW Treatment	5/16/2006	34,166	0	0	0	0	0	0	34,166	0	0	0	0	0	0	0	0
423	10001660	Ww Wwtp Professional Services	20	209	3501	WASTERWATER PLANT	GENERAL	4/24/2006	2,906	0	0	0	0	0	0	0	0	0	0	0	0	0	2,906	0
424	10001661	Ww Wwtp 5 Hp Vertical Solid Shaft Pump M	20	209	3501	WASTERWATER PLANT	GENERAL	6/28/2006	3,396	0	0	0	0	0	0	0	0	0	0	0	0	0	3,396	0
425	10001662	Ww Wwtp Shipping	20	209	3501	WASTERWATER PLANT	GENERAL	6/28/2006	108	0	0	0	0	0	0	0	0	0	0	0	0	0	108	0
426	10001663	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	5/22/2006	2,906	0	0	0	0	0	0	0	0	0	0	0	0	0	2,906	0
427	10001664	Ww Wwtp Engineering Services Evaluation	20	209	3501	WASTERWATER PLANT	GENERAL	8/21/2006	10,733	0	0	0	0	0	0	0	0	0	0	0	0			

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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater		Reclaimed			Other Plant		Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect		General
489	10002403	Lift Sta Misc Flygt Parts / Inv# 075651	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/22/2004	881	0	0	0	0	0	0	0	352	530	0	0	0	0	0	0
490	10002404	Lift Sta Misc Flygt Parts Throughout Cit	20	209	3501	WASTERWATER PLANT	GENERAL	8/13/2006	2,875	0	0	0	0	0	0	0	0	0	0	0	0	0	2,875	0
491	10002405	Lift Sta Misc Flygt Parts Throughout Cit	20	209	3501	WASTERWATER PLANT	GENERAL	7/27/2006	1,608	0	0	0	0	0	0	0	0	0	0	0	0	0	1,608	0
492	10002406	Lift Sta Misc Flygt Parts For Lift Stati	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/6/2004	591	0	0	0	0	0	0	0	236	355	0	0	0	0	0	0
493	10002407	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/6/2004	612	0	0	0	0	0	0	0	244	367	0	0	0	0	0	0
494	10002408	Lift Sta Misc Check Valve	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/8/2004	7,078	0	0	0	0	0	0	0	2,825	4,253	0	0	0	0	0	0
495	10002409	Lift Sta Misc Replace Existing Controlle	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/22/2004	5,825	0	0	0	0	0	0	0	2,325	3,500	0	0	0	0	0	0
496	10002410	Lift Sta Misc Supplies	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/19/2004	2,380	0	0	0	0	0	0	0	950	1,430	0	0	0	0	0	0
497	10002411	Lift Sta Misc Metals, Bars, Plates, Rods	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/11/2004	5,616	0	0	0	0	0	0	0	2,241	3,375	0	0	0	0	0	0
498	10002412	Lift Sta Misc Flygt Parts Throughout Cit	20	209	3501	WASTERWATER PLANT	GENERAL	8/29/2006	2,048	0	0	0	0	0	0	0	0	0	0	0	0	0	2,048	0
499	10002413	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/11/2003	5,520	0	0	0	0	0	0	0	2,203	3,317	0	0	0	0	0	0
500	10002414	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/11/2003	1,413	0	0	0	0	0	0	0	564	849	0	0	0	0	0	0
501	10002415	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/30/2003	4,900	0	0	0	0	0	0	0	1,956	2,944	0	0	0	0	0	0
502	10002416	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/22/2003	231	0	0	0	0	0	0	0	92	139	0	0	0	0	0	0
503	10002417	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/28/2003	1,471	0	0	0	0	0	0	0	587	884	0	0	0	0	0	0
504	10002418	Lift Sta Misc Pump Station Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/10/2003	687	0	0	0	0	0	0	0	274	413	0	0	0	0	0	0
505	10002419	Lift Sta Misc Pump Station Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/3/2003	787	0	0	0	0	0	0	0	314	473	0	0	0	0	0	0
506	10002420	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/12/2003	554	0	0	0	0	0	0	0	221	333	0	0	0	0	0	0
507	10002421	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/3/2003	500	0	0	0	0	0	0	0	200	300	0	0	0	0	0	0
508	10002422	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/31/2002	3,579	0	0	0	0	0	0	0	1,428	2,151	0	0	0	0	0	0
509	10002423	Lift Sta Misc E/One Grinder Pump Station	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/12/2004	13,000	0	0	0	0	0	0	0	5,188	7,812	0	0	0	0	0	0
510	10002424	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/5/2005	1,570	0	0	0	0	0	0	0	627	944	0	0	0	0	0	0
511	10002425	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/31/2005	1,750	0	0	0	0	0	0	0	699	1,052	0	0	0	0	0	0
512	10002426	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/31/2005	5,724	0	0	0	0	0	0	0	2,284	3,440	0	0	0	0	0	0
513	10002427	Lift Sta Misc 6"" Flygt Submersible Ww P	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/7/2005	18,664	0	0	0	0	0	0	0	7,449	11,215	0	0	0	0	0	0
514	10002428	Lift Sta Misc 50 Hp Us 3 Phase Motor	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/9/2005	974	0	0	0	0	0	0	0	389	585	0	0	0	0	0	0
515	10002429	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/21/2005	5,145	0	0	0	0	0	0	0	2,053	3,092	0	0	0	0	0	0
516	10002430	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/7/2005	359	0	0	0	0	0	0	0	143	216	0	0	0	0	0	0
517	10002431	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/7/2005	2,808	0	0	0	0	0	0	0	1,121	1,687	0	0	0	0	0	0
518	10002432	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/20/2005	1,331	0	0	0	0	0	0	0	531	800	0	0	0	0	0	0
519	10002433	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/20/2005	342	0	0	0	0	0	0	0	136	205	0	0	0	0	0	0
520	10002434	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/12/2005	3,020	0	0	0	0	0	0	0	1,205	1,815	0	0	0	0	0	0
521	10002435	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/1/2005	3,145	0	0	0	0	0	0	0	1,255	1,890	0	0	0	0	0	0
522	10002436	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/8/2005	1,599	0	0	0	0	0	0	0	638	961	0	0	0	0	0	0
523	10002437	Lift Sta Misc Flygt Parts - Blanket Po	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/8/2005	1,709	0	0	0	0	0	0	0	682	1,027	0	0	0	0	0	0
524	10002438	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/18/2005	3,366	0	0	0	0	0	0	0	1,343	2,023	0	0	0	0	0	0
525	10002439	Lift Sta Misc Flygt Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/18/2005	622	0	0	0	0	0	0	0	248	374	0	0	0	0	0	0
526	100024																							

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No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant				
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other	
587	10002504	Task*Plan Review	20	209	3501	WASTERWATER PLANT	GENERAL	8/2/2000	697	0	0	0	0	0	0	0	0	0	0	0	0	0	697	0	
588	10002505	Prof Serv	20	208	3301	WATER PLANT	GENERAL	10/21/2000	64,893	0	0	0	0	0	0	0	0	0	0	0	0	0	64,893	0	
589	10002506	Prof Services Thru 12/30/00	20	209	3501	WASTERWATER PLANT	GENERAL	1/19/2001	58,883	0	0	0	0	0	0	0	0	0	0	0	0	0	58,883	0	
590	10002507	Sewer Permit Fee	20	209	3501	WASTERWATER PLANT	GENERAL	3/27/2001	300	0	0	0	0	0	0	0	0	0	0	0	0	0	300	0	
591	10002508	Water Permit Fee	20	209	3501	WASTERWATER PLANT	GENERAL	3/27/2001	500	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	
592	10002509	Right Of Way Permit Fee	20	209	3501	WASTERWATER PLANT	GENERAL	3/27/2001	325	0	0	0	0	0	0	0	0	0	0	0	0	0	325	0	
593	10002510	Prof Services	20	209	3501	WASTERWATER PLANT	GENERAL	8/25/2001	2,707	0	0	0	0	0	0	0	0	0	0	0	0	0	2,707	0	
594	10002511	Prof Services	20	208	3301	WATER PLANT	GENERAL	9/29/2001	691	0	0	0	0	0	0	0	0	0	0	0	0	0	691	0	
595	10002512	Prof Services	20	209	3501	WASTERWATER PLANT	GENERAL	9/29/2001	691	0	0	0	0	0	0	0	0	0	0	0	0	0	691	0	
596	10002513	Nova Rd Utility Relocation - Reclass Cit	20	208	3301	WATER PLANT	W T&D	9/28/2001	2,265,262	0	0	671,334	1,593,927	0	0	0	0	0	0	0	0	0	0	0	0
597	10002514	Prof Services	20	208	3301	WATER PLANT	GENERAL	12/6/2001	432	0	0	0	0	0	0	0	0	0	0	0	0	0	432	0	
598	10002515	Prof Services	20	209	3501	WASTERWATER PLANT	GENERAL	12/6/2001	432	0	0	0	0	0	0	0	0	0	0	0	0	0	432	0	
599	10002516	Prof Services	20	208	3301	WATER PLANT	GENERAL	3/6/2002	4,320	0	0	0	0	0	0	0	0	0	0	0	0	0	4,320	0	
600	10002517	Pipe Was Not Shown On Plans, Was In Conf	20	208	3301	WATER PLANT	GENERAL	4/12/2004	2,200	0	0	0	0	0	0	0	0	0	0	0	0	0	2,200	0	
601	10002518	Nova Road Utility Relocation	20	208	3301	WATER PLANT	W T&D	5/3/2004	691	0	0	205	486	0	0	0	0	0	0	0	0	0	0	0	0
602	10002519	As Built Copies	20	208	3301	WATER PLANT	GENERAL	5/10/2004	110	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	
603	10002520	Prof Services	20	208	3301	WATER PLANT	GENERAL	9/8/2003	173	0	0	0	0	0	0	0	0	0	0	0	0	0	173	0	
604	10002521	Prof Services	20	208	3301	WATER PLANT	GENERAL	7/18/2003	518	0	0	0	0	0	0	0	0	0	0	0	0	0	518	0	
605	10002522	Engin. Services	20	208	3301	WATER PLANT	GENERAL	5/2/2003	1,210	0	0	0	0	0	0	0	0	0	0	0	0	0	1,210	0	
606	10002523	Prof Services	20	208	3301	WATER PLANT	GENERAL	2/7/2003	518	0	0	0	0	0	0	0	0	0	0	0	0	0	518	0	
607	10002524	Prof Services	20	208	3301	WATER PLANT	GENERAL	1/11/2003	691	0	0	0	0	0	0	0	0	0	0	0	0	0	691	0	
608	10002525	Eng Services	20	208	3301	WATER PLANT	GENERAL	10/26/2002	518	0	0	0	0	0	0	0	0	0	0	0	0	0	518	0	
609	10002526	Plan Copies	20	209	3501	WASTERWATER PLANT	GENERAL	4/22/2003	41	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0	
610	10002527	Copies	20	209	3501	WASTERWATER PLANT	GENERAL	3/7/2003	102	0	0	0	0	0	0	0	0	0	0	0	0	0	102	0	
611	10002528	Install Reuse Services Dept Of Fina	20	209	3501	WASTERWATER PLANT	GENERAL	4/14/2003	50,000	0	0	0	0	0	0	0	0	0	0	0	0	0	50,000	0	
612	10002529	Lift Sta 6P - 350 John Anderson Drive	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/8/1998	12,621	0	0	0	0	0	0	0	5,037	7,584	0	0	0	0	0	0	0
613	10002530	Lift Sta 6P Improvements	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/8/1998	12,621	0	0	0	0	0	0	0	5,037	7,584	0	0	0	0	0	0	0
614	10002531	Lift Sta 6P Improvements	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/25/1999	4,814	0	0	0	0	0	0	0	1,921	2,893	0	0	0	0	0	0	0
615	10002532	Lift Sta 8M - 680 N Nova Rd (By Railroad	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/30/1998	113,901	0	0	0	0	0	0	0	45,456	68,445	0	0	0	0	0	0	0
616	10002533	Effluent Reuse Breakaway Trails/ Raw Wat	20	209	3501	WASTERWATER PLANT	WW T&C	2/23/1998	70,590	0	0	0	0	0	0	0	28,171	42,418	0	0	0	0	0	0	0
617	10002534	Breakaway Stormwater Ponds	20	209	3501	WASTERWATER PLANT	GENERAL	8/15/2000	8,427	0	0	0	0	0	0	0	0	0	0	0	0	0	8,427	0	
618	10002535	Effluent Misc Supplies	20	209	3501	WASTERWATER PLANT	GENERAL	6/30/2000	1,532	0	0	0	0	0	0	0	0	0	0	0	0	0	1,532	0	
619	10002536	Stormwater Ponds	20	209	3501	WASTERWATER PLANT	GENERAL	1/4/2001	15,286	0	0	0	0	0	0	0	0	0	0	0	0	0	15,286	0	
620	10002537	Stormwater Ponds	20	209	3502	WW COLLECTION AND REUSE	OTHER	4/20/2001	3,450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,450
621	10002538	Consumptive Use Permit	20	208	3301	WATER PLANT	GENERAL	3/5/2001	38,760	0	0	0	0	0	0	0	0	0	0	0	0	0	38,760	0	
622	10002539	Cup Project	20	208	3301	WATER PLANT	GENERAL	7/6/2001	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	
623	10002540	Consumptive Use Permit/Cup	20	208	3301	WATER PLANT	GENERAL	9/29/2001	3,086	0	0	0	0	0	0	0	0	0	0	0	0	0	3,086	0	
624	10002541	Misc Supplies	20	209	3502	WW COLLECTION AND REUSE	GENERAL	12/14/2001	302	0	0	0	0	0	0	0	0	0	0	0	0	0	302	0	
625	10002542	Misc Supplies	20	209	3502	WW COLLECTION AND REUSE	GENERAL	12/11/2001	td																

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed			Other Plant		Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	
685	10002602	Fed Ex	20	209	3501	WASTERWATER PLANT	OTHER	11/26/2002	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
686	10002603	Breakaway Trails Surface Water Alt Irr S	20	209	3501	WASTERWATER PLANT	WW T&C	8/10/2004	876	0	0	0	0	0	0	0	350	526	0	0	0	0	0	0
687	10002604	Male Adpt., Union, Ell	20	209	3502	WW COLLECTION AND REUSE	GENERAL	7/1/2004	248	0	0	0	0	0	0	0	0	0	0	0	0	0	248	0
688	10002605	Brkaway Trls Irr/Fire System Data Collect	20	209	3501	WASTERWATER PLANT	GENERAL	12/11/1997	17,245	0	0	0	0	0	0	0	0	0	0	0	0	0	17,245	0
689	10002606	Fed Ex	20	209	3501	WASTERWATER PLANT	OTHER	10/27/2004	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
690	10002607	Breakaway Trails Surface Water Alt Irr S	20	209	3501	WASTERWATER PLANT	WW T&C	6/7/2005	1,252	0	0	0	0	0	0	0	500	752	0	0	0	0	0	0
691	10002620	Eqp Laser Shaft Alignment Kit	30	309	3501	WASTERWATER PLANT	GENERAL	4/14/1999	5,749	0	0	0	0	0	0	0	0	0	0	0	0	0	5,749	0
692	10002621	Eqp Hoist W/Accessories	30	309	3501	WASTERWATER PLANT	GENERAL	4/20/1999	12,988	0	0	0	0	0	0	0	0	0	0	0	0	0	12,988	0
693	10002627	Eqp Boring Tool W/Accessories	30	309	3302	WATER DISTRIBUTION	GENERAL	11/18/1998	6,759	0	0	0	0	0	0	0	0	0	0	0	0	0	6,759	0
694	10002628	Rst 99 Case 938G Caterpillar	30	303	3401	SOLID WASTE COLLECTION	OTHER	6/25/1999	146,464	0	0	0	0	0	0	0	0	0	0	0	0	0	0	146,464
695	10002855	Williamson Blvd Project	20	208	3301	WATER PLANT	W T&D	8/30/1998	8,364	0	0	2,479	5,885	0	0	0	0	0	0	0	0	0	0	0
696	10002957	Sludge Handling/Water Aeration System	20	208	3301	WATER PLANT	WW Treatment	3/18/2000	3,737	0	0	0	0	0	0	3,737	0	0	0	0	0	0	0	0
697	10002958	Sludge Handling And Aeration System	20	208	3301	WATER PLANT	WW Treatment	2/23/2001	80,089	0	0	0	0	0	0	80,089	0	0	0	0	0	0	0	0
698	10002959	Prof Serv	20	208	3301	WATER PLANT	GENERAL	1/31/2001	2,610	0	0	0	0	0	0	0	0	0	0	0	0	0	2,610	0
699	10002960	Legal Ad	20	208	3301	WATER PLANT	GENERAL	2/4/2001	74	0	0	0	0	0	0	0	0	0	0	0	0	0	74	0
700	10002961	Permit Fee	20	208	3301	WATER PLANT	GENERAL	1/10/2001	500	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
701	10002962	Sludge Handling And Aeration Upgrade	20	208	3301	WATER PLANT	WW Treatment	1/23/2001	14,753	0	0	0	0	0	0	14,753	0	0	0	0	0	0	0	0
702	10002963	Pmt #1	20	208	3301	WATER PLANT	GENERAL	11/27/2001	25,823	0	0	0	0	0	0	0	0	0	0	0	0	0	25,823	0
703	10002964	Payment #2	20	208	3301	WATER PLANT	W Treatment	12/31/2001	19,155	0	19,155	0	0	0	0	0	0	0	0	0	0	0	0	0
704	10002965	Prof Services	20	208	3301	WATER PLANT	GENERAL	3/25/2002	60,326	0	0	0	0	0	0	0	0	0	0	0	0	0	60,326	0
705	10002966	Prof Services	20	208	3301	WATER PLANT	GENERAL	5/31/2002	120,718	0	0	0	0	0	0	0	0	0	0	0	0	0	120,718	0
706	10002967	Improv.	20	208	3301	WATER PLANT	W Treatment	9/30/2002	19,779	0	19,779	0	0	0	0	0	0	0	0	0	0	0	0	0
707	10002968	Replace Aurora Pump	30	305	3301	WATER PLANT	W Treatment	7/9/2003	8,375	0	8,375	0	0	0	0	0	0	0	0	0	0	0	0	0
708	10002969	Engin. Services	20	208	3301	WATER PLANT	GENERAL	5/1/2003	21,850	0	0	0	0	0	0	0	0	0	0	0	0	0	21,850	0
709	10002970	Pmt #15	20	208	3301	WATER PLANT	GENERAL	3/31/2003	12,368	0	0	0	0	0	0	0	0	0	0	0	0	0	12,368	0
710	10002971	Engin. Services	20	208	3301	WATER PLANT	GENERAL	2/21/2003	4,215	0	0	0	0	0	0	0	0	0	0	0	0	0	4,215	0
711	10002972	Engin. Services	20	208	3301	WATER PLANT	GENERAL	2/14/2003	23,227	0	0	0	0	0	0	0	0	0	0	0	0	0	23,227	0
712	10002973	Pmt #14	20	208	3301	WATER PLANT	GENERAL	12/20/2002	6,871	0	0	0	0	0	0	0	0	0	0	0	0	0	6,871	0
713	10002974	Pmt #13	20	208	3301	WATER PLANT	GENERAL	11/26/2002	8,850	0	0	0	0	0	0	0	0	0	0	0	0	0	8,850	0
714	10002975	Pmt #12	20	208	3301	WATER PLANT	GENERAL	10/31/2002	22,475	0	0	0	0	0	0	0	0	0	0	0	0	0	22,475	0
715	10002976	Eng Services	20	208	3301	WATER PLANT	GENERAL	8/26/2002	6,323	0	0	0	0	0	0	0	0	0	0	0	0	0	6,323	0
716	10002977	Ww Pep Tanks & Misc Parts	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	11/15/1999	117,501	0	0	0	0	0	0	0	0	117,501	0	0	0	0	0	0
717	10002978	Pep Tank Pumps*130	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/1998	20,180	0	0	0	0	0	0	20,180	0	0	0	0	0	0	0	0
718	10002979	10 1050 Gal Pep Tank 16"" Pump	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/3/2002	9,720	0	0	0	0	0	0	0	0	9,720	0	0	0	0	0	0
719	10002980	Pep Tank/5	20	209	3501	WASTERWATER PLANT	WW Treatment	10/25/1993	5,705	0	0	0	0	0	0	5,705	0	0	0	0	0	0	0	0
720	10002981	Pep Tanks W/ Pumps*5	20	209	3501	WASTERWATER PLANT	WW Treatment	4/28/1994	6,135	0	0	0	0	0	0	6,135	0	0	0	0	0	0	0	0
721	10002982	Pep Tanks W/ Pumps/6	20	209	3501	WASTERWATER PLANT	WW Treatment	3/25/1994	6,426	0	0	0	0	0	0	6,426	0	0	0	0	0	0	0	0
722	10002983	Pep Tanks W/Pumps/5	20	209	3501	WASTERWATER PLANT	WW Treatment	3/15/1994	6,310	0	0	0	0	0	0	6,310	0	0	0	0	0	0	0	0
723	10002984	Pep Tanks W/Pumps/5	20	209	3501	WASTERWATER PLANT																		

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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant		Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect		General
783	10003044	Float Set For Tsurumi Pep Tank Pump	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	3/23/2006	352	0	0	0	0	0	0	0	0	352	0	0	0	0	0	0
784	10003045	Freight	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	3/23/2006	10	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0
785	10003046	Pep Pumps - New Installations	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	3/29/2006	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0
786	10003047	Pep Tanks - New Installation	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/27/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
787	10003048	Pep Pumps - New Installs	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/25/2006	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0
788	10003049	Equip Maint & Repair Serv	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	3/22/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
789	10003050	Equip Maint & Repair	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/4/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
790	10003051	Pep Tanks - New Installation	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	6/19/2006	2,425	0	0	0	0	0	0	0	0	2,425	0	0	0	0	0	0
791	10003052	(2) 120V E/One Model 2010-61 Grinder Pum	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	6/28/2006	3,704	0	0	0	0	0	0	0	0	3,704	0	0	0	0	0	0
792	10003053	(5) Complete 120V E/One Model 2010-61 Gr	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	6/28/2006	17,050	0	0	0	0	0	0	0	0	17,050	0	0	0	0	0	0
793	10003054	Irr. Materials	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	5/26/2006	499	0	0	0	0	0	0	0	0	499	0	0	0	0	0	0
794	10003055	Irr. Materials	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	5/16/2006	99	0	0	0	0	0	0	0	0	99	0	0	0	0	0	0
795	10003056	New Pep Tanks Under Res# 2006-123	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/1/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
796	10003057	New Pep Tanks Under Res# 2006-123	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/9/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
797	10003058	New Pep Tanks Under Res# 2006-123	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/16/2006	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0
798	10003059	New Pep Tanks Under Res# 2006-123	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/29/2006	2,425	0	0	0	0	0	0	0	0	2,425	0	0	0	0	0	0
799	10003060	Pep Pump Replacements & Rehabs	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	7/27/2006	10,350	0	0	0	0	0	0	0	0	10,350	0	0	0	0	0	0
800	10003061	New Pep Tanks Under Res# 2006-123	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/29/2006	4,684	0	0	0	0	0	0	0	0	4,684	0	0	0	0	0	0
801	10003062	Repair Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/16/2006	1,380	0	0	0	0	0	0	0	0	1,380	0	0	0	0	0	0
802	10003063	Irrigation Pipes For Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	8/4/2006	410	0	0	0	0	0	0	0	0	410	0	0	0	0	0	0
803	10003064	Repair Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	7/28/2006	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0
804	10003065	Irrigation Pipes For Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	7/12/2006	499	0	0	0	0	0	0	0	0	499	0	0	0	0	0	0
805	10003066	Ww Pep Tank Parts - FI Irrigation - 2 In	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	12/18/2007	484	0	0	0	0	0	0	0	0	484	0	0	0	0	0	0
806	10003067	Ww Pep Tank Pump Replacements - Lucas Te	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	5/23/2008	13,978	0	0	0	0	0	0	0	0	13,978	0	0	0	0	0	0
807	10003068	Ww Pep Tank Parts - Water Resource - 3 I	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	5/21/2008	4,449	0	0	0	0	0	0	0	0	4,449	0	0	0	0	0	0
808	10003069	Ww Pep Tank Parts - Florida Irrigat - 2	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	6/18/2008	557	0	0	0	0	0	0	0	0	557	0	0	0	0	0	0
809	10003070	Ww Pep Tank Replcemnt Parts - Alpha Gen	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/17/2008	21,225	0	0	0	0	0	0	0	0	21,225	0	0	0	0	0	0
810	10003071	Ww Pep Tanks - Lucas Tech - 1 Invoice	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	10/23/2007	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0
811	10003072	Ww Pep Tank Parts - Water Resource - 2 I	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	10/19/2007	1,181	0	0	0	0	0	0	0	0	1,181	0	0	0	0	0	0
812	10003073	Ww Pep Tanks - Lucas Tech - 1 Invoice	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	11/13/2006	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0
813	10003074	Ww Pep Tank E-One Part- Water Resource -	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	1/1/2007	996	0	0	0	0	0	0	0	0	996	0	0	0	0	0	0
814	10003075	Ww Pep Tanks & Parts - Multi-Vendors -	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	5/31/2007	36,628	0	0	0	0	0	0	0	0	36,628	0	0	0	0	0	0
815	10003076	Ww Pep Tanks & Parts - Multi-Vendors -1	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	9/10/2007	34,673	0	0	0	0	0	0	0	0	34,673	0	0	0	0	0	0
816	10003077	Ww Pep Tank & Parts Multi Vendors - Mult	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION AND REUSE	9/17/2007	50,530	0	0	0	0	0	0	0	0	50,530	0	0	0	0	0	0
817	10003078	Tank-Leeway Elevated Water Tank - 301 Le	20	208	3301	WATER PLANT	W Treatment	6/1/2000	43,122	0	43,122	0	0	0	0	0	0	0	0	0	0	0	0	0
818	10003079	Tomoka*Leeway*Breakaway	20	208	3301	WATER PLANT	W Treatment	9/1/2000	14,374	0	14,374	0	0	0	0	0	0	0	0	0	0	0	0	0
819	10003080	Quarterly Water Tank Maint	20	208	3301	WATER PLANT	GENERAL	3/1/2001	43,122	0	0	0	0	0	0	0	0	0	0	0	0	0	43,122	0
820	10003081	Tomoka*Le																						

Appendix 1
City of Ormond Beach
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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater		Reclaimed		Other Plant					
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
881	10003142	Wtr Mtr 6"" Hp Prot Iii 6 Wh Gallon Enco	20	208	3301	WATER PLANT	W METERS	2/25/2004	118	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0
882	10003143	Wtr 10"" Hp Port Iii 6 Wh Gallon Encoder	20	208	3301	WATER PLANT	W METERS	2/25/2004	59	0	0	0	0	0	59	0	0	0	0	0	0	0	0	0
883	10003144	Wtr Mtr 8"" Hp Prot Iii 6 Wh Gallon Enco	20	208	3301	WATER PLANT	W METERS	2/25/2004	118	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0
884	10003145	Wtr Mtr 3"" Tt Turbine 6 Wh Gallon Enco	20	208	3301	WATER PLANT	W METERS	2/25/2004	118	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0
885	10003146	Wtr Mtr 6"" Tt Turine 6 Wh Gallon Enco	20	208	3301	WATER PLANT	W METERS	2/25/2004	118	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0
886	10003147	Wtr Mtr 4"" Tt Turbine 6 Wh Gallon Enco	20	208	3301	WATER PLANT	W METERS	2/25/2004	118	0	0	0	0	0	118	0	0	0	0	0	0	0	0	0
887	10003148	Wtr Mtr 2"" 6 Wh Gallon Encoder	20	208	3301	WATER PLANT	W METERS	2/25/2004	220	0	0	0	0	0	220	0	0	0	0	0	0	0	0	0
888	10003149	Wtr Mtr Neptune R900 V2 Miu W/6' Cable	20	208	3301	WATER PLANT	W METERS	3/2/2004	5,500	0	0	0	0	0	5,500	0	0	0	0	0	0	0	0	0
889	10003150	Wtr Mtr Neptune, 5/8""X3/4"" Manual Read	20	208	3301	WATER PLANT	W METERS	3/2/2004	2,400	0	0	0	0	0	2,400	0	0	0	0	0	0	0	0	0
890	10003151	Wtr Mtr 5/8""X3/4"" T10 Proread Pl/Bttm	20	208	3301	WATER PLANT	W METERS	5/3/2004	73,830	0	0	0	0	0	73,830	0	0	0	0	0	0	0	0	0
891	10003152	Wtr Mtr 5/8""X3/4"" T10 Proread Pl/Bttm	20	208	3301	WATER PLANT	W METERS	5/3/2004	8,121	0	0	0	0	0	8,121	0	0	0	0	0	0	0	0	0
892	10003153	Wtr Mtr 3/4"" Meter Expanders Ec-23	20	208	3301	WATER PLANT	W METERS	5/12/2004	2,715	0	0	0	0	0	2,715	0	0	0	0	0	0	0	0	0
893	10003154	Wtr Mtr B94-324W 1"" Cts Pj X 3/4"" Mete	20	208	3301	WATER PLANT	W METERS	5/12/2004	1,998	0	0	0	0	0	1,998	0	0	0	0	0	0	0	0	0
894	10003155	Wtr Mtr 5/8""X3/4"" T10 Proread Pl/Bttm	20	208	3301	WATER PLANT	W METERS	5/12/2004	29,800	0	0	0	0	0	29,800	0	0	0	0	0	0	0	0	0
895	10003156	Wtr Mtr 1"" 4 Wh Gallon Encoder	20	208	3301	WATER PLANT	W METERS	2/25/2004	220	0	0	0	0	0	220	0	0	0	0	0	0	0	0	0
896	10003157	Wtr Mtr 5/8"" X 3/4"" Manual Read Water	20	208	3301	WATER PLANT	W METERS	11/14/2003	2,400	0	0	0	0	0	2,400	0	0	0	0	0	0	0	0	0
897	10003158	Wtr Mtr 5/8"" X 3/4"" T10 Bb Proread Wir	20	208	3301	WATER PLANT	W METERS	7/7/2004	2,214	0	0	0	0	0	2,214	0	0	0	0	0	0	0	0	0
898	10003159	Wtr Mtr R900 V2 Pit Miu W/6' Cable	20	208	3301	WATER PLANT	W METERS	7/7/2004	5,500	0	0	0	0	0	5,500	0	0	0	0	0	0	0	0	0
899	10003160	Wtr Mtr 5/8""X3/4"" T10 Proread Pl/Bttm	20	208	3301	WATER PLANT	W METERS	7/7/2004	44,700	0	0	0	0	0	44,700	0	0	0	0	0	0	0	0	0
900	10003161	Wtr Mtr 3/4"" Meter Expanders For 3/4""	20	208	3301	WATER PLANT	W METERS	8/2/2004	6,100	0	0	0	0	0	6,100	0	0	0	0	0	0	0	0	0
901	10003162	Wtr Mtr Rhino.10X15 Box Lid W/Proread/R9	20	208	3301	WATER PLANT	W METERS	8/30/2004	11,235	0	0	0	0	0	11,235	0	0	0	0	0	0	0	0	0
902	10003163	Wtr Mtr Supplies	20	208	3301	WATER PLANT	W METERS	1/28/2004	18	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0
903	10003164	Wtr Mtr 2"" Meter Flang Kits	20	208	3301	WATER PLANT	W METERS	1/7/2004	488	0	0	0	0	0	488	0	0	0	0	0	0	0	0	0
904	10003165	Wtr Mtr Nuts & Bolts	20	208	3301	WATER PLANT	W METERS	1/6/2004	235	0	0	0	0	0	235	0	0	0	0	0	0	0	0	0
905	10003166	Wtr Mtr 30 10"" Plastic Valve Boxes	20	208	3301	WATER PLANT	W METERS	12/11/2003	293	0	0	0	0	0	293	0	0	0	0	0	0	0	0	0
906	10003167	Wtr Mtr Concrete Meter Vault	20	208	3301	WATER PLANT	W METERS	2/18/2003	3,974	0	0	0	0	0	3,974	0	0	0	0	0	0	0	0	0
907	10003168	Wtr Mtr Meter Boxes	20	208	3301	WATER PLANT	W METERS	12/11/2002	6,075	0	0	0	0	0	6,075	0	0	0	0	0	0	0	0	0
908	10003169	Wtr Mtr Large Meter Parts	20	208	3301	WATER PLANT	W METERS	11/14/2002	50	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0
909	10003170	Wtr Mtr Repair Clamps	20	208	3301	WATER PLANT	W METERS	11/11/2002	310	0	0	0	0	0	310	0	0	0	0	0	0	0	0	0
910	10003171	Wtr Mtr Large Meter Testing Materials	20	208	3301	WATER PLANT	W METERS	10/23/2002	167	0	0	0	0	0	167	0	0	0	0	0	0	0	0	0
911	10003172	Wtr Mtr Touch Read Meters	20	208	3301	WATER PLANT	W METERS	10/23/2002	13,868	0	0	0	0	0	13,868	0	0	0	0	0	0	0	0	0
912	10003173	Wtr Mtr Male Adapters	20	208	3301	WATER PLANT	W METERS	10/14/2002	357	0	0	0	0	0	357	0	0	0	0	0	0	0	0	0
913	10003174	Wtr Mtr Large Meter Box	20	208	3301	WATER PLANT	W METERS	10/10/2002	420	0	0	0	0	0	420	0	0	0	0	0	0	0	0	0
914	10003175	Wtr Mtr Male Adapter	20	208	3301	WATER PLANT	W METERS	10/10/2002	36	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0
915	10003176	Wtr Mtr Commercial Meter Replacement	20	208	3301	WATER PLANT	W METERS	9/24/2003	117,647	0	0	0	0	0	117,647	0	0	0	0	0	0	0	0	0
916	10003177	Wtr Mtr Residential Meter Replacement	20	208	3301	WATER PLANT	W METERS	9/23/2003	197,603	0	0	0	0	0	197,603	0	0	0	0	0	0	0	0	0
917	10003178	Wtr Mtr Handheld Fld Programmer	20	208	3301	WATER PLANT	W METERS	9/11/2003	17,550	0	0	0	0	0	17,550	0	0	0	0	0	0	0	0	0
918	10003179	Wtr Mtr Sod For Replacement Areas Damage	20	208	3301	WATER PLANT	W METERS	9/3/2003	86	0	0	0	0	0	86	0	0	0	0	0	0	0	0	0
919	10003180	Wtr Mtr Cement And Rocks	20	208	3301	WATER PLANT	W METERS	8/29/2003	156	0	0	0	0	0	156	0	0	0	0	0	0	0	0	0
920	10003181	Wtr Mtr Supplies & Parts For Meters	20	208	3301	WATER PLANT	W METERS	10/10/2002	1,578	0	0	0	0	0	1,578	0	0	0	0	0	0	0	0	0
921	10003182	Wtr Mtr Water Meters	20	208	3301	WATER PLANT	W METERS	9/30/2003	2,497	0	0	0	0	0	2,497	0	0	0	0	0	0	0	0	0
922	10003183	Wtr Mtr Meter Replacement Parts	20	208	3301	WATER PLANT	W METERS	6/26/2003	1,007	0	0	0	0	0	1,007	0	0	0	0	0	0	0	0	0
923	10003184	Wtr Mtr Materials For Large Meter Repair	20	208	3301	WATER PLANT	W METERS	11/1/2002	3,090	0	0	0	0	0	3,090	0	0	0	0	0	0	0	0	0
924	10003185	Wtr Mtr Flanges For Meters	20	208	3301	WATER PLANT	W METERS	3/19/2003	173	0	0	0	0	0	173	0	0	0	0	0	0	0	0	0
925	10003186	Wtr Mtr Crushed Rock	20	208	3301	WATER PLANT	W METERS	3/11/2003	170	0	0	0	0	0	170	0	0	0	0	0	0	0	0	0
926	10003187	Wtr Mtr Cdr Boxes/Lids	20	208	3301	WATER PLANT	W METERS	6/16/2003	9,163	0	0	0	0	0	9,163	0	0	0	0	0	0	0	0	0
927	10003188	Wtr Mtr Supplies & Parts	20	208	3302	WATER DISTRIBUTION	W METERS	11/11/2002	181	0	0	0	0	0	181	0	0	0	0	0	0	0	0	0
928	10003189	Wtr Mtr Film Processing For Meter Pictur	20	208	3302	WATER DISTRIBUTION	W METERS	10/25/2002	13	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0
929	10003190	Wtr Mtr 2"" 6 Wh Gallon Encoder	20	208	3301	WATER PLANT	W METERS	2/25/2004	220	0	0	0	0	0	220	0	0	0	0	0	0	0	0	0
930	10003191	Wtr Mtr R900 Rf Pit Miu Transmitter	20	208	3301	WATER PLANT	W METERS	1/24/2005	8,250	0	0	0	0	0	8,250	0	0	0	0	0	0	0	0	0
931	10003192	Wtr Mtr 2"" T10 Flanged Gallon Encoder M	20	208	3301	WATER PLANT	W METERS	1/24/2005	2,640	0	0	0	0	0	2,640	0	0	0	0	0	0	0	0	0
932	10003193	Wtr Mtr 1 1/2"" T10 Flanged Gallon Enco	20	208	3301	WATER PLANT	W METERS	1/24/2005	1,422	0	0	0	0	0	1,422	0	0	0	0	0	0	0	0	0
933	10003194	Wtr Mtr 1"" T10 Gallon Encoder Meter	20	208	3301	WATER PLANT	W METERS	1/24/2005	1,664	0	0	0	0	0	1,664	0	0	0	0	0	0	0	0	0
934	10003195	Wtr Mtr 5/8""X3/4"" Touch Read Meters	20	208	3301	WATER PLANT	W METERS	1/24/2005	18,763	0	0	0	0	0	18,763	0	0	0	0	0	0	0	0	0
935	10003196	Wtr Mtr 5/8""X3/4"" Touch Read Meters	20	208	3301	WATER PLANT	W METERS	3/22/2005	67,545	0	0	0	0	0	67,545	0	0	0	0	0	0	0	0	0
936	10003197	Wtr Mtr 1"" T10 Proread E49N, 1000G, Pre	20	208	3301	WATER PLANT	W METERS	3/30/2005	4,992	0	0	0	0	0	4,992	0	0	0	0	0	0	0	0	0
937	10003198	Wtr Mtr Rhino, 10X15 Mtr Lid W/Proread/R	20	208	3301	WATER PLANT	W METERS	3/30/2005	7,490	0	0	0	0	0	7,490	0	0	0	0	0	0	0	0	0
938	10003199	Wtr Mtr 1"" T10 Proread E49N, 10000G, Pr	20	208	3301	WATER PLANT	W METERS	4/26/2005	5,200	0	0	0	0	0	5,200	0	0	0	0	0	0	0	0	0
939	10003200	Wtr Mtr 5/8""X3/4"" Touch Read Meters	20	208	3301	WATER PLANT	W METERS	4/26/2005	105,070	0	0	0	0	0	105,070	0	0	0	0	0	0	0	0	0
940	10003201	Wtr Mtr 3/4"" Expanders	20	208	3301	WATER PLANT	W METERS	4/26/2005	1,929	0	0	0	0	0	1,929	0	0	0	0	0	0	0	0	0
941	10003202	Wtr Mtr 1"" Yoke Valves	20	20																				

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

Line No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant			Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	
979	10003240	Wtr Mtr (30) C45-33 Coupling	20	208	3301	WATER PLANT	W METERS	9/7/2006	146	0	0	0	0	0	146	0	0	0	0	0	0	0	0	
980	10003241	Wtr Mtr (30) C45-33 Couplings	20	208	3301	WATER PLANT	W METERS	8/13/2006	146	0	0	0	0	0	146	0	0	0	0	0	0	0	0	
981	10003242	Wtr Mtr 1000' Blue Poly Tubing X 100' Ro	20	208	3301	WATER PLANT	W METERS	8/13/2006	350	0	0	0	0	0	350	0	0	0	0	0	0	0	0	
982	10003243	Wtr Mtr (10) 2''' X 6''' Brass Nipples	20	208	3301	WATER PLANT	W METERS	8/13/2006	150	0	0	0	0	0	150	0	0	0	0	0	0	0	0	
983	10003244	Wtr Mtr (100) F1000-4 1''' Corp. Stops	20	208	3301	WATER PLANT	W METERS	8/13/2006	2,435	0	0	0	0	0	2,435	0	0	0	0	0	0	0	0	
984	10003245	Wtr Mtr (8) 8''' M.J. 90 Degree Bends	20	208	3301	WATER PLANT	W METERS	8/13/2006	616	0	0	0	0	0	616	0	0	0	0	0	0	0	0	
985	10003246	Wtr Mtr (72) Y-504 1''' Yokes	20	208	3301	WATER PLANT	W METERS	8/13/2006	457	0	0	0	0	0	457	0	0	0	0	0	0	0	0	
986	10003247	Wtr Mtr (300) Y-502 3/4''' Yokes	20	208	3301	WATER PLANT	W METERS	8/13/2006	2,100	0	0	0	0	0	2,100	0	0	0	0	0	0	0	0	
987	10003248	Wtr Mtr (100) C84-44 1''' Joint Coupling	20	208	3301	WATER PLANT	W METERS	8/13/2006	855	0	0	0	0	0	855	0	0	0	0	0	0	0	0	
988	10003249	Wtr Mtr (50) Ec-4 1''' Expanders	20	208	3301	WATER PLANT	W METERS	8/13/2006	810	0	0	0	0	0	810	0	0	0	0	0	0	0	0	
989	10003250	Wtr Mtr (25) 085-33 Male Joint Couplings	20	208	3301	WATER PLANT	W METERS	8/13/2006	218	0	0	0	0	0	218	0	0	0	0	0	0	0	0	
990	10003251	Wtr Mtr (200) C91-34 Yoke Adapter 3/4'''	20	208	3301	WATER PLANT	W METERS	8/13/2006	790	0	0	0	0	0	790	0	0	0	0	0	0	0	0	
991	10003252	Wtr Mtr (200) Ec-23 3/4 Expanders	20	208	3301	WATER PLANT	W METERS	8/13/2006	1,920	0	0	0	0	0	1,920	0	0	0	0	0	0	0	0	
992	10003253	Wtr Mtr (50) B91-223W Yoke Valves	20	208	3301	WATER PLANT	W METERS	8/13/2006	865	0	0	0	0	0	865	0	0	0	0	0	0	0	0	
993	10003254	Wtr Mtr (20) 2''' X 1 1/2''' Brass Reducer	20	208	3301	WATER PLANT	W METERS	8/13/2006	160	0	0	0	0	0	160	0	0	0	0	0	0	0	0	
994	10003255	Wtr Mtr (50) 3/4 4''' Brass Nipples	20	208	3301	WATER PLANT	W METERS	8/13/2006	160	0	0	0	0	0	160	0	0	0	0	0	0	0	0	
995	10003256	Wtr Mtr (20) C84-77 Mix & Cts Coupling	20	208	3301	WATER PLANT	W METERS	8/13/2006	624	0	0	0	0	0	624	0	0	0	0	0	0	0	0	
996	10003257	Wtr Mtr (10) B81-777W 2''' Ball Valves	20	208	3301	WATER PLANT	W METERS	8/13/2006	1,262	0	0	0	0	0	1,262	0	0	0	0	0	0	0	0	
997	10003258	Wtr Mtr (20) 1 1/2''' X 1''' Brass Reducer	20	208	3301	WATER PLANT	W METERS	8/13/2006	165	0	0	0	0	0	165	0	0	0	0	0	0	0	0	
998	10003259	Wtr Mtr (20) 2''' X 1''' Brass Reducer Bus	20	208	3301	WATER PLANT	W METERS	8/13/2006	160	0	0	0	0	0	160	0	0	0	0	0	0	0	0	
999	10003260	Wtr Mtr (2) #9400-Wc Eclipse Auto Flushi	20	208	3301	WATER PLANT	W METERS	9/7/2006	3,150	0	0	0	0	0	3,150	0	0	0	0	0	0	0	0	
1000	10003261	Wtr Mtr (5) #9700 Retro Fit Fire Hydrant	20	208	3301	WATER PLANT	W METERS	9/7/2006	1,035	0	0	0	0	0	1,035	0	0	0	0	0	0	0	0	
1001	10003262	Wtr Mtr (50) C91-44 1''' Yoke Adapters	20	208	3301	WATER PLANT	W METERS	9/7/2006	328	0	0	0	0	0	328	0	0	0	0	0	0	0	0	
1002	10003263	Wtr Mtr (72) Y-504 1''' Yokes	20	208	3301	WATER PLANT	W METERS	9/7/2006	457	0	0	0	0	0	457	0	0	0	0	0	0	0	0	
1003	10003264	Wtr Mtr 1''' T10 Bb Mtr W/R900I Gal Integ	20	208	3301	WATER PLANT	W METERS	10/13/2006	2,240	0	0	0	0	0	2,240	0	0	0	0	0	0	0	0	
1004	10003265	Wtr Mtr 2''' Compression Couplings	20	208	3301	WATER PLANT	W METERS	7/27/2006	256	0	0	0	0	0	256	0	0	0	0	0	0	0	0	
1005	10003266	Wtr Mtr 2''' T10 Flngd Mtr W/R900I Gal In	20	208	3301	WATER PLANT	W METERS	10/13/2006	2,200	0	0	0	0	0	2,200	0	0	0	0	0	0	0	0	
1006	10003267	Wtr Mtr 3/4''' Compression Couplings	20	208	3301	WATER PLANT	W METERS	7/27/2006	855	0	0	0	0	0	855	0	0	0	0	0	0	0	0	
1007	10003268	Wtr Mtr 3/4''' Couplings	20	208	3301	WATER PLANT	W METERS	7/27/2006	466	0	0	0	0	0	466	0	0	0	0	0	0	0	0	
1008	10003269	Wtr Mtr 3/4''' Expanders	20	208	3301	WATER PLANT	W METERS	7/27/2006	3,650	0	0	0	0	0	3,650	0	0	0	0	0	0	0	0	
1009	10003270	Wtr Mtr 5/8 X 3/4 T10 Pb Mtr W/R900I Gal	20	208	3301	WATER PLANT	W METERS	10/13/2006	17,900	0	0	0	0	0	17,900	0	0	0	0	0	0	0	0	
1010	10003271	Wtr Mtr Meters W/Backflow Preventers (16	20	208	3302	WATER DISTRIBUTION	W METERS	1/3/2008	29,733	0	0	0	0	0	29,733	0	0	0	0	0	0	0	0	
1011	10003272	Wtr Mtr Large Valve Replace (Cordova-Buc	20	208	3302	WATER DISTRIBUTION	W METERS	2/8/2008	11,000	0	0	0	0	0	11,000	0	0	0	0	0	0	0	0	
1012	10003273	Wtr Mtr Meters Replacements-Multi Invoic	20	208	3302	WATER DISTRIBUTION	W METERS	7/29/2008	216,630	0	0	0	0	0	216,630	0	0	0	0	0	0	0	0	
1013	10003274	Wtr Meters & Parts	20	208	3302	WATER DISTRIBUTION	W METERS	9/30/2007	259,503	0	0	0	0	0	259,503	0	0	0	0	0	0	0	0	
1014	10003275	Ww Manhole Frame/Cover Replacement	20	209	3501	WASTERWATER PLANT	WW Collection	3/2/2000	9,303	0	0	0	0	0	0	0	9,303	0	0	0	0	0	0	
1015	10003276	Ww Manhole Williamson Blvd Widening	20	209	3501	WASTERWATER PLANT	WW Collection	11/30/1999	3,415	0	0	0	0	0	0	0	3,415	0	0	0	0	0	0	
1016	10003277	Ww Manhole Replacement Of20 Covers On S	20	209	3501	WASTERWATER PLANT	WW Collection	7/7/2004																

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater		Reclaimed		Other Plant		Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	
1077	10003338	Lift Sta Bat Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	9/16/2002	27,238	0	0	0	0	0	0	0	0	0	0	0	27,238	0
1078	10003339	Lift Sta Bat Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	3/1/2002	2,407	0	0	0	0	0	0	0	0	0	0	0	2,407	0
1079	10003340	Lift Sta Bat Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	1/2/2002	2,714	0	0	0	0	0	0	0	0	0	0	0	2,714	0
1080	10003341	Lift Sta Bat Fed Ex	20	209	3502	WW COLLECTION AND REUSE	General	4/26/2005	10	0	0	0	0	0	0	0	0	0	0	0	10	0
1081	10003342	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/17/2005	50,217	0	0	0	0	0	0	20,041	30,176	0	0	0	0	0
1082	10003343	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/20/2005	18,600	0	0	0	0	0	0	7,423	11,177	0	0	0	0	0
1083	10003344	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/16/2006	13,800	0	0	0	0	0	0	5,507	8,293	0	0	0	0	0
1084	10003345	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/15/2006	22,949	0	0	0	0	0	0	9,159	13,790	0	0	0	0	0
1085	10003346	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/19/2006	6,215	0	0	0	0	0	0	2,480	3,735	0	0	0	0	0
1086	10003347	Lift Sta Bat Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/11/2006	25,076	0	0	0	0	0	0	10,007	15,068	0	0	0	0	0
1087	10003348	Lift Sta Bat E1 Repair Of Tank	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/20/2006	1,661	0	0	0	0	0	0	663	998	0	0	0	0	0
1088	10003349	Lift Sta Bat E-One Misc Parts	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/10/2006	454	0	0	0	0	0	0	181	273	0	0	0	0	0
1089	10003350	Lift Sta Bat 1P,5P&Bt1 Rehab/Impvmts Con	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/13/2006	11,275	0	0	0	0	0	0	4,500	6,775	0	0	0	0	0
1090	10003351	Safety Mgmt Plan	20	208	3301	WATER PLANT	General	2/17/2000	2,689	0	0	0	0	0	0	0	0	0	0	0	2,689	0
1091	10003352	Engineering Services	20	209	3501	WASTERWATER PLANT	Other	2/17/2000	2,689	0	0	0	0	0	0	0	0	0	0	0	0	2,689
1092	10003353	Wtr Water System Master Plan - Engineeri	20	208	3301	WATER PLANT	General	12/31/1999	5,075	0	0	0	0	0	0	0	0	0	0	0	5,075	0
1093	10003354	Wtr Water System Master Plan - Engineeri	20	208	3301	WATER PLANT	General	1/2/2008	7,688	0	0	0	0	0	0	0	0	0	0	0	7,688	0
1094	10003355	Wtr System Facility Plan Revisions	20	208	3301	WATER PLANT	General	3/4/1994	650	0	0	0	0	0	0	0	0	0	0	0	650	0
1095	10003356	Wtr System Facility Plan	20	208	3301	WATER PLANT	General	4/30/1994	5,800	0	0	0	0	0	0	0	0	0	0	0	5,800	0
1096	10003357	Wtr Water System Master Plan Qhampton-Fy	20	208	3301	WATER PLANT	General	8/7/2007	50,112	0	0	0	0	0	0	0	0	0	0	0	50,112	0
1097	10003358	Force Main Us1/Airport Rd	20	209	3501	WASTERWATER PLANT	WW T&C	5/27/2000	22,340	0	0	0	0	0	0	8,916	13,424	0	0	0	0	0
1098	10003359	Airport Rd Force Main Upgrade	20	209	3501	WASTERWATER PLANT	WW T&C	6/6/2000	557	0	0	0	0	0	0	222	335	0	0	0	0	0
1099	10003360	Prof Services	20	209	3501	WASTERWATER PLANT	Other	8/26/2000	3,540	0	0	0	0	0	0	0	0	0	0	0	0	3,540
1100	10003361	Admin Services	20	209	3501	WASTERWATER PLANT	Other	5/3/2001	5,760	0	0	0	0	0	0	0	0	0	0	0	0	5,760
1101	10003362	Field Testing Service	20	209	3501	WASTERWATER PLANT	Other	5/31/2001	735	0	0	0	0	0	0	0	0	0	0	0	0	735
1102	10003363	Const Payment 1-4	20	209	3501	WASTERWATER PLANT	Other	4/6/2001	311,159	0	0	0	0	0	0	0	0	0	0	0	0	311,159
1103	10003364	Film Processing	20	209	3501	WASTERWATER PLANT	Other	5/23/2001	63	0	0	0	0	0	0	0	0	0	0	0	0	63
1104	10003365	Geotechnical Service	20	209	3501	WASTERWATER PLANT	Other	4/30/2000	1,799	0	0	0	0	0	0	0	0	0	0	0	0	1,799
1105	10003401	Pmt 6 & 7 Upgrade Swr Line	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/12/2001	213,403	0	0	0	0	0	0	85,166	128,237	0	0	0	0	0
1106	10003429	Wtr Water Treatment Plant 298 Tomoka Ave	20	208	3301	WATER PLANT	W Treatment	9/26/2000	1,225	0	1,225	0	0	0	0	0	0	0	0	0	0	0
1107	10003430	Pump*Shaft*Couplings	30	305	3301	WATER PLANT	W Treatment	9/26/2000	1,625	0	1,625	0	0	0	0	0	0	0	0	0	0	0
1108	10003431	Teco Hi Service Motor	30	309	3301	WATER PLANT	W Treatment	7/27/2000	1,750	0	1,750	0	0	0	0	0	0	0	0	0	0	0
1109	10003432	Baldor Motor M255 100Hp	30	305	3301	WATER PLANT	W Treatment	7/28/2000	2,592	0	2,592	0	0	0	0	0	0	0	0	0	0	0
1110	10003433	Pmt #1	20	208	3301	WATER PLANT	General	11/27/2001	60,255	0	0	0	0	0	0	0	0	0	0	0	60,255	0
1111	10003434	Machine That De-Waters Sludge/Centrifuge	30	309	3301	WATER PLANT	W Treatment	3/16/2001	11,806	0	11,806	0	0	0	0	0	0	0	0	0	0	0
1112	10003435	Pneumatic Actuator/3	30	309	3301	WATER PLANT	W Treatment	1/12/2001	4,281	0	4,281	0	0	0	0	0	0	0	0	0	0	0
1113	10003436	Replacement Of Lime Slaker @ Wtp - Equip	20	208	3301	WATER PLANT	W Treatment	4/12/2006	55,116	0	55,116	0	0	0	0	0	0	0	0	0	0	0
1114	10003437	Water Fac & Equip Painting	20	208	3301	WATER PLANT	General	10/10/2000	43,400	0	0	0	0	0	0	0	0	0	0	0	43,400	0
1115	10003438	Engineering Services	20	208	3301	WATER PLANT	General	3/1/2001	2,361	0	0	0	0	0	0	0	0	0	0	0	2,361	0
1116	10003439	Elc Upgrade For New Generator Pmt #1	20	208	3301	WATER PLANT	W Treatment	12/31/2001	44,695	0	44,695	0	0	0	0	0	0	0	0	0	0	0
1117	10003440	Painting	20	208	3301	WATER PLANT	General	2/14/2002	38,997	0	0	0	0	0	0	0	0	0	0	0	38,997	0
1118	10003441	Pmt.5	20	208	3301	WATER PLANT	General	3/25/2002	140,760	0	0	0	0	0	0	0	0	0	0	0	140,760	0
1119	10003442	Pmt #2 Painting	20	208	3301	WATER PLANT	General	4/26/2002	18,873	0	0	0	0	0	0	0	0	0	0	0	18,873	0
1120	10003443	24"" Line Leak Repair Labor & Materials	20	208	3301	WATER PLANT	W Treatment	4/1/2002	6,540	0	6,540	0	0	0	0	0	0	0	0	0	0	0
1121	10003444	Concrete Compressive Strength	20	208	3301	WATER PLANT	W Treatment	4/1/2002	90	0	90	0	0	0	0	0	0	0	0	0	0	0
1122	10003445	Prof Services	20	208	3301	WATER PLANT	General	4/25/2002	102,611	0	0	0	0	0	0	0	0	0	0	0	102,611	0
1123	10003446	Prof Services	20	208	3301	WATER PLANT	General	5/31/2002	281,672	0	0	0	0	0	0	0	0	0	0	0	281,672	0
1124	10003447	Prof Services	20	208	3301	WATER PLANT	General	4/30/2002	220	0	0	0	0	0	0	0	0	0	0	0	220	0
1125	10003448	Wtr Plant Metal Building Replacement	10	105	3301	WATER PLANT	W Treatment	9/30/2002	25,971	0	25,971	0	0	0	0	0	0	0	0	0	0	0
1126	10003449	Improv.	20	208	3301	WATER PLANT	W Treatment	9/30/2002	8,477	0	8,477	0	0	0	0	0	0	0	0	0	0	0
1127	10003450	Lift Sta Walmart Ps Replace #2	20	209	3501	WASTERWATER PLANT	WW T&C	10/17/2003	3,320	0	0	0	0	0	0	1,325	1,995	0	0	0	0	0
1128	10003451	Lift Sta Maintenance / Invoice# 069688	20	209	3501	WASTERWATER PLANT	WW T&C	10/27/2003	1,289	0	0	0	0	0	0	514	775	0	0	0	0	0
1129	10003452	Lift Sta 12M Invoice# 069860	20	209	3501	WASTERWATER PLANT	WW T&C	11/5/2003	3,320	0	0	0	0	0	0	1,325	1,995	0	0	0	0	0
1130	10003453	Lift Sta Repairs Invoice# 70862	20	209	3501	WASTERWATER PLANT	WW T&C	1/21/2004	1,193	0	0	0	0	0	0	476	717	0	0	0	0	0
1131	10003454	Effluent Pump Repair / Inv# 072555	20	209	3501	WASTERWATER PLANT	WW Treatment	4/21/2004	988	0	0	0	0	0	0	988	0	0	0	0	0	0
1132	10003455	Effluent Flygt Parts / Inv# 072849	20	209	3501	WASTERWATER PLANT	WW Treatment	5/12/2004	2,756	0	0	0	0	0	2,756	0	0	0	0	0	0	0
1133	10003456	Lift Sta C30Lt Drive & Parts	20	209	3501	WASTERWATER PLANT	WW T&C	5/12/2004	45,550	0	0	0	0	0	0	0	0	0	0	0	0	0
1134	10003457	Effluent Erect New & Reuse Steel	20	209	3501	WASTERWATER PLANT	WW Treatment	5/12/2004	93,067	0	0	0	0	0	93,067	0	0	0	0	0	0	0
1135	10003458	Wtr Wtp Electric Actuators	20	208	3301	WATER PLANT	W Treatment	5/18/2004	5,180	0	5,180	0	0	0	0	0	0	0	0	0	0	0
1136	10003459	Ww Wwtp Conveyor Belt For Centrifuge	20	209	3501	WASTERWATER PLANT	WW Treatment	5/27/2004	9,100	0	0	0	0	0	9,100	0	0	0	0	0	0	0
1137	10003460	Ww Wwtp Bronze Impeller Trimmed To 11.25	20	209	3501	WASTERWATER PLANT	WW Treatment	6/28/2004	1,402	0	0	0	0	0	1,402	0	0	0	0	0	0	0
1138	10003461	Effluent Pumps Packing Gland Clamps	20	209	3501	WASTERWATER PLANT	WW Treatment	6/28/2004	6	0	0	0	0	0	6	0	0	0	0	0	0	0
1139	10003462	Effluent Pumps Packing Gland	20	209	3501	WASTERWATER PLANT	WW Treatment	6/28/2004	210	0	0	0	0	0	210	0	0	0	0	0	0	0
1140	10003463	Effluent ""Soft Starter"" For #4 Pump Ma	20	209	3501	WASTERWATER PLANT	WW Treatment	7/14/2004	1,320	0	0	0	0	0	1,320	0	0	0	0	0	0	0
1141	10003464	Effluent Aurora Horizo Frome-Mounted Non	20	209	3501	WASTERWATER PLANT	WW Treatment	8/2/2004	2,825	0	0	0	0	0	2,825	0	0	0	0	0	0	0
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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant			Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	
1175	10003498	12"" Di Joint Restraint Kits W/ 3/4"" Ro	20	208	3301	WATER PLANT	W T&D	8/3/2005	440	0	0	130	310	0	0	0	0	0	0	0	0	0	0	0
1176	10003499	12"" Di Mj Wye	20	208	3301	WATER PLANT	W T&D	8/3/2005	671	0	0	199	472	0	0	0	0	0	0	0	0	0	0	0
1177	10003500	12"" Mj Kits	20	208	3301	WATER PLANT	W T&D	8/3/2005	126	0	0	37	89	0	0	0	0	0	0	0	0	0	0	0
1178	10003501	12"" Zip Flange Or Equal To Adapt To Fla	20	208	3301	WATER PLANT	W T&D	8/3/2005	378	0	0	112	266	0	0	0	0	0	0	0	0	0	0	0
1179	10003502	Ammonia Analyzer/2Nd Floor Treatment Gal	20	208	3301	WATER PLANT	W Treatment	3/28/2000	8,920	0	8,920	0	0	0	0	0	0	0	0	0	0	0	0	0
1180	10003503	Water Facility-Equipment/ Jefferson St	20	208	3301	WATER PLANT	W Treatment	9/30/2000	15,200	0	15,200	0	0	0	0	0	0	0	0	0	0	0	0	0
1181	10003504	24"" X 12"" Wet Tap, Including Materials	20	208	3301	WATER PLANT	W T&D	8/24/2005	9,582	0	0	2,840	6,742	0	0	0	0	0	0	0	0	0	0	0
1182	10003505	Complete Underdrain System Filter #4	20	208	3301	WATER PLANT	W Treatment	8/21/1998	8,612	0	8,612	0	0	0	0	0	0	0	0	0	0	0	0	0
1183	10003506	(1) 12"" Bermad #730 IF-Thg Valve For By	20	208	3301	WATER PLANT	W Treatment	8/26/2005	7,965	0	7,965	0	0	0	0	0	0	0	0	0	0	0	0	0
1184	10003507	Bolts For Water Plant Job	20	208	3301	WATER PLANT	W Treatment	8/8/2005	494	0	494	0	0	0	0	0	0	0	0	0	0	0	0	0
1185	10003508	Design For Raw Water Bypass/Claricones	20	208	3301	WATER PLANT	General	9/26/2005	1,835	0	0	0	0	0	0	0	0	0	0	0	0	1,835	0	0
1186	10003509	18 X 18 Rotating Assembly Repair	20	208	3301	WATER PLANT	W Treatment	9/26/2005	8,915	0	8,915	0	0	0	0	0	0	0	0	0	0	0	0	0
1187	10003510	Rotating Assembly Per Quote# 070605C4	20	208	3301	WATER PLANT	W Treatment	9/26/2005	6,050	0	6,050	0	0	0	0	0	0	0	0	0	0	0	0	0
1188	10003511	Emergency Repair For C12 Crane Host At W	20	208	3301	WATER PLANT	W Treatment	9/15/2005	3,080	0	3,080	0	0	0	0	0	0	0	0	0	0	0	0	0
1189	10003512	Replace Conduit & Wiring To Lighting On	20	208	3301	WATER PLANT	W Treatment	1/31/2005	2,601	0	2,601	0	0	0	0	0	0	0	0	0	0	0	0	0
1190	10003513	40 Hp Motor For Centrifuge	20	208	3301	WATER PLANT	W Treatment	12/22/2005	1,541	0	1,541	0	0	0	0	0	0	0	0	0	0	0	0	0
1191	10003514	Repairs To Wtp As A Result Of Hurricane	20	209	3501	WASTERWATER PLANT	WW Treatment	6/20/2005	3,749	0	0	0	0	0	0	3,749	0	0	0	0	0	0	0	0
1192	10003515	Design For Installation Of Raw Water Byp	20	208	3301	WATER PLANT	General	12/30/2005	1,223	0	0	0	0	0	0	0	0	0	0	0	0	1,223	0	0
1193	10003516	Filter Nozzles For (2) Potable Water San	20	208	3301	WATER PLANT	W Treatment	3/1/2006	18,000	0	18,000	0	0	0	0	0	0	0	0	0	0	0	0	0
1194	10003517	Freight	20	208	3301	WATER PLANT	General	3/1/2006	120	0	0	0	0	0	0	0	0	0	0	0	0	0	120	0
1195	10003518	It-Scada System	20	208	3301	WATER PLANT	W Treatment	7/14/1998	8,375	0	8,375	0	0	0	0	0	0	0	0	0	0	0	0	0
1196	10003519	Safety Platform Freight Charge	10	105	3301	WATER PLANT	General	6/17/1994	110	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0
1197	10003520	Lime Building & Safety Platform	10	105	3301	WATER PLANT	W Treatment	5/20/1994	6,560	0	6,560	0	0	0	0	0	0	0	0	0	0	0	0	0
1198	10003521	Water System Land (Location Unknown)	70	701	3301	WATER PLANT	W Treatment	9/30/1979	35,615	0	35,615	0	0	0	0	0	0	0	0	0	0	0	0	0
1199	10003522	Pep Pumps And Parts	20	209	3301	WATER PLANT	WW Collection	5/16/2006	194	0	0	0	0	0	0	0	194	0	0	0	0	0	0	0
1200	10003523	E-One Misc Pump Prts	20	209	3502	WW COLLECTION AND REUSE	General	5/16/2006	842	0	0	0	0	0	0	0	0	0	0	0	0	842	0	0
1201	10003524	Dr5000-01 Spectrophotometer	30	309	3301	WATER PLANT	General	7/10/2006	5,924	0	0	0	0	0	0	0	0	0	0	0	0	5,924	0	0
1202	10003525	Chambers - 16 Inch	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	5,280	0	0	0	0	0	0	0	0	0	0	0	0	5,280	0	0
1203	10003526	Control Panel	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	4,950	0	0	0	0	0	0	0	0	0	0	0	0	4,950	0	0
1204	10003527	High Level Floats	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	1,050	0	0	0	0	0	0	0	0	0	0	0	0	1,050	0	0
1205	10003528	J-Box	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	1,350	0	0	0	0	0	0	0	0	0	0	0	0	1,350	0	0
1206	10003529	New Style Lids	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	1,080	0	0	0	0	0	0	0	0	0	0	0	0	1,080	0	0
1207	10003530	Old Style Lids	20	209	3502	WW COLLECTION AND REUSE	General	6/22/2006	468	0	0	0	0	0	0	0	0	0	0	0	0	468	0	0
1208	10003531	Old Style Lids	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	612	0	0	0	0	0	0	0	0	0	0	0	0	612	0	0
1209	10003532	3"" X 1 1/2 Rubber Bushing	20	209	3502	WW COLLECTION AND REUSE	General	7/10/2006	195	0	0	0	0	0	0	0	0	0	0	0	0	195	0	0
1210	10003533	Pep Pump Replacements	20	209	3502	WW COLLECTION AND REUSE	WW COLLECTION	6/19/2006	6,900	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0	0
1211	10003534	Mobile Port Station	20	209	3502	WW COLLECTION AND REUSE	General	5/30/2006	468	0	0	0	0	0	0	0	0	0	0	0	0	468	0	0
1212	10003535	Water Treatment Plant Expansion & Improv	20	208	3301	WATER PLANT	W Treatment	1/7/2004	19,722	0	19,722	0	0	0	0	0	0	0	0	0	0	0	0	0
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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant		Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	
1273	10003596	Wtp - Set Of Control Panels	20	208	3301	WATER PLANT	W Treatment	6/12/2007	50,000	0	50,000	0	0	0	0	0	0	0	0	0	0	0	0
1274	10003597	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	W Treatment	4/18/2007	18,801	0	18,801	0	0	0	0	0	0	0	0	0	0	0	0
1275	10003598	Wtp - Additional Design Work	20	208	3301	WATER PLANT	General	4/18/2007	26,450	0	0	0	0	0	0	0	0	0	0	0	0	26,450	0
1276	10003599	Wtp - Recarbonation Basin - Design	20	208	3301	WATER PLANT	General	4/24/2007	6,985	0	0	0	0	0	0	0	0	0	0	0	0	6,985	0
1277	10003600	Wtp - Recarbonation Basin - Design	20	208	3301	WATER PLANT	General	4/24/2007	4,425	0	0	0	0	0	0	0	0	0	0	0	0	4,425	0
1278	10003601	Wtp - Additional Design Work	20	208	3301	WATER PLANT	General	10/18/2006	10,636	0	0	0	0	0	0	0	0	0	0	0	0	10,636	0
1279	10003602	Wtp - Engineering & Design Work	20	208	3301	WATER PLANT	General	9/15/2007	22,828	0	0	0	0	0	0	0	0	0	0	0	0	22,828	0
1280	10003603	Wtp - Design Filter Structure - Fy 2006	20	208	3301	WATER PLANT	General	9/30/2006	50,300	0	0	0	0	0	0	0	0	0	0	0	0	50,300	0
1281	10003604	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	General	10/19/2006	2,717	0	0	0	0	0	0	0	0	0	0	0	0	2,717	0
1282	10003605	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	General	10/18/2006	9,694	0	0	0	0	0	0	0	0	0	0	0	0	9,694	0
1283	10003606	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	General	9/30/2006	3,910	0	0	0	0	0	0	0	0	0	0	0	0	3,910	0
1284	10003607	Wtp - Const Admin - Flow Pacing - Engine	20	208	3301	WATER PLANT	General	10/18/2006	4,425	0	0	0	0	0	0	0	0	0	0	0	0	4,425	0
1285	10003608	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	General	9/30/2006	8,948	0	0	0	0	0	0	0	0	0	0	0	0	8,948	0
1286	10003609	Water Treatment Plant - 298 Tomoka Av -	20	208	3301	WATER PLANT	W Treatment	1/1/1945	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1287	10003610	Wtr Wtp Engineering - Barnes Ferland-1 I	20	208	3301	WATER PLANT	W Treatment	6/16/2008	5,575	0	5,575	0	0	0	0	0	0	0	0	0	0	0	0
1288	10003611	Wtr Wtp Engineering - Cdm - 12 Invoices	20	208	3301	WATER PLANT	W Treatment	5/22/2008	101,420	0	101,420	0	0	0	0	0	0	0	0	0	0	0	0
1289	10003612	Wtr Wtp Engineering - Quentin Hampton -	20	208	3301	WATER PLANT	W Treatment	6/5/2008	94,665	0	94,665	0	0	0	0	0	0	0	0	0	0	0	0
1290	10003613	Wtr Wtp Engineering - Cdm - 6 Invoices	20	208	3301	WATER PLANT	W Treatment	5/27/2008	47,840	0	47,840	0	0	0	0	0	0	0	0	0	0	0	0
1291	10003614	Wtr Wtp Engineering - Nodarse & Assoc -	20	208	3301	WATER PLANT	W Treatment	4/30/2008	1,726	0	1,726	0	0	0	0	0	0	0	0	0	0	0	0
1292	10003615	Wtr Wtp Engineering -Engineering Techno-	20	208	3301	WATER PLANT	W Treatment	2/8/2008	2,500	0	2,500	0	0	0	0	0	0	0	0	0	0	0	0
1293	10003616	Wtr Wtp Construction - McMahan Const - 1	20	208	3301	WATER PLANT	W Treatment	10/31/2007	91,732	0	91,732	0	0	0	0	0	0	0	0	0	0	0	0
1294	10003617	Wtr Wtp Construction - McMahan Const - 7	20	208	3301	WATER PLANT	W Treatment	5/30/2008	2,673,653	0	2,673,653	0	0	0	0	0	0	0	0	0	0	0	0
1295	10003618	Wtr Wtp Construction - Various Const - 3	20	208	3301	WATER PLANT	W Treatment	4/30/2008	803,756	0	803,756	0	0	0	0	0	0	0	0	0	0	0	0
1296	10003619	Wtr Wtp Engineering-High Srv Pump-Qhampt	20	208	3301	WATER PLANT	W Treatment	7/14/2008	10,713	0	10,713	0	0	0	0	0	0	0	0	0	0	0	0
1297	10003620	Wtr Plant Rehabs - 11 Invoices	20	208	3301	WATER PLANT	W Treatment	3/18/2008	96,520	0	96,520	0	0	0	0	0	0	0	0	0	0	0	0
1298	10003621	Wtr Wtp Treatment Plant Exp & Imp-Multi	20	208	3301	WATER PLANT	W Treatment	9/30/2007	15,045,812	0	15,045,812	0	0	0	0	0	0	0	0	0	0	0	0
1299	10003622	Wtr Wtp Treatment Plant Eng-Cdm 2 Invoic	20	208	3301	WATER PLANT	W Treatment	10/19/2006	12,410	0	12,410	0	0	0	0	0	0	0	0	0	0	0	0
1300	10003623	Wtr Wtp Treatment Plant Operations Train	20	208	3301	WATER PLANT	W Treatment	4/23/2008	170,838	0	170,838	0	0	0	0	0	0	0	0	0	0	0	0
1301	10003624	Wtp - Const Admin - Engineering Services	20	208	3301	WATER PLANT	W Treatment	4/18/2007	274,671	0	274,671	0	0	0	0	0	0	0	0	0	0	0	0
1302	10003625	Wtp - Construction Design Work	20	208	3301	WATER PLANT	W Treatment	9/30/2007	365,050	0	365,050	0	0	0	0	0	0	0	0	0	0	0	0
1303	10003626	Wtp - Plant Engineering Services - Fy 20	20	208	3301	WATER PLANT	General	9/30/2006	69,221	0	0	0	0	0	0	0	0	0	0	0	0	69,221	0
1304	10003627	Wtr Wtp Improvements	20	208	3301	WATER PLANT	W Treatment	9/30/2002	2,031,490	0	2,031,490	0	0	0	0	0	0	0	0	0	0	0	0
1305	10003711	Improvements	20	208	3301	WATER PLANT	W Treatment	8/31/2000	98,750	0	98,750	0	0	0	0	0	0	0	0	0	0	0	0
1306	10003731	Sterthaus Dr Roadway Reconst	20	209	3501	WASTERWATER PLANT	WW T&C	2/5/2002	3,455	0	0	0	0	0	0	0	1,379	2,076	0	0	0	0	0
1307	10003733	Wtr Main Unknown Locations 2"" Line Repl	20	208	3301	WATER PLANT	W T&D	8/6/2001	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1308	10003734	Pmt #8 Final	20	208	3301	WATER PLANT	General	6/11/2001	7,051	0	0	0	0	0	0	0	0	0	0	0	0	7,051	0
1309	10003735	Improvements	20	208	3301	WATER PLANT	W Treatment	5/20/2001	87,772	0	87,772	0	0	0	0	0	0	0	0	0	0	0	0
1310	10003736	Pmt #2 & 3	20	208	3301	WATER PLANT	General	5/20/2001	29,257	0	0	0	0	0	0	0	0	0	0	0	0	29,257	0
1311	10003737	Final Pmt #8	20	208	3301	WATER PLANT	General	6/11/2001															

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water							Wastewater			Reclaimed			Other Plant		
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other	
1371	10003797	Lift Sta 4M In Place Density Test	20	209	3502	WW COLLECTION AND REUSE	General	4/24/2002	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
1372	10003798	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	5/15/2002	32,080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32,080	0
1373	10003799	Lift Sta 4M Payment #/8	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/16/2002	21,401	0	0	0	0	0	0	0	8,541	12,860	0	0	0	0	0	0	0
1374	10003800	Lift Sta 4M Professional Services	20	209	3502	WW COLLECTION AND REUSE	General	9/23/2002	842	0	0	0	0	0	0	0	0	0	0	0	0	0	0	842	0
1375	10003801	Lift Sta 4M Fed Ex	20	209	3502	WW COLLECTION AND REUSE	General	11/26/2002	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
1376	10003802	Lift Sta 4M Film Processing	20	209	3502	WW COLLECTION AND REUSE	General	10/17/2002	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
1377	10003803	Lift Sta 4M Eng Services	20	209	3502	WW COLLECTION AND REUSE	General	11/7/2002	602	0	0	0	0	0	0	0	0	0	0	0	0	0	0	602	0
1378	10003804	Lift Sta 4M Pmt #10 Final	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/6/2002	4,689	0	0	0	0	0	0	0	1,871	2,817	0	0	0	0	0	0	0
1379	10003805	Lift Sta 4M Pmt #9	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/16/2002	193	0	0	0	0	0	0	0	77	116	0	0	0	0	0	0	0
1380	10003806	Lift Sta 4M Geotechnical Service	20	209	3502	WW COLLECTION AND REUSE	General	8/31/2000	892	0	0	0	0	0	0	0	0	0	0	0	0	0	0	892	0
1381	10003807	Lift Sta 4M & Western Relief Force Main	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/7/2002	115,151	0	0	0	0	0	0	0	45,955	69,196	0	0	0	0	0	0	0
1382	10003808	Lift Sta 4M Improvements	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/8/2002	1,188	0	0	0	0	0	0	0	474	714	0	0	0	0	0	0	0
1383	10003809	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	4/15/2002	52,329	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52,329	0
1384	10003810	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	3/26/2002	2,314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,314	0
1385	10003811	Lift Sta 4M Professional Services	20	209	3502	WW COLLECTION AND REUSE	General	3/26/2002	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
1386	10003812	Lift Sta 4M Professional Services	20	209	3502	WW COLLECTION AND REUSE	General	4/10/2002	344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	344	0
1387	10003813	Lift Sta 4M Professional Services	20	209	3502	WW COLLECTION AND REUSE	General	4/19/2002	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0
1388	10003814	Lift Sta 4M In Place Density Test	20	209	3502	WW COLLECTION AND REUSE	General	4/24/2002	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0
1389	10003815	Lift Sta 4M Concrete Test Cylinders	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/20/2002	34	0	0	0	0	0	0	0	13	20	0	0	0	0	0	0	0
1390	10003816	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	5/17/2002	1,471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,471	0
1391	10003817	Lift Sta 4M In Place Density Test	20	209	3502	WW COLLECTION AND REUSE	General	4/24/2002	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0
1392	10003818	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	5/15/2002	40,829	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,829	0
1393	10003819	Lift Sta 4M Design & Engineering	20	209	3502	WW COLLECTION AND REUSE	General	1/12/2004	3,390	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,390	0
1394	10003820	Lift Sta 4M Design & Engineering	20	209	3502	WW COLLECTION AND REUSE	General	3/8/2004	5,720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,720	0
1395	10003821	Lift Sta 4M Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/8/2004	9,359	0	0	0	0	0	0	0	3,735	5,624	0	0	0	0	0	0	0
1396	10003822	Lift Sta 4M Design & Engineering	20	209	3502	WW COLLECTION AND REUSE	General	5/3/2004	635	0	0	0	0	0	0	0	0	0	0	0	0	0	0	635	0
1397	10003823	Lift Sta 4M Improvements	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/3/2001	19,590	0	0	0	0	0	0	0	7,818	11,772	0	0	0	0	0	0	0
1398	10003824	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	8/27/2003	1,693	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,693	0
1399	10003825	Lift Sta 4M Final Pmt	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/22/2003	10,500	0	0	0	0	0	0	0	4,190	6,310	0	0	0	0	0	0	0
1400	10003826	Lift Sta 4M Final Pmt*Retainage Returned	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/22/2003	17,450	0	0	0	0	0	0	0	6,964	10,486	0	0	0	0	0	0	0
1401	10003827	Lift Sta 4M Eng Services	20	209	3502	WW COLLECTION AND REUSE	General	8/7/2003	1,715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,715	0
1402	10003828	Lift Sta 4M Pmt #5	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/31/2003	7,200	0	0	0	0	0	0	0	2,873	4,327	0	0	0	0	0	0	0
1403	10003829	Lift Sta 4M Pump Rehab Engineering Servi	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/1/2003	6,870	0	0	0	0	0	0	0	2,742	4,128	0	0	0	0	0	0	0
1404	10003830	Lift Sta 4M Pmt #4	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/30/2003	12,080	0	0	0	0	0	0	0	4,821	7,259	0	0	0	0	0	0	0
1405	10003831	Lift Sta 4M Pmt #3	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/28/2003	108,520	0	0	0	0	0	0	0	43,309	65,211	0	0	0	0	0	0	0
1406	10003832	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	5/8/2003	1,571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,571	0
1407	10003833	Lift Sta 4M Pmt #2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/30/2003	9,000	0	0	0	0	0	0	0	3,592	5,408	0	0	0	0	0	0	0
1408	10003834	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	4/30/2003	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179	0
1409	10003835	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	4/3/2003	3,142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,142	0
1410	10003836	Lift Sta 4M Pmt #1	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/27/2003	20,250	0	0	0	0	0	0	0	8,081	12,169	0	0	0	0	0	0	0
1411	10003837	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	2/25/2003	2,588	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,588	0
1412	10003838	Lift Sta 4M Sanitary Sewer Permit Fee	20	209	3502	WW COLLECTION AND REUSE	General	11/21/2002	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
1413	10003839	Lift Sta 4M Legal Ad * Public Notice	20	209	3502	WW COLLECTION AND REUSE	General	11/17/2002	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	0
1414	10003840	Lift Sta 4M Pmt #10 Final	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/6/2002	5,967	0	0	0	0	0	0	0	2,381	3,586	0	0	0	0	0	0	0
1415	10003841	Lift Sta 4M Pmt #10 Final	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/6/2002	5,967	0	0	0	0	0	0	0	2,381	3,586	0	0	0	0	0	0	0
1416	10003842	Lift Sta 4M Western Relay Pmt #9	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/16/2002	245	0	0	0	0	0	0	0	98	147	0	0	0	0	0	0	0
1417	10003843	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	10/16/2002	13,171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,171	0
1418	10003844	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	9/30/2003	3,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,032	0
1419	10003845	Lift Sta 4M Engineering Services	20	209	3502	WW COLLECTION AND REUSE	General	9/2/2003	800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	800	0
1420	10003846	Lift Sta 4M Fed Ex	20	209	3502	WW COLLECTION AND REUSE	General	4/26/2005	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
1421	10003847	Lift Sta 4M 6"" Flygt Pump 30 Hp	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/18/2001	30,952	0	0	0	0	0	0	0	12,353	18,600	0	0	0	0	0	0	0
1422	10003848	Lift Sta Misc (3) 8-In Dip Risers At 4M	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/13/2006	34,800	0	0	0	0	0	0	0	13,888	20,912	0	0	0	0	0	0	0
1423	10003849	Lift Sta 4M Prof Services	20	209	3502	WW COLLECTION AND REUSE	General	9/30/2002	118,391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118,391	0
1424	10003865	It-Server-Questys Document Imaging	30	308	1303	INFORMATION TECHNOLOGY	OTHER	8/3/2001	9,711	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,711
1425	10003866	It-Server-Click 2 Gov Core & Modules	30	308	1303	INFORMATION TECHNOLOGY	OTHER	5/29/2001	16,460	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,460
1426	10003867	Veh 01 Liftmore Power Hoist Power Boom	30	303	3501	WASTERWATER PLANT	General	7/2/2001	14,084	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,084	0
1427	10003869	Veh 01 Utility Body	40	404	3502	WW COLLECTION AND REUSE	General	7/2/2001	4,341	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,341	0
1428	10003880	Cmplx Fleet New Fuel Storage Facility	10	105	4103	FLEET	OTHER	6/27/2008	117,487	0	0	0	0	0	0	0	0	0	0	0	0	0	0	117,487	0
1429	10004357	Water System Fire Hydrants 00-01	20	208	3302	WATER DISTRIBUTION	W HYDRANTS	10/1/2000	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1430	10004358	38 Hydrants & Sod	2																						

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater		Reclaimed		Other Plant		Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution		Indirect
1469	10004524	Drainage - Dormont Slip Lining Sanitary	20	209	3501	WASTERWATER PLANT	WW T&C	9/27/2005	5,197	0	0	0	0	0	0	2,074	3,123	0	0	0	0	0	0
1470	10004528	2"" Water Main Replacement Portion Of Th	20	208	3301	WATER PLANT	W T&D	12/5/2005	14,663	0	0	4,346	10,318	0	0	0	0	0	0	0	0	0	0
1471	10004529	2"" Water Main Replacement Portion Of Th	20	208	3301	WATER PLANT	W T&D	12/5/2005	1,828	0	0	542	1,286	0	0	0	0	0	0	0	0	0	0
1472	10004530	Slip Lining Of Sanitary Sewer Portion Of	20	209	3501	WASTERWATER PLANT	WW T&C	12/5/2005	4,178	0	0	0	0	0	0	1,667	2,510	0	0	0	0	0	0
1473	10004531	Addition Of 12-In Force Main From John A	20	209	3501	WASTERWATER PLANT	WW T&C	12/5/2005	53,572	0	0	0	0	0	0	21,380	32,192	0	0	0	0	0	0
1474	10004533	Change Order #3-Additl Water Tie-In On A	20	208	3301	WATER PLANT	W T&D	5/5/2006	1,500	0	0	445	1,055	0	0	0	0	0	0	0	0	0	0
1475	10004534	Change Order #4 - Water Main Upgrades	20	208	3301	WATER PLANT	W T&D	5/5/2006	19,200	0	0	5,690	13,510	0	0	0	0	0	0	0	0	0	0
1476	10004535	Addition Of 12-In Force Main From John A	20	209	3501	WASTERWATER PLANT	WW T&C	5/5/2006	30,318	0	0	0	0	0	0	12,099	18,219	0	0	0	0	0	0
1477	10004536	Change Order #2, Construction Of New 12-	20	209	3501	WASTERWATER PLANT	WW T&C	5/5/2006	22,445	0	0	0	0	0	0	8,957	13,488	0	0	0	0	0	0
1478	10004593	Well 1 Rima Well Field - #50 - #53 Rima	20	208	3301	WATER PLANT	W Supply	11/15/2001	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1479	10004594	Prof Services	20	208	3301	WATER PLANT	General	11/15/2001	2,658	0	0	0	0	0	0	0	0	0	0	0	2,658	0	0
1480	10004595	Prof Services	20	208	3301	WATER PLANT	General	12/6/2001	8,223	0	0	0	0	0	0	0	0	0	0	0	8,223	0	0
1481	10004596	Water Permit	20	208	3301	WATER PLANT	General	1/7/2002	500	0	0	0	0	0	0	0	0	0	0	0	500	0	0
1482	10004597	Prof Services	20	208	3301	WATER PLANT	General	1/16/2002	12,654	0	0	0	0	0	0	0	0	0	0	0	12,654	0	0
1483	10004598	Prof Services	20	208	3301	WATER PLANT	General	3/6/2002	1,062	0	0	0	0	0	0	0	0	0	0	0	1,062	0	0
1484	10004599	Prof Services	20	208	3301	WATER PLANT	General	4/11/2002	1,062	0	0	0	0	0	0	0	0	0	0	0	1,062	0	0
1485	10004600	Prof Services	20	208	3301	WATER PLANT	General	5/2/2002	1,180	0	0	0	0	0	0	0	0	0	0	0	1,180	0	0
1486	10004601	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	1/27/2004	3,741	3,741	0	0	0	0	0	0	0	0	0	0	0	0	0
1487	10004602	24-Inch Raw Water Main-Construction	20	208	3301	WATER PLANT	W Supply	1/30/2004	380,333	380,333	0	0	0	0	0	0	0	0	0	0	0	0	0
1488	10004603	Well Rima Ridge 24-Inch Raw Water Main-C	20	208	3301	WATER PLANT	W Supply	3/31/2004	196,901	196,901	0	0	0	0	0	0	0	0	0	0	0	0	0
1489	10004604	24-Inch Raw Water Transmission Main - Co	20	208	3301	WATER PLANT	W Supply	2/16/2004	889	889	0	0	0	0	0	0	0	0	0	0	0	0	0
1490	10004605	24-Inch Raw Water Main-Construction	20	208	3301	WATER PLANT	W Supply	2/24/2004	449,013	449,013	0	0	0	0	0	0	0	0	0	0	0	0	0
1491	10004606	24-Inch Raw Water Transmission Main - Co	20	208	3301	WATER PLANT	W Supply	3/2/2004	1,256	1,256	0	0	0	0	0	0	0	0	0	0	0	0	0
1492	10004607	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	3/3/2004	4,814	4,814	0	0	0	0	0	0	0	0	0	0	0	0	0
1493	10004608	24-Inch Raw Water Main-Construction	20	208	3301	WATER PLANT	W Supply	3/22/2004	409,964	409,964	0	0	0	0	0	0	0	0	0	0	0	0	0
1494	10004609	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	3/29/2004	6,217	6,217	0	0	0	0	0	0	0	0	0	0	0	0	0
1495	10004610	24-Inch Raw Water Transmission Main - Co	20	208	3301	WATER PLANT	W Supply	4/6/2004	555	555	0	0	0	0	0	0	0	0	0	0	0	0	0
1496	10004611	24-Inch Raw Water Transmission Main - Co	20	208	3301	WATER PLANT	W Supply	5/3/2004	735	735	0	0	0	0	0	0	0	0	0	0	0	0	0
1497	10004612	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	5/19/2004	5,067	5,067	0	0	0	0	0	0	0	0	0	0	0	0	0
1498	10004613	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	6/15/2004	2,690	2,690	0	0	0	0	0	0	0	0	0	0	0	0	0
1499	10004614	24-Inch Raw Water Main-Construction	20	208	3301	WATER PLANT	W Supply	9/30/2004	77,721	77,721	0	0	0	0	0	0	0	0	0	0	0	0	0
1500	10004615	24"" Raw Water Transmission Main	20	208	3301	WATER PLANT	W Supply	9/14/2004	1,504	1,504	0	0	0	0	0	0	0	0	0	0	0	0	0
1501	10004616	40 Additional Hours Of Construction Insp	20	208	3301	WATER PLANT	General	9/14/2004	1,260	0	0	0	0	0	0	0	0	0	0	0	1,260	0	0
1502	10004617	16"" Potable Wtr Main Ext.	20	208	3301	WATER PLANT	W T&D	10/8/2003	620	0	0	184	436	0	0	0	0	0	0	0	0	0	0
1503	10004618	Legal Ad*Public Notice	20	208	3301	WATER PLANT	General	8/17/2003	94	0	0	0	0	0	0	0	0	0	0	0	94	0	0
1504	10004619	Water Permit	20	208	3301	WATER PLANT	General	6/5/2003	375	0	0	0	0	0	0	0	0	0	0	0	375	0	0
1505	10004620	Field Survey*Rima Ridge	70	701	3301	WATER PLANT	General	11/22/2002	13,800	0	0	0	0	0	0	0	0	0	0	0	13,800	0	0
1506	10004621	Field Survey	70	701	3301	WATER PLANT	General	10/26/2002	3,928	0	0	0	0	0	0	0	0	0	0	0	3,928	0	0
1507	10004622	Eng Services	20	208	3301	WATER PLANT	General	9/30/2003	75,498	0	0	0	0	0	0	0	0	0	0	0	75		

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

		Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant			
No.	Asset Code									Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
1567	10004682	Construction	20	208	3301	WATER PLANT	W Treatment	1/25/1994	22,202	0	22,202	0	0	0	0	0	0	0	0	0	0	0	0	0
1568	10004683	Construction	20	208	3301	WATER PLANT	W Treatment	12/24/1993	36,635	0	36,635	0	0	0	0	0	0	0	0	0	0	0	0	0
1569	10004684	Construction	20	208	3301	WATER PLANT	W Treatment	11/25/1993	84,550	0	84,550	0	0	0	0	0	0	0	0	0	0	0	0	0
1570	10004685	Construction	20	208	3301	WATER PLANT	W Treatment	10/25/1993	117,935	0	117,935	0	0	0	0	0	0	0	0	0	0	0	0	0
1571	10004686	Equipping Well 52 And 53	20	208	3301	WATER PLANT	W Supply	3/4/1994	34	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1572	10004687	Well #52 & 53 Rima Ridge	20	208	3301	WATER PLANT	W Supply	9/30/1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1573	10004688	Well Pump & Motor For Well #53	20	208	3301	WATER PLANT	W Supply	7/27/2006	4,988	4,988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1574	10004689	Well Rima Ridge-Eng-Consol Survey	20	208	3301	WATER PLANT	W Supply	3/11/2008	5,990	5,990	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1575	10004690	Well Rima Ridge-Eng-Barnes Fer-6 Invoice	20	208	3301	WATER PLANT	W Supply	12/20/2007	5,617	5,617	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1576	10004691	Well Rima Ridge-Eng-Pennington Moore-3 I	20	208	3301	WATER PLANT	W Supply	12/20/2007	5,356	5,356	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1577	10004692	Well Rima Ridge-Eng-Pennington Moore-9 I	20	208	3301	WATER PLANT	W Supply	9/24/2007	8,688	8,688	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1578	10004693	Well Rima Ridge 24-Inch Raw Water Main-C	20	208	3301	WATER PLANT	W Supply	9/30/2004	160,321	160,321	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1579	10004694	Prof Services	20	208	3301	WATER PLANT	General	1/16/2002	5,034	0	0	0	0	0	0	0	0	0	0	0	0	0	5,034	0
1580	10004695	Rst 01 Thompson 6Tsv-Djdrd Vacuum 6"" Po	30	305	3501	WASTERWATER PLANT	General	11/30/2001	30,700	0	0	0	0	0	0	0	0	0	0	0	0	0	30,700	0
1581	10004706	Pump Sta Rehab & Upgrades	20	208	3301	WATER PLANT	W T&D	2/7/2002	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1582	10004707	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/29/2005	2,246	0	0	0	0	0	0	896	1,350	0	0	0	0	0	0	0
1583	10004708	Pump Sta Eng Design For Standby Generato	20	209	3502	WW COLLECTION AND REUSE	General	12/29/2005	7,099	0	0	0	0	0	0	0	0	0	0	0	0	0	7,099	0
1584	10004709	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/9/2006	1,797	0	0	0	0	0	0	717	1,080	0	0	0	0	0	0	0
1585	10004710	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/9/2006	389	0	0	0	0	0	0	155	234	0	0	0	0	0	0	0
1586	10004711	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/8/2006	449	0	0	0	0	0	0	179	270	0	0	0	0	0	0	0
1587	10004712	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/15/2006	3,301	0	0	0	0	0	0	1,317	1,983	0	0	0	0	0	0	0
1588	10004713	Pump Station Rehabilitation	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/15/2006	551	0	0	0	0	0	0	220	331	0	0	0	0	0	0	0
1589	10004714	Pump Sta Northwest Booster Pump Station	20	208	3302	WATER DISTRIBUTION	W T&D	6/20/1994	1,652	0	0	489	1,162	0	0	0	0	0	0	0	0	0	0	0
1590	10004741	Gen 02 John Deere Jd120S/13 (At Hunters	30	302	3502	WW COLLECTION AND REUSE	General	5/7/2002	24,782	0	0	0	0	0	0	0	0	0	0	0	0	0	24,782	0
1591	10004768	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	6/14/2005	1,696	0	0	503	1,193	0	0	0	0	0	0	0	0	0	0	0
1592	10004770	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	8/3/2005	904	0	0	268	636	0	0	0	0	0	0	0	0	0	0	0
1593	10004777	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	7/18/2005	1,581	0	0	469	1,113	0	0	0	0	0	0	0	0	0	0	0
1594	10004787	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	9/28/2005	953	0	0	282	670	0	0	0	0	0	0	0	0	0	0	0
1595	10004791	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	9/28/2005	1,529	0	0	453	1,076	0	0	0	0	0	0	0	0	0	0	0
1596	10004797	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	11/17/2005	1,151	0	0	341	810	0	0	0	0	0	0	0	0	0	0	0
1597	10004801	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	12/14/2005	1,204	0	0	357	848	0	0	0	0	0	0	0	0	0	0	0
1598	10004807	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	2/16/2006	3,967	0	0	1,176	2,791	0	0	0	0	0	0	0	0	0	0	0
1599	10004811	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	3/20/2006	4,568	0	0	1,354	3,214	0	0	0	0	0	0	0	0	0	0	0
1600	10004816	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	1/11/2006	1,597	0	0	473	1,124	0	0	0	0	0	0	0	0	0	0	0
1601	10004818	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	5/18/2006	2,169	0	0	643	1,526	0	0	0	0	0	0	0	0	0	0	0
1602	10004819	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	4/25/2006	3,980	0	0	1,179	2,800	0	0	0	0	0	0	0	0	0	0	0
1603	10004835	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	6/8/2006	2,450	0	0	726	1,724	0	0	0	0	0	0	0	0	0	0	0
1604	10004838	2"" Diameter Main Replacement Portion Of	20	208	3301	WATER PLANT	W T&D	7/12/2006	1,518	0	0	450	1,068	0	0	0	0	0	0	0	0	0	0	0
1605	10004843	Wtr Main Hull Road & Airport Rd 12"" Loo	20	208	3301	WATER PLANT	W T&D	9/30/2002	4,350	0	0	1,289	3,061	0	0	0	0	0	0	0	0	0	0	0
1606	10004844	Wtr Main Obsc Road Extension Constructio	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2007	39,074	0	0	11,580	27,494	0	0	0	0	0	0	0	0	0	0	0
1607	10004845	Wtr Main Obsc Road Extension Constructio	20	208	3302	WATER DISTRIBUTION	W T&D	12/19/2007	2,926	0	0	867	2,059	0	0	0	0	0	0	0	0	0	0	0
1608	10004920	It-Esri - Gis Software For Looking Glass	30	308	3301	WATER PLANT	W T&D	9/27/2004	6,064	0	0	1,797	4,267	0	0	0	0	0	0	0	0	0	0	0
1609	10004921	It-Esri-Gis Software License For Looking	30	308	3301	WATER PLANT	General	9/27/2004	6,064	0	0	0	0	0	0	0	0	0	0	0	0	0	6,064	0
1610	10005028	1-95/Us1 Utility Relocation	20	208	3301	WATER PLANT	W T&D	1/7/2004	19,460	0	0	5,767	13,693	0	0	0	0	0	0	0	0	0	0	0
1611	10005029	1-95/Us1 Utility Relocation - Constructi	20	208	3301	WATER PLANT	W T&D	10/31/2003	138,236	0	0	40,968	97,268	0	0	0	0	0	0	0	0	0	0	0
1612	10005030	1-95/Us1 Utility Relocation - Constructi	20	208	3301	WATER PLANT	W T&D	1/21/2004	1,165	0	0	345	820	0	0	0	0	0	0	0	0	0	0	0
1613	10005031	1-95/Us1 Utility Relocation - Constructi	20	208	3301	WATER PLANT	W T&D	1/22/2004	1,165	0	0	345	820	0	0	0	0	0	0	0	0	0	0	0
1614	10005032	1-95/Us1 Utility Relocation	20	208	3301	WATER PLANT	W T&D	1/27/2004	1,854	0	0	549	1,305	0	0	0	0	0	0	0	0	0	0	0
1615	10005033	Fed Ex	20	208	3301	WATER PLANT	General	12/15/2003	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
1616	10005034	Fed Ex	20	208	3301	WATER PLANT	General	10/28/2003	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
1617	10005035	Const Services	20	208	3301	WATER PLANT	General	12/22/2003	3,200	0	0	0	0	0	0	0	0	0	0	0	0	0	3,200	0
1618	10005036	Fed Ex	20	208	3301	WATER PLANT	General	4/22/2003	26	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
1619	10005037	Legal Ad Public Notice Bid #2003-12	20	208	3301	WATER PLANT	General	4/13/2003	114	0	0	0	0	0	0	0	0	0	0	0	0	0	114	0
1620	10005038	Engin. Services	20	208	3301	WATER PLANT	General	4/30/2003	2,210	0	0	0	0	0	0	0	0	0	0	0	0	0	2,210	0
1621	10005039	Eng. Services	20	208	3301	WATER PLANT	General	9/30/2003	12,628	0	0	0	0	0	0	0	0	0	0	0	0	0	12,628	0
1622	10005040	Eng. Services	20	208	3301	WATER PLANT	General	6/3/2003	4,741	0	0	0	0	0	0	0	0	0	0	0	0	0	4,741	0
1623	10005041	Eng. Services	20	208	3301	WATER PLANT	General	5/31/2003	75	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0
1624	10005042	Eng. Services	20	208	3301	WATER PLANT	General	4/25/2003	4,380	0	0	0	0	0	0	0	0	0	0	0	0	0	4,380	0
1625	10005043	Drinking Water Permit	20	208	3301	WATER PLANT	General	3/24/2003	500	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
1626	10005044	Eng. Services	20	208	3301	WATER PLANT	General	1/29/2003	23,098	0	0	0	0	0	0	0	0	0	0	0	0	0	23,098	0
1627	10005045	Eng Services	20	208	3301	WATER PLANT	General	1/3/2003	9,524	0	0	0	0	0	0	0	0	0	0	0	0	0	9,524	0
1628	10005046	Eng. Services	20	208																				

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant		
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General
1665	10005630	40 Additional Hours Of Construction Insp	20	208	3301	WATER PLANT	General	9/14/2004	420	0	0	0	0	0	0	0	0	0	0	0	0	420	0
1666	10005631	Joint Participation Agreement W/The Deve	20	209	3501	WASTERWATER PLANT	Other	11/22/2004	113,973	0	0	0	0	0	0	0	0	0	0	0	0	0	113,973
1667	10005632	Sr 40 Wtr Main	20	208	3302	WATER DISTRIBUTION	W T&D	12/22/2004	923	0	0	274	649	0	0	0	0	0	0	0	0	0	0
1668	10005633	Joint Participation Agreement W/The Deve	20	209	3501	WASTERWATER PLANT	Other	12/21/2004	92,903	0	0	0	0	0	0	0	0	0	0	0	0	0	92,903
1669	10005634	24"" Raw Wtr Transmi Main	20	208	3301	WATER PLANT	W Supply	10/8/2003	207	207	0	0	0	0	0	0	0	0	0	0	0	0	0
1670	10005635	Prof Services	20	209	3501	WASTERWATER PLANT	Other	9/30/2004	8,425	0	0	0	0	0	0	0	0	0	0	0	0	0	8,425
1671	10005636	Offsite Sewer Reimbursement	20	209	3501	WASTERWATER PLANT	Other	8/30/2004	30,319	0	0	0	0	0	0	0	0	0	0	0	0	0	30,319
1672	10005637	Booth Rd Utility Ext.	20	208	3301	WATER PLANT	W T&D	10/23/2002	6	0	0	2	4	0	0	0	0	0	0	0	0	0	0
1673	10005638	Booth Rd Pmt #1	20	208	3301	WATER PLANT	General	12/31/2002	48,397	0	0	0	0	0	0	0	0	0	0	0	0	48,397	0
1674	10005639	Copies	20	209	3502	WW COLLECTION AND REUSE	General	10/14/2002	47	0	0	0	0	0	0	0	0	0	0	0	0	47	0
1675	10005640	Water Permit	20	208	3301	WATER PLANT	General	6/5/2003	125	0	0	0	0	0	0	0	0	0	0	0	0	125	0
1676	10005641	Eng Services	20	208	3301	WATER PLANT	General	6/3/2003	12,130	0	0	0	0	0	0	0	0	0	0	0	0	12,130	0
1677	10005642	Pmt #2 Eng Services	20	208	3301	WATER PLANT	General	4/24/2003	8,088	0	0	0	0	0	0	0	0	0	0	0	0	8,088	0
1678	10005643	Joint Participation Agreement W/The Deve	20	209	3501	WASTERWATER PLANT	Other	1/18/2005	81,144	0	0	0	0	0	0	0	0	0	0	0	0	0	81,144
1679	10005644	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	1/24/2005	256	0	0	76	180	0	0	0	0	0	0	0	0	0	0
1680	10005645	Joint Participation Agreement W/The Deve	20	209	3501	WASTERWATER PLANT	Other	2/9/2005	81,953	0	0	0	0	0	0	0	0	0	0	0	0	0	81,953
1681	10005646	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	1/27/2004	1,247	0	0	370	877	0	0	0	0	0	0	0	0	0	0
1682	10005647	16-Inch Potable Water Main Extension-Con	20	208	3301	WATER PLANT	W T&D	1/30/2004	139,277	0	0	41,276	98,001	0	0	0	0	0	0	0	0	0	0
1683	10005648	Wtr Main Sr40 16-Inch Potable Water Main	20	208	3301	WATER PLANT	W T&D	3/31/2004	72,105	0	0	21,369	50,736	0	0	0	0	0	0	0	0	0	0
1684	10005649	16-Inch Potalbe Water Main Extension -Co	20	208	3301	WATER PLANT	W T&D	2/16/2004	296	0	0	88	208	0	0	0	0	0	0	0	0	0	0
1685	10005650	16-Inch Potable Water Main Extension-Con	20	208	3301	WATER PLANT	W T&D	2/24/2004	164,427	0	0	48,730	115,697	0	0	0	0	0	0	0	0	0	0
1686	10005651	16-Inch Potable Water Main Extension -Co	20	208	3301	WATER PLANT	W T&D	3/2/2004	419	0	0	124	295	0	0	0	0	0	0	0	0	0	0
1687	10005652	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	3/3/2004	1,605	0	0	476	1,129	0	0	0	0	0	0	0	0	0	0
1688	10005653	16-Inch Potable Water Main Extension-Con	20	208	3301	WATER PLANT	W T&D	3/22/2004	150,127	0	0	44,492	105,636	0	0	0	0	0	0	0	0	0	0
1689	10005654	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	3/29/2004	2,072	0	0	614	1,458	0	0	0	0	0	0	0	0	0	0
1690	10005655	16-Inch Potalbe Water Main Extension -Co	20	208	3301	WATER PLANT	W T&D	4/6/2004	185	0	0	55	130	0	0	0	0	0	0	0	0	0	0
1691	10005656	16-Inch Potalbe Water Main Extension -Co	20	208	3301	WATER PLANT	W T&D	5/3/2004	245	0	0	73	172	0	0	0	0	0	0	0	0	0	0
1692	10005657	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	5/19/2004	1,689	0	0	501	1,188	0	0	0	0	0	0	0	0	0	0
1693	10005658	16"" Potable Water Main Extension	20	208	3301	WATER PLANT	W T&D	6/15/2004	897	0	0	266	631	0	0	0	0	0	0	0	0	0	0
1694	10005659	Raw Water Main Repair/Relocation On Sr40	20	208	3301	WATER PLANT	W Supply	9/30/2004	12,592	12,592	0	0	0	0	0	0	0	0	0	0	0	0	0
1695	10005660	Raw Water Main Repair/Relocation On Sr40	20	208	3301	WATER PLANT	W Supply	3/22/2004	17,322	17,322	0	0	0	0	0	0	0	0	0	0	0	0	0
1696	10005661	Raw Water Main Repair/Relocation On Sr40	20	208	3301	WATER PLANT	W Supply	2/24/2004	18,972	18,972	0	0	0	0	0	0	0	0	0	0	0	0	0
1697	10005662	Raw Water Main Repair/Relocation On Sr40	20	208	3301	WATER PLANT	W Supply	1/30/2004	16,070	16,070	0	0	0	0	0	0	0	0	0	0	0	0	0
1698	10005663	Raw Water Main Repair/Relocation On Sr40	20	208	3301	WATER PLANT	W Supply	1/30/2004	16,070	16,070	0	0	0	0	0	0	0	0	0	0	0	0	0
1699	10005664	Water Main Break*Emergency Repair	20	208	3301	WATER PLANT	W T&D	11/9/1999	10,040	0	0	2,975	7,065	0	0	0	0	0	0	0	0	0	0
1700	10005665	Concrete For Pipe Forms	20	208	3301	WATER PLANT	General	8/18/2005	179	0	0	0	0	0	0	0	0	0	0	0	0	179	0
1701	10005666	Const. Services	20	209	3501	WASTERWATER PLANT	Other	3/20/2005	8,617	0	0	0	0	0	0	0	0	0	0	0	0	0	8,617
1702	10005667	Construction Services	20	209	3501	WASTERWATER PLANT	Other	2/20/2005	24,139	0	0	0	0	0	0	0	0	0	0	0	0	0	24,139
1703	10005668	Const. Services	20	209	3501	WASTERWATER PLANT	Other	11/25/2004	74,813	0	0	0	0	0	0	0							

Appendix I
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater		Reclaimed			Other Plant		Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect		General
1763	10005906	Rotating Assembly For Aurora Pump	30	305	3502	WW COLLECTION AND REUSE	WW T&C	9/1/2000	9,775	0	0	0	0	0	0	0	3,901	5,874	0	0	0	0	0	0
1764	10005907	Pumps/172	30	305	3502	WW COLLECTION AND REUSE	WW T&C	12/6/1999	45,264	0	0	0	0	0	0	0	18,064	27,200	0	0	0	0	0	0
1765	10005908	New Style Chambers 16"	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	1,980	0	0	0	0	0	0	0	790	1,190	0	0	0	0	0	0
1766	10005909	Risers New Style 12"	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	1,200	0	0	0	0	0	0	0	479	721	0	0	0	0	0	0
1767	10005910	J-Boxes	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	540	0	0	0	0	0	0	0	216	324	0	0	0	0	0	0
1768	10005911	Control Panels	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	1,980	0	0	0	0	0	0	0	790	1,190	0	0	0	0	0	0
1769	10005912	New Style Lids	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	248	0	0	0	0	0	0	0	99	149	0	0	0	0	0	0
1770	10005913	Old Style Lids	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2004	216	0	0	0	0	0	0	0	86	130	0	0	0	0	0	0
1771	10005914	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	6/11/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0
1772	10005915	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	6/11/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0
1773	10005916	New Style Chambers 16"	30	309	3502	WW COLLECTION AND REUSE	WW T&C	8/12/2004	2,475	0	0	0	0	0	0	0	988	1,487	0	0	0	0	0	0
1774	10005917	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	9/15/2004	5,175	0	0	0	0	0	0	0	2,065	3,110	0	0	0	0	0	0
1775	10005918	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	10/4/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0
1776	10005919	Float Switch	30	309	3502	WW COLLECTION AND REUSE	WW T&C	10/8/2003	273	0	0	0	0	0	0	0	109	164	0	0	0	0	0	0
1777	10005920	Pilot Green Bulbs	30	309	3502	WW COLLECTION AND REUSE	WW T&C	10/8/2003	216	0	0	0	0	0	0	0	86	130	0	0	0	0	0	0
1778	10005921	110 V Automatic Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	9/5/2003	1,725	0	0	0	0	0	0	0	688	1,037	0	0	0	0	0	0
1779	10005922	Tsurumi Pump .5/Hp 15	30	305	3502	WW COLLECTION AND REUSE	WW T&C	7/2/2003	5,175	0	0	0	0	0	0	0	2,065	3,110	0	0	0	0	0	0
1780	10005923	Pep Tank Parts	30	309	3502	WW COLLECTION AND REUSE	WW COLLECTION	5/30/2003	2,190	0	0	0	0	0	0	0	0	2,190	0	0	0	0	0	0
1781	10005924	Pep Tank Parts	30	309	3502	WW COLLECTION AND REUSE	WW COLLECTION	5/23/2003	2,760	0	0	0	0	0	0	0	0	2,760	0	0	0	0	0	0
1782	10005925	Rehab Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	5/23/2003	5,175	0	0	0	0	0	0	0	2,065	3,110	0	0	0	0	0	0
1783	10005926	Pep Tank Parts	30	309	3502	WW COLLECTION AND REUSE	WW COLLECTION	5/14/2003	11,426	0	0	0	0	0	0	0	0	11,426	0	0	0	0	0	0
1784	10005927	16" Chambers For Rehabs	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/15/2003	495	0	0	0	0	0	0	0	198	297	0	0	0	0	0	0
1785	10005928	Bjm Auto. Pumps .5Hp	30	305	3502	WW COLLECTION AND REUSE	WW T&C	4/9/2003	4,425	0	0	0	0	0	0	0	1,766	2,659	0	0	0	0	0	0
1786	10005929	Pvc Materials	30	309	3502	WW COLLECTION AND REUSE	WW T&C	4/1/2003	1,057	0	0	0	0	0	0	0	422	635	0	0	0	0	0	0
1787	10005930	Junction Boxes, Control Panel,P/C Insert	30	309	3502	WW COLLECTION AND REUSE	WW T&C	2/27/2003	5,382	0	0	0	0	0	0	0	2,148	3,234	0	0	0	0	0	0
1788	10005931	Reuse Pump Replacement Parts	30	305	3502	WW COLLECTION AND REUSE	WW T&C	2/10/2003	85	0	0	0	0	0	0	0	34	51	0	0	0	0	0	0
1789	10005932	Bjm .05Hp Pump	30	305	3502	WW COLLECTION AND REUSE	WW T&C	12/20/2002	8,850	0	0	0	0	0	0	0	3,532	5,318	0	0	0	0	0	0
1790	10005933	Tsurumi Pump	30	305	3502	WW COLLECTION AND REUSE	WW T&C	11/6/2002	5,999	0	0	0	0	0	0	0	2,394	3,605	0	0	0	0	0	0
1791	10005934	Eff. Pump Replacement	30	305	3502	WW COLLECTION AND REUSE	WW T&C	10/2/2002	5,999	0	0	0	0	0	0	0	2,394	3,605	0	0	0	0	0	0
1792	10005935	1050 Gal Traffic Tank Assembled W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	8/20/2004	6,063	0	0	0	0	0	0	0	2,419	3,643	0	0	0	0	0	0
1793	10005936	1050 Gal Traffic Tank Assembled W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	8/30/2004	6,063	0	0	0	0	0	0	0	2,419	3,643	0	0	0	0	0	0
1794	10005937	1050 Gal Traffic Tank Assembled W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	9/29/2004	6,063	0	0	0	0	0	0	0	2,419	3,643	0	0	0	0	0	0
1795	10005938	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	12/15/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0
1796	10005939	Pumps & Accessories	30	305	3502	WW COLLECTION AND REUSE	WW T&C	8/11/2004	5,175	0	0	0	0	0	0	0	2,065	3,110	0	0	0	0	0	0
1797	10005940	E/One 2' Extension Kit	30	305	3502	WW COLLECTION AND REUSE	WW T&C	1/11/2005	732	0	0	0	0	0	0	0	292	440	0	0	0	0	0	0
1798	10005941	E/One 2' Extension Kit	30	305	3502	WW COLLECTION AND REUSE	WW T&C	1/11/2005	411	0	0	0	0	0	0	0	164	247	0	0	0	0	0	0
1799	10005942	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	1/11/2005	7,275	0	0	0	0	0	0	0	2,903	4,372	0	0	0	0	0	0
1800	10005943	1050 Gal Traffic Tank Assemble W/Marine	30	310</																				

Appendix 1
City of Ormond Beach
Water and Wastewater System Connection Fee Study

Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water								Wastewater		Reclaimed		Other Plant			
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other	
1861	10006004	Risers New Style 12"	30	309	3502	WW COLLECTION AND REUSE	General	8/30/2004	1,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,500	0
1862	10006005	J-Boxes	30	309	3502	WW COLLECTION AND REUSE	General	8/30/2004	675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	675	0
1863	10006006	Control Panels	30	309	3502	WW COLLECTION AND REUSE	General	8/30/2004	990	0	0	0	0	0	0	0	0	0	0	0	0	0	0	990	0
1864	10006007	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	6/11/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0	0
1865	10006008	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	10/25/2004	7,275	0	0	0	0	0	0	0	2,903	4,372	0	0	0	0	0	0	0
1866	10006009	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	10/25/2004	7,275	0	0	0	0	0	0	0	2,903	4,372	0	0	0	0	0	0	0
1867	10006010	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	12/1/2004	2,425	0	0	0	0	0	0	0	968	1,457	0	0	0	0	0	0	0
1868	10006011	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	12/1/2004	7,275	0	0	0	0	0	0	0	2,903	4,372	0	0	0	0	0	0	0
1869	10006012	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	12/15/2004	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0	0
1870	10006013	Irrigation Material	30	309	3502	WW COLLECTION AND REUSE	General	7/25/2003	233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	233	0
1871	10006014	1050 Gal Traffic Tank Assemble W/Marine	30	310	3502	WW COLLECTION AND REUSE	WW T&C	3/30/2005	7,275	0	0	0	0	0	0	0	2,903	4,372	0	0	0	0	0	0	0
1872	10006015	Replacement Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	12/7/2005	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0	0
1873	10006016	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	4/8/2005	6,900	0	0	0	0	0	0	0	2,754	4,146	0	0	0	0	0	0	0
1874	10006017	J Boxes	30	309	3502	WW COLLECTION AND REUSE	General	4/8/2005	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	450	0
1875	10006018	1 1/2" Rubber Bushings	30	309	3502	WW COLLECTION AND REUSE	General	4/8/2005	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	0
1876	10006019	High Level Floats	30	309	3502	WW COLLECTION AND REUSE	General	4/8/2005	350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	0
1877	10006020	Repair Supplies	30	305	3502	WW COLLECTION AND REUSE	General	10/26/2005	296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	296	0
1878	10006021	12" New Style Risers	30	309	3502	WW COLLECTION AND REUSE	General	4/22/2005	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0
1879	10006022	New Style Lids (Small)	30	309	3502	WW COLLECTION AND REUSE	General	4/22/2005	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	360	0
1880	10006023	10 30" Lids @ \$41.25 Each	30	310	3502	WW COLLECTION AND REUSE	General	4/7/2005	413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	413	0
1881	10006024	Riser*E-One Installation	30	309	3502	WW COLLECTION AND REUSE	General	9/25/2001	370	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370	0
1882	10006025	Effluent Pump 16" Propeller	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/1998	5,600	0	0	0	0	0	0	0	2,235	3,365	0	0	0	0	0	0	0
1883	10006026	Paint And Pump Repairs	30	305	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2000	10,600	0	0	0	0	0	0	0	4,230	6,370	0	0	0	0	0	0	0
1884	10006027	12" Old Style Risers	30	309	3502	WW COLLECTION AND REUSE	General	8/24/2005	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0
1885	10006028	J Boxes	30	309	3502	WW COLLECTION AND REUSE	General	8/24/2005	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	450	0
1886	10006029	New Style Lids (Small)	30	309	3502	WW COLLECTION AND REUSE	General	8/24/2005	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	360	0
1887	10006030	1 1/2" Rubber Bushings	30	309	3502	WW COLLECTION AND REUSE	General	8/24/2005	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	0
1888	10006031	High Level Floats	30	309	3502	WW COLLECTION AND REUSE	General	8/24/2005	350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	0
1889	10006032	Power Generation Equip	30	302	3301	WATER PLANT	General	3/4/2005	2,710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,710	0
1890	10006033	Pep Tank Supplies	30	309	3502	WW COLLECTION AND REUSE	WW Collection	5/18/2005	187	0	0	0	0	0	0	0	0	187	0	0	0	0	0	0	0
1891	10006034	Pep Tank Supplies	30	309	3502	WW COLLECTION AND REUSE	WW Collection	4/10/2005	318	0	0	0	0	0	0	0	0	318	0	0	0	0	0	0	0
1892	10006035	15% Fuel Surcharge	30	309	3502	WW COLLECTION AND REUSE	General	9/26/2005	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0
1893	10006036	Freight - Pneumatic	30	309	3502	WW COLLECTION AND REUSE	General	9/26/2005	1,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,900	0
1894	10006037	Filter Sand Media For (2) Filters	30	309	3502	WW COLLECTION AND REUSE	General	9/26/2005	4,185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,185	0
1895	10006038	15% Fuel Surcharge	30	309	3502	WW COLLECTION AND REUSE	General	9/26/2005	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	273	0
1896	10006039	Pep Tanks Less Pumps	30	309	3502	WW COLLECTION AND REUSE	WW Collection	9/26/2005	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0	0
1897	10006040	Pumps For Pep Tanks	30	305	3502	WW COLLECTION AND REUSE	WW Collection	9/26/2005	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0	0
1898	10006041	Pumps For Pep Tanks	30	305	3502	WW COLLECTION AND REUSE	WW Collection	9/26/2005	6,900	0	0	0	0	0	0	0	0	6,900	0	0	0	0	0	0	0
1899	10006042	Pep Tanks Less Pumps	30	309	3502	WW COLLECTION AND REUSE	WW Collection	9/27/2005	2,425	0	0	0	0	0	0	0	0	2,425	0	0	0	0	0	0	0
1900	10006043	Pep Tanks - New Installation	30	309	3502	WW COLLECTION AND REUSE	WW Collection	9/27/2005	4,850	0	0	0	0	0	0	0	0	4,850	0	0	0	0	0	0	0
1901	10006044	Pep Tanks - New Installation	30	309	3502	WW COLLECTION AND REUSE	WW Collection	9/27/2005	19,400	0	0	0	0	0	0	0	0	19,400	0	0	0	0	0	0	0
1902	10006045	Pep Tanks Less Pumps	30	309	3502	WW COLLECTION AND REUSE	WW Collection	9/27/2005	7,275	0	0	0	0	0	0	0	0	7,275	0	0	0	0	0	0	0
1903	10006046	Tsurumi Effluent Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	9/8/2004	10,005	0	0	0	0	0	0	0	3,993	6,012	0	0	0	0	0	0	0
1904	10006047	Replacement Pumps	30	305	3502	WW COLLECTION AND REUSE	WW T&C	1/25/2006	4,485	0	0	0	0	0	0	0	1,790	2,695	0	0	0	0	0	0	0
1905	10006048	Effluent Engineering Evaluation Of	20	208	3301	WATER PLANT	General	5/22/2006	2,526	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,526	0
1906	10006049	Effluent Engineering Evaluation	20	208	3301	WATER PLANT	General	5/22/2006	5,162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,162	0
1907	10006050	Effluent Engineering Evaluation	20	208	3301	WATER PLANT	General	8/10/2006	2,196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,196	0
1908	10006051	Effluent Engineering Evaluation	20	208	3301	WATER PLANT	General	8/10/2006	549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	549	0
1909	10006052	Effluent Engineering Evaluation	20	208	3301	WATER PLANT	General	8/10/2006	549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	549	0
1910	10006053	Effluent Reuse Hunters Ridge	20	209	3501	WASTERWATER PLANT	WW T&C	1/12/2004	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1911	10006054	2003 Reuse System Improvements (Hunter'S	20	209	3501	WASTERWATER PLANT	WW T&C	1/12/2004	1,512	0	0	0	0	0	0	0	603	909	0	0	0	0	0	0	0
1912	10006055	2003 Reuse System Impvmits (Hunter'S Ridg	20	209	3501	WASTERWATER PLANT	WW T&C	2/16/2004	1,701	0	0	0	0	0	0	0	679	1,022	0	0	0	0	0	0	0
1913	10006056	2003 Reuse System Impvmits (Hunter'S Ridg	20	209	3501	WASTERWATER PLANT	WW T&C	2/16/2004	1,701	0	0	0	0	0	0	0	679	1,022	0	0	0	0	0	0	0
1914	10006057	2003 Reuse System Improvements (Hunter'S	20	209	3501	WASTERWATER PLANT	WW T&C	1/12/2004	1,512	0	0	0	0	0	0	0	603	909	0	0	0	0	0	0	0
1915	10006058	Ad For Storage Container	20	209	3501	WASTERWATER PLANT	OTHER	8/11/2005	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57
1916	10006059	2003 Reuse System Improvements (Hunter'S	20	209	3501	WASTERWATER PLANT	WW T&C	8/30/2004	2,922	0	0	0	0	0	0	0	1,166	1,756	0	0	0	0	0	0	0
1917	10006060	2003 Reuse System Impvmits (Hunter'S Ridg	20	209	3501	WASTERWATER PLANT	WW T&C	8/23/2004	1,405	0	0	0	0	0	0	0	561	844	0	0	0	0	0	0	0
1918	10006061	Additional/Correction	20	209	3501	WASTERWATER PLANT	General	8/17/2005	1,948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,948	0
1919	10006062	2003 Reuse System Improvements (Hunter'S	20	209	3501	WASTERWATER PLANT	WW T&C	3/8/2004	1,512	0	0	0	0	0	0	0	603	909	0	0	0	0	0	0	0
1920	10006063	Additional/Correction	20	209	3501	WASTERWATER PLANT	General	2/14/2005	3,896	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,896	0

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No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater			Reclaimed		Other Plant				
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
1959	10006102	Kjeldahl Digester 115Vac	30	309	3501	WASTERWATER PLANT	WW Treatment	1/30/2002	1,405	0	0	0	0	0	0	1,405	0	0	0	0	0	0	0	0
1960	10006103	Prec Bath Sm Coliform	30	309	3501	WASTERWATER PLANT	WW Treatment	2/22/2002	689	0	0	0	0	0	0	689	0	0	0	0	0	0	0	0
1961	10006104	Portable Sampler	30	309	3501	WASTERWATER PLANT	WW Treatment	12/1/2000	5,655	0	0	0	0	0	0	5,655	0	0	0	0	0	0	0	0
1962	10006107	Lift Sta 2P - 605 Riverside Dr	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/17/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1963	10006108	Lift Sta 2P Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1964	10006109	Lift Sta 2P Permit Fee	20	209	3502	WW COLLECTION AND REUSE	General	11/2/2005	125	0	0	0	0	0	0	0	0	0	0	0	0	0	125	0
1965	10006110	Lift Sta 2P	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/22/2006	470	0	0	0	0	0	0	0	188	282	0	0	0	0	0	0
1966	10006111	Lift Sta 2P	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/22/2006	470	0	0	0	0	0	0	0	188	282	0	0	0	0	0	0
1967	10006112	Lift Sta 2P - Construction - Censtate -	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/11/2008	8,000	0	0	0	0	0	0	0	3,193	4,807	0	0	0	0	0	0
1968	10006113	Lift Sta 3P - 252 Riverside Drive	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/17/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1969	10006114	Lift Sta 3P Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1970	10006115	Lift Sta 3P Permit Fee	20	209	3502	WW COLLECTION AND REUSE	General	11/2/2005	125	0	0	0	0	0	0	0	0	0	0	0	0	0	125	0
1971	10006116	Lift Sta 3P	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/22/2006	470	0	0	0	0	0	0	0	188	282	0	0	0	0	0	0
1972	10006117	Lift Sta 3P	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/22/2006	470	0	0	0	0	0	0	0	188	282	0	0	0	0	0	0
1973	10006118	Lift Sta 5P - 812 Riverside Drive	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/17/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1974	10006119	Lift Sta 5P Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1975	10006120	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/17/2005	50,217	0	0	0	0	0	0	0	20,041	30,176	0	0	0	0	0	0
1976	10006121	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	12/20/2005	18,600	0	0	0	0	0	0	0	7,423	11,177	0	0	0	0	0	0
1977	10006122	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/16/2006	13,800	0	0	0	0	0	0	0	5,507	8,293	0	0	0	0	0	0
1978	10006123	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	3/15/2006	22,949	0	0	0	0	0	0	0	9,159	13,790	0	0	0	0	0	0
1979	10006124	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/19/2006	6,215	0	0	0	0	0	0	0	2,480	3,735	0	0	0	0	0	0
1980	10006125	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/11/2006	25,076	0	0	0	0	0	0	0	10,007	15,068	0	0	0	0	0	0
1981	10006126	Lift Sta 5P Rehab/Impvmts Construction	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/13/2006	11,275	0	0	0	0	0	0	0	4,500	6,775	0	0	0	0	0	0
1982	10006127	Lift Sta 7P - 710L Alden Drive	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/17/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1983	10006128	Lift Sta 7P Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1984	10006129	Lift Sta 8P - 1044 John Anderson Drive	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/1/1970	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1985	10006130	Lift Sta 8P Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1986	10006131	Lift Sta Om - 1260 Ocean Shore Blvd	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/17/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1987	10006132	Lift Sta Om Design For Standby Generator	20	209	3502	WW COLLECTION AND REUSE	General	8/17/2005	357	0	0	0	0	0	0	0	0	0	0	0	0	0	357	0
1988	10006133	Lift Sta Sc - 100 Hunters Ridge Blvd	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2005	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1989	10006134	Lift Sta Sc Interior Rehab On Ls	20	209	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2005	9,612	0	0	0	0	0	0	0	3,836	5,776	0	0	0	0	0	0
1990	10006135	Lift Sta Sc Fed Ex	20	209	3502	WW COLLECTION AND REUSE	General	5/24/2005	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
1991	10006136	Lift Sta Sc Eng Design For Standby Gener	20	209	3502	WW COLLECTION AND REUSE	General	2/9/2006	11,760	0	0	0	0	0	0	0	0	0	0	0	0	0	11,760	0
1992	10006137	Lift Sta Sc Design & Engineering	20	209	3502	WW COLLECTION AND REUSE	General	2/14/2006	3,410	0	0	0	0	0	0	0	0	0	0	0	0	0	3,410	0
1993	10006138	Lift Sta Sc Eng Design For Standby	20	209	3502	WW COLLECTION AND REUSE	General	3/7/2006	2,940	0	0	0	0	0	0	0	0	0	0	0	0	0	2,940	0
1994	10006139	Lift Sta Sc Design & Engineering	20	209	3502	WW COLLECTION AND REUSE	General	3/16/2006	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	1,326	0
1995	10006140	Lift Sta Sc Shadow X-Ing #2 Pump / Inv#	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/10/2004	1,774	0	0	0	0	0	0	0	708	1,066	0	0	0	0	0	0
1996	10006141	Lift Sta Sc Parts For Shadow Crossing Pu	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/29/200																

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No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant		Other	
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect		General
2057	10006241	Lift Sta Arp - 14L Sunshine Blvd	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/1/2006	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2058	10006242	Lift Sta Arp Parts #2 Pump	20	209	3502	WW COLLECTION AND REUSE	WW T&C	6/29/2004	3,271	0	0	0	0	0	0	0	1,305	1,965	0	0	0	0	0	0
2059	10006243	Lift Sta Arp Sewpercoat Manholes	20	209	3501	WASTERWATER PLANT	WW T&C	9/26/2005	13,898	0	0	0	0	0	0	0	5,546	8,352	0	0	0	0	0	0
2060	10006244	Lift Sta Arp Manhole Repairs	20	209	3501	WASTERWATER PLANT	WW T&C	9/26/2005	3,220	0	0	0	0	0	0	0	1,285	1,935	0	0	0	0	0	0
2061	10006245	Lift Sta 4M1 - 1308L Overbrook Ave	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/1/1977	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2062	10006246	Lift Sta 4M1 Flyght Parts Inv# 075411	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/22/2004	1,548	0	0	0	0	0	0	0	618	930	0	0	0	0	0	0
2063	10006247	Lift Sta Sm - 7 Sweetmeadow Ct	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/1/1994	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2064	10006248	Lift Sta Sm Parts Inv# 075689	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/24/2004	643	0	0	0	0	0	0	0	257	386	0	0	0	0	0	0
2065	10006249	Lift Sta Sm Parts Inv# 075689	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/24/2004	145	0	0	0	0	0	0	0	58	87	0	0	0	0	0	0
2066	10006250	Lift Sta 12M - 22L Iroquois Trail	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/1/2006	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2067	10006251	Lift Sta 12M Pump Replacement	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/16/2003	3,320	0	0	0	0	0	0	0	1,325	1,995	0	0	0	0	0	0
2068	10006252	Lift Sta 1M - 699 S Beach St	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/1/2006	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2069	10006253	Land Lift Sta 1M	70	701	3502	WW COLLECTION AND REUSE	WW T&C	2/22/2001	13,056	0	0	0	0	0	0	0	5,210	7,845	0	0	0	0	0	0
2070	10006255	Sludge Holding And Handling Facility Upg	20	209	3501	WASTERWATER PLANT	WW Treatment	1/29/2002	1,465	0	0	0	0	0	0	1,465	0	0	0	0	0	0	0	0
2071	10006256	Engineering Fees	20	209	3501	WASTERWATER PLANT	WW Treatment	9/26/2002	19,608	0	0	0	0	0	0	19,608	0	0	0	0	0	0	0	0
2072	10006257	Ww Sludge Holding & Handling Facility U	20	209	3501	WASTERWATER PLANT	WW Treatment	11/10/2003	1,291	0	0	0	0	0	0	1,291	0	0	0	0	0	0	0	0
2073	10006258	Gear Box Repair	30	309	3501	WASTERWATER PLANT	WW Treatment	2/12/2004	8,493	0	0	0	0	0	0	8,493	0	0	0	0	0	0	0	0
2074	10006259	Gearbox For Post-Anoxic	30	309	3501	WASTERWATER PLANT	WW Treatment	4/26/2004	3,916	0	0	0	0	0	0	3,916	0	0	0	0	0	0	0	0
2075	10006260	Gearbox Adapter (Incl Motor Adptr & Rigi	30	309	3501	WASTERWATER PLANT	WW Treatment	9/30/2004	1,697	0	0	0	0	0	0	1,697	0	0	0	0	0	0	0	0
2076	10006261	Centrifuge Conveyor/Replace No.1 Centrif	30	305	3501	WASTERWATER PLANT	WW Treatment	5/14/2004	42,797	0	0	0	0	0	0	42,797	0	0	0	0	0	0	0	0
2077	10006262	Pump Replacement Parts	30	305	3501	WASTERWATER PLANT	WW Treatment	8/6/2003	2,990	0	0	0	0	0	0	2,990	0	0	0	0	0	0	0	0
2078	10006263	Pump Replacement Parts	30	305	3501	WASTERWATER PLANT	WW Treatment	7/11/2003	9,622	0	0	0	0	0	0	9,622	0	0	0	0	0	0	0	0
2079	10006264	Local Vid Panel	30	309	3501	WASTERWATER PLANT	WW Treatment	6/11/2003	2,670	0	0	0	0	0	0	2,670	0	0	0	0	0	0	0	0
2080	10006265	Repair Gear Unit	30	305	3501	WASTERWATER PLANT	WW Treatment	5/29/2003	9,925	0	0	0	0	0	0	9,925	0	0	0	0	0	0	0	0
2081	10006266	Repair Centrifuge #2	30	305	3501	WASTERWATER PLANT	WW Treatment	5/29/2003	24,261	0	0	0	0	0	0	24,261	0	0	0	0	0	0	0	0
2082	10006267	Repair Centrifuge	30	305	3501	WASTERWATER PLANT	WW Treatment	3/27/2003	4,200	0	0	0	0	0	0	4,200	0	0	0	0	0	0	0	0
2083	10006268	Replace Feed Pipe*Centrifuge	30	305	3501	WASTERWATER PLANT	WW Treatment	3/27/2003	4,285	0	0	0	0	0	0	4,285	0	0	0	0	0	0	0	0
2084	10006269	Repair Centrifuge	30	305	3501	WASTERWATER PLANT	WW Treatment	3/27/2003	21,873	0	0	0	0	0	0	21,873	0	0	0	0	0	0	0	0
2085	10006270	Repair*Influent Motors #1 & #3	30	305	3501	WASTERWATER PLANT	WW Treatment	3/14/2003	10,092	0	0	0	0	0	0	10,092	0	0	0	0	0	0	0	0
2086	10006271	Hot Tap Flow Sensor 200	30	309	3501	WASTERWATER PLANT	WW Treatment	3/10/2003	2,167	0	0	0	0	0	0	2,167	0	0	0	0	0	0	0	0
2087	10006272	Monthly Centrifuge Rental	30	305	3501	WASTERWATER PLANT	OTHER	2/26/2003	15,422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,422
2088	10006273	Replacement Grinder Pump	30	305	3501	WASTERWATER PLANT	WW Treatment	2/20/2003	6,746	0	0	0	0	0	0	6,746	0	0	0	0	0	0	0	0
2089	10006274	Replacement Grinder Pump	30	305	3501	WASTERWATER PLANT	WW Treatment	2/20/2003	6,746	0	0	0	0	0	0	6,746	0	0	0	0	0	0	0	0
2090	10006275	Centrifuge Gear Box	30	305	3501	WASTERWATER PLANT	WW Treatment	2/3/2003	29,843	0	0	0	0	0	0	29,843	0	0	0	0	0	0	0	0
2091	10006276	Monthly Centrifuge Rental	30	305	3501	WASTERWATER PLANT	OTHER	1/25/2003	15,422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,422
2092	10006277	Eimco Chain Guard	30	309	3501	WASTERWATER PLANT	WW Treatment	1/21/2003	1,160	0	0	0	0	0	0	1,160	0	0	0	0	0	0	0	0
2093	10006278	Sludge Pump	30	305	3501	WASTERWATER PLANT	WW Treatment	1/21/2003	5,130	0	0	0	0	0	0	5,130	0	0	0	0	0	0	0	0
2094	10006279	Station Controller Pumps	30	305	3501	WASTERWATER PLANT	WW Treatment	1/17/2003																

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										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	
2155	10007173	Rst 06 Option #00331, Diesel Engine	40	404	3301	WATER PLANT	GENERAL	8/2/2006	2,550	0	0	0	0	0	0	0	0	0	0	0	2,550	0
2156	10007174	Rst 06 Option #2043X, Full Susp Seat	40	404	3301	WATER PLANT	GENERAL	8/2/2006	198	0	0	0	0	0	0	0	0	0	0	0	198	0
2157	10007175	Rst 06 Option #14403 Hose Take Up	40	404	3301	WATER PLANT	GENERAL	8/2/2006	390	0	0	0	0	0	0	0	0	0	0	0	390	0
2158	10007176	Rst 06 Option #15908, 48''' Forks	40	404	3301	WATER PLANT	GENERAL	8/2/2006	39	0	0	0	0	0	0	0	0	0	0	0	39	0
2159	10007177	Rst 06 Option #2250X, Strobe Light	40	404	3301	WATER PLANT	GENERAL	8/2/2006	213	0	0	0	0	0	0	0	0	0	0	0	213	0
2160	10007178	It-Neptune Ut Handheld Mtr Read Units W/	30	308	1302	UTILITY BILLING	GENERAL	11/10/2006	7,000	0	0	0	0	0	0	0	0	0	0	0	7,000	0
2161	10007179	It-Neptune, Dap, Rf Receiver For Ce5320X	30	308	1302	UTILITY BILLING	GENERAL	11/10/2006	3,000	0	0	0	0	0	0	0	0	0	0	0	3,000	0
2162	10007180	It-Neptune, Dap Ce5320X Equinox On-Site	30	308	1302	UTILITY BILLING	GENERAL	11/14/2006	2,800	0	0	0	0	0	0	0	0	0	0	0	2,800	0
2163	10007181	It-Neptune, Dap Universal Cradle For Ce5	30	308	1302	UTILITY BILLING	GENERAL	11/10/2006	1,050	0	0	0	0	0	0	0	0	0	0	0	1,050	0
2164	10007182	It-Neptune, Advantage Ii Cordless Readin	30	308	1302	UTILITY BILLING	GENERAL	11/10/2006	1,996	0	0	0	0	0	0	0	0	0	0	0	1,996	0
2165	10007183	It-Neptune Ut Handheld Mtr Read Unit Sof	30	308	1302	UTILITY BILLING	GENERAL	10/23/2007	5,475	0	0	0	0	0	0	0	0	0	0	0	5,475	0
2166	10007184	It-Neptune Ut Handheld Mtr Read Unit Sof	30	308	1302	UTILITY BILLING	GENERAL	10/23/2007	5,475	0	0	0	0	0	0	0	0	0	0	0	5,475	0
2167	10007185	It-Neptune Ut Handheld Mtr Read Unit Sof	30	308	1302	UTILITY BILLING	GENERAL	10/23/2007	5,475	0	0	0	0	0	0	0	0	0	0	0	5,475	0
2168	10007214	Vise Plate For Right Rear Of Serv Body-D	40	404	3301	WATER PLANT	GENERAL	8/8/2007	150	0	0	0	0	0	0	0	0	0	0	0	150	0
2169	10007215	Trailer Towing Package	40	404	3301	WATER PLANT	GENERAL	8/8/2007	680	0	0	0	0	0	0	0	0	0	0	0	680	0
2170	10007216	Backup Alarm	30	309	3301	WATER PLANT	GENERAL	8/8/2007	105	0	0	0	0	0	0	0	0	0	0	0	105	0
2171	10007217	Electric Brake Controller	30	309	3301	WATER PLANT	GENERAL	8/8/2007	460	0	0	0	0	0	0	0	0	0	0	0	460	0
2172	10007218	Spray On Bed Liner For Service Body And	40	404	3301	WATER PLANT	GENERAL	8/8/2007	945	0	0	0	0	0	0	0	0	0	0	0	945	0
2173	10007219	Standard Wide Service Body For Single Wh	40	404	3301	WATER PLANT	GENERAL	8/8/2007	4,900	0	0	0	0	0	0	0	0	0	0	0	4,900	0
2174	10007322	It-Scada System For W-Ww-Base Asset	20	208	3301	WATER PLANT	W Treatment	1/1/1970	1	0	1	0	0	0	0	0	0	0	0	0	0	0
2175	10007323	It-Scada System-Ethernet	20	208	3301	WATER PLANT	W Treatment	6/19/2007	717	0	717	0	0	0	0	0	0	0	0	0	0	0
2176	10007324	It-Scada System-Engineering Services	20	208	3301	WATER PLANT	W Treatment	4/14/2007	17,800	0	17,800	0	0	0	0	0	0	0	0	0	0	0
2177	10007325	It-Scada System-Engineering Services	20	208	3301	WATER PLANT	W Treatment	6/9/2007	3,559	0	3,559	0	0	0	0	0	0	0	0	0	0	0
2178	10007326	It Scada System Upgrade	20	208	3301	WATER PLANT	W Treatment	9/30/2007	125,724	0	125,724	0	0	0	0	0	0	0	0	0	0	0
2179	10007327	It-Scada Telemetry - Master Radio(Under	30	308	3301	WATER PLANT	W Treatment	8/22/2005	5,860	0	5,860	0	0	0	0	0	0	0	0	0	0	0
2180	10007328	It Scada System Upgrade For New Plant	30	308	3301	WATER PLANT	W Treatment	6/3/2008	522,599	0	522,599	0	0	0	0	0	0	0	0	0	0	0
2181	10007329	It-Scada System-Engineering Services	20	208	3301	WATER PLANT	W Treatment	9/30/2007	17,776	0	17,776	0	0	0	0	0	0	0	0	0	0	0
2182	10007330	Scada System Upgrade*Y2K	20	209	3501	WASTERWATER PLANT	WW Treatment	2/25/2000	51,667	0	0	0	0	0	51,667	0	0	0	0	0	0	0
2183	10007331	Scada System Upgrade*Y2K	20	208	3301	WATER PLANT	W Treatment	2/25/2000	51,667	0	51,667	0	0	0	0	0	0	0	0	0	0	0
2184	10007332	Ww Force Main Tymber Creek	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/31/2006	1	0	0	0	0	0	0	0	1	0	0	0	0	0
2185	10007333	Ww Force Main Tymber Creek Geotechnical	20	209	3502	WW COLLECTION AND REUSE	GENERAL	10/31/2006	2,302	0	0	0	0	0	0	0	0	0	0	0	2,302	0
2186	10007334	Ww Force Main Tymber Creek Geotechnical	20	209	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2006	688	0	0	0	0	0	0	0	0	0	0	0	688	0
2187	10007335	Ww Force Main Tymber Ck-Fl Contract-4 In	20	209	3502	WW COLLECTION AND REUSE	WW T&C	2/22/2008	287,056	0	0	0	0	0	114,560	172,496	0	0	0	0	0	0
2188	10007336	Ww Force Main Tymber Ck-Eng-Qhampton-3 I	20	209	3502	WW COLLECTION AND REUSE	WW T&C	4/17/2008	17,680	0	0	0	0	0	7,056	10,624	0	0	0	0	0	0
2189	10007337	Ww Force Main Tymber Ck-Eng-Nodarse-3 In	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/30/2007	1,125	0	0	0	0	0	449	676	0	0	0	0	0	0
2190	10007338	Ww Force Main Tymber Ck-Const-Flentret 2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2007	108,063	0	0	0	0	0	43,126	64,937	0	0	0	0	0	0
2191	10007339	Ww Force Main Tymber Ck-Engineering Mult	20	209	3502	WW COLLECTION AND REUSE	GENERAL	4/5/2007	21,086	0	0	0	0	0	0	0	0	0	0	21,086	0	0
2192	10007340	Ww Wastewater Collection Lines -Base Ass	20	209	3502	WW COLLECTION AND REUSE	WW T&C	1/1/1950	1	0	0	0	0	0	0	1	0	0	0	0	0	0
2193	10007341	Ww Us 1 Ww Collection Lines	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/4/2007	8,602	0	0	0	0	0	3,433	5,169	0	0	0	0	0	0
2194	10007342	Wtr Main Hand Ave & Us 1 Relocation	20	208	3302	WATER DISTRIBUTION	W T&D	9/6/2007	24,975	0	0	7,402	17,573	0	0	0	0	0	0	0	0	0
2195	10007343	Land Public Utilities - Deposit - 501 N	70	701	3501	WASTERWATER PLANT	WW Treatment	6/1/2007	5,000	0	0	0	0	0	5,000	0	0	0	0	0	0	0
2196	10007344	Land Public Utilities - Vacant - 501 N O	70	701	3501	WASTERWATER PLANT	WW Treatment	9/11/2007	293,133	0	0	0	0	0	293,133	0	0	0	0	0	0	0
2197	10007345	Land Public Utilities - Velie Appraisal	70	701	3501	WASTERWATER PLANT	WW Treatment	9/28/2007	625	0	0	0	0	0	625	0	0	0	0	0	0	0
2198	10007346	Land Public Utilities - Advalorem Prop T	70	701	3501	WASTERWATER PLANT	WW Treatment	9/22/2007	4,052	0	0	0	0	0	4,052	0	0	0	0	0	0	0
2199	10007347	Land Public Utilities - Velie Appraisal	70	701	3501	WASTERWATER PLANT	WW Treatment	6/22/2007	1,800	0	0	0	0	0	1,800	0	0	0	0	0	0	0
2200	10007348	Well 1 Division Well Field - #7 - #21 Di	20	208	3301	WATER PLANT	W SUPPLY	1/1/1990	1	1	0	0	0	0	0	0	0	0	0	0	0	0
2201	10007349	Well #13 & 15 - Division Ave - Rtu Repla	20	208	3301	WATER PLANT	W SUPPLY	5/7/2007	3,850	3,850	0	0	0	0	0	0	0	0	0	0	0	0
2202	10007350	Well #8, 9, 10, 11 - Division Ave-Rtu Re	20	208	3301	WATER PLANT	W SUPPLY	5/7/2007	3,850	3,850	0	0	0	0	0	0	0	0	0	0	0	0
2203	10007351	Submersible Pump Replacement For Well #1	30	305	3301	WATER PLANT	W SUPPLY	11/30/2000	1,461	1,461	0	0	0	0	0	0	0	0	0	0	0	0
2204	10007352	Well #18 Jefferson St	20	208	3301	WATER PLANT	W SUPPLY	11/30/2000	1	1	0	0	0	0	0	0	0	0	0	0	0	0
2205	10007353	Propeller Meter Assy/5	30	309	3301	WATER PLANT	W Treatment	8/25/2000	5,723	0	5,723	0	0	0	0	0	0	0	0	0	0	0
2206	10007354	Wellfield Rehab	20	208	3301	WATER PLANT	W SUPPLY	9/12/2000	2,340	2,340	0	0	0	0	0	0	0	0	0	0	0	0
2207	10007355	Data Collection & Well Design	20	208	3301	WATER PLANT	W SUPPLY	3/2/2001	26,548	26,548	0	0	0	0	0	0	0	0	0	0	0	0
2208	10007356	Eng Services	20	208	3301	WATER PLANT	GENERAL	1/31/2001	35,794	0	0	0	0	0	0	0	0	0	0	0	35,794	0
2209	10007357	Pmt #6 Final	20	208	3301	WATER PLANT	GENERAL	1/31/2001	1,622	0	0	0	0	0	0	0	0	0	0	0	1,622	0
2210	10007358	Legal Ad	20	208	3301	WATER PLANT	GENERAL	4/15/2001	92	0	0	0	0	0	0	0	0	0	0	0	92	0
2211	10007359	Permit Fees	20	208	3301	WATER PLANT	GENERAL	8/6/2001	500	0	0	0	0	0	0	0	0	0	0	0	500	0
2212	10007360	Prof Services	20	208	3301	WATER PLANT	GENERAL	9/28/2001	8,863	0	0	0	0	0	0	0	0	0	0	0	8,863	0
2213	10007361	Admin/Inspectin Fees	20	208	3301	WATER PLANT	GENERAL	10/16/2001	1,226	0	0	0	0	0	0	0	0	0	0	0	1,226	0
2214	10007362	Density Test	20	208	3301	WATER PLANT	GENERAL	10/31/2001	122	0	0	0	0	0	0	0	0	0	0	0	122	0
2215	10007363	Pmt #1	20	208	3301	WATER PLANT	GENERAL	10/15/2001	4,431	0	0	0	0	0	0	0	0	0	0	0	4,431	0
2216	10007364	Well 13&15 Pmt 1	20	208	3301	WATER PLANT	W SUPPLY	10/15/2001	4,431	4,431	0	0	0	0	0	0	0	0	0	0	0	0
2217	10007365	Well 13 & 15 Pmt #2	20	208	3301	WATER PLANT	W SUPPLY	11/15/2001	31,045	31,045	0	0	0	0	0	0	0	0	0	0	0	0
2218	10007366	Payment #2 (Diff Dept)	20	208	3301	WATER PLANT	GENERAL	11/15/2001	31,045	0	0	0	0	0	0	0	0	0	0	0	31,045	0
2219	10007367	Prof Services	20	208	3301	WATER PLANT	GENERAL	12/7/2001	10,410	0	0	0	0	0	0	0	0	0	0	0	10,410	0
2220	10007368	Well 13 & 15 Pmt #3																				

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No.	Asset Code	Description	Class CD	Subclass	Location	Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater		Reclaimed		Other Plant		Other
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	
2253	10007401	(3) 7 1/2 Hp 230V Model 150575-4 4" Mot	20	208	3301	WATER PLANT	GENERAL	5/10/2006	5,584	0	0	0	0	0	0	0	0	0	0	5,584	0
2254	10007402	Abandon #3,4,5,7,18	20	208	3301	WATER PLANT	GENERAL	1/25/2006	16,672	0	0	0	0	0	0	0	0	0	0	16,672	0
2255	10007403	Abandon #3,4,5,7,18	20	208	3301	WATER PLANT	GENERAL	1/25/2006	4,737	0	0	0	0	0	0	0	0	0	0	4,737	0
2256	10007404	Wells-Division Ave Wellfield Rehab	20	208	3301	WATER PLANT	W SUPPLY	1/31/2000	18,393	18,393	0	0	0	0	0	0	0	0	0	0	0
2257	10007405	Well 1 Division Well Field - Prop Taxes	70	701	3301	WATER PLANT	W SUPPLY	9/30/2003	1,133	1,133	0	0	0	0	0	0	0	0	0	0	0
2258	10007406	Wells-Division Ave Wellfield Rehab-Multi	20	208	3301	WATER PLANT	W SUPPLY	8/14/2008	21,195	21,195	0	0	0	0	0	0	0	0	0	0	0
2259	10007407	It-Work Orders-Utility Dist Only	30	308	4103	FLEET	OTHER	9/1/2007	1	0	0	0	0	0	0	0	0	0	0	0	1
2260	10007408	It-Wo Utlty Dell Pwr Srvr-Maintainitroi	30	308	3301	WATER PLANT	GENERAL	9/13/2007	5,164	0	0	0	0	0	0	0	0	0	0	5,164	0
2261	10007412	Fuel St For Gen - Rebar For Tanks	10	105	3501	WASTERWATER PLANT	GENERAL	10/1/2007	341	0	0	0	0	0	0	0	0	0	0	341	0
2262	10007434	Well 1 Sr40 Well Field - #22 - #28 Divis	20	208	3301	WATER PLANT	W SUPPLY	1/1/1990	1	1	0	0	0	0	0	0	0	0	0	0	0
2263	10007435	Well 1 Wtp Well Field - #1 - #6 Division	20	208	3301	WATER PLANT	W SUPPLY	1/1/1990	1	1	0	0	0	0	0	0	0	0	0	0	0
2264	10007436	Pump Sta Riverview Pump Station-559 S Be	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1970	1	0	0	1	0	0	0	0	0	0	0	0	0
2265	10007437	Pump Sta Melrose Reuse Station-401 N Bea	20	208	3302	WATER DISTRIBUTION	WW T&C	1/1/1990	1	0	0	0	0	0	0	1	0	0	0	0	0
2266	10007438	Pump Sta Granada Pump Station-1 N Beach	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1970	1	0	0	1	0	0	0	0	0	0	0	0	0
2267	10007439	Pump Sta Btw Irrig (Reuse) St-66 River C	20	208	3302	WATER DISTRIBUTION	WW T&C	1/1/2005	1	0	0	0	0	0	0	1	0	0	0	0	0
2268	10007440	Tank-Ground Reuse Tank - 500 N Orchard S	20	209	3501	WASTERWATER PLANT	WW T&C	1/1/1996	1	0	0	0	0	0	0	1	0	0	0	0	0
2269	10007441	Tank-Ground Water Tank - 100 Hunters Rdg	20	208	3301	WATER PLANT	GENERAL	1/1/1990	1	0	0	0	0	0	0	0	0	0	0	1	0
2270	10007442	Tank-Bwt Ground Water Tank - 35 Breakawa	20	208	3301	WATER PLANT	GENERAL	1/1/1986	1	0	0	0	0	0	0	0	0	0	0	1	0
2271	10007443	Tank-Bwt Elevated Water Tank - 35 Breaka	20	208	3301	WATER PLANT	GENERAL	1/1/1986	1	0	0	0	0	0	0	0	0	0	0	1	0
2272	10007444	Tank-Bwt Ground Water Tank - 35 Breakawa	20	208	3301	WATER PLANT	GENERAL	1/1/1986	1	0	0	0	0	0	0	0	0	0	0	1	0
2273	10007445	Tank-Grnd Wtr Tnk & Pump Sta-20 Standish	20	208	3301	WATER PLANT	GENERAL	1/1/1972	1	0	0	0	0	0	0	0	0	0	0	1	0
2274	10007446	Interconnect - Ob/Hh - 1732 Ridge Ave	20	208	3301	WATER PLANT	GENERAL	1/1/1983	1	0	0	0	0	0	0	0	0	0	0	1	0
2275	10007447	Interconnect - Ob/Db - 3000 N Atlantic A	20	208	3301	WATER PLANT	GENERAL	1/1/1986	1	0	0	0	0	0	0	0	0	0	0	1	0
2276	10007448	Interconnect - Ob/Db - 664 S Nova Rd	20	208	3301	WATER PLANT	GENERAL	1/1/2000	1	0	0	0	0	0	0	0	0	0	0	1	0
2277	10007449	Interconnect - Ob/Db - 425 Williamson Bl	20	208	3301	WATER PLANT	GENERAL	1/1/2007	1	0	0	0	0	0	0	0	0	0	0	1	0
2278	10007450	Interconnect Ob/Db Finished Water (Res#	20	208	3302	WATER DISTRIBUTION	W T&D	7/27/2006	51,392	0	0	15,231	36,161	0	0	0	0	0	0	0	0
2279	10007451	Interconnect - Ob/Hh - 585 Calle Grande	20	208	3301	WATER PLANT	GENERAL	1/1/2007	1	0	0	0	0	0	0	0	0	0	0	1	0
2280	10007474	Gen Spectrum 50Ds60 Generator Portable*T	30	302	3501	WASTERWATER PLANT	GENERAL	11/18/1997	16,607	0	0	0	0	0	0	0	0	0	0	16,607	0
2281	10007478	Veh 08 Chevy Silverado	40	404	1302	UTILITY BILLING	GENERAL	3/25/2008	16,918	0	0	0	0	0	0	0	0	0	0	16,918	0
2282	10007486	Eqp 71 Allis Chal 2800 Water Pump (Stand	20	208	3302	WATER DISTRIBUTION	W T&D	6/1/1971	25,000	0	0	7,409	17,591	0	0	0	0	0	0	0	0
2283	10007487	Gen 89 Marathon 431Rs12006 Generator	30	302	7201	LEISURE SERVICES	OTHER	3/14/1989	25,000	0	0	0	0	0	0	0	0	0	0	0	25,000
2284	10007488	Gen 84 Cat 3408 Generator	30	302	3301	WATER PLANT	GENERAL	1/1/1984	50,000	0	0	0	0	0	0	0	0	0	0	50,000	0
2285	10007490	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2286	10007491	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2287	10007492	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2288	10007493	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2289	10007494	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2290	10007495	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2291	10007496	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	25,857	0	0	0	0	0	0	10,319	15,538	0	0	0	0
2292	10007497	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	38,287	0	0	0	0	0	0	15,280	23,007	0	0	0	0
2293	10007498	Gen 06 Baldor 65 Kw Generator	30	302	3502	WW COLLECTION AND REUSE	WW T&C	8/24/2006	38,287	0	0	0	0	0	0	15,280</					

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										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
2351	10007604	Wtr Main Clyde Morris Blvd Relocation	20	208	3302	WATER DISTRIBUTION	W T&D	2/29/2008	76,545	0	0	22,685	53,860	0	0	0	0	0	0	0	0	0	0	0
2352	10007606	Wtr Main Sterthaus Drive	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1990	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2353	10007607	Wtr Main Sterthaus Dr (Reconstruction)	20	208	3302	WATER DISTRIBUTION	W T&D	2/5/2002	51,829	0	0	15,360	36,469	0	0	0	0	0	0	0	0	0	0	0
2354	10007608	Wtr Main Standish Dr	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1990	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2355	10007609	Wtr Main Standish Water Permit	20	208	3302	WATER DISTRIBUTION	General	7/14/2003	500	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
2356	10007610	Wtr Main Coolidge	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1990	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2357	10007611	Wtr Main Coolidge Water Permit	20	208	3302	WATER DISTRIBUTION	General	6/23/2003	250	0	0	0	0	0	0	0	0	0	0	0	0	0	250	0
2358	10007612	Wtr Main Dormont / Ellicott	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1990	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2359	10007613	Wtr Main Dormont / Ellicott Add'L Water	20	208	3302	WATER DISTRIBUTION	W T&D	8/15/2003	250	0	0	74	176	0	0	0	0	0	0	0	0	0	0	0
2360	10007614	Wtr Main Water Permit Dormont/Ellicott	20	208	3302	WATER DISTRIBUTION	General	7/17/2003	500	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
2361	10007615	Wtr Main Camellia	20	208	3302	WATER DISTRIBUTION	W T&D	1/1/1990	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2362	10007616	Wtr Main 2 nd Replacement For Camellia Dr	20	208	3302	WATER DISTRIBUTION	W T&D	4/5/2002	54,881	0	0	16,265	38,616	0	0	0	0	0	0	0	0	0	0	0
2363	10007617	Wtr Main 2 nd Meter Replacement Camelia D	20	208	3302	WATER DISTRIBUTION	W METERS	5/20/2002	18,040	0	0	0	0	0	18,040	0	0	0	0	0	0	0	0	0
2364	10007618	Ww Line Extension Tuscany Subdivision	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/14/2006	2,389	0	0	0	0	0	0	0	953	1,435	0	0	0	0	0	0
2365	10007619	Wtr Water System General Rehab-Unknown L	20	208	3301	WATER PLANT	W T&D	9/30/2007	413,950	0	0	122,679	291,272	0	0	0	0	0	0	0	0	0	0	0
2366	10007620	Wtr Water System Const Dist Lines-Multia	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2007	268,903	0	0	79,692	189,210	0	0	0	0	0	0	0	0	0	0	0
2367	10007621	Wtr Water System General Rehab - Fy 2006	20	208	3301	WATER PLANT	W T&D	9/30/2006	920,527	0	0	272,808	647,719	0	0	0	0	0	0	0	0	0	0	0
2368	10007624	It-Server-Power Edge 2650	30	308	1303	INFORMATION TECHNOLOGY	OTHER	9/18/2003	6,287	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,287
2369	10007625	It-Server-Power Edge 2650	30	308	1303	INFORMATION TECHNOLOGY	OTHER	9/12/2003	6,630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,630
2370	10007626	It-Server-Power Edge 2650	30	308	1303	INFORMATION TECHNOLOGY	OTHER	4/29/2003	5,617	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,617
2371	10007627	It-Server-Power Edge 2650	30	308	1303	INFORMATION TECHNOLOGY	OTHER	4/1/2003	5,510	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,510
2372	10007628	It-Server-Power Edge 2650	30	308	1303	INFORMATION TECHNOLOGY	OTHER	12/13/2002	5,750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,750
2373	10007634	Ww Force Main Obsc Road Extension	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/14/2007	66,983	0	0	0	0	0	0	0	26,732	40,251	0	0	0	0	0	0
2374	10007635	Ww Force Main Obsc Road Extension	20	209	3501	WASTERWATER PLANT	WW T&C	12/19/2007	5,017	0	0	0	0	0	0	0	2,002	3,015	0	0	0	0	0	0
2375	10007658	Meters 5 Invoices	20	208	3301	WATER PLANT	General	9/17/2008	26,007	0	0	0	0	0	0	0	0	0	0	0	0	0	26,007	0
2376	10007659	Lift Stations	20	209	3501	WASTERWATER PLANT	WW T&C	8/11/2008	26,959	0	0	0	0	0	0	0	10,759	16,200	0	0	0	0	0	0
2377	10007660	Supplemental Mix Zone/Studies	20	209	3501	WASTERWATER PLANT	OTHER	8/6/2008	3,349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,349
2378	10007661	C1 2 Tank	20	209	3301	WATER PLANT	W Treatment	7/31/2008	11,772	0	11,772	0	0	0	0	0	0	0	0	0	0	0	0	0
2379	10007662	Influent Pump	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/12/2008	7,181	0	0	0	0	0	0	0	2,866	4,315	0	0	0	0	0	0
2380	10007663	Us1 Foremain Ext Ii	20	209	3501	WASTERWATER PLANT	WW T&C	8/23/2008	4,050	0	0	0	0	0	0	0	1,616	2,434	0	0	0	0	0	0
2381	10007664	Wwtp Expansion	20	209	3501	WASTERWATER PLANT	WW Treatment	9/17/2008	30,290	0	0	0	0	0	0	30,290	0	0	0	0	0	0	0	0
2382	10007665	Engineering Division Avenue	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2008	11,762	0	0	3,486	8,276	0	0	0	0	0	0	0	0	0	0	0
2383	10007666	Nursery Cleanup	20	210	3401	SOLID WASTE COLLECTION	OTHER	8/30/2008	9,475	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,475
2384	10007667	Wells-Division Ave Wellfield Rehab-Multi	20	208	3301	WATER PLANT	W SUPPLY	8/14/2008	11,762	11,762	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2385	10007678	Alcazar, Buena Vista, Seville Sw	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2010	19,940	0	0	5,909	14,031	0	0	0	0	0	0	0	0	0	0	0
2386	10007711	Hand Avenue Upgrade-Utilities	20	208	3301	WATER PLANT	W T&D	9/30/2009	29,205	0	0	8,655	20,550	0	0	0	0	0	0	0	0	0	0	0
2387	10007712	Hand Avenue Upgrade-Utilities	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2010	3,100	0	0	919	2,181	0	0	0	0	0	0	0	0	0	0	0
2388	10007715	Hand Avenue Watermains	20	208</																				

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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater			Reclaimed		Other Plant				
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
2449	10007843	Wwtp Expansion-Capitalized Interest	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2010	118,410	0	0	0	0	0	0	118,410	0	0	0	0	0	0	0	0
2450	10007846	Ormond Shores Storm Drain	20	208	3302	WATER DISTRIBUTION	OTHER	9/30/2010	10,175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,175
2451	10007938	Chevy Colorado	40	404	1302	UTILITY BILLING	GENERAL	9/30/2011	13,812	0	0	0	0	0	0	0	0	0	0	0	0	0	13,812	0
2452	10007939	Chevy Colorado	40	404	3501	WASTERWATER PLANT	GENERAL	9/30/2011	20,527	0	0	0	0	0	0	0	0	0	0	0	0	0	20,527	0
2453	10007941	Chevy Colorado	40	404	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2011	23,079	0	0	0	0	0	0	0	0	0	0	0	0	0	23,079	0
2454	10007943	Alcazar, Buena Vista, Seville	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2011	166,628	0	0	49,382	117,246	0	0	0	0	0	0	0	0	0	0	0
2455	10007944	Gravity Sewer Pipeline	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2011	199,595	0	0	0	0	0	0	0	79,655	119,940	0	0	0	0	0	0
2456	10007945	Low Press Effluent Pump Replacement	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2011	43,480	0	0	0	0	0	0	0	17,352	26,128	0	0	0	0	0	0
2457	10007946	Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2011	36,810	0	0	0	0	0	0	0	0	36,810	0	0	0	0	0	0
2458	10007947	Residential Meter Replacement	20	208	3301	WATER PLANT	W METERS	9/30/2011	85,692	0	0	0	0	0	85,692	0	0	0	0	0	0	0	0	0
2459	10007948	Utility Relocate - Tymber Creek Widening	20	208	3301	WATER PLANT	W T&D	9/30/2011	6,198	0	0	1,837	4,361	0	0	0	0	0	0	0	0	0	0	0
2460	10007949	High Service Pumps - Replacements	20	208	3301	WATER PLANT	W Treatment	9/30/2011	21,280	0	21,280	0	0	0	0	0	0	0	0	0	0	0	0	0
2461	10007950	Roll Off Filter Dumpster	20	209	3501	WASTERWATER PLANT	GENERAL	9/30/2011	33,130	0	0	0	0	0	0	0	0	0	0	0	0	0	33,130	0
2462	10007951	Utility Relocate - Tymber Creek Widening	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2011	359	0	0	106	253	0	0	0	0	0	0	0	0	0	0	0
2463	10007952	Water Plant Well Rehab Program	20	208	3301	WATER PLANT	W SUPPLY	9/30/2011	70,278	70,278	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2464	10007953	Hydrant Replacement	20	208	3302	WATER DISTRIBUTION	W HYDRANTS	9/30/2011	265,842	0	0	0	0	265,842	0	0	0	0	0	0	0	0	0	0
2465	10007954	2 Inch Main Replacement	20	208	3301	WATER PLANT	W T&D	9/30/2011	18,330	0	0	5,432	12,898	0	0	0	0	0	0	0	0	0	0	0
2466	10007955	General Facility Upgrades	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2011	79,929	0	0	0	0	0	0	79,929	0	0	0	0	0	0	0	0
2467	10007956	General Facility Upgrades	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2011	121,828	0	0	0	0	0	0	121,828	0	0	0	0	0	0	0	0
2468	10007957	Airport Road Forcemain	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2011	726	0	0	0	0	0	0	0	290	436	0	0	0	0	0	0
2469	10007958	N Us1 Forcemain Phase Ii (Srf)	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2011	41,082	0	0	0	0	0	0	0	16,395	24,687	0	0	0	0	0	0
2470	10007959	Coolidge Ave Stormwater	20	208	3302	WATER DISTRIBUTION	OTHER	9/30/2011	243,103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243,103
2471	10007960	Hand Ave Collector Rd Upgrade	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2011	195	0	0	58	137	0	0	0	0	0	0	0	0	0	0	0
2472	10007961	Rima Ridge Well	20	208	3301	WATER PLANT	W SUPPLY	9/30/2011	1,059,078	1,059,078	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2473	10007962	Distribution System	20	208	3301	WATER PLANT	W T&D	9/30/2011	321,992	0	0	95,426	226,566	0	0	0	0	0	0	0	0	0	0	0
2474	10007963	2008 Lift Station	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2011	275,015	0	0	0	0	0	0	0	109,754	165,261	0	0	0	0	0	0
2475	10007964	Airport Road Forcemain	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2011	80,889	0	0	0	0	0	0	0	32,281	48,607	0	0	0	0	0	0
2476	10007965	N Us1 Forcemain Phase Ii (Srf)	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2011	187,264	0	0	0	0	0	0	0	74,734	112,530	0	0	0	0	0	0
2477	10007966	Ww Plant Rehab	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2011	57,070	0	0	0	0	0	0	57,070	0	0	0	0	0	0	0	0
2478	10007967	Wwtp Expansion	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2011	9,754,678	0	0	0	0	0	0	9,754,678	0	0	0	0	0	0	0	0
2479	10007968	Sw Transfer Facility Lift Station	20	210	3401	SOLID WASTE COLLECTION	WW TRANSMISSION	9/30/2011	17,046	0	0	0	0	0	0	0	17,046	0	0	0	0	0	0	0
2480	10007970	Donated Easements Res. 2010-190, 2010-1	60	601	3502	WW COLLECTION AND REUSE	OTHER	9/30/2011	68,743	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68,743
2481	10007990	Watermain Improvements	20	208	3301	WATER PLANT	W T&D	9/30/2012	41,222	0	0	12,217	29,005	0	0	0	0	0	0	0	0	0	0	0
2482	10008045	2012 Chevy Colorado	40	404	3501	WASTERWATER PLANT	GENERAL	9/30/2012	16,943	0	0	0	0	0	0	0	0	0	0	0	0	0	16,943	0
2483	10008046	2012 Ford Transit	40	401	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2012	18,353	0	0	0	0	0	0	0	0	0	0	0	0	0	18,353	0
2484	10008047	Meters	20	208	1302	UTILITY BILLING	W METERS	9/30/2012	99,275	0	0	0	0	0	99,275	0	0	0	0	0	0	0	0	0
2485	10008048	General Facilities Major Maintenance	20	208	3301	WATER PLANT	GENERAL	9/30/2012	64,183	0	0	0	0	0	0	0	0	0	0	0	0	0	64,183	0
2486	10008049	Water Plant Well Rehab	20																					

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No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater			Reclaimed		Other Plant					
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other	
2547	10008224	Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2014	19,845	0	0	0	0	0	0	0	0	19,845	0	0	0	0	0	0	0
2548	10008225	Sanitary Sewer Replacement	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2014	109,400	0	0	0	0	0	0	0	0	43,660	65,740	0	0	0	0	0	0
2549	10008226	Division Wellfields	20	208	3501	WASTERWATER PLANT	W SUPPLY	9/30/2014	29,383	29,383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2550	10008227	Pump And Motors	20	208	3301	WATER PLANT	GENERAL	9/30/2014	62,922	0	0	0	0	0	0	0	0	0	0	0	0	0	62,922	0	0
2551	10008228	Meter Replacement	20	209	3501	WASTERWATER PLANT	W METERS	9/30/2014	110,263	0	0	0	0	0	110,263	0	0	0	0	0	0	0	0	0	0
2552	10008229	Water Storage Tank	20	209	3501	WASTERWATER PLANT	W SUPPLY	9/30/2014	69,836	69,836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2553	10008230	Leeway Elevated Tank	20	208	3301	WATER PLANT	GENERAL	9/30/2014	6,515	0	0	0	0	0	0	0	0	0	0	0	0	0	6,515	0	0
2554	10008231	S Peninsula Reuse Water Ext	20	208	3302	WATER DISTRIBUTION	WW T&C	9/30/2014	39,205	0	0	0	0	0	0	0	15,646	23,559	0	0	0	0	0	0	0
2555	10008232	Pumps And Motors	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2014	172,486	0	0	0	0	0	0	172,486	0	0	0	0	0	0	0	0	0
2556	10008233	Watermain Replacement	20	208	3301	WATER PLANT	W T&D	9/30/2014	386,708	0	0	114,605	272,103	0	0	0	0	0	0	0	0	0	0	0	0
2557	10008234	5 Neptune Handheld Meters	30	308	1302	UTILITY BILLING	GENERAL	9/30/2014	5,878	0	0	0	0	0	0	0	0	0	0	0	0	0	5,878	0	0
2558	10008235	5 Neptune Handheld Meters	30	308	1302	UTILITY BILLING	GENERAL	9/30/2014	5,878	0	0	0	0	0	0	0	0	0	0	0	0	0	5,878	0	0
2559	10008236	5 Neptune Handheld Meters	30	308	1302	UTILITY BILLING	GENERAL	9/30/2014	5,878	0	0	0	0	0	0	0	0	0	0	0	0	0	5,878	0	0
2560	10008237	5 Neptune Handheld Meters	30	308	1302	UTILITY BILLING	GENERAL	9/30/2014	5,878	0	0	0	0	0	0	0	0	0	0	0	0	0	5,878	0	0
2561	10008238	5 Neptune Handheld Meters	30	308	1302	UTILITY BILLING	GENERAL	9/30/2014	5,878	0	0	0	0	0	0	0	0	0	0	0	0	0	5,878	0	0
2562	10008239	Meter Replacement	20	208	1302	UTILITY BILLING	W METERS	9/30/2014	457,073	0	0	0	0	0	457,073	0	0	0	0	0	0	0	0	0	0
2563	10008240	Dual Check Valve Replacement	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2014	35,670	0	0	10,571	25,099	0	0	0	0	0	0	0	0	0	0	0	0
2564	10008241	Pumps And Motors	20	208	3301	WATER PLANT	GENERAL	9/30/2014	29,749	0	0	0	0	0	0	0	0	0	0	0	0	0	29,749	0	0
2565	10008242	Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2014	131,043	0	0	0	0	0	0	0	0	131,043	0	0	0	0	0	0	0
2566	10008243	Master Plan	20	208	3301	WATER PLANT	GENERAL	9/30/2014	44,534	0	0	0	0	0	0	0	0	0	0	0	0	0	44,534	0	0
2567	10008244	Master Plan	20	209	3501	WASTERWATER PLANT	GENERAL	9/30/2014	43,627	0	0	0	0	0	0	0	0	0	0	0	0	0	43,627	0	0
2568	10008245	2 Inch Watermains	20	208	3301	WATER PLANT	W T&D	9/30/2014	1,983,178	0	0	587,736	1,395,442	0	0	0	0	0	0	0	0	0	0	0	0
2569	10008271	2013 Ford F450	40	404	3501	WASTERWATER PLANT	GENERAL	9/30/2014	72,887	0	0	0	0	0	0	0	0	0	0	0	0	0	72,887	0	0
2570	10008272	2015 Freightliner	30	303	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2014	124,527	0	0	0	0	0	0	0	0	0	0	0	0	0	124,527	0	0
2571	10008273	2015 Vac Con	30	303	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2014	245,739	0	0	0	0	0	0	0	0	245,739	0	0	0	0	0	0	0
2572	10008288	Donated Easements 4238-01-13-0021	60	602	3301	WATER PLANT	GENERAL	9/30/2014	794	0	0	0	0	0	0	0	0	0	0	0	0	0	794	0	0
2573	10008289	Donated Easements 4206-00-00-0023	60	602	3301	WATER PLANT	GENERAL	9/30/2014	2,646	0	0	0	0	0	0	0	0	0	0	0	0	0	2,646	0	0
2574	10008314	Fiber Optics	20	208	3301	WATER PLANT	GENERAL	9/30/2015	24,890	0	0	0	0	0	0	0	0	0	0	0	0	0	24,890	0	0
2575	10008371	2014 Cat Excavator	30	303	3501	WASTERWATER PLANT	GENERAL	9/30/2015	66,360	0	0	0	0	0	0	0	0	0	0	0	0	0	66,360	0	0
2576	10008372	2013 Eh Wachs 77-000-38 Unit	30	303	3302	WATER DISTRIBUTION	GENERAL	9/30/2015	59,250	0	0	0	0	0	0	0	0	0	0	0	0	0	59,250	0	0
2577	10008373	2015 Ford F-150	40	404	3302	WATER DISTRIBUTION	GENERAL	9/30/2015	18,006	0	0	0	0	0	0	0	0	0	0	0	0	0	18,006	0	0
2578	10008374	2013 Sullair 185 Dpq	30	311	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2015	12,950	0	0	0	0	0	0	0	0	0	0	0	0	0	12,950	0	0
2579	10008375	2015 Townmaster	30	311	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2015	11,622	0	0	0	0	0	0	0	0	0	0	0	0	0	11,622	0	0
2580	10008376	2015 Harben 4018 Dtd	30	303	3502	WW COLLECTION AND REUSE	GENERAL	9/30/2015	47,363	0	0	0	0	0	0	0	0	0	0	0	0	0	47,363	0	0
2581	10008379	John Anderson Drive	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2015	26,738	0	0	0	0	0	0	26,738	0	0	0	0	0	0	0	0	0
2582	10008383	Utility Relocate	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2015	6,670	0	0	1,977	4,693	0	0	0	0	0	0	0	0	0	0	0	0
2583	10008384	Rima Wells Generator	20	208	3302	WATER DISTRIBUTION	GENERAL	9/30/2015	2,400	0	0	0	0	0	0	0	0	0	0	0	0	0	2,400	0	0
2584	10008385	Lift Station Rehab	20	209	3501	WASTERWATER PLANT	WW T&C	9/30/2015	31,876	0	0	0	0	0	0	0	12,721	19,155	0	0	0	0	0	0	0
2585	10008386	Division Wellfield	20	209	3501	WASTERWATER PLANT	W SUPPLY	9/30/2015	398,689	398,689	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2586	10008387	South Pen Reuse Main Extension	20	208	3302	WATER DISTRIBUTION	WW T&C	9/30/2015	482,777	0	0	0	0	0	0	0	192,669	290,108	0	0	0	0	0	0	0
2587	10008388	Watermain Replacement	20	208	3301	WATER PLANT	W T&D	9/30/2015	1,300,401	0	0	385,388	915,013	0	0	0	0	0	0	0	0	0	0	0	0
2588	10008389	Dual Check Valve	20	208	3302	WATER DISTRIBUTION	W T&D	9/30/2015	177,356	0	0	52,561	124,795	0	0	0	0	0	0	0	0	0	0	0	0
2589	10008390	Meter Replacements	20	208	1302	UTILITY BILLING	W METERS	9/30/2015	467,041	0	0	0	0	0	467,041	0	0	0	0	0	0	0	0	0	0
2590	10008391	Ww Sludge Thickener	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2015	32,774	0	0	0	0	0	0	32,774	0	0	0	0	0	0	0	0	0
2591	10008392	Lift Station Rehab	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/30/2015	24,691	0	0	0	0	0	0	0	9,854	14,837	0	0	0	0	0	0	0
2592	10008393	General Facility Upgrades	20	208	3301	WATER PLANT	GENERAL	9/30/2015	176,659	0	0	0	0	0	0	0	0	0	0	0	0	0	176,659	0	0
2593	10008394	Pep Tanks	20	209	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2015	190,335	0	0	0	0	0	0	0	0	190,335	0	0	0	0	0	0	0
2594	10008395	Meter Installations	20	208	3301	WATER PLANT	W METERS	9/30/2015	153,357	0	0	0	0	0	153,357	0	0	0	0	0	0	0	0	0	0
2595	10008396	Water Storage Tank Repair	20	208	3301	WATER PLANT	W Treatment	9/30/2015	35,274	0	35,274	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2596	10008397	Hydrant Replacement	20	208	3302	WATER DISTRIBUTION	W HYDRANTS	9/30/2015	28,927	0	0	0	0	28,927	0	0	0	0	0	0	0	0	0	0	0
2597	10008398	Water Plant Aeration System	20	208	3301	WATER PLANT	W Treatment	9/30/2015	5,244	0	5,244	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2598	10008399	Wp Lime Silo Dust Collection	20	208	3301	WATER PLANT	W Treatment	9/30/2015	18,382	0	18,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2599	10008400	Water Plant Pump & Controls	20	208	3301	WATER PLANT	W Treatment	9/30/2015	11,249	0	11,249	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2600	10008401	Fiber Optics	20	208	1302	UTILITY BILLING	GENERAL	9/30/2015	98,266	0	0	0	0	0	0	0	0	0	0	0	0	0	98,266	0	0
2601	10008402	Master Plan	20	208	3301	WATER PLANT	GENERAL	9/30/2015	43,726	0	0	0	0	0	0	0	0	0	0	0	0	0	43,726	0	0
2602	10008403	Ww Plant Rehab	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2015	30,701	0	0	0	0	0	0	30,701	0	0	0	0	0	0	0	0	0
2603	10008404	Master Plan	20	209	3501	WASTERWATER PLANT	GENERAL	9/30/2015	35,740	0	0	0	0	0	0	0	0	0	0	0	0	0	35,740	0	0
2604	10008406	General Facility Upgrades	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2015	161,206	0	0	0	0	0	0	161,206	0	0	0	0	0	0	0	0	0
2605	10008415	Donated Easements 4230-00-00-0291	60	602	3301	WATER PLANT	GENERAL	9/30/2015	26,024	0	0	0	0	0	0	0	0	0	0	0	0	0	26,024	0	0
2606	10008417	Wwtp Phase I-Capitalized Interest	20	209	3501	WASTERWATER PLANT																			

Appendix I
City of Ormond Beach
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Fixed Asset Data and Asset Functionalization

	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water						Wastewater			Reclaimed		Other Plant			
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
2645	10008531	Back-Hoe Replacement	30	303	3302	WATER DISTRIBUTION	GENERAL	9/30/2016	94,882	0	0	0	0	0	0	0	0	0	0	0	0	0	94,882	0
2646	10008532	2016 Ford F350	40	404	3302	WATER DISTRIBUTION	GENERAL	9/30/2016	30,309	0	0	0	0	0	0	0	0	0	0	0	0	0	30,309	0
2647	10008533	2016 Ford F350	40	404	3501	WASTERWATER PLANT	General	9/30/2016	30,309	0	0	0	0	0	0	0	0	0	0	0	0	0	30,309	0
2648	10008534	2016 Glbp Global M4	30	303	3401	SOLID WASTE COLLECTION	General	9/30/2016	226,843	0	0	0	0	0	0	0	0	0	0	0	0	0	226,843	0
2649	10008544	Power Supply Controller	20	209	3501	WASTERWATER PLANT	GENERAL	9/30/2016	6,160	0	0	0	0	0	0	0	0	0	0	0	0	0	6,160	0
2650	10008545	Pump/Motor	20	208	3301	WATER PLANT	W Treatment	9/30/2016	8,126	0	8,126	0	0	0	0	0	0	0	0	0	0	0	0	0
2651	10008546	6" Silent Check Valve	20	208	3301	WATER PLANT	W Treatment	9/30/2016	5,728	0	5,728	0	0	0	0	0	0	0	0	0	0	0	0	0
2652	10008547	Feeder Belt / Pump Tubes	20	208	3301	WATER PLANT	W Treatment	9/30/2016	13,687	0	13,687	0	0	0	0	0	0	0	0	0	0	0	0	0
2653	10008548	Submersible Mixer	20	209	3501	WASTERWATER PLANT	GENERAL	9/30/2016	5,989	0	0	0	0	0	0	0	0	0	0	0	0	0	5,989	0
2654	10008549	Controller	20	209	3501	WASTERWATER PLANT	WW Treatment	9/30/2016	5,359	0	0	0	0	0	0	5,359	0	0	0	0	0	0	0	0
2655	10008550	Refrigerated Sampler For Wwtp	30	309	3501	WASTERWATER PLANT	GENERAL	9/30/2016	7,623	0	0	0	0	0	0	0	0	0	0	0	0	0	7,623	0
2656	10008551	CAPITALIZED INTEREST WATERMAIN REPL PHAS	20	208	3301	WATER PLANT	Other	9/30/2016	7,952	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,952
2657	10008555	45 Black Creek Way	60	602	3301	WATER PLANT	W T&D	9/30/2016	723	0	0	214	509	0	0	0	0	0	0	0	0	0	0	0
2658	10008556	46 Black Creek Way	60	602	3301	WATER PLANT	W T&D	9/30/2016	488	0	0	145	343	0	0	0	0	0	0	0	0	0	0	0
2659	10008557	983 John Anderson Drive	60	602	3301	WATER PLANT	W T&D	9/30/2016	665	0	0	197	468	0	0	0	0	0	0	0	0	0	0	0
2660	10008564	Sanitary Sewer Force Main System	20	209	3301	WATER PLANT	WW T&C	9/30/2016	320,000	0	0	0	0	0	0	0	127,707	192,293	0	0	0	0	0	0
2661	20000010	FORCE MAIN SHADOW CROSSING	20	209	3501	WASTERWATER PLANT	WW T&C	4/30/2017	63,444	0	0	0	0	0	0	0	25,319	38,124	0	0	0	0	0	0
2662	20000011	SANITARY SEWER INFLOW INFILTRATION	20	209	3301	WATER PLANT	WW T&C	4/30/2018	222,896	0	0	0	0	0	0	0	88,954	133,942	0	0	0	0	0	0
2663	20000012	WATER STORAGE TANK REPAIRS	20	209	3501	WASTERWATER PLANT	WW Treatment	4/30/2017	962,660	0	0	0	0	0	0	962,660	0	0	0	0	0	0	0	0
2664	20000017	CITYWIDE METER REPLACEMENT	20	208	1302	UTILITY BILLING	W Meters	9/30/2017	571,545	0	0	0	0	0	571,545	0	0	0	0	0	0	0	0	0
2665	20000018	PEP REPLACEMENT	20	209	3502	WW COLLECTION AND REUSE	WW Collection	9/30/2017	178,213	0	0	0	0	0	0	0	0	178,213	0	0	0	0	0	0
2666	20000019	METER INSTALLATIONS	20	208	3301	WATER PLANT	W Meters	9/30/2017	127,192	0	0	0	0	0	127,192	0	0	0	0	0	0	0	0	0
2667	20000023	NORTHWEST US1 UTILITY IMPROVEMENTS	20	208	3301	WATER PLANT	W T&D	8/31/2017	722,684	0	0	214,175	508,509	0	0	0	0	0	0	0	0	0	0	0
2668	20000025	WWTP SLUDGE DEWATERING UPGRADES	20	209	3501	WASTERWATER PLANT	WW Treatment	8/31/2017	1,795,572	0	0	0	0	0	0	1,795,572	0	0	0	0	0	0	0	0
2669	20000028	UTILITY EXTENSION*ORMOND CROSSING	20	208	3301	WATER PLANT	W T&D	7/29/2017	397,538	0	0	117,815	279,724	0	0	0	0	0	0	0	0	0	0	0
2670	20000029	WTP LIME SLAKER & ONSITE HYPO UPGRADE	90	901	3301	WATER PLANT	W Treatment	8/31/2017	1,348,134	0	1,348,134	0	0	0	0	0	0	0	0	0	0	0	0	0
2671	20000045	REPLACE ROOF*WTP ADMIN BUILDING	10	104	7201	LEISURE SERVICES	W TREATMENT	4/3/2017	817	0	817	0	0	0	0	0	0	0	0	0	0	0	0	0
2672	20000047	REPLACE ROOF*WTP AERATOR BUILDING	10	104	7201	LEISURE SERVICES	W TREATMENT	5/1/2017	10,277	0	10,277	0	0	0	0	0	0	0	0	0	0	0	0	0
2673	20000055	FIRE HYDRANT REPLACEMENT	20	208	3302	WATER DISTRIBUTION	W HYDRANTS	6/15/2018	50,112	0	0	0	0	50,112	0	0	0	0	0	0	0	0	0	0
2674	20000056	CONTROLWAVE PANEL & LICENSE	20	209	3501	WASTERWATER PLANT	WW Treatment	7/20/2018	32,891	0	0	0	0	0	0	32,891	0	0	0	0	0	0	0	0
2675	20000057	SECONDARY RAW WATER TRANSMISSION MAIN	90	901	3502	WW COLLECTION AND REUSE	W SUPPLY	8/26/2017	260,459	260,459	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2676	20000068	A/C UNIT*501 N ORCHARD	10	103	3301	WATER PLANT	W Treatment	9/6/2017	7,880	0	7,880	0	0	0	0	0	0	0	0	0	0	0	0	0
2677	20000071	Centrifuge Gear	20	209	3501	WASTERWATER PLANT	WW Treatment	4/25/2017	41,560	0	0	0	0	0	0	41,560	0	0	0	0	0	0	0	0
2678	20000073	50 HP MOTOR FLOR EFFLUENT#2	20	209	3501	WASTERWATER PLANT	WW Treatment	7/14/2017	16,175	0	0	0	0	0	0	16,175	0	0	0	0	0	0	0	0
2679	20000074	WWTP MAINTENANCE BAY DOOR REPLACEMENT	10	107	3501	WASTERWATER PLANT	WW Treatment	4/11/2017	12,876	0	0	0	0	0	0	12,876	0	0	0	0	0	0	0	0
2680	20000075	PUMP MOTOR	20	209	3501	WASTERWATER PLANT	WW Treatment	8/24/2017	5,222	0	0	0	0	0	0	5,222	0	0	0	0	0	0	0	0
2681	20000077	BREAKAWAY UTILITY YARD/PUMP UPGRADE	20	209	3501	WASTERWATER PLANT	WW Treatment	6/23/2017	301,299	0	0	0	0	0	0	301,299	0	0	0	0	0	0	0	0
2682	20000078	WWTP INFLUENT PUMP STA VFD POWER																						

Appendix 1
City of Ormond Beach
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Fixed Asset Data and Asset Functionalization

No.	Asset Code	Description	Class CD	Subclass	Location	Location Description	Allocation	Date Acquired	Acquired Cost	Water					Wastewater			Reclaimed		Other Plant				
										Supply	Treatment	Transmission	Distribution	Hydrants	Meters	Treatment	Transmission	Collection	Treatment	Transmission	Distribution	Indirect	General	Other
2743	20000228	CONTACT CHAMBER MIXERS*WWTP	20	209	3502	WW COLLECTION AND REUSE	WW Treatment	8/2/2019	24,762	0	0	0	0	0	0	24,762	0	0	0	0	0	0	0	0
2744	20000229	MOTOR FOR 1P LS	20	209	3502	WW COLLECTION AND REUSE	WW T&C	9/10/2019	12,580	0	0	0	0	0	0	0	5,020	7,560	0	0	0	0	0	0
2745	20000230	REPLACEMENT PUMP FOR CYPRESS PLACE #1	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/30/2019	18,278	0	0	0	0	0	0	0	7,294	10,984	0	0	0	0	0	0
2746	20000231	REPLACEMENT PUMP FOR WALMART #2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	5/13/2019	7,449	0	0	0	0	0	0	0	2,973	4,476	0	0	0	0	0	0
2747	20000232	VFD FOR HIGH SERVICE PUMP #7	20	208	3301	WATER PLANT	WATER PLANT	10/23/2018	6,494	0	6,494	0	0	0	0	0	0	0	0	0	0	0	0	0
2748	20000233	REPLACE PUMP #2 @ 10M LIFT STATION	20	209	3501	WASTERWATER PLANT	WW T&C	11/5/2018	5,888	0	0	0	0	0	0	2,350	3,538	0	0	0	0	0	0	0
2749	20000234	CHEMICAL FEED SYSTEM IMP AT WTP THRU 5/3	90	901	3301	WATER PLANT	WATER PLANT	6/17/2019	111,371	0	111,371	0	0	0	0	0	0	0	0	0	0	0	0	0
2750	20000238	CONTROL UNIT	30	309	3501	WASTERWATER PLANT	WW Treatment	1/16/2019	6,521	0	0	0	0	0	0	6,521	0	0	0	0	0	0	0	0
2751	20000240	METER REGISTERS	20	208	3301	WATER PLANT	W Meters	11/6/2018	59,400	0	0	0	0	0	59,400	0	0	0	0	0	0	0	0	0
2752	20000241	REPLACE PUMP #2*TOWNE SQ LS	20	209	3501	WASTERWATER PLANT	WW T&C	2/5/2019	5,377	0	0	0	0	0	0	0	2,146	3,231	0	0	0	0	0	0
2753	20000242	FIRELINE METER	20	208	3301	WATER PLANT	W Meters	3/8/2019	14,381	0	0	0	0	0	14,381	0	0	0	0	0	0	0	0	0
2754	20000243	REMOVE AND ENCLOSE STORAGE ROOM DOORWAY	10	105	1103	CITY HALL	OTHER	5/31/2019	24,950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24,950
2755	20000244	OB WESTERN AREA MASTER PLAN UPDATE 8/1-3	90	901	3301	WATER PLANT	General	9/11/2019	63,290	0	0	0	0	0	0	0	0	0	0	0	0	0	63,290	0
2756	20000245	PUMPS*WW SKID ASSEMBLY	20	209	3502	WW COLLECTION AND REUSE	WW T&C	10/16/2018	8,368	0	0	0	0	0	0	3,340	5,028	0	0	0	0	0	0	0
2757	20000246	HIGH SERVICE PUMP 7 MOTOR	20	208	3301	WATER PLANT	GENERAL	10/23/2018	5,886	0	0	0	0	0	0	0	0	0	0	0	0	0	5,886	0
2758	20000247	ELECTRICAL WORK*AERATOR #2	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/20/2018	5,725	0	0	0	0	0	0	2,285	3,440	0	0	0	0	0	0	0
2759	20000248	REPLACE PUMP #2 @ 10M LIFT STATION	20	209	3502	WW COLLECTION AND REUSE	WW T&C	11/5/2018	5,888	0	0	0	0	0	0	2,350	3,538	0	0	0	0	0	0	0
2760	20000249	PINETRAIL LIFT STATION SUB PUMP #1	20	209	3501	WASTERWATER PLANT	WW T&C	11/15/2018	8,855	0	0	0	0	0	0	3,534	5,321	0	0	0	0	0	0	0
2761	20000250	PUMP @1 FOR 7M LIFT STATION	20	209	3501	WASTERWATER PLANT	WW T&C	11/15/2018	5,888	0	0	0	0	0	0	2,350	3,538	0	0	0	0	0	0	0
2762	20000252	MOTOR FORSLUDGE DIGESTER BLOWER #2	20	209	3501	WASTERWATER PLANT	WW Treatment	12/20/2018	5,935	0	0	0	0	0	0	5,935	0	0	0	0	0	0	0	0
2763	20000253	ELECTRIC AERATOR EQ TANK AERAOR	20	209	3501	WASTERWATER PLANT	WW Treatment	12/20/2018	6,365	0	0	0	0	0	0	6,365	0	0	0	0	0	0	0	0
2764	20000254	CENTRIFUGE SLUDGE FEED PUMP #2	20	209	3501	WASTERWATER PLANT	WW Treatment	12/17/2018	12,827	0	0	0	0	0	0	12,827	0	0	0	0	0	0	0	0
2765	20000255	A/C ON HIGH SERVICE PUMP #7	20	208	3301	WATER PLANT	General	1/7/2019	10,215	0	0	0	0	0	0	0	0	0	0	0	0	0	10,215	0
2766	20000256	REPLACE PUMP #1*5M LIFT STATION	20	209	3501	WASTERWATER PLANT	WW T&C	10/3/2018	17,995	0	0	0	0	0	0	0	7,181	10,813	0	0	0	0	0	0
2767	20000257	GE MDS SD MASTER RADIO STATION	20	208	3301	WATER PLANT	General	1/18/2019	6,547	0	0	0	0	0	0	0	0	0	0	0	0	0	6,547	0
2768	20000258	AURORA 411 PUMP CASING	20	208	3301	WATER PLANT	General	1/22/2019	11,400	0	0	0	0	0	0	0	0	0	0	0	0	0	11,400	0
2769	20000259	PEP PUMPS*WEST ORMOND AREA	20	209	3502	WW COLLECTION AND REUSE	WW Collection	3/11/2019	70,803	0	0	0	0	0	0	0	0	70,803	0	0	0	0	0	0
2770	20000260	INSTALL ELECTRICAL TO WWTP MIXER	20	209	3501	WASTERWATER PLANT	WW Treatment	3/25/2019	15,940	0	0	0	0	0	0	15,940	0	0	0	0	0	0	0	0
2771	20000261	REPLACEMENT PUMP FOR L5# 5M PUMP #3	20	209	3501	WASTERWATER PLANT	WW T&C	4/16/2019	19,463	0	0	0	0	0	0	0	7,767	11,695	0	0	0	0	0	0
2772	20000262	INSTALL SCADA POLE*HUNTER'S RIDGE	20	209	3501	WASTERWATER PLANT	General	4/25/2019	6,235	0	0	0	0	0	0	0	0	0	0	0	0	0	6,235	0
2773	20000263	NIDEC ELECTRIC MOTOR	20	209	3501	WASTERWATER PLANT	General	3/29/2019	21,503	0	0	0	0	0	0	0	0	0	0	0	0	0	21,503	0
2774	20000264	ELECTRICAL WORIK@ 6M LS	20	209	3501	WASTERWATER PLANT	WW T&C	5/30/2019	10,725	0	0	0	0	0	0	0	4,280	6,445	0	0	0	0	0	0
2775	20000265	ddr/ Scrubber pumps	20	208	3301	WATER PLANT	General	6/5/2019	23,233	0	0	0	0	0	0	0	0	0	0	0	0	0	23,233	0
2776	20000266	CONVEYOR BELT FOR*WWTP	20	209	3501	WASTERWATER PLANT	WW Treatment	9/18/2019	22,500	0	0	0	0	0	0	22,500	0	0	0	0	0	0	0	0
2777	20000269	WATER METERS	20	208	3302	WATER DISTRIBUTION	W METERS	9/18/2019	16,164	0	0	0	0	0	16,164	0	0	0	0	0	0	0	0	0
2778	20000270	GRANADA/CLYDE MORRIS EMERGENCY REPAIR	20	209	3501	WASTERWATER PLANT	WW Treatment	8/2/2019	42,765	0	0	0	0	0	0	42,765	0	0	0	0	0	0	0	0
2779	20000271	WWTP AMP CORD & ADAPTER	20	209	3501	WASTERWATER PLANT	General	4/12/2019	6,640	0	0	0	0	0	0	0	0	0	0	0	0	0	6,640	0
2780	20000273	875 STERTHAUS DRIVE	60	602	3301	WATER PLANT	General	9/30/2019	15,773	0	0	0	0	0	0	0	0	0	0	0	0	0	15,773	0
2781	20000274	35 BREAKAWAY TR , ORMOND BEACH	60	602	3301	WATER PLANT	General	9/30/2019	585	0	0	0	0	0	0	0	0	0	0	0	0	0	585	0
2782	20000275	600 WEST GRANADA	60	602	3301	WATER PLANT	General	9/30/2019	9,148	0	0	0	0	0	0	0	0	0	0	0	0	0	9,148	0
2783	20000276	650 WEST GRANADA BLVD	60	602	3301	WATER PLANT	General	9/30/2019	21,344	0	0	0	0	0	0	0	0	0	0	0	0	0	21,344	0
2784	20000277	PLANTATION OAKS SUBDIVISION	60	602	3301	WATER PLANT	General	9/30/2019	58,027	0	0	0	0	0	0	0	0	0	0	0	0	0	58,027	0
2785	20000278	125 EAST GRANADA BLVD	60	602	3301	WATER PLANT	General	9/30/2019	49,406	0	0	0	0	0	0	0	0	0	0	0	0	0	49,406	0
2786	20000281	2019-20 METER Replacement	20	208	1302	UTILITY BILLING	W Meters	10/11/2019	293,706	0	0	0	0	0	293,706	0	0	0	0	0	0	0	0	0
2787	20000282	AIRPORT RD/SR40 WATER MAIN LOOP DESIGN	90	901	3302	WATER DISTRIBUTION	W T&D	3/11/2020	89,253	0	0	26,451	62,802	0	0	0	0	0	0	0	0	0	0	0
2788	20000293	GRANADA SEWER LINE REPAIRS	20	209	3502	WW COLLECTION AND REUSE	WW T&C	7/29/2020	614,538	0	0	0	0	0	0	0	245,252	369,285	0	0	0	0	0	0
2789	20000294	NOVA LANDFILL-LINER REPAIR	20	210	7201	LEISURE SERVICES	OTHER	7/7/2020	174,837	0	0	0	0	0	0	0	0	0	0	0	0	0	0	174,837
2790	20000325	2020 Ford F-150	40	404	1302	UTILITY BILLING	General	8/11/2020	23,911	0	0	0	0	0	0	0	0	0	0	0	0	0	23,911	0
2791	20000326	2020 Ford F-250	40	404	3501	WASTERWATER PLANT	General	7/28/2020	28,601	0	0	0	0	0	0	0	0	0	0	0	0	0	28,601	0
2792	20000327	2020 FORD F-250	40	404	3301	WATER PLANT	General	7/30/2020	28,601	0	0	0	0	0	0	0	0	0	0	0	0	0	28,601	0
2793	20000328	2021 PETERBILT TRACTOR*WW PLANT	40	404	3501	WASTERWATER PLANT	General	8/20/2020	126,902	0	0	0	0	0	0	0	0	0	0	0	0	0	126,902	0
2794	20000329	METERES & REGISTERS	20	208	3302	WATER DISTRIBUTION	W METERS	11/18/2019	89,715	0	0	0	0	0	89,715	0	0	0	0	0	0	0	0	0
2795	20000330	DDR/E ONE PUMPS PEP SYSTEMS	20	209	3502	WW COLLECTION AND REUSE	WW Collection	10/28/2019	27,787	0	0	0	0	0	0	0	0	27,787	0	0	0	0	0	0
2796	20000331	CEI SERVICES FOR*WTP ELEVATED STORAGE TA	20	209	3502	WW COLLECTION AND REUSE	General	10/31/2019	51,166	0	0	0	0	0	0	0	0	0	0	0	0	0	51,166	0
2797	20000332	16" WATER MAIN IN MEDIAN SR40	20	208	3301	WATER PLANT	W T&D	9/30/2020	28,450	0	0	8,431	20,019	0	0	0	0	0	0	0	0	0	0	0
2798	20000333	REPLACEMENT LIME SLUDGE PUMP	20	208	3301	WATER PLANT	WATER PLANT	11/8/2019	10,845	0	10,845	0	0	0	0	0	0	0	0	0	0	0	0	0
2799	20000334	CHECK VALVES*WTP LPRO	20	208	3301	WATER PLANT	WATER PLANT	12/24/2019	8,831	0	8,831	0	0	0	0	0	0	0	0	0	0	0	0	0
2800	20000335	HOSE & RUBBER FOR TUBULAR ELEMENTS WW	20	208	3301	WATER PLANT	WW Treatment	2/10/2020	10,061	0	0	0	0	0	0	10,061	0	0	0	0	0	0	0	0
2801	20000336	REPAIR BACKWASH TRANSFER PUMP#2	20	208	3301	WATER PLANT	WATER PLANT	4/16/2020	19,000	0	19,000	0	0	0	0	0	0	0	0	0	0	0	0	0
2802	20000337	REPAIR FLOWSERVE P#1 @ Hi Service P	20	208	3301	WATER PLANT	WATER PLANT	6/11/2020	12,240	0	12,240	0	0	0	0	0	0							

**From September 7, 2022
Discussion Item**

08.12.2022

Municipal Impact Fees Study

CITY OF **Ormond Beach**

Municipal Impact Fees Study

Draft Report 2 / August 12, 2022

August 12, 2022

Honorable Mayor and
Members of the City Commission
City of Ormond Beach
22 South Beach Street
Ormond Beach, FL 32174

Subject: **Municipal Impact Fees Study**

Ladies and Gentlemen:

We have completed our study of the municipal impact fees for parks and recreation, stormwater, local roads, and mobility fees as well as our impact fee feasibility analysis for the police and fire departments for the City of Ormond (the "City") and have summarized the results of our analysis, assumptions, and conclusions in this report, which is submitted for your consideration. This report summarizes both the basis for the proposed impact fees in order to provide funds to meet the City's capital expenditure requirements for such services allocable to growth as well as basis for the recommendation regarding potential implementation of police and fire impact fees.

During the course of the study, it was determined that the proposed impact fees should meet a number of goals and objectives. These goals and objectives primarily deal with fee sufficiency and level. Specifically, the major objectives considered in this study include:

- The Impact Fees should be sufficient to fund the projected capital requirements associated with providing service to new growth and development;
- The Impact Fees should not be used to fund deficiencies in capital needs of the City, if any; and
- The Impact Fees should be based upon reasonable level of service standards which meet the needs of the City and are similar to industry standards.

The proposed municipal services impact fees presented in this report should meet the above objectives, as identified by the City during this study. As such, based on information provided by the City and the assumptions and considerations reflected in this report, Raftelis Financial Consultants, Inc. (Raftelis) considers the proposed fees to be cost-based, reasonable, and representative of the funding requirements of the City.

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Honorable Mayor and Members of the City Commission
City of Ormond Beach
August 12, 2022
Page 2

DRAFT 2

We appreciate the cooperation and assistance given to us by the City and its staff in the completion of the study.

Very truly yours,

RAFTELIS FINANCIAL CONSULTANTS, INC.

KITTELSON & ASSOCIATES

Anthony Hairston
Vice President

Stephanie Shealey, P.E.
Senior Engineer

Shawn Ocasio
Manager

AH/dc
Attachments

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

The purpose of an impact fee is to assign, to the extent practical, growth-related capital costs to new development responsible for such costs. To the extent new population growth and associated development imposes identifiable capital costs to municipal services, equity and modern capital funding practices suggest the assignment of such cost to those residents or system users responsible for such costs. The City of Ormond Beach (City) has recognized this capital funding strategy as being an appropriate method of funding the certain future capital requirements of the City. The City has, in the past, adopted impact fees for the following municipal services:

- Parks and Recreation
- Stormwater
- Transportation

This report addresses the impact fees associated with parks and recreation, stormwater, and transportation (collectively, the “Municipal Services Impact Fees”). The City currently has impact fees for all these services as noted above. Raftelis Financial Consultants, Inc. (Raftelis) was retained to review and develop proposed fees, as appropriate. In addition, Raftelis was tasked to conduct a feasibility study for police and fire services in order to determine if the City should consider implementing police and fire impact fees.

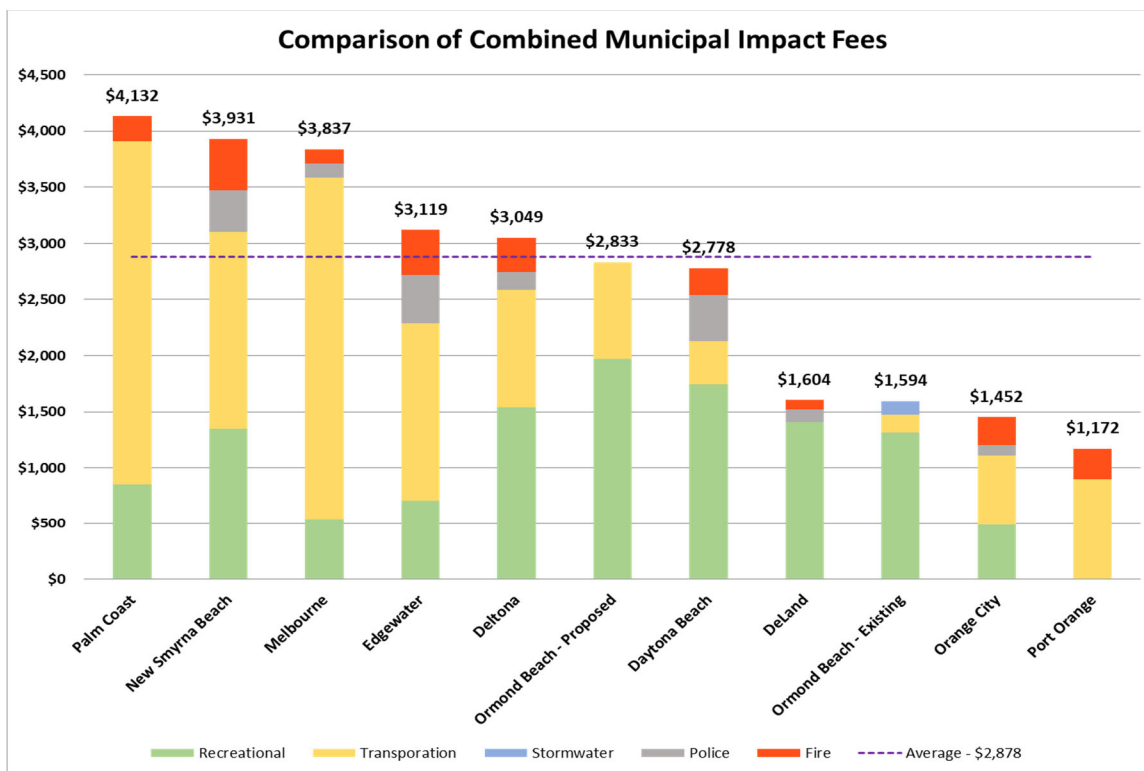
Based on the subsequent discussions in this section, the following table summarizes the City’s existing to proposed impact fees for the single-family residential classification as follows:

Single-family Residential Impact Fees		
	Existing Fees	Proposed Fess
Parks and Recreation	\$1,312.24	\$1,968.00
Stormwater	119.39	0.00
Local Roads	162.61	864.59
Total	<u>\$1,594.24</u>	<u>\$2,832.59</u>

Mobility Fees		
	Existing Fees	Proposed Fess
Rate per Person Trip	\$16.00	\$85.67

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A comparison of the City's existing and proposed single-family residential impact fees levels to other local municipalities is shown below for informational purposes.



As shown above, the City's calculated impact fees are comparable to the impact fees charged other Florida communities surveyed.

The existing and proposed fee shown above for parks and recreation is only charged to residential properties, while fees for roads are also charged to non-residential properties. The non-residential fees are unique to the service requirements of each property. A detailed discussion on impact fees for both residential and non-residential properties is provided for in subsequent sections of this study report.

Findings and Recommendations

The following is a summary of the observations and recommendations following our investigation, analyses, and preparation of this report:

1. The impact fees must be reasonably related to the cost of providing capital facilities / equipment needed to accommodate new growth. The impact fees collected must be used by the City to address the capital costs related to serving new development. Based on the information made available by the City, the proposed impact fees are designed to meet these Florida legal requirements.
2. Pursuant to Florida Statutes Section 163.31801, the City must provide notice no less than 90 days before the effective date of an ordinance or resolution imposing a new or increased impact fee.
3. Collection of the fee may not be required before the issuance of the building permit.

4. In compliance with Florida Statutes the City should collect and maintain revenue from each type of municipal fee in designated sub-accounts and use such fees on those facilities designated for each purpose.
5. The City should adopt the impact fees as proposed to ensure adequate funding sources are available to fund future service expansion projects needed to provide the identified level of service to new growth.
6. The fees developed within this report reflect recovery of identified costs and the City has discretion to phase-in or otherwise adopt less than the fully calculated fees. However, the adoption of fees less than the fully calculated rates should be applied to all land uses equally in order to maintain the calculations herein in correct proportion. Adopting less than the calculated rates would increase the reliance on general fund and other revenue sources to meet the demands of growth.
7. For reasons detailed in Section 4 of this report the City should consider the discontinuation of its stormwater impact fees.
8. The City should revise its impact fee credit policy so that credits from demolitions will no longer have an expiration date.
9. As detailed in Sections 6 and 7 of this report, we recommend that the City consider pursuing the development and establishment of police and fire protection impact fees.

The subsequent sections of this report provide detailed discussions on the existing and proposed impact fees for parks and recreation services, stormwater service, and local roads / mobility service as well as a discussion on the police and fire feasibility analyses and recommendations.

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SECTION 1 – INTRODUCTION

Introduction

The City of Ormond Beach (City) is located in Volusia County (County) north of Daytona Beach and south of Palm Coast. The City comprises 38.91 square miles and provides an array of services to year-round and seasonal residents. The municipal services in demand include parks and recreation, police, fire / EMS services, and stormwater management. Based on the published U.S. Census in 2020, the City's permanent population was 43,080. Based on historical growth trends and discussions with the City's Planning Department, the estimated 2021 population was 44,041. It is anticipated that the City will have modest growth over the next 20 years with the City's population projected to reach 50,630 with approximately 21,730 housing units by 2040 (Forecast Period). In addition to housing, the City anticipates commercial development to continue to support new residents. In order to meet this anticipated growth and development and to maintain current levels of service, the City will need to fund capital improvements to serve such development.

The City's Municipal Services Impact Fees were last updated in 1996. Although the City has indexed such rates annually thereafter, rates need to be reviewed periodically to ensure that such fees reflect current actual investments made to serve growth, and to adequately reflect additional needs required to service new developments. Therefore, the City authorized Raftelis, to evaluate the existing parks and recreation, stormwater management, and roads / mobility impact fees and to complete a feasibility analysis on potential new impact fees for police and fire protection service.

Authorization

Raftelis was authorized by the City to evaluate and develop parks and recreation and stormwater impact fees as well as preform a feasibility analysis to assess the potential for police and fire impact fees pursuant to an agreement between the City and Raftelis. The scope of work for this project, as defined in the agreement, was to:

1. For each service, review and analyze the capital requirements of the City that are needed to meet the level of service standards for the municipal function. This analysis includes a review of: i) the existing and future facility and equipment inventory of each specific municipal function; ii) service area population and development demographics and future needs; and iii) services provided by class of customers.
2. Where appropriate, develop a fee to be charged to new development in order to recover the capital costs associated with providing municipal services. This analysis includes the apportionment of costs among customer / development classifications, and the development of the fee per equivalent billing unit.
3. Make recommendations as to additional impact fees to charge for services that the City provides.
4. Develop a comparison of the impact fees and associated billing attributes for similar charges imposed by other neighboring jurisdictions.
5. Prepare a report that documents our analyses, assumptions, and conclusions for consideration by the City Manager and City Commission.

Criteria for Impact Fees

The purpose of an impact fee is to assign, to the extent practical, growth-related capital costs to those new customers that benefit from the facilities funded by such expenditures. To the extent new population growth and associated development imposes identifiable capital costs to municipal services, equity and modern capital funding practices suggest the assignment of such costs to those residents or system users responsible for such costs rather than the existing population base. Generally, this practice has been labeled as “growth paying its own way”.

Historically, impact fees in Florida were a result of home rule powers with the requirements associated with the development, administration, accounting and expenditure governed by case law. However, Section 163.31801 of the Florida Statutes, known as the “Florida Impact Fee Act”, was created on June 14, 2006, which placed specific requirements and limitations on that home rule authority. This statute has been amended several times since its initial adoption, including significant additional provisions in 2021 such as limiting the percentage increase for a change in impact fees. Appendix A at the end of the report includes the full Florida impact fee statute.

The statute provides specific impact fee criteria, certain precedents established by case law also constitute the legal requirements associated with impact fees. Some of the major criteria includes the following:

1. The impact fee should be reasonably equitable to all parties; that is, the amount of the fee must bear a relationship to the amount of services requested;
2. The system of fees and charges should be set up so that there is not an intentional windfall to existing users;
3. The impact fee should, to the extent practical, only cover the capital cost of construction and related costs thereto (engineering, legal, financing, administrative, etc.) for increases in or expansions of capacity or capital requirements that are required solely due to growth. Therefore, expenses due to normal renewal and replacement of a facility (e.g., replacement of a capital asset) should be borne by all users of the facility or municipality. Similarly, increased expenses due to operation and maintenance of that facility should be borne by all users of the facility; and
4. The local government must adopt a revenue-producing ordinance that explicitly sets forth restrictions on revenues (uses thereof) that the imposition of the impact fee generates. Therefore, the funds collected from the impact fees should be retained in a separate account, and separate accounting must be made for those funds to ensure that they are used only for the lawful purposes described.

Based on the criteria provided above, the impact fees herein will: 1) include local current costs of improvements associated with the capacities needed to serve new growth; 2) not reflect costs of improvements associated with the renewal and replacement (R&R) of existing capital assets or deficiencies in level of service attributed to existing development; and 3) not include any costs of operation and maintenance of the capital improvements and equipment.

This section provides only a general background regarding impact fees. Certain circumstances and issues regarding the interpretation of specific statutes or case law should be addressed by qualified legal counsel.

Impact Fee Methods

There are several different methods for the calculation of an impact fee. The calculation is dependent on the type of fee being calculated (e.g., recreational services, transportation, etc.), cost and engineering data available, and the

availability of other local data such as household and population projections, current levels of service, and other related items. The proposed Municipal Services Impact Fees reflected in this report are predominately based on three separate methods. There were three major methods of impact fee calculation considered in this analysis. These three methods were: i) the improvements-driven method; ii) the standards-driven method; and iii) the buy-in or recoupment approach. These methods have been utilized in the development of impact fees for local governments throughout Florida.

The improvements-driven method is an approach that utilizes a specific list of existing or planned capital improvements over a period of time. For example, the fee may correspond to the level of capital improvements that have been identified in the capital improvements element of the Comprehensive Plan or capital improvement budget of the entity. The standards-driven method does not utilize the cost of improvements based on anticipated needs as stated in the capital improvement plan but rather uses a set of theoretical standards to determine the cost of the improvements associated with new growth. The buy-in or recoupment method is based on this historical cost of assets, and adjustments to the basis of these assets, currently in service and the current population. The primary difference between the three methodologies is how the capital costs, which must be recovered from the application of the fee, are calculated.

The proposed impact fees herein for the municipal services include the application of these methods based on the capital facilities required to provide services and meet the City's service level standards. Where appropriate, the blending of methods occurred and a more complete discussion of the methods used for the determination of the impact fees are presented in Sections 3 through 5.

Summary of Report

In addition to Section 1, this report has been subdivided into six (6) other sections. The following is a brief discussion of the remaining sections included in this report.

Section 2 – City Demographics. This section of the report provides a general discussion of the residential land use characteristics. Also presented in this section is the forecast of the residential dwelling units and non-residential development that is necessary in the design of the impact fees for the municipal services.

Section 3 – Parks and Recreation Service Impact Fee Analysis. This section discusses the development of the recreation impact fee, including the capital requirements associated with providing parks and recreation facilities to the City's residents, the methodology for the determination of the proposed fees, assumptions utilized in the design of the fees, and other factors associated with the fee determination.

Section 4 – Stormwater Impact Fee Analysis. This section discusses the existing stormwater system, a discussion on stormwater system funding approaches, the current stormwater impact fees charged, and recommendations regarding the fees.

Section 5 – Transportation Impact Fee Analysis. This section discusses the development of the local roads and mobility impact fees, including the methodology for the determination of the proposed fees, assumptions utilized in the design of the fees, and other factors associated with fee determination.

- Section 6 – Police Facilities Impact Fee Feasibility Analysis. This section discusses the feasibility of possibly developing impact fees for police services in the future, including a review of current capital costs, a comparison of police impact fees charged in neighboring communities, and a potential fee range.
- Section 7 – Fire Protection Facilities Impact Fee Feasibility Analysis. This section discusses the feasibility of possibly developing impact fees for fire protection services, including a review of current capital costs for providing fire services, a comparison of fire impact fees charged in neighboring communities, and a potential fee range.

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SECTION 2 – CITY DEMOGRAPHICS

General

This section provides a general discussion of the current service area, including population and housing statistics and other demographic information related to land use. Additionally, a discussion of the anticipated growth in population and associated growth in residential dwelling units is also contained in this section.

Population and Development Forecast

Regardless of the approach taken to formulate impact fees, a forecast of the population of the City is needed in order to: i) have an appropriate planning horizon to ensure that capital improvement needs and costs are apportioned over a suitable growth segment; ii) link LOS requirements to the capital facility plan; and iii) identify any deficiencies in existing capital facilities related to the LOS standards and current population served.

As shown in Table 2-1 at the end of this section, the City's total estimated population is 44,041 in 2021. Based on information provided by the City, it is estimated that the total population will approach approximately 45,829 residents by 2025 and 50,630 residents by the year 2040. Thus, the population growth anticipated by the City is expected to be moderate, approximately 1.00% on an average annual basis through the year 2030 and then conservatively by 0.50% percent through the year 2040.

Historical and Projected Population and Dwelling Units			
Year	Total Population	Total Dwelling Units	Average Persons per Occupied Dwelling Unit
2020 [1]	43,080	18,489	2.33
2021	44,041	18,700	2.33
2025	45,829	19,669	2.33
2030	48,167	20,673	2.33
2040	50,630	21,730	2.33

[1] Future population estimates shown based on a review of historical population growth as obtained from the U.S. Census Bureau, from projections from the University of Florida's Florida Housing Data Clearinghouse, and discussions with City staff.

To the extent the projection of future development materially changes, it would then be appropriate for the City to re-evaluate the impact fees developed in this report.

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Persons per Household

In order to develop recreational impact fees based on the type of residential properties to estimate the impact on recreational facilities, Raftelis evaluated the existing residential units within the City. Based on the historical relationships of persons per dwelling unit for single-family, multi-family, and mobile home property types used in the existing fees as well as revised population and unit data from the Census Bureau an estimate of persons per unit was developed and is shown below.

- Single-family Persons per Household – 2.53
- Multi-family Persons per Household – 2.05
- Mobile Home Persons per Household – 1.68
- City Average Persons per Household – 2.33

It should be noted that with respect to Sections 6 and 7 in this report, further demographic data and related functional population analyses would be required in order to develop potential police and fire impact fees. At this time the proposed fees being calculated (the parks and recreation fees described in Section 3) do not involve this type of approach as they only apply to residential development and not nonresidential development.

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Section 2
City of Ormond Beach
Municipal Impact Fee Study

List of Tables

Table	Description
2-1	Population and Housing Forecast

Table 2-1
City of Ormond Beach
Municipal Impact Fee Study

Population and Housing Forecast

Line No.	Fiscal Year	Annual Average Rate	Total Population [1]	Total Units	Average Pop. per Unit
1	2010		38,137	16,193	2.36
2	2019	0.9%	41,282	18,024	2.36
3	2020	4.36%	43,080	18,489	2.33
3	2021	2.23%	44,041	18,902	2.33
4	2025	1.00%	45,829	19,669	2.33
5	2030	1.00%	48,167	20,673	2.33
6	2040	0.50%	50,630	21,730	2.33
7	Overall 2020 - 2040	0.81%			

Footnotes

- [1] Future population estimates based on a review of historical population growth as obtained from the US Census Bureau and from projections from the City.

SECTION 3 – PARKS AND RECREATION SERVICE IMPACT FEE ANALYSIS

General

This section provides a discussion of the development and design of the proposed impact fee for parks and recreation services. Included in this section is a discussion of the City's adopted level of service (LOS) standards, facility requirements, and related capital costs included as the basis for the fee determination, and the design of the fee to be applied to new growth within the City.

Level of Service Standards

As outlined in the City's Comprehensive Plan and Parks and Recreation Master Plan, the City has adopted Level of Service (LOS) standards for recreational facilities and activities. With respect to open space, the City has adopted a recreational open-space LOS standard of thirteen (13.00) acres per 1,000 residents in total. The City currently owns and maintains an inventory of parks. A summary of the City-owned and -operated parks (existing and under development) is summarized on Table 3-1. The City's current inventory includes 607.45 acres including neighborhood parks, mini-parks, community centers, and more. Table 3-2 provides a detailed listing of the City's current investment in the parks, including land, improvements, facilities, and equipment, which total approximately \$58.1 million. As shown in Table 3-3 and based on the estimated population of 44,041 residents in 2021, the City has an existing level of service for total open space of 13.0 acres per 1,000 population, which results in the City having an existing surplus as follows:

Descriptions	Amounts
Population 2021	44,041
Open Space LOS	13.0 Acres per 1,000 Population
Required Acres	572.53 Acres
Current City Inventory	607.45 Acres
Surplus/(Deficiency)	34.92 Acres

It should also be noted that as the City's population grows over time this surplus of acreage per 1,000 population will decrease. However, the City has plans for the acquisition of additional land at multiple sites that will go towards maintaining the required parks and recreation LOS throughout the forecast window through 2040.

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Existing Recreational Assets

In the determination of the fee, the historical costs of the existing assets and any grant funding for those assets was considered. The City's existing assets are categorized by type and are summarized below.

Inventory of City Parks and Recreational Facilities [1]	
Description	Historical Cost
Assets Included in Fee Calculation:	
Land	\$10,599,856
Facilities	30,422,508
Activity-related	14,615,760
Subtotal	\$55,638,123
Assets Excluded From Fee Calculation:	
Machinery and Equipment	\$947,032
Other Excluded Assets	1,544,333
Subtotal	\$2,491,365
Total Existing Investment in Parks and Recreation	<u>\$58,129,488</u>

[1] Amounts as shown on Table 3-2.

As shown above, of the \$58,129,488 in recreational assets, \$55,638,123 is included in the calculation of the impact fee.

Capital Improvement Plan

In the determination of the fee, the following five- (5) year capital improvement plan was provided by the City for this project. Along with the City's existing investment in recreation assets this capital improvement plan is anticipated and designed to provide recreation services to the City's "buildout" dwelling unit level and maintain the identified level of service standards. The City's capital improvements are summarized below.

Projected Future City Investment in Recreational Facilities and Activities (Capital Plan) [1]	
Description	Amount
Total Improvements	\$6,229,053
Less:	
Grant Funding	(2,149,303)
R&R Projects	(547,249)
Future Investment Included in Fee Calculation	<u>\$3,532,501</u>

[1] Amounts as provided by City staff and are shown on Table 3-4.

As can be seen above, the City anticipates spending \$3,532,501 in order to further acquire and develop the parks and recreation facilities to provide the desired level of recreation services to the City after adjustments for grants and renewal and replacement (R&R) projects.

Design of Recreational Facility Impact Fee

The method used to calculate the impact fee is a combination of the improvements-driven method and buy-in method as the recoupment of a portion of existing investments available to serve new growth and the costs associated with adding additional capacity to serve the City's future recreation needs are recognized. Table 3-5 at the end of this report summarizes the results of the impact fee calculation. The following is a brief description of the method used in this study:

- Development of Recoverable Assets – Based on the City's existing investment in recreation and park facilities, and the dwelling unit projections at "buildout", the total estimated cost of existing assets to serve residents is identified.
- Development of Total Capital Need – Based on the City's estimated capital costs of developing future park facilities, and the dwelling unit projections, the total estimated cost to serve existing residents is developed.
- Development of Equivalent Impact Fee Units – This data which was provided by Staff in the form of the City's anticipated "buildout" dwelling unit capacity. These figures are used to develop a proposed fee per dwelling unit.
- Calculation of Cost per Dwelling Unit – Once the total capital costs allocable to future resident are determined, the impact fee unit per dwelling (residence) is calculated. This calculation represents the average cost of recreation facilities per dwelling person multiplied by the estimated persons per dwelling unit for single-family, multi-family, and mobile home residential dwellings.

RECREATIONAL FACILITY IMPACT FEE ASSUMPTIONS

In the development of the recreation impact fees, several assumptions were utilized. The major assumptions used in the development of the impact fees are as follows:

1. The development of the cost for the recreation facilities impact fees was based on the City's current inventory of parks and recreational activities, the recommended level of service standards for recreational facilities, and the City's estimated capital costs to develop future facilities and activities.
2. As indicated in Table 3-5, the City has identified existing needs totaling \$49,942,204, which includes a credit for grants and R&R projects, which reduced the burden by \$9,855,920. The total needs were based primarily on actual investments made by the City, which should be recouped from future residential growth.
3. No credits from other revenue sources have been identified for the purposes of this calculation, as it is assumed that other funding sources generated by future users will be utilized to provide for the necessary ongoing operating and repair / replacement costs required.

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IMPACT FEE CALCULATION

Based on the above-referenced assumptions, the recreation impact fee as calculated in detail on Table 3-5 was determined as follows:

Description			Amounts
Existing Investment in Parks and Recreation [1]			\$55,638,123
Future Investment in Parks and Recreation [2]			4,160,001
Total Existing and Future Investment in Parks and Recreation Through 2025			\$59,798,124
Previously Grant Funded/Donated Assets [3]			(\$9,228,420)
Planned Future Grant Funded/Donated Assets Through 2025 [3]			(627,500)
Total Grant Funded/Donated Assets Through 2025			(\$9,855,920)
Total Existing and Proposed Investment in Parks and Recreation			\$49,942,204
Total City Population in 2040 [4]			50,630
Total Costs to be Recovered per Person			\$986.41
	Single-family	Multi-family	Mobile Home
Total Costs to be Recovered per Person	\$986.41	\$986.41	\$986.41
Estimated Persons per Dwelling Unit [5]	2.53	2.05	1.68
Total Costs to be Recovered per Dwelling Unit	\$2,500.07	\$2,021.49	\$1,658.45
Total Costs to be Recovered per Dwelling Unit (Rounded)	\$2,500.00	\$2,021.00	\$1,658.00

[1] Existing investment amount shown based on Table 3-2.

[2] Future investment amount shown based on Table 3-4.

[3] Amount based on information provided by City Staff.

[4] Buildout population shown based on Table 2-1.

[5] Amounts shown based on average population and housing unit data as obtained from the American Community Survey for 2019-2015 from the U.S. Census Bureau.

As shown above, the maximum supportable impact fees are \$2,500.00, \$2,021.00 and \$1,658.00 per dwelling unit for single-family, multi-family, and mobile home, respectively. Each of these fees are being increased by a percentage between 90.5% and 111.01%. The recent update to Section 168.31801 F.S. added the following subsection, which provides certain limitations of how municipalities can increase impact fees:

- (6) A local government, school district, or special district may increase an impact fee only as provided in this subsection.
- (a) An impact fee may be increased only pursuant to a plan for the imposition, collection, and use of the increased impact fees which complies with this section.
- (b) An increase to a current impact fee rate of not more than 25 percent of the current rate must be implemented in two equal annual increments beginning with the date on which the increased fee is adopted.
- (c) An increase to a current impact fee rate which exceeds 25 percent but is not more than 50 percent of the current rate must be implemented in four equal installments beginning with the date the increased fee is adopted.
- (d) An impact fee increase may not exceed 50 percent of the current impact fee rate.
- (e) An impact fee may not be increased more than once every 4 years.
- (f) An impact fee may not be increased retroactively for a previous or current fiscal or calendar year.

(g) A local government, school district, or special district may increase an impact fee rate beyond the phase-in limitations established under paragraph (b), paragraph (c), paragraph (d), or paragraph (e) by establishing the need for such increase in full compliance with the requirements of subsection (4), provided the following criteria are met:

1. A demonstrated need study justifying any increase in excess of those authorized in paragraph (b), paragraph (c), paragraph (d), or paragraph (e) has been completed within the 12 months before the adoption of the impact fee increase and expressly demonstrates the extraordinary circumstances necessitating the need to exceed the phase-in limitation.
2. The local government jurisdiction has held not less than two publicly noticed workshops dedicated to the extraordinary circumstances necessitating the need to exceed the phase-in limitations set forth in paragraph (b), paragraph (c), paragraph (d), or paragraph (e).
3. The impact fee increase ordinance is approved by at least a two-thirds vote of the governing body.

(h) This subsection operates retroactively to January 1, 2021.

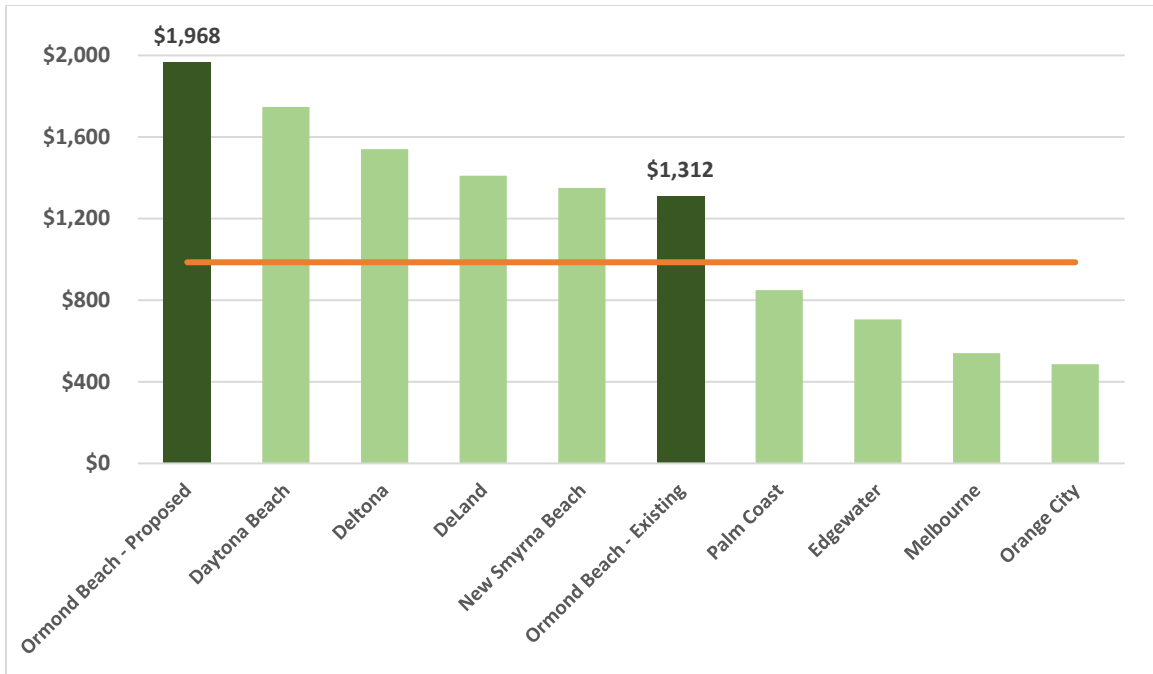
With the maximum supportable impact fee being significantly higher than the City's current fees due to the current investment and future planned investment in the department, we believe that the City should consider pursuing a fee increase via the extraordinary circumstances provision of the statute. However, for the purposes of maintaining relative competitiveness with neighboring municipalities we believe the City should aim for a 50% increase in the fees as opposed to the maximum supportable impact fee amount calculated. The proposed 50% increased fee level compared to existing and calculated rates is shown below.

Existing and Proposed Impact Fees			
Description / Customer Class	Existing Fees	Maximum Supportable Fees	50% Increase Proposed Fees
Single-family	\$1,312.24	\$2,500.00	\$1,968.00
Multi-family	\$1,048.42	\$2,021.00	\$1,572.00
Mobile Home	\$785.74	\$1,658.00	\$1,178.00

Impact Fee Comparisons

In order to provide the City additional information about the proposed impact fees, a comparison of the proposed fees for the City and those charged by other jurisdictions was prepared. Table 3-6 at the end of this section summarizes the impact fees for recreational services charged by other communities with the proposed rates of the City. Please note that each community may establish a different LOS standard to meet its demographic needs for recreation facilities and activities. The City can anticipate variances between other communities.

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Section 3
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

List of Tables

<u>Table</u>	<u>Description</u>
3-1	Inventory of City Parks and Recreation Facilities
3-2	Summary of Existing City Investments in Parks and Recreation
3-3	Existing Level of Service and Open-Space Needs
3-4	Multi Year Capital Improvement Plan
3-5	Design of Parks and Recreation Impact Fee
3-6	Parks and Recreation Services Impact Fee Comparison

**Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis**

Inventory of City Parks and Recreation Facilities [1]

Line No.	Facility Classification	Acres	Facilities
1	Ames Park	1.28	(12) Parking (1) Restrooms (1) Gazebo (11) Park Benches (1) Walk/Jog Path (1) Fishing Permitted (1) Pier/Dock (1) Special Feature/Art
2	Andy Romano Beachfront Park	3.47	(199) Parking (1) Restrooms (1) Gazebo (15) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Large Pavilion (1) Splash pad (1) Outdoor Showers (1) Fishing Permitted
3	Arroyo Oaks Mini Park	0.24	(2) Parking (1) Special Feature/Art
4	Arroyo Parkway Passive Park	16.87	
5	Bailey Riverbridge Gardens	3.62	(20) Parking (12) Park Benches (1) Picnic Tables (1) Special Feature/Art
6	Birthplace of Speed Park	0.68	(11) Parking (1) Restrooms (1) Park Benches (1) Picnic Tables (1) Picnic Grill (1) Large Pavilion (1) Pier/Dock
7	Casements Campus - (Includes Ormond Beach Tennis Center)	5.47	(70) Parking (1) Restrooms (1) Community Center (1) Meeting Room (1) Kitchen
8	Cassen Park	3.66	(47) Parking (1) Restrooms (1) Gazebo (1) Park Benches (1) Picnic Tables (1) Walk/Jog Path (1) Boat Ramp (1) Canoe/Kayak Launch (1) Fishing Permitted (1) Pier/Dock
9	Central Park I	21.08	(40) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Large Pavilion (1) Basketball Court (1) Canoe/Kayak Launch (1) Fishing Permitted

Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Inventory of City Parks and Recreation Facilities [1]

Line No.	Facility Classification	Acres	Facilities
			(1) Pier/Dock (1) Community Gardens
10	Central Park II	15.29	(24) Parking (1) Gazebo (1) Basketball Court (1) Tennis Court (1) Pickleball Court (1) Fishing Permitted (1) Pier/Dock (1) Community Gardens
11	Central Park III	62.23	(5) Parking (1) Park Benches (1) Walk/Jog Path (1) Fitness Stations (1) Canoe/Kayak Launch
12	Central Park IV	53.89	(19) Parking (1) Restrooms (1) Park Benches (1) Walk/Jog Path (1) Canoe/Kayak Launch (1) Fishing Permitted (1) Pier/Dock (1) Community Center (1) Meeting Room
13	Division Avenue Passive Park	3.80	
14	Firehouse Park	0.31	(19) Parking (1) Park Benches (1) Playground (1) Picnic Tables (1) Special Feature/Art
15	Fortunato Park	4.29	(28) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Nature Trail (1) Bike Trail (1) Canoe/Kayak Launch (1) Fishing Permitted (1) Pier/Dock (1) Special Feature/Art
16	GF Althouse Trail (Part of Central Park III)	3.70	(8) Parking (1) Walk/Jog Path (1) Bike Trail (1) Canoe/Kayak Launch (1) Fishing Permitted (1) Pier/Dock
17	Haas Park	14.95	(1) Park Benches (1) Walk/Jog Path
18	Hospital Gardens Mini-Park	0.08	(1) Park Benches
19	Huguenot Mini-Park	0.67	(3) Parking (1) Park Benches (1) Picnic Tables

Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Inventory of City Parks and Recreation Facilities [1]

Line No.	Facility Classification	Acres	Facilities
20	Indian Mound Mini-Park	0.35	
21	Lakebridge Drive Passive Park	2.85	
22	Limitless Playground (Included in Ormond Beach Sports Complex)	0.00	(32) Parking (1) Gazebo (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Small Pavilion (1) Large Pavilion
23	Lincoln Ave Park	0.42	(1) Park Benches
24	Mainstreet Mini-Park	0.37	(1) Park Benches
25	Memorial Gardens Park	2.69	(33) Parking (1) Gazebo (1) Park Benches (1) Walk/Jog Path (1) Special Feature/Art
26	Milton W. Pepper Mini-Park	0.16	(1) Park Benches (1) Playground
27	Neptune Beach Mini-Park	0.19	(1) Parking
28	Nova Community Park	63.78	(96) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Large Pavilion (2) Basketball Court (6) Tennis Court (4) Pickleball Court (4) Handball Court (4) Baseball Field (1) Softball Field (1) Skate Park (1) Walk/Jog Path (1) Batting Cages (1) Concessions (1) Community Center (1) Meeting Room (1) Gymnasium (1) Weight Room
29	Nova Road Passive Park North	1.74	
30	Nova Road Passive Park South	11.05	
31	Optimist Park (Included in Ormond Beach Sports Complex)	0.00	(20) Parking (1) Park Benches (1) Picnic Tables (1) Picnic Grill (1) Horseshoes
32	Ormond Beach Lions Mini-Park	0.04	(1) Park Benches
33	Ormond Beach Middle School Park	2.40	(67) Parking (4) Basketball Court (2) Tennis Court (3) Football Field

Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Inventory of City Parks and Recreation Facilities [1]

Line No.	Facility Classification	Acres	Facilities
34	Ormond Beach Performing Arts Center	0.60	(172) Parking (1) Restrooms (1) Special Feature/Art (1) Meeting Room
35	Ormond Beach Senior Center	0.40	(54) Parking (1) Restrooms (1) Special Feature/Art (1) Community Center (1) Meeting Room
36	Ormond Beach Skate Park	0.00	(24) Parking (1) Restrooms (1) Park Benches (1) Skate Park
37	Ormond Beach Sports Complex (includes Optimist and Limitless parks)	130.35	(748) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Large Pavilion (4) Baseball Field (5) Softball Field (4) T-Ball Field (3) Football Field (12) Soccer Field (1) Shuffleboard Court (1) Batting Cages
38	Ormond Beach Tennis Center	0.00	(70) Parking (1) Restrooms (8) Tennis Court
39	Ormond Parkway Mini-Park	0.19	(2) Parking (1) Park Benches
40	Ormond Shores Mini-Park	1.32	(1) Park Benches (1) Walk/Jog Path
41	Osceola Elementary School Park	5.25	(13) Parking (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Large Pavilion (1) Basketball Court (1) Softball Field
42	Plaza Grand Mini-Park	1.34	
43	Riverbend Nature Park	81.88	(22) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Small Pavilion (1) Nature Trail (1) Walk/Jog Path (1) Bike Trail (1) Fitness Stations (1) Canoe/Kayak Launch

**Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis**

Inventory of City Parks and Recreation Facilities [1]

Line No.	Facility Classification	Acres	Facilities
			(1) Fishing Permitted (1) Pier/Dock (1) Special Feature/Art
44	Riviera Park	5.77	(26) Parking (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Small Pavilion (1) Walk/Jog Path (1) Fishing Permitted (1) Pier/Dock (1) Special Feature/Art
45	Rockefeller Gardens Park	2.24	(70) Parking (1) Park Benches (1) Walk/Jog Path (1) Special Feature/Art
46	Sanchez Park	8.41	(15) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Picnic Grill (1) Large Pavilion (1) Nature Trail (1) Walk/Jog Path (1) Boat Ramp (1) Canoe/Kayak Launch (1) Fishing Permitted (1) Pier/Dock
47	Santa Lucia Bench Mini-Park	0.27	(1) Park Benches
48	S. Old Kings Road Passive Park	4.22	
49	S. Ormond Neighborhood Center	6.99	(43) Parking (1) Restrooms (1) Park Benches (1) Playground (1) Picnic Tables (1) Large Pavilion (1) Basketball Court (2) Tennis Court (1) Handball Court (1) Baseball Field (1) Walk/Jog Path (1) Splash pad (1) Concessions (1) Community Center (1) Meeting Room (1) Gymnasium
50	Ted Porter Mini-Park	0.18	(1) Park Benches
51	Vadner Mini-Park	0.63	(1) Park Benches
52	Waldo O. Berry Heritage Mini-Park	0.24	(1) Picnic Tables (1) Picnic Grill
53	W. Ormond Community Park	17.30	
54	W. Ormond Wetlands Park	38.00	(10) Parking

Table 3-1
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis
Inventory of City Parks and Recreation Facilities [1]

Line			
No.	Facility Classification	Acres	Facilities
			(1) Nature Trail
55	Woodmere Mini-Park	0.25	
56	<u>Summary</u>	<u>Acres</u>	
57	Mini	114.86	
58	Passive	74.75	
59	Community	221.74	
60	Special Use	4.70	
61	Sports Complex	130.35	
62	Neighborhood	23.05	
63	Natural Resources	38.00	
64	Total	<u>607.45</u>	

Footnotes

[1] Park acreage and facilities inventory as provided by the City.

Table 3-2
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Summary of Existing City Investments in Parks and Recreation

Line No.	Description	Historical Cost [1]
	<u>Assets Included in Fee Calculation</u>	
1	Land	\$10,599,856
2	Facilities	30,422,508
3	Activity Related	14,615,760
4	Total Assets Included in Fee Calculation	<u>\$55,638,123</u>
	<u>Assets Excluded from Fee Calculation</u>	
5	Machinery and Equipment	\$947,032
6	Other Excluded Assets (Donations, Non Recreation Items, etc.)	1,544,333
7	Total Assets Excluded from Fee Calculation	<u>\$2,491,365</u>
8	Total Existing Investment in Parks and Recreation Assets	<u><u>\$58,129,488</u></u>

Footnotes

[1] Amounts reflected as provided by the City as of September 30, 2020.

Table 3-3
City of Ormond Beach
Parks and Recreation Impact Fee Analysis

Existing Level of Service and Open-Space Needs

Line No.	Facility Classification	<u>City Open Space Standards [1]</u>			<u>Existing City Facilities [2]</u>			<u>To City Standards</u>	
		Acres	Per	Population	Total Acres	Per	2021 Population	Required	Surplus / (Deficiency)
1	Parks	13.00	[3]	1,000	607.45		44,041	572.53	34.92
2	Total	13.00		1,000	607.45		44,041	572.53	34.92

Footnotes

[1] As provided in the City's Comprehensive Plan.

[2] Inventory and Classification as provided by the City and as provided in detail in Table 3-1.

[3] The City's standard is to provide approximately 13 Acres per 1,000 residents.

Table 3-4
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Multi-Year Capital Improvement Plan [1]

Line No.	Description	2021-2025 Total	Grant Funding	R&R Adjustments	Adjusted Total	New, R&R or Upgrade
1	Community Development Block Grant Projects	\$129,803	(\$129,803)	\$0	\$0	R&R
2	Facility Hardening	1,000,000	(750,000)	(250,000)	0	R&R
3	Performing Arts Center Renovations	607,000	(607,000)	0	0	R&R
4	Ormond Beach Sports Complex Access and Drainage	484,950	0	(113,249)	371,701	Upgrade / New
5	Environmental Discovery Center Trail System Connection	455,000	(227,500)	0	227,500	Upgrade / New
6	Landscape Renovations	15,000	0	(15,000)	0	R&R
7	Nova LED Baseball Lighting	1,800,000	(400,000)	0	1,400,000	Upgrade / New
8	Nova Parking & Fitness Stations	901,300	0	0	901,300	Upgrade / New
9	Ormond Beach Sports Complex Parking	632,000	0	0	632,000	Upgrade / New
10	Tree Replacement Program	50,000	(35,000)	(15,000)	0	R&R
11	Vehicle Replacement	154,000	0	(154,000)	0	R&R
12	Total Capital Improvement Program	\$6,229,053	(\$2,149,303)	(\$547,249)	\$3,532,501	

Footnotes:

[1] Amounts shown based on capital planning information provided by the Parks Department.

Table 3-5
City of Ormond Beach
Parks and Recreation Services Impact Fee Analysis

Design of Parks and Recreation Impact Fee

Line No.	Description	Amount
1	Existing Investment in Parks and Recreation [1]	\$55,638,123
2	Future Investment in Parks and Recreation [2]	4,160,001
3	Total Existing and Future Investment in Parks and Recreation Through 2025	\$59,798,124
4	Previously Grant Funded / Donated Assets [3]	(\$9,228,420)
5	Planned Future Grant Funded / Donated Assets Through 2025 [3]	(627,500)
6	Total Grant Funded / Donated Assets Through 2025	(\$9,855,920)
7	Total Existing and Proposed Investment in Parks and Recreation	\$49,942,204
<u>Estimated Population Served</u>		Amount
8	Projected 2040 Population [4]	50,630
9	Estimated Population Served	50,630
<u>Cost Per Person Calculation</u>		
10	Allocated Costs	\$49,942,204
11	Projected 2040 Population [4]	50,630
12	Cost Per Person	\$986.41
<u>Fee Calculation</u>		Single Family
13	Cost Per Person	\$986.41
14	Persons Per Dwelling Unit [5]	2.53
15	Total Cost Per Dwelling Unit	\$2,500.07
16	Rounded Cost Per Unit - Maximum Supportable Impact Fee	\$2,500.00
17	Recommended Fee - 50% Increase	\$1,968.00
<u>Fee Calculation</u>		Multi-Family
18	Cost Per Person	\$986.41
19	Persons Per Dwelling Unit [5]	2.05
20	Total Cost Per Dwelling Unit	\$2,021.49
21	Rounded Cost Per Unit - Maximum Supportable Impact Fee	\$2,021.00
22	Recommended Fee - 50% Increase	\$1,572.00
<u>Fee Calculation</u>		Mobile Home
23	Cost Per Person	\$986.41
24	Persons Per Dwelling Unit [5]	1.68
25	Total Cost Per Dwelling Unit	\$1,658.45
26	Rounded Cost Per Unit - Maximum Supportable Impact Fee	\$1,658.00
27	Recommended Fee - 50% Increase	\$1,178.00

Footnotes:

- [1] Existing investment amount shown based on Table 3-2.
[2] Future investment amount shown based on Table 3-4.
[3] Amount based on information provided by City Staff.
[4] Buildout population shown based on Table 2-1.
[5] Amounts shown based on average population and housing unit data as obtained from the American Community Survey for 2019-2015 from the US Census Bureau.

Table 3-6
City of Ormond Beach
Municipal Impact Fee and Utility Connection Fee Study

Parks & Recreation Impact Fee Comparison [*]

Line No.	Municipality	Parks & Recreation
1	Ormond Beach - Existing	\$1,312.24
2	Ormond Beach - Proposed	\$1,968.00
3	New Smyrna Beach	\$1,350.00
4	Daytona Beach	\$1,747.00
5	DeLand	\$1,409.77
6	Deltona	\$1,539.90
7	Edgewater	\$705.54
8	Melbourne	\$540.00
9	Orange City	\$486.47
10	Palm Coast	\$849.24
11	Port Orange	N/A
12	Titusville	N/A
13	Volusia County	\$245.46
14	Average Fee	\$985.93

[*] As of October 2021

SECTION 4 – STORMWATER IMPACT FEE ANALYSIS

Background

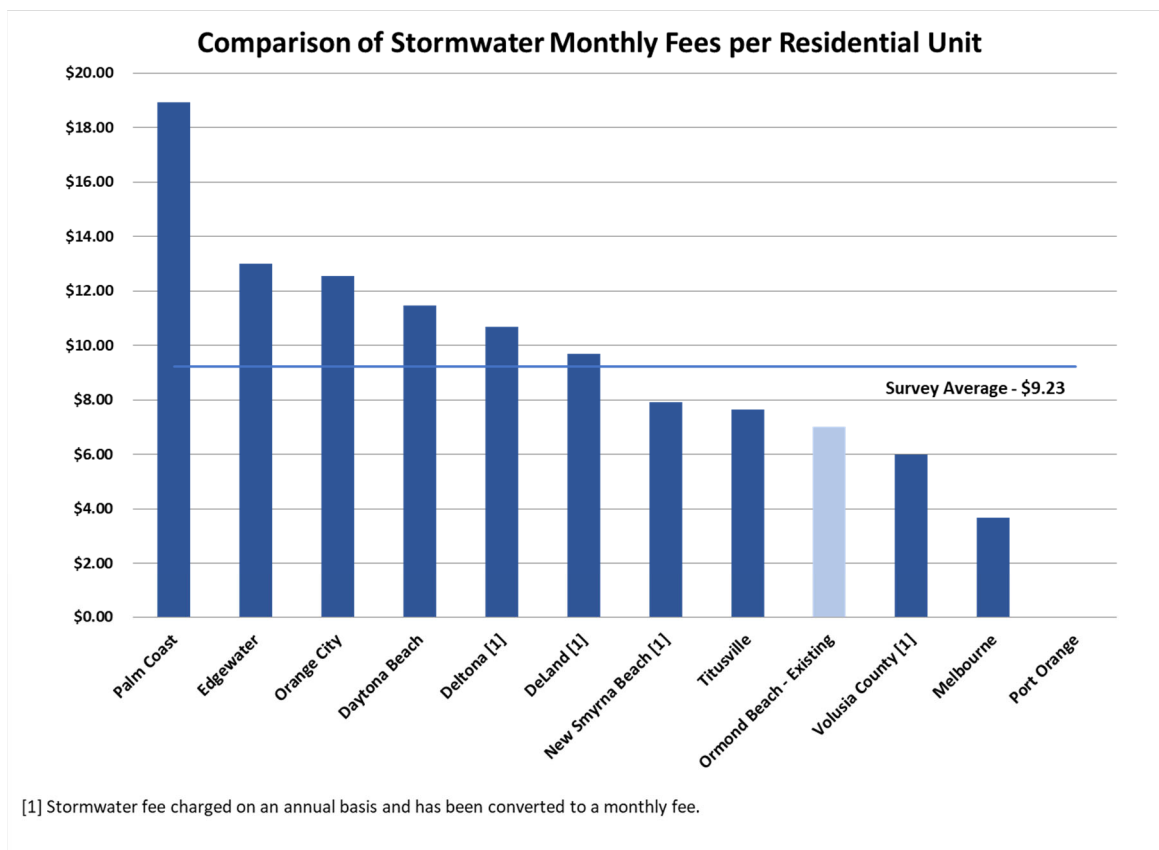
The City maintains over 96 miles of drainage systems to mitigate flooding associated with stormwater runoff and has a street sweeping program to aid in drainage and reduce runoff contamination. The stormwater program is primary funded from user fees within a special revenue fund. The City also has a stormwater drainage impact fee fund for expansion of existing stormwater management facilities and construction of new stormwater management facilities. This section outlines our recommendation for the City to consider discontinuing the stormwater impact fee and focus on long term funding solutions through the existing monthly stormwater fee structure.

Stormwater Funding

The primary funding source used by Florida municipalities to address stormwater pollution and flooding is recurring stormwater utility fees with some communities using special assessments. The City has an established monthly stormwater fee of \$7.00 per month per 3,000 feet of impervious area which generated annual stormwater fee revenue of \$2,539,582 during FY 2020. This revenue is recurring and very stable since it is not dependent on the amount of development each year. The City also has a stormwater impact fee of \$119.39 per single-family unit, during FY 2020 this impact fee generated \$25,349. Impact fee revenues fluctuate from year to year and are subject to cumbersome administrative and legal requirements. It is generally difficult to identify growth related stormwater project costs since many projects are built to address existing needs and projected demands related to impacts from new development. The engineering analysis and other data needed to fulfill the current requirements of the Florida Impact Fee Act for stormwater impact fees may be complex and costly. We are also unaware of any other municipalities with stormwater impact fees in Florida. Most municipalities address their stormwater funding through a combination of recurring stormwater fees, grant funding, general tax revenue, and land development regulations.

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A number of municipalities in Florida collect recurring stormwater fees. The following is a comparison of stormwater fees in nearby jurisdictions:



There is no comparison for stormwater impact fees included herein since we are unaware of any in the southeast United States.

Recommendation

Given the difficulties identified above with stormwater impact fees in Florida and as the City has an existing and reliable primary revenue source in its stormwater fee, we recommend the City consider discontinuing imposition of stormwater impact fees. Existing stormwater impact fee funds should be expended in accordance with the Code requirements. The City can focus on optimizing its existing stormwater fee structure to fund the stormwater program activities and infrastructure.

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Section 4
City of Ormond Beach
Stormwater Impact Fee Analysis

List of Tables

<u>Table</u>	<u>Description</u>
4-1	Stormwater Fee Comparison

Table 4-1
City of Ormond Beach
Municipal Impact Fee Study

Stormwater Fee Comparison [*]

Line No.	Municipality	Monthly Rate per ERU
1	Ormond Beach - Existing	\$7.00
2	New Smyrna Beach [1]	\$7.92
3	Daytona Beach	\$11.46
4	DeLand [1]	\$9.68
5	Deltona [1]	\$10.67
6	Edgewater	\$13.00
7	Melbourne	\$3.67
8	Orange City	\$12.55
9	Palm Coast	\$18.91
10	Titusville	\$7.64
11	Volusia County [1]	\$6.00
12	Average Fee	\$10.15

[*] As of October 2021

SECTION 5 – TRANSPORTATION IMPACT FEE ANALYSIS

The City of Ormond Beach has two transportation impact fees – a local roads impact fee and a mobility fee. The Transportation Impact Fee is the fee that is applied to development and is used to increase the capacity of transportation infrastructure to support additional traffic that comes with new development. The Mobility Fee is used for specific corridors in the City which are considered capacity constrained, and thus the fee is used to increase the efficiency of the roadways and increase capacity for other modes (transit, pedestrian, bicycles) that would reduce the vehicular demand of the roadway.

Transportation fees can be calculated based off a finite set of developments / projects or based on the cost of each new trip on the roadway network. This impact fee update uses the second methodology and is thus not reliant on a specific development program or set of roadway projects.

Local Roads Impact Fee

REGIONAL MODEL UPDATES

The Central Florida Regional Planning Model (CFRPM), version 7.0, was used within this analysis. The currently approved CFRPM model was validated to account for current conditions within the City. Additionally, the developments listed in the City of Ormond Beach Commercial Development Report were reviewed, and those which added any residential development or at least 100,000 square feet of non-residential development were added to the appropriate transportation analysis zones (TAZs) in the model if they were not already reflected. The developments added to the regional model are shown in **Table 1**.

Development Name	Residential Units (DU)	Non-Residential Area (SF)	TAZ
Perrott Depot	87	0	8431
Tymber Creek Apartments	300	0	8457
Ormond Central	0	286,000	8460
Shoppes at Granada Pointe	150	0	8461
Courtyards at Ormond	48	0	8483
Pineland – Phases IV & V	46	0	8486
The Cupola at Oceanside	12	0	8487
Plantation Oaks – Major Amendment, 2B, 2C, 2D	1,158	0	8523

DEMAND VARIABLES

The impact of new development on the roadway network, or demand for facility capacity, is defined and measured in terms of the number of estimated vehicle-miles-traveled for each unit of new development. The demand is calculated based on the following demand variables:

- Trip Generation by Land Use;
- Percentage of New Trips; and
- Average Trip Length / Assessed Trip Length

Trip Generation

Trip generation rates for the proposed local road impact fees and mobility fees are based on the ITE Trip Generation Manual, 11th Edition. Each of the land uses in the current ordinances were compared to similar land uses in the ITE Trip Generation Manual to determine the appropriate daily trip generation rate. When multiple land use codes in the Trip Generation Manual apply to the impact-fee land use, an average of the associated land uses were applied. Changes to the existing land uses are described below:

- **Single-family Residential:** The 11th Edition has added a “single-family attached” land use, which removes duplex / townhome uses (shared walls, but not shared floor/ceilings) from the multi-family land use. The single-family residential land use thus covers both attached and detached single-family homes.
- **Warehouse / Mini-Warehouse:** The mini-warehouse land use was combined with the warehouse land use. In the 11th Edition, the mini-warehouse has a daily trip generation rate (1.71), which is within the range of warehouse land uses (1.40-2.12) used to determine the trip generation rate.
- **Nursing Home:** The nursing home land use was switched from a per-thousand-square-foot calculation to a per-bed calculation to match available independent variables from the 11th Edition.
- **Commercial:** The commercial land use impact fee had been broken into categories based on the size of the development. The break points were updated to match the 11th Edition (<40 KSF, 40-150 KSF, >150 KSF).
- **Fast Food:** The Fast Food land use was added to the list to include fast-food and coffee/donut shops, which have a significantly higher trip generation rate (450.49-533.57) than other restaurants (83.84-107.20).
- **CBD Sandwich Shop:** The CBD Sandwich Shop is a more specific land use than anything in the list, and thus was combined with restaurant.
- **Local Park:** The park land use was removed from the impact fee list, as municipal projects do not generally pay impact fees and trips are calculated by acre and not building square footages.
- **School / Church:** The school and church impact fees were broken into two separate categories. School impact fees will be calculated by number of students rather than building square footages.
- **Bank:** The 11th Edition does not include daily trip generation rates for the walk-in bank land use, and thus walk-in and drive-in bank were combined as a single land use.

A summary of the land uses and resulting trip generation rates is shown in Error! Reference source not found..

New Trip Percentage

Commercial and retail land uses generally attract a portion of their trips from vehicles already on the roadway network. Pass-by trips are defined as trips that already exist on the roadway network visit the land use as part of a larger trip, rather than the land use being the origin or destination. As pass-by trips are already on the roadway network, they are excluded from the calculation of impact fees. The new trip percentage is the percentage of those trips that are not impact fees. The ITE Trip Generation Handbook, 3rd Edition, was used to determine the pass-by rate, and by extension, the new trip percentage for each land use, as shown in Table 2.

Table 2. Daily Trip Generation Rates by Land Use

Land Use (in Ordinance)	Unit	Impact Fee Rate	ITE Code	ITE Land Use	ITE Rate
Single-family	DU	8.32	210	Single-family Detached	9.43
			215	Single-family Attached	7.20
Multi-family	DU	5.27	220	Multi-family Housing (Low-rise)	6.74
			221	Multi-family Housing (Mid-rise)	4.54
			222	Multi-family Housing (High-rise)	4.54
Mobile/Manufactured Home	DU	7.12	240	Mobile Home Park	7.12
Hotel/Motel	Rooms	3.42	310	Hotel	1.92
			311	All Suites Hotel	4.40
			312	Business Hotel	4.02
			320	Motel	3.35

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Table 2. Daily Trip Generation Rates by Land Use (cont'd.)

Land Use (in Ordinance)	Unit	Impact Fee Rate	ITE Code	ITE Land Use	ITE Rate
General/Government Office	KSF	16.44	710	General Office Building	10.84
			715	Single Tenant Office Building	13.07
			730	Government Office	22.59
			733	Government Office Complex	33.98
			750	Office Park	11.07
			760	R&D Center	11.08
			770	Business Park	12.44
Medical Office	KSF	33.03	720	Medical/Dental Office	36.00
			630	Clinic	38.16
			650	Free-Standing Emergency Room	24.94
Hospital	KSF	10.72	610	Hospital	10.72
Nursing Home	Beds	2.59	620	Nursing Home	3.06
			253	Congregate Care Facility	2.21
			254	Assisted Living	2.60
			255	Continuing Care Retirement Community	2.47
Industrial	KSF	4.33	110	Light Industrial	4.87

			130	Industrial Park	3.37
			140	Manufacturing	4.75
Warehouse	KSF	1.70	150	Warehouse	1.71
			151	Mini-Warehouse	1.45
			154	High-Cube Transload and Short-Term Storage Warehouse	1.40
			155	High-Cube Fulfillment Center	1.81
			157	High-Cube Cold Storage Warehouse	2.12
			821	Shopping Center (40-150k) w/o supermarket	67.52
General Commercial (<40,000)	KSF	54.45	822	Strip Retail Plaza (<40K)	54.45
General Commercial (40,000-150,000)	KSF	81.01	821	Shopping Center (40-150k) w/ supermarket	94.49
General Commercial (<150,000)	KSF	37.01	820	Shopping Center	37.01
Fast-Food	KSF	483.85	933	Fast-Food w/o Drive-Thru	450.49
			934	Fast-Food w/ Drive-Thru	467.48
			937	Coffee/Donut w/ Drive-Thru	533.57
Restaurant	KSF	96.06	930	Fast Casual Restaurant	97.14
			931	Fine Dining Restaurant	83.84
			932	High Turn-Over (Sit-Down) Restaurant	107.20
General Recreation	KSF	28.82	495	Recreation Center	28.82

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Table 2. Daily Trip Generation Rates by Land Use (cont'd.)

Land Use (in Ordinance)	Unit	Impact Fee Rate	ITE Code	ITE Land Use	ITE Rate
Schools	Students	2.18	520	Elementary School	2.27
			522	Middle School	2.10
			525	High School	1.94
			530	Private School (K-8)	4.11
			532	Private School (K-12)	2.48
			534	Private High School	2.17
			537	Charter Elementary School	1.85
			540	Junior/Community College	1.15
			550	University/College	1.56
Church	KSF	7.60	560	Church	7.60
Day Care	KSF	47.62	565	Daycare	47.62
Convenience Store	KSF	762.28	851	Convenience Market	762.28
Bank	KSF	100.35	912	Drive-In Bank	100.35

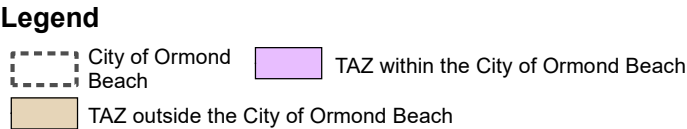
Table 3. New Trip Percentages

Land Use (in Ordinance)	Pass-by Rate	New Trip Factor
General Commercial	0.34	0.66
Fast-Food	0.50	0.50
Restaurant	0.44	0.56
Convenience Store	0.66	0.34
Bank	0.35	0.65

Average Trip Length

The total average trip length for trips that start or end within the City of Ormond Beach was calculated using the 2045 CFRPM 7.0 regional model. The traffic analysis zones (TAZs) within the City were identified and used to conduct a select zone analysis, which extracts information on just the trips from those zones. The TAZs used to define the City of Ormond Beach are shown in **Figure 1**. Using the select zone analysis, there were a total of 312,315 trips that start or end (or both) within the City of Ormond Beach, with a total Vehicle Miles Traveled (VMT) of 3,070,798. The VMT was divided by the number of trips to calculate the average trip length as 9.83 miles.

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Ormond Beach Impact Fee Analysis
CFRPM Version 7 | CF 2045
Figure 1
TAZs within the City of Ormond Beach

Assessed Trip Length

The City of Ormond Beach impact fees are calculated to address needed capacity improvements on City roadways, which are the City's responsibility. State and federal funds are available to pay for improvements on the interstate highways and Volusia County collects impact fees within the City of Ormond Beach that can be used to fund projects on County roadways within the City as well. Using the select zone analysis, the percentage of the VMT that occurs within the City of Ormond Beach on City roadways is 5.9%. The rest of the VMT occurs on County/State/Federal roadways which are not the responsibility of the City of Ormond Beach but are within the City limits (31.7%) or on any roadway outside the City limits (62.4% of the VMT). Excluding all county/state roadways and roadways outside of the City limits removes the need to calculate a separate reduction for the TCEA roadways (that are not included in the impact fee) or for the interstate facilities. Thus, the assessed trip length used in the proposed impact fees for the City of Ormond Beach is 5.9% of the 9.83 mile average trip length, or 0.58 miles.

Vehicle Occupancy

The average vehicle occupancy was determined using the Bureau of Transportation Statistics *Local Area Transportation Characteristics for Households (LATCH) Data*, which was based on data from the Federal Highway Administration 2017 National Household Travel Survey. The LATCH data provides estimated person trips and vehicular trips for each census tract. The average vehicular occupancy was determined by dividing the person trips by the vehicle trips, and results in an average of 1.49 persons per vehicle, as shown in **Error! Reference source not found.**

Census Tract	Person Trips	Vehicle Trips	Avg. Vehicle Occupancy
804	7.57	5.14	1.47
805	6.79	4.62	1.47
806	6.4	4.35	1.47
807	7.31	5.15	1.42
808.03	7.52	5.13	1.47
808.04	6.06	3.98	1.52
808.05	7.09	4.53	1.57
808.06	7.44	4.91	1.52
808.07	6.79	4.55	1.49
832.03	8.07	5.24	1.54
Total	71.04	47.6	1.49

COST VARIABLES

The City does not have any appropriate recent roadway project cost data; therefore recent comparable roadway projects in Volusia County constructed or programmed for construction in the next five (5) years by the County and the State were reviewed to develop a cost per lane-mile of capacity compared to the capacity of a lane-mile to determine the cost per vehicle-mile of travel. As the Ormond Beach impact fees can only be applied to capacity projects on local roadways, the projects analyzed were limited to roadways with no more than four (4) lanes.

Roadway Costs

Roadway costs were estimated from new roadway and roadway widening projects in the River to Sea Transportation Planning Organization Transportation Improvement Program and the Volusia County Capital Improvement Plan, which provided design, right-of-way, and construction costs for projects with funds committed between FY 2021/22 – FY 2025/26. There is one project in the Ormond Beach CIP that involves construction of a new roadway, the Doug Thomas Way Extension. However, the Doug Thomas Way Extension was not included in the calculation of roadway costs, as it is a driveway through the Ormond Beach Sports Complex. As shown in 4, the average construction cost per lane mile is \$4,073,885.

Project	Description	Length	Total Project Cost	Cost per Lane Mile	Source
SR 40 – SR 15/US 17 to SR 11	2-4 Lane	6.376	\$59,007,114	\$4,627,283	River to Sea TIP
SR 40 – SR 11 to Cone Rd	2-4 Lane	7.64	\$65,965,724	\$4,317,129	River to Sea TIP
Beresford Ave – Blue Lake Ave to MLK Jr. Beltway	New 2 Lane	0.88	\$3,709,304	\$2,116,396	Volusia CIP
Blue Lake Extension – Blue Lake to SR 472	New 2 Lane	0.33	\$3,395,594	\$5,119,571	Volusia CIP
Howland Boulevard – Providence to Elkcam	2-4 Lane	2.17	\$17,528,420	\$4,038,806	Volusia CIP
Orange Camp Road – MLK Blvd to I-4	2-4 Lane	1.51	\$12,760,375	\$4,224,124	Volusia CIP
Williamson Blvd – Strickland Range Rd to Hand Ave	2-4 Lane	1.12	\$8,198,000	\$3,659,821	Volusia CIP
Average Cost per Lane Mile				\$4,073,885	
<i>Capacity Project Not Included (6-Lane Roadways)</i>					
SR 600 (US 17) – I-4 EB to Tomoka Farms Rd	4-6 Lane	2.197	\$45,900,000	\$10,446,063	River to Sea TIP
SR 40 – Breakaway Tr to Williamson Blvd	4-6 Lane	2.46	\$33,900,000	\$6,890,244	River to Sea TIP

Average Capacity Improvement

The average capacity per lane mile for each project was calculated using roadway capacities from Table 1 in the Florida Department of Transportation Quality / Level-of-Service Handbook, as shown in 5.

Project	Description	Length	Existing Capacity	Proposed Capacity	New Capacity Lane Miles
SR 40 - SR 15/US 17 to SR 11	2-4 Lane	6.38	17,700	39,800	140,910
SR 40 - SR 11 to Cone Rd	2-4 Lane	7.64	17,700	39,800	168,844
Beresford Ave - Blue Lake Ave to MLK Jr. Beltway	New 2 Lane	0.88	0	15,600	13,671
Blue Lake Extension - Blue Lake to SR 472	New 2 Lane	0.33	0	15,600	5,173
Howland Boulevard - Providence to Elkcam	2-4 Lane	2.17	15,600	33,800	39,494
Orange Camp Road - MLK Blvd to I-4	2-4 Lane	1.51	17,700	39,800	33,380
Williamson Blvd – Strickland Range Rd to Hand Ave	2-4 Lane	1.12	17,700	39,800	24,752
Total		20.02			426,224

Dividing the new capacity lane miles by twice the length of the improvements (to account for one lane in both directions), the average capacity per lane mile of construction is 10,643.

Non-motorized Costs

Bicycle and pedestrian trips make up a small portion of the total person-miles traveled within the City of Ormond Beach due to the relatively short nature of non-motorized trips. The infrastructure for bicycle and pedestrian trips is generally attached to the roadway in the form of bicycle lanes, sidewalks, or multi-use pathways that follow the road. A 12' multi-use path was included in the cost per mile for the two roadway projects on SR 40 and a sidewalk was included in the cost per mile for the Orange Camp Road widening project. As the costs for non-motorized improvements are included in the roadway costs when applicable, no additional non-motorized costs were added into the analysis.

Transit Costs

Votran is responsible for the expansion or operation of transit services within the City of Ormond Beach. As no dedicated bus facilities exist or are proposed within the City of Ormond Beach, transit services operate within the existing roadway right-of-way, and thus cost of infrastructure to support transit within the City is included within the costs to build and/or widen a road.

CREDITS

An analysis was completed to determine the current transportation funding sources for the City of Ormond Beach based on the FY 2020 – 2021 City of Ormond Beach Capital Improvement Plan. The City of Ormond Beach spends an average of \$2,618,030 per year on roadway transportation improvements and/or maintenance and \$3,081,330 per year on multimodal transportation improvements. A breakdown of transportation funding sources is shown in 6.

Table 62. Transportation Revenue Sources	
Funding Source	Annual Contribution
<i>Roadway</i>	
Local Option Gas Tax	\$225,000
Property Taxes - Transportation	\$572,109
River to Sea TPO Grant Funding	\$1,441,161
Transportation Fund Balance	\$379,760
TOTAL	<u>\$2,618,030</u>
<i>Multimodal</i>	
Property Taxes - TIF	\$429,975
River to Sea TPO Grant Funding	\$33,325
TOTAL	<u>\$463,300</u>
GRAND TOTAL	<u>\$3,081,330</u>

The CIP currently has 12 transportation projects, as shown in 7. Only one of the projects includes increasing roadway capacity (Doug Thomas Way Extension), which includes paving the current dirt driveway and extending the paved driveway through the Ormond Beach Sports Complex. As the property tax revenues that will be generated by new development within the City of Ormond Beach are needed to fund safety and maintenance projects, no ad valorem tax credit will be included in the proposed local roadway impact fees.

Table 7. CIP Transportation Projects

Project Title	Project Type	Funding Source		
		Property Taxes	TPO Grant	Transportation Fund
Neighborhood Traffic Calming	Safety	X		X
Road Rehabilitation	Maintenance	X		X
Street Light Maintenance	Maintenance	X		
Traffic Signal Maintenance	Maintenance	X		
Sidewalk Repair & Replacement	Maintenance	X		
Doug Thomas Way Extension	New Road			X
Opticom Equipment	Maintenance	X		
Tomoka Elementary Connector Sidewalk	New Sidewalk	X	X	
Williamson/Hand Ave. Pedestrian Improv.	New Crosswalk		X	X
Pineland Trail Roadway Improvements	Reconstruct / Ped Improv.		X	X
Fluhart Drive Roundabouts	Safety		X	X
US 1 North Sidewalk	New Sidewalk		X	X

Gas Tax Credit

As additional funds are generated for transportation through the gas tax, the addition of new development is anticipated to increase the funding the City receives through the gas tax. As of June 2021, the cities within Volusia County agreed to a new formula for how much each city receives in gas tax revenue each year. Under the new formula, of the \$0.11 per gallon the County collects in local option fuel & gas taxes, Volusia County receives 57.2% of the revenue, while the cities divide the remaining 42.8% share by a ratio of municipal lane miles each city manages. The formula is being phased in during the first (5) years, as shown in **8**, at which point the formula will be recalculated based on the current number of municipal lane miles. The agreement is scheduled to be in effect until 2034. Based on the projected Ormond Beach Share in 2025/2026, it was assumed that Ormond Beach would receive \$0.0045 per gallon in fuel taxes.

Table 8. Ormond Beach Share of Volusia County Fuel/Gas Taxes

Year	Ormond Beach Percentage	Volusia County Fuel Taxes per Gallon	Ormond Beach Share
9/2021 – 8/2022	4.881%	\$0.11	\$0.0054
9/2022 – 8/2023	4.675%	\$0.11	\$0.0051
9/2023 – 8/2024	4.469%	\$0.11	\$0.0049
9/2024 – 8/2025	4.262%	\$0.11	\$0.0047
9/2025 – 8/2026	4.056%	\$0.11	\$0.0045

This credit is calculated assuming a 25-year facility life, 365 days a year operation, a 4.5% interest rate for municipal bonds (based on current Daytona Beach municipal bonds), and the average fuel efficiency of vehicles on the roadway system. The fuel efficiency of vehicles was set at 18.2 miles per gallon, based on the Federal Highway Administration Highway Statistics 2020, Table VM-1.

LOCAL ROAD IMPACT FEE CALCULATION

The local road impact fee was calculated based on the following formulas:

$$\text{Total Impact Cost} = \frac{(\text{Daily Trips} * \text{Assessed Trip Length} * \% \text{ New Trips})}{2} * \frac{\text{Lane – Mile Cost}}{\text{Lane Mile Capacity}}$$

$$\text{Capital Improvement Credit} = \frac{\text{Daily Trips} * \text{Avg Trip Length} * \% \text{ New Trips}}{2} * 365 * \frac{\text{Gas Tax}}{\text{Fuel Efficiency}}$$

$$\text{Impact Fee} = \text{Total Impact Cost} - \text{Capital Improvement Credit}$$

The total impact cost uses the assessed trip length to limit the impact to just City-controlled facilities. However, the capital improvement credit uses the full trip length, as the gas tax collected by Volusia County is divided between the County and Cities, taking into account the proportion of trips within each City. The detailed calculations are shown in **Appendix A**. A summary of the existing local road impact fees and proposed local road impact fees by land use is shown in **Table 99**.

Land Use	Unit	Proposed Fee	Current Fee
Single-family	DU	\$864.59	\$162.61
Multi-family	DU	\$548.32	\$162.61
Mobile/Manufactured Home	DU	\$740.33	\$162.61
Hotel/Motel	Rooms	\$355.87	\$114.85
General/Government Office	KSF	\$1,709.28	\$230.83
Medical Office	KSF	\$3,434.79	\$1,014.31
Hospital	KSF	\$1,114.66	\$212.64
Nursing Home	Beds	\$268.79	n/a
Industrial	KSF	\$450.23	\$100.07
Warehouse	KSF	\$176.56	\$100.07
General Commercial (<40,000)	KSF	\$3,736.72	\$834.64
General Commercial (40,000-150,000)	KSF	\$5,559.09	\$802.81
General Commercial (<150,000)	KSF	\$2,539.87	\$602.67
Fast-Food	KSF	\$25,155.10	n/a
Restaurant	KSF	\$5,593.44	\$881.26
General Recreation	KSF	\$2,996.69	\$59.13
Schools	Students	\$226.79	n/a
Church	KSF	\$790.25	\$150.09
Day Care	KSF	\$4,951.51	\$329.27
Convenience Store	KSF	\$26,948.94	\$1,355.44
Bank	KSF	\$6,782.33	\$1,355.44

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MOBILITY FEE

In 2013, the City of Ormond Beach introduced a mobility fee for selected corridors. From the Ormond Beach Multi-Modal Strategy report, dated December 7, 2010:

It was clear that the City, County, and State could no longer afford to continue widening roads within Ormond Beach without substantial cost both in terms of right-of-way and business damages. As such, staff indicated that a more balanced approach to the future transportation needs of Ormond Beach was needed. Less emphasis on roadway capacity improvements and increased emphasis on making existing roads more efficient while improvements to transit and non-motorized roads as well better intermodal connections and network connectivity was needed.

Three roadways were selected as Transportation Concurrency Exception Areas (TCEAs) from Votran's Eastside spine network, and the roadways are considered constrained as it relates to capacity improvements. Thus, along S.R. 40 (A1A to Williamson), U.S. 1 (Wilmette Avenue to the southern city line), and A1A (S.R. 40 to the city line), proportionate share fair contributions are replaced with a mobility fee.

Per Ordinance No. 2013-02, the mobility fee for a project is determined by calculating the number of person trips generated by the development and multiplying the number of person trips by the mobility fee rate. By ordinance, person trips are calculated by multiplying the development intensity by the vehicular trip rate in the latest ITE Trip Generation Manual and the average vehicle occupancy. Starting with the 10th Edition ITE Trip Generation Manual, person trip rates for some land uses are available. It is recommended that the ordinance be updated to allow for use of the person trip rates as applicable and available and keep the current method of estimating person trips (using the average vehicle occupancy) for those land uses without a person-trip rate.

The mobility fee is calculated on a person-trip basis:

$$\frac{\text{Total Impact Cost}}{\text{Person} - \text{Trip}} = \frac{(\text{Assessed Trip Length})}{2 * \text{Vehicle Occupancy}} * \frac{\text{Lane} - \text{Mile Cost}}{\text{Lane Mile Capacity}}$$

$$\frac{\text{Total Impact Cost}}{\text{Person} - \text{Trip}} = \frac{0.58}{2 * 1.47} * \frac{\$4,073,885}{9,381} = \$85.67$$

Based on the current improvement costs and local roadway data, the mobility fee is \$85.67 per person-trip for a new development.

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Table 10. Local Road Impact Fee Calculations

Land Use (in Ordinance)	Unit	Trip Gen Rate	New Trip Factor	Average Trip Length	Non-State Hwy VMT	Assessed Trip Length	Cost per Lane Mile	Capacity per Lane Mile	Total Impact Cost	City Gas Tax Per Gallon	Fuel Efficiency	Annual Cap. Improv. Credit	Facility Life	Bond Interest Rate	Total Cap. Improv. Credit	Proposed Local Road Impact Fee
Single-family	DU	8.32	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$922.97	\$0.0045	18.2	\$3.69	25	4.5%	\$54.69	\$864.59
Multi-family	DU	5.27	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$585.34	\$0.0045	18.2	\$2.34	25	4.5%	\$34.68	\$548.32
Mobile/Manufactured Home	DU	7.12	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$790.32	\$0.0045	18.2	\$3.16	25	4.5%	\$46.83	\$740.33
Hotel/Motel	Rooms	3.42	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$379.90	\$0.0045	18.2	\$1.52	25	4.5%	\$22.51	\$355.87
General/Government Office	KSF	16.44	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$1,824.69	\$0.0045	18.2	\$7.29	25	4.5%	\$108.12	\$1,709.28
Medical Office	KSF	33.03	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$3,666.72	\$0.0045	18.2	\$14.65	25	4.5%	\$217.27	\$3,434.79
Hospital	KSF	10.72	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$1,189.92	\$0.0045	18.2	\$4.76	25	4.5%	\$70.51	\$1,114.66
Nursing Home	Beds	2.59	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$286.94	\$0.0045	18.2	\$1.15	25	4.5%	\$17.00	\$268.79
Industrial	KSF	4.33	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$480.63	\$0.0045	18.2	\$1.92	25	4.5%	\$28.48	\$450.23
Warehouse	KSF	1.70	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$188.48	\$0.0045	18.2	\$0.75	25	4.5%	\$11.17	\$176.56
General Commercial (<40,000)	KSF	54.45	66%	9.83	5.9%	0.58	\$4,073,885	9,381	\$3,989.02	\$0.0045	18.2	\$15.94	25	4.5%	\$236.37	\$3,736.72
General Commercial (40,000-150,000)	KSF	81.01	66%	9.83	5.9%	0.58	\$4,073,885	9,381	\$5,934.45	\$0.0045	18.2	\$23.71	25	4.5%	\$351.64	\$5,559.09
General Commercial (<150,000)	KSF	37.01	66%	9.83	5.9%	0.58	\$4,073,885	9,381	\$2,711.36	\$0.0045	18.2	\$10.83	25	4.5%	\$160.66	\$2,539.87
Fast-Food	KSF	483.85	50%	9.83	5.9%	0.58	\$4,073,885	9,381	\$26,853.60	\$0.0045	18.2	\$107.31	25	4.5%	\$1,591.20	\$25,155.10
Restaurant	KSF	96.06	56%	9.83	5.9%	0.58	\$4,073,885	9,381	\$5,971.11	\$0.0045	18.2	\$23.86	25	4.5%	\$353.82	\$5,593.44
General Recreation	KSF	28.82	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$3,199.03	\$0.0045	18.2	\$12.78	25	4.5%	\$189.56	\$2,996.69
Schools	Students	2.18	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$242.10	\$0.0045	18.2	\$0.97	25	4.5%	\$14.35	\$226.79
Church	KSF	7.60	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$843.60	\$0.0045	18.2	\$3.37	25	4.5%	\$49.99	\$790.25
Day Care	KSF	47.62	100%	9.83	5.9%	0.58	\$4,073,885	9,381	\$5,285.84	\$0.0045	18.2	\$21.12	25	4.5%	\$313.21	\$4,951.51
Convenience Store	KSF	762.28	34%	9.83	5.9%	0.58	\$4,073,885	9,381	\$28,768.57	\$0.0045	18.2	\$114.96	25	4.5%	\$1,704.67	\$26,948.94
Bank	KSF	100.35	65%	9.83	5.9%	0.58	\$4,073,885	9,381	\$7,240.28	\$0.0045	18.2	\$28.93	25	4.5%	\$429.02	\$6,782.33

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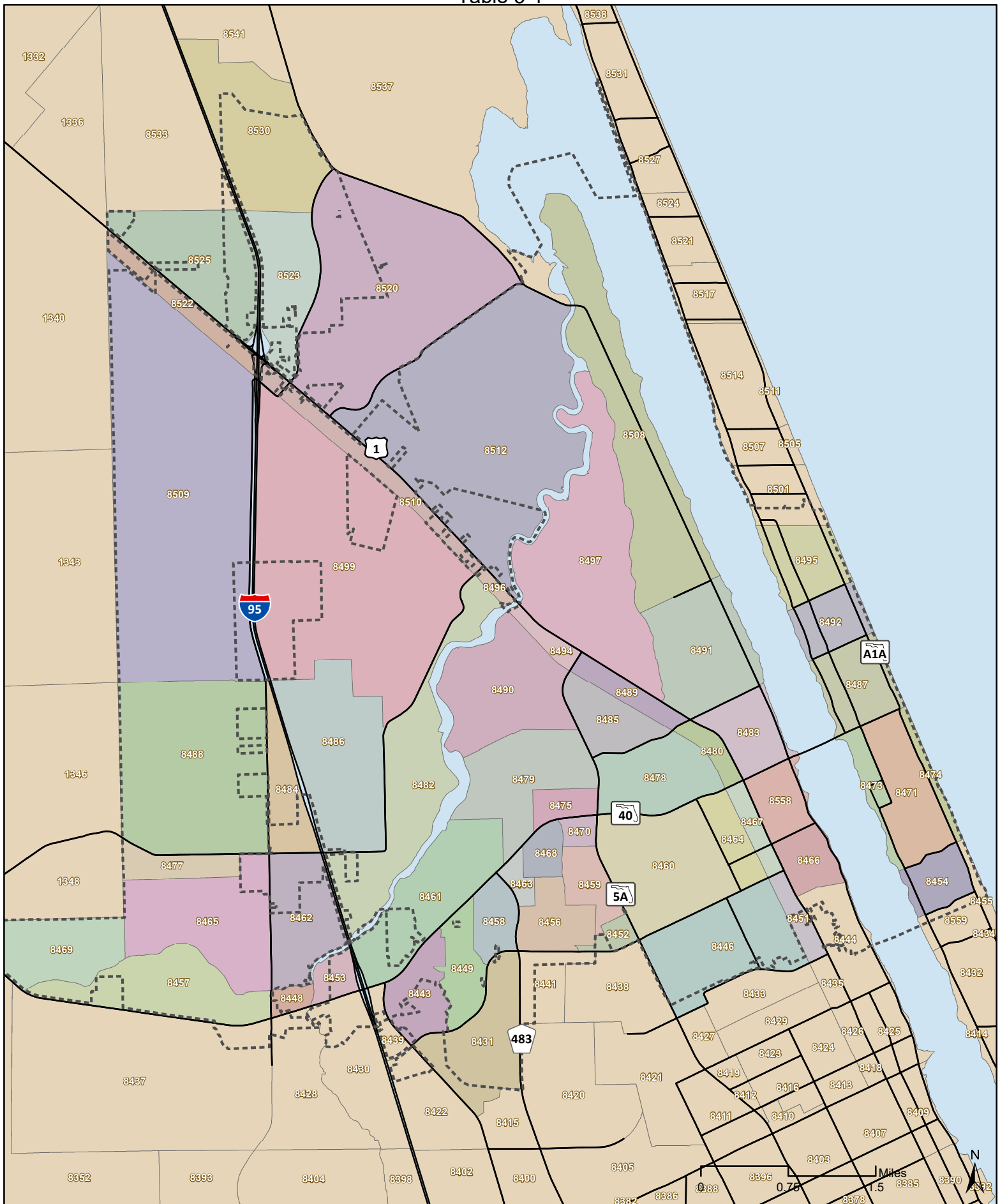
TAZ	TAZ Area			2015						2045						TCEA Growth (2022-2045)					
	TCEA Area	Total Area	% in TCEA	SF	MF	Hotel	Industrial	Commercial	Service	SF	MF	Hotel	Industrial	Commercial	Service	SF	MF	Hotel	Industrial	Commercial	Service
8439	17.26522	62.3922	28%	0	332	83	40	28	402	2	332	108	40	32	435	0	0	5	0	1	7
8443	111.9818	222.022	50%	0	0	0	2	375	504	0	0	0	2	375	504	0	0	0	0	0	0
8444	51.15431	247.828	21%	441	19	0	27	296	224	446	23	0	27	297	226	1	1	0	0	0	0
8446	30.67205	561.733	5%	1,035	0	0	33	53	179	1,196	50	0	43	54	184	7	2	0	0	0	0
8449	58.12939	191.666	30%	124	5	0	0	0	95	228	17	0	0	54	126	24	3	0	0	13	7
8451	63.45087	86.1548	74%	63	7	16	118	42	173	63	7	16	123	42	173	0	0	0	3	0	0
8454	71.31024	156.98	45%	282	314	0	16	11	346	284	314	0	16	16	372	1	0	0	0	2	9
8455	37.28137	39.175	95%	0	158	669	0	4	593	2	158	862	0	6	601	1	0	141	0	1	6
8458	62.68815	146.828	43%	136	68	0	5	79	528	138	68	0	5	105	660	1	0	0	0	9	43
8461	263.0299	528.712	50%	686	309	0	19	271	646	750	478	0	19	288	734	24	64	0	0	6	34
8463	35.97567	53.9629	67%	13	189	0	4	0	6	15	189	0	4	0	6	1	0	0	0	0	0
8464	78.63425	142.124	55%	73	79	0	141	51	135	129	96	0	166	53	144	24	7	0	11	1	4
8466	80.67217	150.938	53%	291	87	0	11	70	311	309	93	0	11	83	376	7	2	0	0	5	27
8467	85.68821	85.6882	100%	75	8	14	47	112	171	84	12	18	51	122	223	7	3	3	3	8	40
8468	68.91692	89.8588	77%	187	0	0	0	5	581	189	0	0	0	5	581	1	0	0	0	0	0
8470	47.62216	48.2584	99%	60	0	0	18	35	190	69	4	0	18	38	235	7	3	0	0	2	34
8471	216.4187	339.392	64%	602	412	32	64	108	1,246	606	416	42	64	108	1,246	2	2	5	0	0	0
8473	27.89792	99.4947	28%	141	0	0	1	20	125	150	4	0	1	20	125	2	1	0	0	0	0
8474	51.55586	51.5559	100%	12	206	1,131	0	0	182	14	206	1457	0	0	182	2	0	250	0	0	0
8475	90.90826	95.3758	95%	177	145	0	16	263	290	179	145	0	16	296	290	1	0	0	0	24	0
8478	196.2414	358.41	55%	0	545	0	207	215	2,042	9	549	0	353	305	2492	4	2	0	61	38	189
8479	60.64948	462.474	13%	646	251	0	34	0	106	650	255	0	34	0	106	0	0	0	0	0	0
8480	76.25589	76.2589	100%	77	3	0	16	201	146	86	7	0	16	218	234	7	3	0	0	13	67
8483	150.2713	226.051	66%	439	43	0	96	105	476	459	97	0	96	116	534	10	28	0	0	6	30
8487	99.65286	273.149	36%	231	171	0	11	85	498	237	187	0	11	91	498	2	4	0	0	2	0
8489	18.83521	118.653	16%	0	0	0	94	0	0	2	0	0	103	51	256	0	0	0	1	6	31
8491	44.06024	514.659	9%	970	48	0	47	23	103	985	53	0	47	25	109	1	0	0	0	0	0
8558	129.8133	169.441	77%	253	75	0	30	107	703	271	81	0	30	107	711	11	4	0	0	0	5
8559	41.49737	112.865	37%	172	190	0	1	25	351	172	190	0	1	25	351	0	0	0	0	0	0
Total																<u>148</u>	<u>129</u>	<u>399</u>	<u>79</u>	<u>136</u>	<u>526</u>

Section 5
City of Ormond Beach
Transportation Impact Fee Analysis

List of Tables

<u>Table</u>	<u>Description</u>
5-1	TAZs Within the City of Ormond Beach (Figure 1)

Table 5-1



Legend

- City of Ormond Beach
- TAZ within the City of Ormond Beach
- TAZ outside the City of Ormond Beach

Ormond Beach Impact Fee Analysis
CFRPM Version 7 | CF 2045

Figure 1
TAZs within the City of Ormond Beach

SECTION 6 – POLICE FACILITIES IMPACT FEE FEASIBILITY ANALYSIS

General

This section provides a discussion of our feasibility analysis with respect to the potential design and implementation of impact fees for police facilities and capital equipment. The feasibility evaluation summarized herein is based on i) a review of the availability of data required to calculate the fees; ii) the configuration of the department in terms of staffing and Level of Service (LOS) goals, existing and planned investment in assets to satisfy Florida legal requirements for impact fees criteria; iii) the potential estimated financial benefit to the City of adopting the fees; and iv) our recommendation as to whether or not the City should consider implementing this fee type.

Data Availability

As the first step in our feasibility analysis, we developed a comprehensive information request in support of an impact fee calculation analysis and provided it to the City in order to ascertain whether or not the City could provide the required supporting data that would be necessary to calculate proposed police impact fees. This detailed information request included, but was not limited to, detailed fixed asset records including all assets used and in service for the department, a detailed listing of all officers currently employed by the City including sworn, unsworn and support positions, the department's targeted Level of Service (LOS), planned capital expenditures, historical and planned capital grant funding, and historical response call data. After reviewing the detailed data provided by the City in response to these requests, we believe that the City does maintain and can provide the required supporting information required to develop the fees.

Department Configuration

LEVEL OF SERVICE AND DEPARTMENT STAFFING

In the evaluation of the capital facility needs for providing municipal services such as police protection, a level of service (LOS) standard should be developed. Level of service is an indication of the capacity per unit of demand for each public facility and capital equipment.

Based on information provided by the City's Police Department, there currently are 24.5 support positions and 73 sworn positions as shown on Table 6-1. These positions serve a total population of approximately 44,000 permanent residents as shown in Table 2-1. The current level of service provided by the department is 1.42 full-time sworn officers per 1,000 population served with a target LOS of 1.95 officers per 1,000 population served. However, based upon current staffing plans in the City's 2022 budget, there are plans to fund additional positions to reach a LOS of 1.75 officers per 1,000 population served. The City's currently level of service is comparable with police staffing guidelines as published by state and national law enforcement agencies as follows:

- The Federal Bureau of Investigation, U.S. Department of Justice, Uniform Crime Report that indicated an average achieved standard of 2.6 police officers and support personnel per 1,000 inhabitants for population areas in the southern United States.

- The Florida Department of Law Enforcement recognizes a state average of 2.36 officers per 1,000 population for police departments.

EXISTING INVESTMENT IN DEPARTMENT

As a part of our feasibility analysis, the original costs of the existing assets and any grant funding or contributions towards those assets were considered. This portion of the analysis was to ensure that there were significant capital assets that could be includable in a potential future fee calculation. The City's existing assets are categorized by major type and are summarized below.

Existing City Investment in Police Assets	
Description	Original Cost
Machinery and Equipment	\$241,609
Major Vehicles	2,735,613
Other Capital Equipment and Facilities	3,802,827
Subtotal	\$6,780,049
Grant Funded Assets	(\$696,370)
Net Recoverable Costs	<u>\$6,083,679</u>

[*] Amounts as shown on Table 6-2.

As shown above, of the \$6.8 million in police assets, approximately 10% has been funded from grants and other outside sources.

PLANNED FUTURE INVESTMENT IN DEPARTMENT

The following capital improvement requirements were provided by the City in support of the feasibility analysis. Along with the City's existing investment in police assets, these capital requirements are anticipated and designed to maintain the department's ability to provide service to the City's near term population level and fulfill the budgeted level of service standards. The City's capital requirements are categorized by type of expenditure and are summarized below.

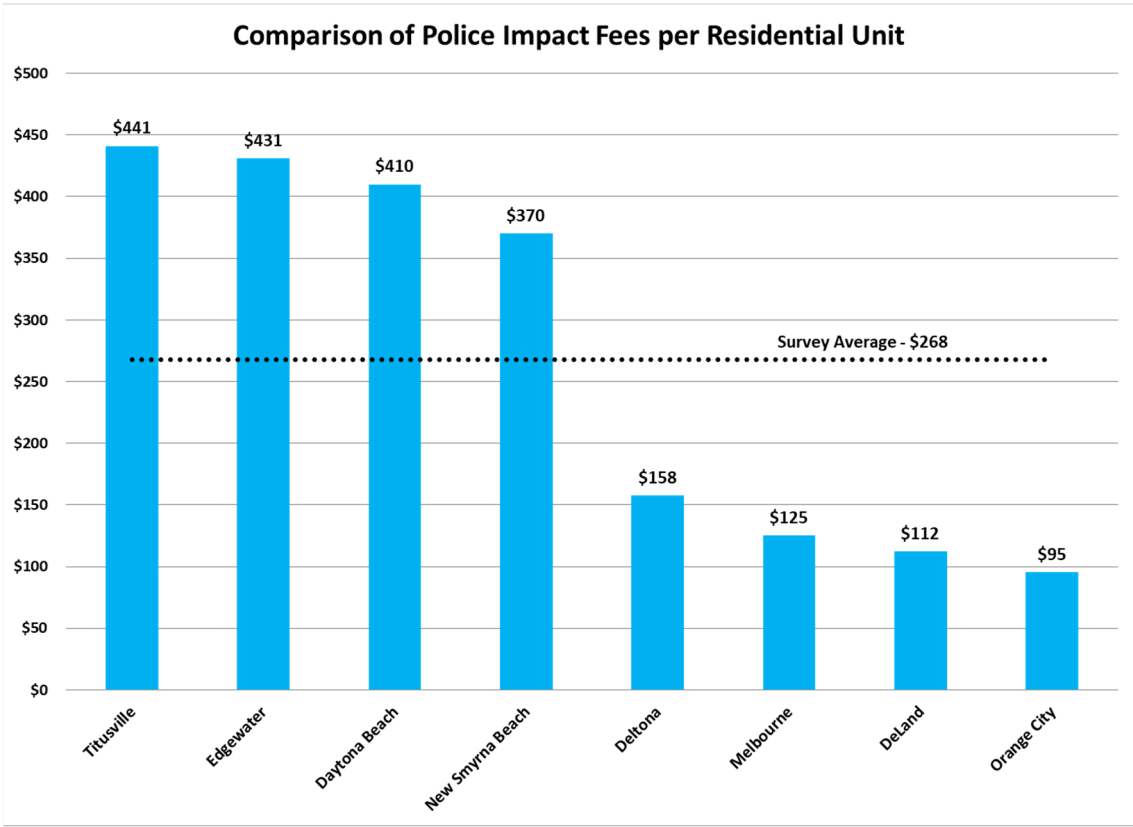
Projected Future City Investment in Police Assets (Capital Plan through 2025)	
Description	Amount
Machinery and Equipment	\$291,000
Major Vehicles	1,015,000
Other Capital Equipment and Facilities	718,000
Planned Future City Investments in Police Assets	<u>\$2,024,000</u>

[*] Amounts as shown on Table 6-3.

As can be seen above, the City anticipates spending \$2,024,000 in order to further develop and replace the police assets and facilities to provide the desired level of service to the City as it grows through 2025. To the extent these planned investments are replacement of existing facilities, vehicles, and equipment then these cannot be funded from impact fees.

Potential Financial Benefit

A survey of police impact fees for eleven (11) neighboring municipalities was prepared as a part of the feasibility analysis for the City. Below is a graph showing the results of the comparison for the eight (8) municipalities that were able to obtain police impact fee information on.



As can be seen in the above graph, the police impact fees for the surveyed municipalities averaged at approximately \$268 per residential unit with the highest being the City of Titusville at \$441 per residential unit and the lowest being the City of Orange City at \$95 per residential unit.

In order to project the potential residential impact fees that could be collectible we have assumed a proposed fee of \$250 (which would be slightly lower than the surveyed average of \$268 per residential unit) applied to the projected growth forecast of approximately 3,000 units through 2040 as shown in Table 2-1. Based on these assumptions the project potential residential impact fee revenues collected could be as high as about \$760,000 over that 19-year period of time. It should be noted that this estimate does not include the revenues potentially collectible from non-residential growth as said growth and the associated fees could vary greatly between non-residential property types and application methodologies. It should be noted that any actual fee calculated could differ materially from the assumed fee of \$250 per residential unit based on usage of the City’s data as opposed to an approximation from a survey.

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Recommendation

It is our opinion that based on the City's ability to provide the necessary data required to support and calculate the fees, the configuration of the department (in terms of staffing, LOS, and significant existing and planned investment), and the potential benefit to the City as well as discussions our team has had with the City's Planning, Finance, and Police Departments that the City should consider developing and implementing police impact fees. It should be noted that further analysis and effort would be required to calculate the fees and ensure that such fees are cost justified based on recent and local data to ensure that the fees charged match the benefit provided to new development.

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Section 6
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

List of Tables

Table	Description
6-1	Summary of Existing Personnel
6-2	Police Department Fixed Assets
6-3	Police Multi-Year Capital Improvement Plan

Table 6-1
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

Summary of Existing Personnel

Line No.	Description	Budgeted Staff [1]
	Sworn Personnel	
1	Police Chief	1.0
2	Police Lieutenant	2.0
3	Police Captain	2.0
4	Police Corporal	5.0
5	Police Sergeant	7.0
6	Police Officer	43.0
7	Total Sworn Personnel	<u>60.0</u>
8	Civilian and Administrative	22.0
9	Total Personnel	<u><u>82.0</u></u>

Footnotes:

[1] As provided by the City's Police Department.

Table 6-2
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

Police Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	TYPE	CLASS CD	SUBCLASS	Subclass Description	Asset Category	LOCATION	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR
1	10000003	Rst 93 Ford F700 K74 Dump Truck	A	G	30	303	HEAVY EQUIPMENT	Major Vehicles	2101	POLICE	10/30/92	29,937.00	0.00	29,937.00
2	10000018	Eqp Surveillance Equipment	A	G	30	308	TECHNOLOGY IMPROVEMENTS	Other Capital Equipment and Facilities	2101	POLICE	08/14/91	7,546.82	0.00	7,546.82
3	10002622	It-Imaging Document System/Records-Polic	A	G	30	308	TECHNOLOGY IMPROVEMENTS	Other Capital Equipment and Facilities	2101	POLICE	04/05/99	8,086.85	0.00	8,086.85
4	10002875	Cmplx-Police Station 160 W Granada Blvd	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	05/15/00	77,209.59	13,897.73	63,311.86
5	10002876	Bluelines	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/19/00	2,774.40	499.39	2,275.01
6	10002877	Stormwater Permit Application	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	04/05/00	350.00	63.00	287.00
7	10002878	Analysis & Design	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	02/25/00	795.00	143.10	651.90
8	10002879	Demo Detective Bldg.	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/10/00	11,316.00	2,036.88	9,279.12
9	10002880	Asbestos Survey	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/30/00	450.00	81.00	369.00
10	10002881	Bluelines	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	07/08/00	72.90	13.12	59.78
11	10002882	Copies & Bluelines	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	07/03/00	825.80	148.65	677.15
12	10002883	Bluelines	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/10/00	166.32	29.95	136.37
13	10002884	In Place Density Test	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/29/00	818.50	147.33	671.17
14	10002885	Relocate Communication Tower	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/00	1,498.00	269.64	1,228.36
15	10002886	Architect Fees	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/02/00	8,317.15	1,497.09	6,820.07
16	10002887	Geotechnical Evaluation	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	07/31/00	2,835.00	510.30	2,324.70
17	10002888	Analysis	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/08/00	14,633.92	2,634.10	11,999.82
18	10002889	Pmt For Const	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/02/00	22,095.00	3,977.10	18,117.90
19	10002890	Pmt 1	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/00	71,620.00	12,891.60	58,728.40
20	10002891	Cmplx Police Station Analysis & Design	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/13/01	58,845.15	12,945.93	45,899.22
21	10002892	Technology Services Conduit/Recepticle	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	03/07/01	3,212.50	706.75	2,505.75
22	10002893	Painting	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/15/01	10,649.01	2,342.78	8,306.23
23	10002894	Finishing Materials/Stucco Etc	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/07/01	45,089.98	9,919.79	35,170.19
24	10002895	Glass*Glazing Mirrors	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/20/01	66,127.00	14,547.94	51,579.06
25	10002896	Security Door Control	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	07/31/01	32,107.00	7,063.54	25,043.46
26	10002897	Plumbing Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	07/05/01	3,546.77	780.29	2,766.48
27	10002898	Building Const. Payments #2-8.	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/30/00	1,523,266.40	335,118.60	1,188,147.80
28	10002899	Doors Frames & Hardware	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	02/24/01	31,305.00	6,887.10	24,417.90
29	10002900	Masonry Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/03/00	69,773.61	15,350.20	54,423.41
30	10002901	Electrical Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	04/27/01	80,929.26	17,804.44	63,124.82
31	10002902	Roofing Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	03/16/01	23,188.46	5,101.46	18,087.00
32	10002903	Window Shading Devices	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/10/01	3,000.00	660.00	2,340.00
33	10002904	Hvac Equipment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	01/02/01	52,540.00	11,558.80	40,981.20
34	10002905	Generator/Diesel	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	03/20/01	40,350.00	8,877.00	31,473.00
35	10002906	Roofing Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	03/16/01	16,310.88	3,588.39	12,722.49
36	10002907	Joist & Deck Package	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	02/07/01	35,000.00	7,700.00	27,300.00
37	10002908	Fire Sprinkler Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	05/09/01	4,854.15	1,067.91	3,786.24
38	10002909	Structural Steel	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/05/00	10,674.24	2,348.33	8,325.91
39	10002910	Rebar Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/21/00	11,302.08	2,486.47	8,815.61
40	10002911	Density Test	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/17/01	7,672.25	1,687.90	5,984.36
41	10002912	Film Processing	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/22/01	36.54	8.04	28.50
42	10002913	Amendment Of Master Plan/Legal Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/06/00	1,509.60	332.12	1,177.48
43	10002914	Shooting Range	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/19/00	1,170.70	257.55	913.15
44	10002915	Door Supplies	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/23/01	464.00	102.08	361.92
45	10002916	Hvac Equipment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/30/01	39,973.00	8,794.06	31,178.94
46	10002917	Contractors Payment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/28/01	626,938.00	137,926.36	489,011.64
47	10002918	Contractors Payment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/29/01	52,206.00	11,485.32	40,720.68
48	10002919	County Road Impact Fee	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	09/28/01	4,540.65	998.94	3,541.71
49	10002920	Paint	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/29/01	727.58	160.08	567.50
50	10002921	Prof Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/20/01	737.50	162.25	575.25
51	10002922	Architect Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/01	5,633.65	1,239.40	4,394.25
52	10002923	Window Shading Devices	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	08/28/01	10,900.00	2,398.00	8,502.00
53	10002924	Plaque	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/24/01	725.40	159.58	565.82
54	10002925	Doors, Frames & Hardware Mat.	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/29/01	15,600.00	3,432.00	12,168.00
55	10002926	Frames, Doors & Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/29/01	7,002.00	1,540.44	5,461.56
56	10002927	Concrete Test/Asphalt Extration	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/01/01	220.00	57.20	162.80
57	10002928	Technology	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/31/01	25,660.00	6,671.60	18,988.40
58	10002929	Doors, Frames And Hardware	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/25/01	4,762.79	1,238.33	3,524.46
59	10002930	Engineering Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/07/01	341.68	88.83	252.85
60	10002931	Cisco Routers	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/28/01	10,353.51	2,691.91	7,661.60
61	10002932	73 Interior Signage, 6 Exterior Signage	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/03/01	1,998.00	519.48	1,478.52
62	10002933	Land 179 Tomoka Ave Bowles Property	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	12/10/01	350.00	350.00	0.00
63	10002934	Plumbing Materials	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/07/01	10,187.81	2,648.84	7,538.97
64	10002935	Hall Const Payment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	10/30/01	41,067.00	10,677.42	30,389.58
65	10002936	Hall Const Pmt	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/30/01	3,425.00	890.50	2,534.50
66	10002937	Title Search/Bowles (Police Sta Parking	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	12/07/01	125.00	125.00	0.00
67	10002938	Land - 170 West Granada Blvd	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	09/30/75	24,587.50	24,587.50	0.00
68	10002939	Police - Land - Was Old 194 W Granada Bl	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	09/30/74	15,000.00	15,000.00	0.00
69	10002940	Cmplx Police Sta Furniture Additional Pu	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/02	50,222.57	13,057.88	37,164.69
70	10002941	Cmplx Police Sta - Addtl Hall Const Paym	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/02	66,325.48	17,244.62	49,080.86
71	10002942	Architectural Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/10/01	2,180.36	566.90	1,613.46
72	10002943	Pmt #4	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/30/01	2,146.00	557.96	1,588.04
73	10002944	Cmplx Police Sta Planter Boxes	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/14/02	2,153.00	645.90	1,507.10
74	10002945	Facility Analysis & Design	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	02/11/02	501.24	130.32	370.92
75	10002946	Pmt #13	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	05/31/02	75,279.00	19,572.54	55,706.46
76	10002947	Cmplx Pd Fac Analysis & Design Engineeri	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/99	27,795.44	3,891.35	23,904.09
77	10002948	Final Payment	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/02	20,049.80	5,212.95	14,836.85
78	10002949	Property Appraisal - Southern Appraisal	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	02/11/99	850.00	850.00	0.00
79	10002950	Analysis - Facility Task	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/29/97	32,162.62	1,929.76	30,232.86
80	10002951	Analysis For New Station	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/30/91	6,872.50	0.00	6,872.50
81	10002952	Cmplx-Police Station Telephone System Up	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/22/03	480.00	144.00	336.00

Table 6-2
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

Police Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	TYPE	CLASS CD	SUBCLASS	Subclass Description	Asset Category	LOCATION	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR
82	10002953	Cmplx-Police Station-Telephone System Up	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/19/03	17,870.00	5,361.00	12,509.00
83	10002954	Cmplx Police Sta Decorative Plants	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	09/16/03	1,150.00	345.00	805.00
84	10002955	Cmplx Police Sta Planter Boxes	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	11/15/02	3,252.00	975.60	2,276.40
85	10002956	Pd Facility Study Engineering Services	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	05/19/98	8,599.78	859.98	7,739.80
86	10004540	Cmplx-Pal House/Waldo O Berry Heritage P	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	10/01/00	1.00	1.00	0.00
87	10004541	Cmplx Pal House Lumber & 2 Park Benches	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	09/28/01	334.95	73.68	261.27
88	10004542	Cmplx Pal House Concrete	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/19/01	786.20	204.41	581.79
89	10004543	Cmplx Pal House Trash Receptacles	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/11/01	313.91	81.61	232.30
90	10004544	Cmplx Pal House Mulch	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/26/01	326.00	84.76	241.24
91	10004545	Cmplx Pal House Sod	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/26/01	150.00	39.00	111.00
92	10004546	Cmplx Pal House Plants	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/18/01	1,276.25	331.83	944.43
93	10004547	Cmplx Pal House Irrigation System	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	10/31/01	2,935.00	765.10	2,171.90
94	10004548	Cmplx Pal House Picnic Tables	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	11/05/01	300.00	78.00	222.00
95	10004549	Cmplx Pal House/Crelli-Scofield Prop Tri	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	04/19/96	8,006.00	8,006.00	0.00
96	10004550	Cmplx Pal House 2.5 Ton Air Conditioner	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/10/96	700.00	14.00	686.00
97	10004551	Cmplx Pal House Consulting - Rip Ad	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	12/03/03	93.98	31.95	62.03
98	10004552	Cmplx Pal House Forfeiture Land Value (D	A	G	70	701	LAND	Other Capital Equipment and Facilities	2101	POLICE	04/19/96	3,750.00	3,750.00	0.00
99	10004553	Cmplx Pal House Forfeiture Bldg Value (D	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	04/19/96	14,476.00	289.52	14,186.48
100	10005774	Veh 03 Chevy Impala	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/13/03	17,111.00	0.00	17,111.00
101	10005860	Veh 05 Ford Ranger Truck	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	06/01/05	13,897.00	0.00	13,897.00
102	10007156	2006 Chevy Impala	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/24/06	14,197.01	0.00	14,197.01
103	10007193	Veh 07 Chevy Malibu	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/02/06	13,120.00	0.00	13,120.00
104	10007194	Veh Option #3K, Third Key	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/02/06	65.00	0.00	65.00
105	10007195	Veh Option: Remote Keyless Entry	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/02/06	296.00	0.00	296.00
106	10007196	Veh Option #Csp90 Corner Strobe Kits-Whe	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/02/06	430.00	0.00	430.00
107	10007197	Veh Option #Value-5/75 Manufacturers Ext	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/02/06	1,415.00	0.00	1,415.00
108	10007205	Eqp 9' Stop Stick Rack Kit, Black	A	G	30	307	POLICE TOOLS & EQUIPMENT	Machinery and Equipment	2101	POLICE	05/25/07	18,120.00	1,812.00	16,308.00
109	10007456	Eqp Bar Code System Evidence Room	A	G	30	309	NON-SPECIFIC TOOLS & EQUIP	Machinery and Equipment	2101	POLICE	07/06/01	14,985.00	0.00	14,985.00
110	10007461	It-Internal Affairs Management Software	A	G	30	308	TECHNOLOGY IMPROVEMENTS	Other Capital Equipment and Facilities	2101	POLICE	02/26/02	1,500.00	0.00	1,500.00
111	10007479	Rst 03 Command Ht101 Mobile Command Vehi	A	G	30	303	HEAVY EQUIPMENT	Major Vehicles	2101	POLICE	10/20/03	99,978.00	0.00	99,978.00
112	10007504	Veh 08 Ford Crown Victoria	A	G	40	401	CAR	Major Vehicles	2101	POLICE	11/02/07	21,255.00	0.00	21,255.00
113	10007506	Veh 08 Ford Crown Victoria	A	G	40	401	CAR	Major Vehicles	2101	POLICE	11/02/07	21,255.00	0.00	21,255.00
114	10007507	Veh 08 Chevy Colorado 4X4	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	04/02/08	13,203.00	0.00	13,203.00
115	10007508	Veh 08 Chevy Colorado 4X4	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	03/05/08	13,203.00	0.00	13,203.00
116	10007640	Eqp Citation Writer	A	G	30	308	TECHNOLOGY IMPROVEMENTS	Other Capital Equipment and Facilities	2101	POLICE	06/25/08	11,069.73	0.00	11,069.73
117	10007706	2009 Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/09	23,454.00	0.00	23,454.00
118	10007800	2010 Ford Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/10	24,879.00	0.00	24,879.00
119	10007801	2010 Ford Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/10	24,879.00	0.00	24,879.00
120	10007802	Crown Vic #085	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/10	23,733.00	0.00	23,733.00
121	10007804	Impala #85	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/10	19,286.00	0.00	19,286.00
122	10007908	Crown Interceptor	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	27,469.00	0.00	27,469.00
123	10007909	2011 Ford Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	27,469.00	0.00	27,469.00
124	10007910	2011 Ford Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	27,469.00	0.00	27,469.00
125	10007911	Crown Vic	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	24,799.00	0.00	24,799.00
126	10007912	Chevy Impala	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	19,419.00	0.00	19,419.00
127	10007913	2011 Ford Explorer	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	24,139.00	0.00	24,139.00
128	10007914	Equinox	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/11	21,387.00	0.00	21,387.00
129	10008009	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
130	10008010	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
131	10008011	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
132	10008012	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
133	10008013	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
134	10008014	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	30,893.00	0.00	30,893.00
135	10008015	2012 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	31,367.00	0.00	31,367.00
136	10008016	2012 F150	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/12	19,527.55	0.00	19,527.55
137	10008017	2012 Chevy Malibu	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	19,186.00	0.00	19,186.00
138	10008018	2012 Chevy Impala	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	24,257.74	0.00	24,257.74
139	10008020	2012 Chevy Pu	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/12	18,133.00	0.00	18,133.00
140	10008021	2012 For Taurus	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/12	22,446.00	0.00	22,446.00
141	10008028	2012 Chevy Colorado	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/12	18,063.50	0.00	18,063.50
142	10008081	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
143	10008082	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
144	10008083	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
145	10008084	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
146	10008085	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
147	10008086	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
148	10008087	2012 Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	394.00	0.00	394.00
149	10008088	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.26	0.00	1,114.26
150	10008089	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.26	0.00	1,114.26
151	10008090	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.26	0.00	1,114.26
152	10008091	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.27	0.00	1,114.27
153	10008092	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.27	0.00	1,114.27
154	10008093	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.27	0.00	1,114.27
155	10008094	Chevy Caprice Graphics	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	1,114.27	0.00	1,114.27
156	10008109	Ford F150	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/14	19,084.00	0.00	19,084.00
157	10008114	Ford Fusion	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/13	19,639.00	0.00	19,639.00
158	10008208	Police Fence	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	09/30/14	32,206.15	23,832.54	8,373.61
159	10008249	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00
160	10008250	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00
161	10008251	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00
162	10008252	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00

Table 6-2
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

Police Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	TYPE	CLASS CD	SUBCLASS	Subclass Description	Asset Category	LOCATION	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR
163	10008253	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00
164	10008254	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,386.00	0.00	32,386.00
165	10008255	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	32,594.00	0.00	32,594.00
166	10008256	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
167	10008257	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
168	10008258	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
169	10008259	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
170	10008260	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
171	10008261	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
172	10008262	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.64	0.00	33,475.64
173	10008263	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	33,475.66	0.00	33,475.66
174	10008264	2013 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/14	24,766.00	0.00	24,766.00
175	10008316	Police Fencing	A	G	20	202	POLICE	Other Capital Equipment and Facilities	2101	POLICE	09/30/15	16,896.65	13,179.38	3,717.28
176	10008329	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	33,215.01	0.01	33,215.01
177	10008330	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	33,215.01	0.01	33,215.01
178	10008331	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	33,215.01	0.01	33,215.01
179	10008332	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	33,215.01	0.01	33,215.01
180	10008333	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	33,215.05	0.01	33,215.05
181	10008334	2015 Chevy Impala	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	20,577.00	0.00	20,577.00
182	10008335	2015 Chevy Malibu	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	18,758.00	0.00	18,758.00
183	10008336	2015 Ford Taurus	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	22,542.00	0.00	22,542.00
184	10008337	2015 Ford Transit Connect	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	18,718.00	0.00	18,718.00
185	10008338	2015 Ford Transit Connect	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/15	21,668.00	0.00	21,668.00
186	10008510	2016 Ford Transit Cargo	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/16	30,731.00	3,073.10	27,657.90
187	10008513	2016 Chevy Cruze	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/16	17,455.00	1,745.50	15,709.50
188	10008515	2016 Ford F150	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/16	19,599.00	1,959.90	17,639.10
189	10008517	2016 Ford F150	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/16	19,599.00	1,959.90	17,639.10
190	10008518	2016 Ford F150	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/30/16	24,991.00	2,499.10	22,491.90
191	10008521	2014 Chevy Caprice	A	G	40	401	CAR	Major Vehicles	2101	POLICE	09/30/16	29,858.32	2,985.83	26,872.49
192	10008523	2017 Harley Davidson	A	G	40	402	MOTORCYCLE	Major Vehicles	2101	POLICE	09/30/16	33,920.90	3,392.09	30,528.81
193	10008524	2016 Smart Trailer	A	G	30	311	TRAILERS/CARTS	Machinery and Equipment	2101	POLICE	09/30/16	6,602.00	4,621.41	1,980.59
194	10008540	Hvac Drive Motor Pd	A	G	10	103	HVAC REPLACEMENT	Other Capital Equipment and Facilities	2101	POLICE	09/30/16	11,600.00	8,120.01	3,479.99
195	20000001	POLICE DEPARTMENT ROOF	A	G	10	104	ROOF REPLACEMENT	Other Capital Equipment and Facilities	2101	POLICE	09/30/17	24,271.54	19,282.40	4,989.14
196	20000003	2017 FORD TRANSIT	A	G	40	405	VAN	Major Vehicles	2101	POLICE	11/08/16	22,385.01	6,715.51	15,669.50
197	20000004	2015 CHEVY CAPRICE PATROL VEHICLE	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/09/17	24,998.00	7,499.40	17,498.60
198	20000034	2017 FORD F-150 TRUCK	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/19/17	20,769.00	6,230.70	14,538.30
199	20000035	#4 HARLEY DAVIDSON MOTORCYCLES	A	G	40	402	MOTORCYCLE	Major Vehicles	2101	POLICE	06/02/17	34,343.05	13,164.83	21,178.22
200	20000036	#4 HARLEY DAVIDSON MOTORCYCLES	A	G	40	402	MOTORCYCLE	Major Vehicles	2101	POLICE	06/02/17	33,007.45	12,652.85	20,354.60
201	20000037	#4 HARLEY DAVIDSON MOTORCYCLES	A	G	40	402	MOTORCYCLE	Major Vehicles	2101	POLICE	06/02/17	31,930.65	12,240.08	19,690.57
202	20000038	2017 CHEVROLET CAPRICE	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/09/17	37,860.92	14,513.35	23,347.57
203	20000039	2017 CHEVROLET CAPRICE	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/09/17	41,414.76	12,424.43	28,990.33
204	20000040	2017 Chevrolet Caprice Patrol Car	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/30/17	38,548.41	14,776.90	23,771.51
205	20000041	2017 FORD EXPLORER	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	09/19/17	41,252.70	12,375.81	28,876.89
206	20000042	2017 FORD F-150 TRUCK	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	08/28/17	20,769.00	6,230.70	14,538.30
207	20000050	POLICE SALLY PORT REPAIR	A	G	10	105	STRUCTURES	Other Capital Equipment and Facilities	2101	POLICE	06/20/18	55,215.00	49,693.50	5,521.50
208	20000051	LIGHTBARS/CHARGERS/PUDDLE LIGHTS/DODGECAR	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/08/17	19,138.25	5,741.48	13,396.77
209	20000111	2018 DODGE CHARGER	A	G	40	401	CAR	Major Vehicles	2101	POLICE	10/20/17	24,372.00	12,186.00	12,186.00
210	20000112	2018 dodge charger	A	G	40	401	CAR	Major Vehicles	2101	POLICE	10/20/17	25,892.00	12,946.00	12,946.00
211	20000113	2018 dodge charger	A	G	40	401	CAR	Major Vehicles	2101	POLICE	10/20/17	28,880.22	14,440.11	14,440.11
212	20000120	2018 DODGE CHARGER	A	G	40	401	CAR	Major Vehicles	2101	POLICE	04/26/18	24,148.00	12,074.00	12,074.00
213	20000144	PUMP REPLACEMENT HVAC PD TACO PUMPS	A	G	10	103	HVAC REPLACEMENT	Other Capital Equipment and Facilities	2101	POLICE	04/27/18	18,880.00	15,733.33	3,146.67
214	20000186	2018 HARLEY DAVIDSON	A	G	40	402	MOTORCYCLE	Major Vehicles	2101	POLICE	06/09/18	22,700.00	11,350.00	11,350.00
215	20000205	2019 DODGE CHARGER FLEET	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/18/19	51,833.20	36,283.24	15,549.96
216	20000206	2019 DODGE CHARGER FLEET	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/18/19	32,352.12	22,646.49	9,705.63
217	20000207	2019 DODGE CHARGER FLEET	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/26/19	32,060.00	22,442.00	9,618.00
218	20000208	2019 DODGE CHARGER FLEET	A	G	40	401	CAR	Major Vehicles	2101	POLICE	03/18/19	40,310.52	28,217.37	12,093.15
219	20000209	SOLAR POWERED PORTABLE MESSAGE SIGN	A	G	30	307	POLICE TOOLS & EQUIPMENT	Machinery and Equipment	2101	POLICE	11/08/18	13,078.57	11,770.72	1,307.85
220	20000251	2019 DODGE CHARGER*POLICE	A	G	40	401	CAR	Major Vehicles	2101	POLICE	12/27/18	24,924.00	17,446.80	7,477.20
221	20000272	Body Cameras & cloud based storage syste	A	G	30	307	POLICE TOOLS & EQUIPMENT	Machinery and Equipment	2101	POLICE	05/02/19	78,226.12	70,403.51	7,822.61
222	20000300	TRUCKS (INCLUDING, DIESEL, GASOLINE, ELE	A	G	40	404	TRUCK	Major Vehicles	2101	POLICE	01/02/20	5,300.00	4,770.00	530.00
223	20000314	POLICE CAMERA EQUIPMENT PD	A	G	30	307	POLICE TOOLS & EQUIPMENT	Machinery and Equipment	2101	POLICE	01/22/20	110,597.74	106,911.15	3,686.59
224	20000317	2019 DODGE CHARGER 2C3CDXAG7KG748480	A	G	40	401	CAR	Major Vehicles	2101	POLICE	12/31/19	24,924.00	22,431.60	2,492.40
225	20000318	2020 DODGE DURANGO SN 1C4RDJFG7LC369835	A	G	40	401	CAR	Major Vehicles	2101	POLICE	07/28/20	47,619.40	42,857.46	4,761.94
226	20000319	2020 DODGE DURANGO SN 1C4RDJFG6LC30878	A	G	40	401	CAR	Major Vehicles	2101	POLICE	07/28/20	28,181.00	25,362.90	2,818.10
227	20000320	2020 DODGE DURANGO SN 1C4RDJFG4LC308	A	G	40	401	CAR	Major Vehicles	2101	POLICE	07/28/20	28,181.00	25,362.90	2,818.10
228	20000321	2020 DODGE DURANGO	A	G	40	401	CAR	Major Vehicles	2101	POLICE	08/13/20	28,181.00	25,362.90	2,818.10
229	20000076	PD ACCESS CONTROL SYSTEM BID EVALUATION	C	G	90	901	CONSTRUCTION IN PROGRESS	Other Capital Equipment and Facilities	2101	POLICE	08/18/17	12,451.19	12,451.19	0.00

230	Grand Total											\$6,780,049.44	\$1,643,193.47	\$5,136,856.06
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Summary Roll Up		Original Cost
231	Machinery and Equipment	\$241,609.43
232	Major Vehicles	2,735,613
233	Other Capital Equipment and Facilities	3,802,827
234	Total	\$6,780,049.44

Table 6-3
City of Ormond Beach
Police Services Impact Fee Feasibility Analysis

Police Multi-Year Capital Improvement Plan

Line No.	Description	5-Year Total
1	Public Saftely Radio Replacement	\$166,000
2	Police Department Roof	300,000
3	Police Impound Lot	60,000
4	SANS Replacement	125,000
5	Police Station Chiller Replacement	90,000
6	Police Department Access Control	268,000
7	Vehicle Replacements	1,015,000
8	Total	<u>\$2,024,000</u>

SECTION 7 – FIRE PROTECTION FACILITIES IMPACT FEE FEASIBILITY ANALYSIS

General

This section provides a discussion of our feasibility analysis with respect to the potential design and implementation of impact fees for fire protection facilities and capital equipment. The feasibility evaluation summarized herein is based on i) a review of the availability of data required to calculate the fees; ii) the configuration of the department in terms of staffing and Level of Service (LOS) goals, existing and planned investment in assets to satisfy Florida legal requirements for impact fees criteria; iii) the potential estimated financial benefit to the City of adopting the fees; and iv) our recommendation as to whether or not the City should consider implementing this fee type.

Data Availability

As the first step in our feasibility analysis, we developed a comprehensive information request in support of an impact fee calculation analysis and provided it to the City in order to ascertain whether or not the City could provide the required supporting data that would be necessary to calculate proposed police impact fees. This detailed information request included, but was not limited to, detailed fixed asset records including all assets used and in service for the department, a detailed listing of all fire personnel currently employed by the City, the department's targeted Level of Service (LOS), planned capital expenditures, historical and planned capital grant funding, and historical response call data. After reviewing the detailed data provided by the City in response to these requests, we believe that the City does maintain and can provide the required supporting information required to develop the fees.

Department Configuration

LEVEL OF SERVICE AND DEPARTMENT STAFFING

In the evaluation of the capital facility needs for providing municipal services such as fire protection, a level of service (LOS) standard should be developed. Level of service is an indication of the capacity per unit of demand for each public facility and capital equipment.

There is currently no formally adopted level of service for the City's fire protection services; however, it is the City's intent to maintain staffing levels that provide services to all developed areas in order to be able to respond to service calls within a specified time period to maintain the City's Insurance Service Organization (ISO) property insurance rating of 3/3X in the community. As a practical matter, this response time standard (four minutes with a one-minute turnout or less) is based upon recognized industry standards not only having to do with property protection, but also in providing Emergency Medical Support services (EMS). In each case, it is necessary to reach property and residents of the City within the response time standard to maximize the effectiveness of fire suppression activities and/or emergency medical care. In discussions with City staff, it was determined that the existing staffing levels of the City are able to provide adequate fire rescue services for the existing and future daily average population of the City.

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Presently, the City has 48 full-time primary personnel budgeted for 2022 as shown on Table 7-1 and below.

Primary Personnel	Summary of Existing Personnel
Fire Chief	1.0
Deputy Fire Chief	1.0
Fire Battalion Commander	3.0
Captain	12.0
Driver Engineer	12.0
Firefighters	18.0
Office Manager (Support)	1.0
Total Current Full-Time Personnel	48.0

Based on the primary personnel listed above the level of service in terms of the number of direct fire personnel per 1,000 residents is about 1.07.

EXISTING INVESTMENT IN DEPARTMENT

As a part of our feasibility analysis, the original costs of the existing assets and any grant funding or contributions towards those assets were considered. This portion of the analysis was to ensure that there were significant capital assets that could be includable in a potential future fee calculation. The City's existing assets are categorized by major type and are summarized below.

Existing City Investment in Fire Assets	
Description	Original Cost
Machinery and Equipment	\$656,223
Major Vehicles	2,402,548
Other Capital Equipment and Facilities	5,076,563
Subtotal	\$8,213,671
Grant Funded Assets	(\$78,337)
Net Recoverable Costs	<u>\$8,135,334</u>

[*] Amounts as shown on Table 7-2.

As shown above, of the \$8.1 million in police assets, approximately 1% is has been funded from grants and other outside sources.

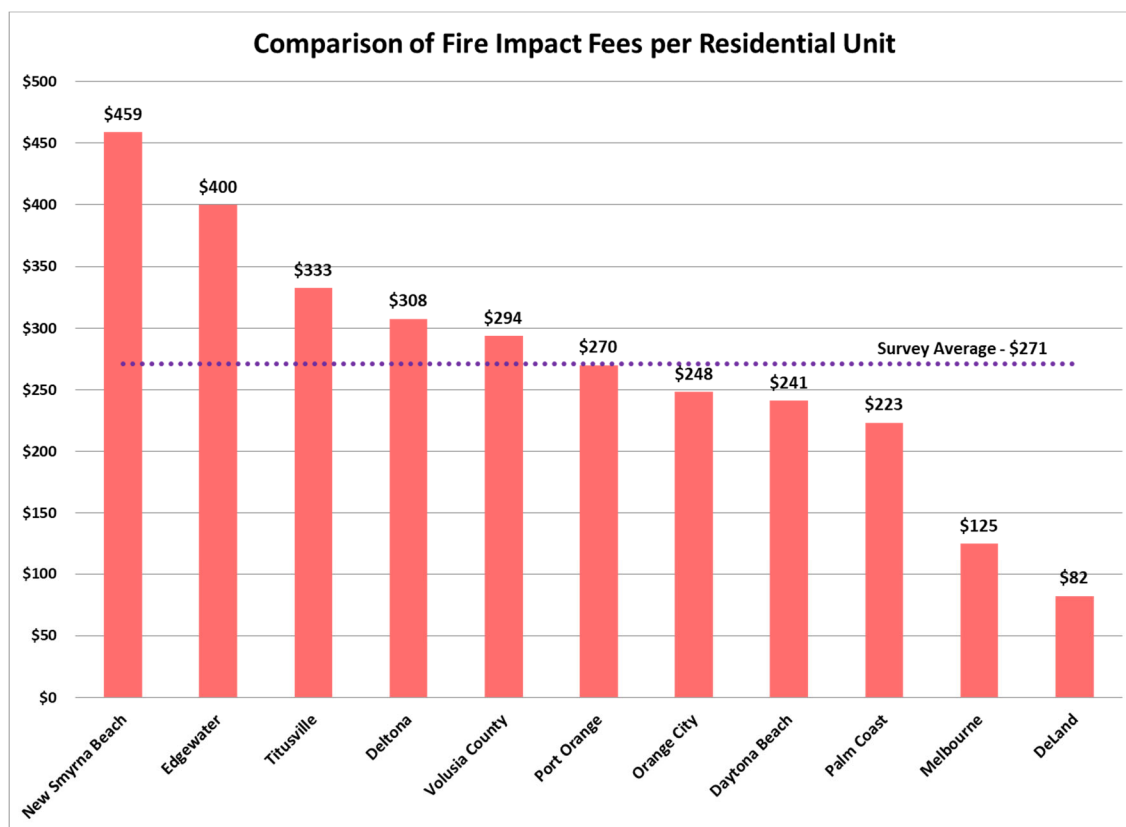
PLANNED FUTURE INVESTMENT IN DEPARTMENT

The following capital improvement requirements were provided by the City in support of the feasibility analysis. Along with the City's existing investment in fire assets, the City has certain planned capital expenditures which are anticipated and designed to maintain the department's ability to provide service to the City's near term population level and fulfill the budgeted level of service standards. The City anticipates spending over \$1.8 million related to vehicle and apparatus replacements in addition to other capital expenditures to further develop the fire assets and facilities to provide the desired level of service to the City as it grows through 2025. These other capital expenditures

are not fully known at this time and are dependent on how growth occurs in the City and will be developed in the future by the fire department as needed.

Potential Financial Benefit

A survey of fire impact fees for eleven (11) neighboring municipalities was prepared as a part of the feasibility analysis for the City. Below is a graph showing the results of the comparison for the eleven (11) municipalities that were able to obtain fire impact fee information on.



As can be seen in the above graph, the fire impact fees for the surveyed municipalities averaged at approximately \$271 per residential unit with the highest being the City of New Smyrna Beach at \$459 per residential unit and the lowest being the City of Deland at \$82 per residential unit.

In order to project the potential residential impact fees that could be collectible we have assumed a proposed fee of \$250 (which would be slightly lower than the surveyed average of \$271 per residential unit) applied to the projected growth forecast of approximately 3,000 units through 2040 as shown in Table 2-1. Based on these assumptions the project potential residential impact fee revenues collected could be as high as about \$760,000 over that 19-year period of time. It should be noted that this estimate does not include the revenues potentially collectible from non-residential growth as said growth and the associated fees could vary greatly between non-residential property types and application methodologies. It should be noted that any actual fee calculated could differ materially from the assumed fee of \$250 per residential unit based on usage of the City's data as opposed to an approximation from a survey.

Recommendation

It is our opinion that based on the City's ability to provide the necessary data required to support and calculate the fees, the configuration of the department (in terms of staffing, LOS, and significant existing and planned investment), and the potential benefit to the City as well as discussions our team has had with the City's Planning, Finance, and Fire Departments that the City should consider developing and implementing fire impact fees. It should be noted that further analysis and effort would be required to calculate the fees and ensure that such fees are cost justified based on recent and local data to ensure that the fees charged match the benefit provided to new development.

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Section 7
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

List of Tables

<u>Table</u>	<u>Description</u>
7-1	Summary of Existing Personnel
7-2	Fire Department Fixed Assets

Table 7-1
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Summary of Existing Personnel

Line No.	Description	Current Staff [1]
Primary Personnel		
1	Fire Chief	1.0
2	Deputy Fire Chief	1.0
3	Fire Battalion Commander	3.0
4	Captain	12.0
5	Driver Engineer	12.0
6	Firefighters	18.0
7	Total Primary Personnel	47.0
8	Office Manager (Support)	1.0
9	Total Personnel	48.0

Footnotes:

[1] As provided by the City's Fire Department.

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
1	10000005	Fire Station 94 2301 Airport Road	A	FIRE DEPARTMENT	03/07/89	5,350.00	5,350.00	0.00	Facility
2	10000006	Fire Station 94 2301 Airport Road	A	FIRE DEPARTMENT	06/30/93	456,174.07	0.00	456,174.07	Facility
3	10000007	Fire Station 94 Hurricane Rollup Shutter	A	FIRE DEPARTMENT	06/06/01	20,105.00	4,423.10	15,681.90	Facility
4	10001060	1995 Frghtliner Fl60	A	FIRE DEPARTMENT	11/08/94	136,978.00	0.00	136,978.00	Vehicles
5	10001061	1995 Frghtliner Fl60	A	FIRE DEPARTMENT	11/01/94	610.00	0.00	610.00	Vehicles
6	10002608	Fire Station 93 300 Wilmette Ave	A	FIRE DEPARTMENT	08/03/98	21,021.02	21,021.02	0.00	Facility
7	10002609	Fire Station 93 Architectual Services	A	FIRE DEPARTMENT	09/30/99	54,371.36	7,611.99	46,759.37	Facility
8	10002610	Fire Station 93 Irrigation/Landscape	A	FIRE DEPARTMENT	05/17/00	23,284.00	4,191.12	19,092.88	Facility
9	10002611	Fire Station 93 - Original Land Purchase	A	FIRE DEPARTMENT	06/15/88	44,685.80	44,685.80	0.00	Facility
10	10002612	Fire Station 93 Install Sign	A	FIRE DEPARTMENT	04/27/00	2,080.00	374.40	1,705.60	Facility
11	10002613	Fire Station 93 Crane Rental	A	FIRE DEPARTMENT	03/31/00	210.00	37.80	172.20	Facility
12	10002614	Fire Station 93 Additional Strvtr Modeli	A	FIRE DEPARTMENT	01/20/00	870.00	156.60	713.40	Facility
13	10002615	Fire Station 93 Sign	A	FIRE DEPARTMENT	10/20/99	235.00	42.30	192.70	Facility
14	10002616	Fire Station 93 Architectural Service	A	FIRE DEPARTMENT	05/05/00	41,955.89	7,552.06	34,403.83	Facility
15	10002617	Fire Station 93 Engineering Services	A	FIRE DEPARTMENT	05/03/00	3,520.00	633.60	2,886.40	Facility
16	10002618	Fire Station 93 Construction	A	FIRE DEPARTMENT	10/27/99	605,285.49	108,951.39	496,334.10	Facility
17	10002619	Fire Station No 93 Real Estate Taxes	A	FIRE DEPARTMENT	05/10/99	164.43	164.43	0.00	Facility
18	10002629	Eqp Robot For Fire Safety Training	A	FIRE DEPARTMENT	06/11/99	7,450.00	0.00	7,450.00	Equipment
19	10002637	Rst 69 General Cargo Truck	A	FIRE DEPARTMENT	05/16/00	7,500.00	0.00	7,500.00	Vehicles
20	10002638	Rst Water Tank Polyprene Brush Truck (06	A	FIRE DEPARTMENT	09/01/00	5,606.20	0.00	5,606.20	Vehicles
21	10002812	Rst 00 Pierce Pumper Fire Truck	A	FIRE DEPARTMENT	06/28/00	199,739.00	0.00	199,739.00	Vehicles
22	10002813	Rst 00 Pierce Pumper Fire Truck	A	FIRE DEPARTMENT	06/02/00	199,739.00	0.00	199,739.00	Vehicles
23	10003850	Gen 00 Katolight D50Fjj4 Generator	A	FIRE DEPARTMENT	11/21/00	9,943.00	0.00	9,943.00	Equipment
24	10003860	Veh 01 Chevy 1/2 Ton 8 Passenger Van	A	FIRE DEPARTMENT	08/07/01	20,640.00	0.00	20,640.00	Vehicles
25	10005143	Fire Station 92 189 S Nova Rd (Old Cem	A	FIRE DEPARTMENT	04/15/04	14,430.00	4,906.20	9,523.80	Facility
26	10005144	Fire Station 92 Geotechnical Services	A	FIRE DEPARTMENT	06/23/04	3,730.00	1,268.20	2,461.80	Facility
27	10005145	Fire Station 92 Excavation	A	FIRE DEPARTMENT	06/23/04	1,782.50	606.05	1,176.45	Facility
28	10005146	Fire Station 92 Pre-Construction	A	FIRE DEPARTMENT	08/02/04	3,865.00	1,314.10	2,550.90	Facility
29	10005147	Fire Station 92 Design	A	FIRE DEPARTMENT	09/30/04	55,320.00	18,808.80	36,511.20	Facility
30	10005148	Fire Station 92 Pre-Construction	A	FIRE DEPARTMENT	12/13/04	7,835.00	2,977.30	4,857.70	Facility
31	10005149	Fire Station 92 Architectural Services	A	FIRE DEPARTMENT	09/22/03	4,500.00	1,350.00	3,150.00	Facility
32	10005150	Fire Station 92 Design	A	FIRE DEPARTMENT	02/01/05	9,676.01	3,676.89	5,999.13	Facility
33	10005151	Fire Station 92 Construction	A	FIRE DEPARTMENT	04/07/05	39,234.00	14,908.92	24,325.08	Facility
34	10005152	Fire Station 92 Construction	A	FIRE DEPARTMENT	04/22/05	44,516.00	16,916.08	27,599.92	Facility
35	10005153	Fire Station 92 Furnish/Deliver All Door	A	FIRE DEPARTMENT	05/05/05	1,940.00	737.20	1,202.80	Facility
36	10005154	Fire Station 92 Construction	A	FIRE DEPARTMENT	05/11/05	84,349.00	32,052.62	52,296.38	Facility
37	10005155	Fire Station 92 Construction	A	FIRE DEPARTMENT	06/10/05	69,745.00	26,503.10	43,241.90	Facility
38	10005156	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	232.61	88.41	144.21	Facility
39	10005157	Fire Station 92 ""Electrical""	A	FIRE DEPARTMENT	07/28/05	1,005.61	382.15	623.47	Facility
40	10005158	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	740.47	281.38	459.10	Facility
41	10005159	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	235.00	89.30	145.70	Facility
42	10005160	Fire Station 92 All Trusses	A	FIRE DEPARTMENT	07/28/05	18,450.00	7,011.00	11,439.00	Facility
43	10005161	Fire Station 92 All Airvac System	A	FIRE DEPARTMENT	07/28/05	11,510.00	4,373.80	7,136.20	Facility
44	10005162	Fire Station 92 Construction	A	FIRE DEPARTMENT	08/03/05	74,883.00	28,455.54	46,427.46	Facility
45	10005163	Fire Station 92 All ""Brick""	A	FIRE DEPARTMENT	07/28/05	3,426.57	1,302.11	2,124.47	Facility
46	10005164	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	3,872.90	1,471.69	2,401.21	Facility
47	10005165	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	1,030.05	391.43	638.63	Facility
48	10005166	Fire Station 92 ""Electrical""	A	FIRE DEPARTMENT	07/28/05	3,648.50	1,386.43	2,262.07	Facility
49	10005167	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	07/28/05	1,375.00	522.50	852.50	Facility
50	10005168	Fire Station 92 Construction	A	FIRE DEPARTMENT	07/06/05	78,977.00	30,011.26	48,965.74	Facility
51	10005169	Fire Station 92 Attorney Fee For Gob Iss	A	FIRE DEPARTMENT	12/11/03	509.88	173.36	336.52	Facility
52	10005170	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/30/05	742.63	282.21	460.43	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
53	10005171	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/30/05	792.27	301.07	491.21	Facility
54	10005172	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/30/05	794.33	301.86	492.48	Facility
55	10005173	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/30/05	345.32	131.23	214.09	Facility
56	10005174	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/30/05	525.45	199.67	325.79	Facility
57	10005175	Fire Station 92 Construction	A	FIRE DEPARTMENT	06/29/05	325.00	123.50	201.50	Facility
58	10005176	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/29/05	949.97	360.99	588.99	Facility
59	10005177	Fire Station 92 All ""Brick""	A	FIRE DEPARTMENT	06/29/05	3,215.00	1,221.70	1,993.30	Facility
60	10005178	Fire Station 92 189 S Nova Road (Old Cem	A	FIRE DEPARTMENT	06/24/76	108,000.00	108,000.00	0.00	Facility
61	10005179	Fire Station 92 Metal Roofing Materials	A	FIRE DEPARTMENT	08/16/05	34,909.00	13,265.42	21,643.58	Facility
62	10005180	Fire Station 92 Design	A	FIRE DEPARTMENT	08/16/05	6,426.00	2,441.88	3,984.12	Facility
63	10005181	Fire Station 92 Construction Materials	A	FIRE DEPARTMENT	08/17/05	320.00	121.60	198.40	Facility
64	10005182	Fire Station 92 All Doors, Frames	A	FIRE DEPARTMENT	08/18/05	1,140.00	433.20	706.80	Facility
65	10005183	Fire Station 92 Construction	A	FIRE DEPARTMENT	09/12/05	169,255.00	64,316.90	104,938.10	Facility
66	10005184	Fire Station 92 Carrier Hvac Equipment	A	FIRE DEPARTMENT	09/14/05	3,198.00	1,215.24	1,982.76	Facility
67	10005185	Fire Station 92 Metal Roofing Materials	A	FIRE DEPARTMENT	09/14/05	25,388.00	9,647.44	15,740.56	Facility
68	10005186	Fire Station 92 Fob Jobsite All Doors, F	A	FIRE DEPARTMENT	09/14/05	1,110.00	421.80	688.20	Facility
69	10005187	Fire Station 92 Inspection Photos	A	FIRE DEPARTMENT	08/12/05	8.67	3.29	5.39	Facility
70	10005188	Fire Station 92 Bricks	A	FIRE DEPARTMENT	06/08/05	3,215.00	1,221.70	1,993.30	Facility
71	10005189	Fire Station 92 All Drywall & Stucco	A	FIRE DEPARTMENT	09/27/05	3,506.38	1,332.42	2,173.96	Facility
72	10005190	Fire Station 92 Dectron Hvac Equipment	A	FIRE DEPARTMENT	09/21/05	798.00	303.24	494.76	Facility
73	10005191	Fire Station 92 Construction	A	FIRE DEPARTMENT	09/30/05	83,004.00	31,541.52	51,462.48	Facility
74	10005192	Fire Station 92 Design	A	FIRE DEPARTMENT	09/30/05	5,355.00	2,034.90	3,320.10	Facility
75	10005193	Fire Station 92 Construction Materials	A	FIRE DEPARTMENT	09/30/05	72.00	27.36	44.64	Facility
76	10005194	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	06/21/05	1,658.50	630.23	1,028.27	Facility
77	10005195	Fire Station 92 Construction	A	FIRE DEPARTMENT	09/30/05	435.00	165.30	269.70	Facility
78	10005196	Fire Station 92 Construction	A	FIRE DEPARTMENT	09/30/05	65.00	24.70	40.30	Facility
79	10005197	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	09/23/05	786.39	298.83	487.57	Facility
80	10005198	Fire Station 92 Dectron Hvac Equipment	A	FIRE DEPARTMENT	11/02/05	16,060.00	6,745.20	9,314.80	Facility
81	10005199	Fire Station 92 Construction	A	FIRE DEPARTMENT	11/17/05	150,930.00	63,390.60	87,539.40	Facility
82	10005200	Fire Station 92 Sign	A	FIRE DEPARTMENT	10/04/05	490.00	205.80	284.20	Facility
83	10005201	Fire Station 92 All Doors, Frames &	A	FIRE DEPARTMENT	12/08/05	6,560.00	2,755.20	3,804.80	Facility
84	10005202	Fire Station 92 Architectural	A	FIRE DEPARTMENT	12/08/05	12,200.00	5,124.00	7,076.00	Facility
85	10005203	Fire Station 92 Carrier Hvac Equipment	A	FIRE DEPARTMENT	12/08/05	11,345.00	4,764.90	6,580.10	Facility
86	10005204	Fire Station 92 Survey - July 1988 (G.O.	A	FIRE DEPARTMENT	07/01/88	350.00	350.00	0.00	Facility
87	10005205	Fire Station 92 Bricks For Fire Station	A	FIRE DEPARTMENT	06/03/05	3,426.57	1,302.11	2,124.47	Facility
88	10005206	Fire Station 92 Construction	A	FIRE DEPARTMENT	12/20/05	94,665.00	39,759.30	54,905.70	Facility
89	10005207	Fire Station 92 Gear Mobile 3-Pack Bunke	A	FIRE DEPARTMENT	12/29/05	5,640.00	2,368.80	3,271.20	Equipment
90	10005208	Fire Station 92 All Doors, Frames	A	FIRE DEPARTMENT	12/22/05	3,755.00	1,577.10	2,177.90	Facility
91	10005209	Fire Station 92 All Doors, Frames	A	FIRE DEPARTMENT	12/22/05	616.00	258.72	357.28	Facility
92	10005210	Fire Station 92 Construction	A	FIRE DEPARTMENT	12/22/05	519.00	217.98	301.02	Facility
93	10005211	Fire Station 92 Engineering	A	FIRE DEPARTMENT	12/22/05	529.00	222.18	306.82	Facility
94	10005212	Fire Station 92 Engineering	A	FIRE DEPARTMENT	12/22/05	65.00	27.30	37.70	Facility
95	10005213	Fire Station 92 Engineering	A	FIRE DEPARTMENT	12/22/05	75.00	31.50	43.50	Facility
96	10005214	Fire Station 92 Design	A	FIRE DEPARTMENT	12/29/05	3,660.00	1,537.20	2,122.80	Facility
97	10005215	Fire Station 92 2"" Horizontal Blinds, W	A	FIRE DEPARTMENT	01/27/06	1,299.00	545.58	753.42	Facility
98	10005216	Fire Station 92 All ""Electrical""	A	FIRE DEPARTMENT	02/01/06	110.00	46.20	63.80	Facility
99	10005217	Fire Station 92 Engineering	A	FIRE DEPARTMENT	02/01/06	145.00	60.90	84.10	Facility
100	10005218	Fire Station 92 Engineering	A	FIRE DEPARTMENT	02/14/06	3,666.00	1,539.72	2,126.28	Facility
101	10005219	Fire Station 92 Carts, Mailbox, Ladder,	A	FIRE DEPARTMENT	02/14/06	379.84	159.54	220.30	Facility
102	10005220	Fire Station 92 Shelves For Handicap Res	A	FIRE DEPARTMENT	02/14/06	15.91	6.67	9.24	Facility
103	10005221	Fire Station 92 Networking Materials	A	FIRE DEPARTMENT	02/14/06	52.22	21.93	30.29	Facility
104	10005222	Fire Station 92 Shelving Units	A	FIRE DEPARTMENT	02/14/06	379.85	159.55	220.30	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
105	10005223	Fire Station 92 Waste Baskets, Lamps, Ch	A	FIRE DEPARTMENT	02/14/06	291.64	122.48	169.16	Facility
106	10005224	Fire Station 92 Bunker Gear Storage	A	FIRE DEPARTMENT	02/14/06	301.75	126.74	175.02	Facility
107	10005225	Fire Station 92 Shelving Supplies	A	FIRE DEPARTMENT	02/14/06	151.12	63.47	87.65	Facility
108	10005226	Fire Station 92 Mats,Clocks,Kitchen Item	A	FIRE DEPARTMENT	02/14/06	366.60	153.98	212.62	Facility
109	10005227	Fire Station 92 Silk Plant	A	FIRE DEPARTMENT	02/14/06	48.88	20.53	28.35	Facility
110	10005228	Fire Station 92 Sheets,Art,Clocks,Flatwa	A	FIRE DEPARTMENT	02/14/06	173.97	73.06	100.91	Facility
111	10005229	Fire Station 92 Side Tables, Drill Bit	A	FIRE DEPARTMENT	02/14/06	182.40	76.60	105.80	Facility
112	10005230	Fire Station 92 Construction	A	FIRE DEPARTMENT	02/16/06	24,004.00	10,081.68	13,922.32	Facility
113	10005231	Fire Station 92 Stereopatch Cable For Ra	A	FIRE DEPARTMENT	02/16/06	52.95	22.23	30.72	Facility
114	10005232	Fire Station 92 Engineering	A	FIRE DEPARTMENT	02/16/06	170.00	71.40	98.60	Facility
115	10005233	Fire Station 92 Office Chair, Big & Tall	A	FIRE DEPARTMENT	02/17/06	251.98	105.83	146.15	Facility
116	10005234	Fire Station 92 All Carpet, Vinyl Tile	A	FIRE DEPARTMENT	02/28/06	3,539.64	1,486.64	2,053.00	Facility
117	10005235	Fire Station 92 Pgt Windows	A	FIRE DEPARTMENT	02/28/06	8,082.58	3,394.69	4,687.89	Facility
118	10005236	Fire Station 92 Pgt Windows	A	FIRE DEPARTMENT	02/28/06	682.61	286.70	395.91	Facility
119	10005237	Fire Station 92 Framing & Matting Of 2 A	A	FIRE DEPARTMENT	03/06/06	196.00	82.32	113.68	Facility
120	10005238	Fire Station 92 Dry Erase Board, 4X8	A	FIRE DEPARTMENT	03/08/06	254.29	106.81	147.48	Facility
121	10005239	Fire Station 92 Dispatch System	A	FIRE DEPARTMENT	03/09/06	1,218.55	511.80	706.75	Facility
122	10005240	Fire Station 92 All Plumbing	A	FIRE DEPARTMENT	03/15/06	205.56	86.34	119.22	Facility
123	10005241	Fire Station 92 All Plumbing	A	FIRE DEPARTMENT	03/15/06	39.03	16.40	22.63	Facility
124	10005242	Fire Station 92 All Plumbing	A	FIRE DEPARTMENT	03/15/06	3,722.28	1,563.36	2,158.92	Facility
125	10005243	Fire Station 92 All Plumbing	A	FIRE DEPARTMENT	03/15/06	101.44	42.60	58.84	Facility
126	10005244	Fire Station 92 All Plumbing	A	FIRE DEPARTMENT	03/15/06	335.26	140.81	194.45	Facility
127	10005245	Fire Station 92 Men, Women, Capt, Div Ch	A	FIRE DEPARTMENT	03/16/06	134.00	56.28	77.72	Facility
128	10005246	Fire Station 92 Restroom, Conference/Tra	A	FIRE DEPARTMENT	03/16/06	155.52	65.32	90.20	Facility
129	10005247	Fire Station 92 Wiring Contract	A	FIRE DEPARTMENT	01/11/06	4,996.50	2,098.53	2,897.97	Facility
130	10005248	Fire Station 92 Architectural	A	FIRE DEPARTMENT	01/13/06	4,000.00	1,680.00	2,320.00	Facility
131	10005249	Fire Station 92 42"" 3-Dwr Lateral File,	A	FIRE DEPARTMENT	01/18/06	683.70	287.15	396.55	Facility
132	10005250	Fire Station 92 Table Oval, Laminate Wil	A	FIRE DEPARTMENT	01/18/06	348.73	146.46	202.27	Facility
133	10005251	Fire Station 92 Arm Chair, Freestanding,	A	FIRE DEPARTMENT	01/18/06	288.10	121.01	167.09	Facility
134	10005252	Fire Station 92 Cluster Corner Table, Ch	A	FIRE DEPARTMENT	01/18/06	141.47	59.41	82.06	Facility
135	10005253	Fire Station 92 Conference Lo-Bk Caster	A	FIRE DEPARTMENT	01/18/06	1,745.80	733.24	1,012.56	Facility
136	10005254	Fire Station 92 Omni Side Chair,M-Bk,Woo	A	FIRE DEPARTMENT	01/18/06	478.16	200.82	277.34	Facility
137	10005255	Fire Station 92 Omni Side Chair, M-Bk, M	A	FIRE DEPARTMENT	01/18/06	631.24	265.12	366.12	Facility
138	10005256	Fire Station 92 Construction	A	FIRE DEPARTMENT	08/05/06	478.00	200.76	277.24	Facility
139	10005257	Fire Station 92 Straight Table, Laminate	A	FIRE DEPARTMENT	01/18/06	91.16	38.28	52.88	Facility
140	10005258	Fire Station 92 Installation Cost	A	FIRE DEPARTMENT	01/18/06	1,764.09	740.93	1,023.16	Facility
141	10005259	Fire Station 92 Shipping Charges	A	FIRE DEPARTMENT	01/18/06	510.98	214.61	296.37	Facility
142	10005260	Fire Station 92 Alpha 72"" Desk, Left Pe	A	FIRE DEPARTMENT	01/18/06	560.72	235.50	325.22	Facility
143	10005261	Fire Station 92 Alpha 48"" Return, Right	A	FIRE DEPARTMENT	01/18/06	196.08	82.36	113.72	Facility
144	10005262	Fire Station 92 Alpha 66"" Credenza Righ	A	FIRE DEPARTMENT	01/18/06	239.51	100.60	138.91	Facility
145	10005263	Fire Station 92 Alpha 62"" Hutch, Wild C	A	FIRE DEPARTMENT	01/18/06	288.96	121.36	167.60	Facility
146	10005264	Fire Station 92 Alpha 44"" Hutch, Wild C	A	FIRE DEPARTMENT	01/18/06	250.69	105.28	145.41	Facility
147	10005265	Fire Station 92 Alpha 48"" Bridge, Wild	A	FIRE DEPARTMENT	01/18/06	82.99	34.85	48.14	Facility
148	10005266	Fire Station 92 Alpha 72"" Bookcase, 6 S	A	FIRE DEPARTMENT	01/18/06	360.34	151.35	208.99	Facility
149	10005267	Fire Station 92 Alpha 48"" Bookcase, 4 S	A	FIRE DEPARTMENT	01/18/06	129.43	54.35	75.08	Facility
150	10005268	Fire Station 92 Alpha 48"" Dia Conftable	A	FIRE DEPARTMENT	01/18/06	202.96	85.24	117.72	Facility
151	10005269	Fire Station 92 24""Dx60""W Workstation,	A	FIRE DEPARTMENT	01/18/06	2,167.20	910.22	1,256.98	Facility
152	10005270	Fire Station 92 Keydwr W/Swivel/Mouse Tr	A	FIRE DEPARTMENT	01/18/06	254.56	106.92	147.64	Facility
153	10005271	Fire Station 92 Pencil Dwr, Low Profile,	A	FIRE DEPARTMENT	01/18/06	55.04	23.12	31.92	Facility
154	10005272	Fire Station 92 Hutch Light	A	FIRE DEPARTMENT	01/18/06	127.28	53.46	73.82	Facility
155	10005273	Fire Station 92 R11 Captain'S Bed, W/4 D	A	FIRE DEPARTMENT	01/18/06	2,282.44	958.62	1,323.82	Facility
156	10005274	Fire Station 92 R11 24"" Night Stand,Sgl	A	FIRE DEPARTMENT	01/18/06	153.51	64.48	89.03	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
157	10005275	Fire Station 92 Installation Cost	A	FIRE DEPARTMENT	01/18/06	1,024.36	430.24	594.12	Facility
158	10005276	Fire Station 92 Whirlpool 21 Cu Ftrefrig	A	FIRE DEPARTMENT	01/18/06	1,099.90	461.95	637.95	Facility
159	10005277	Fire Station 92 Frigidaire Dishwasher, W	A	FIRE DEPARTMENT	01/18/06	349.95	146.97	202.98	Facility
160	10005278	Fire Station 92 Kitchenaid Washer, White	A	FIRE DEPARTMENT	01/18/06	399.95	167.97	231.98	Facility
161	10005279	Fire Station 92 Ge Hood, 30"" 3Way, Whit	A	FIRE DEPARTMENT	01/18/06	39.95	16.77	23.18	Facility
162	10005280	Fire Station 92 Installation And Deliver	A	FIRE DEPARTMENT	01/18/06	149.95	62.97	86.98	Facility
163	10005281	Fire Station 92 Sealy Posturpedic Kuleto	A	FIRE DEPARTMENT	01/18/06	1,072.00	450.24	621.76	Facility
164	10005282	Fire Station 92 Construction	A	FIRE DEPARTMENT	01/18/06	83,217.00	34,951.14	48,265.86	Facility
165	10005283	Fire Station 92 Shelving, Wire, Connecto	A	FIRE DEPARTMENT	01/19/06	396.66	166.59	230.07	Facility
166	10005284	Fire Station 92 Magic Chef Glass Top Ran	A	FIRE DEPARTMENT	01/24/06	429.95	180.57	249.38	Facility
167	10005285	Fire Station 92 Ice Machine And Storage	A	FIRE DEPARTMENT	01/24/06	2,375.00	997.50	1,377.50	Facility
168	10005286	Fire Station 92 Twin Murphy Bed Incherry	A	FIRE DEPARTMENT	01/27/06	1,025.00	430.50	594.50	Facility
169	10005287	Fire Station 92 Construction	A	FIRE DEPARTMENT	03/02/06	27,681.00	11,626.02	16,054.98	Facility
170	10005288	Fire Station 92 Install Wall Mirrors In	A	FIRE DEPARTMENT	05/18/06	700.00	294.00	406.00	Facility
171	10005289	Fire Station 92 Install Monument Sign	A	FIRE DEPARTMENT	04/20/06	450.00	189.00	261.00	Facility
172	10005290	Fire Station 92 Routed Lettering Monumen	A	FIRE DEPARTMENT	04/20/06	490.00	205.80	284.20	Facility
173	10005291	Fire Station 92 24"" City Logos Monument	A	FIRE DEPARTMENT	04/20/06	490.00	205.80	284.20	Facility
174	10005292	Fire Station 92 Electrical Services	A	FIRE DEPARTMENT	11/28/05	278.20	116.84	161.36	Facility
175	10005293	Fire Station 92 Prof Services	A	FIRE DEPARTMENT	11/28/05	516.00	216.72	299.28	Facility
176	10005294	Fire Station 92 Relocation Exp Hall Cons	A	FIRE DEPARTMENT	11/30/06	5,680.00	2,612.80	3,067.20	Facility
177	10005295	Fire Station 92 Shipping Charges	A	FIRE DEPARTMENT	01/27/06	19.55	8.22	11.33	Facility
178	10005296	Fire Station 92 Frame/Matt Pictures	A	FIRE DEPARTMENT	01/23/06	485.00	203.70	281.30	Facility
179	10005297	Fire Station 92 Office Furniture	A	FIRE DEPARTMENT	01/20/06	1,349.70	566.87	782.83	Facility
180	10005298	Fire Station 92 Office Furniture	A	FIRE DEPARTMENT	01/19/06	2,457.14	1,031.99	1,425.15	Facility
181	10005299	Fire Station 92 Security, Fire Saftey Se	A	FIRE DEPARTMENT	01/27/06	1,218.55	511.80	706.75	Facility
182	10005300	Fire Station 92 Office Furnishings	A	FIRE DEPARTMENT	09/02/06	121.86	51.19	70.67	Facility
183	10005301	Fire Station 92 Office Furnishings	A	FIRE DEPARTMENT	08/30/06	508.00	213.36	294.64	Facility
184	10005302	Fire Station 92 Construction	A	FIRE DEPARTMENT	03/16/06	6,593.00	2,769.06	3,823.94	Facility
185	10005303	Fire Art Sculpture Aluminum Artist:Linda	A	FIRE DEPARTMENT	08/17/06	10,000.00	10,000.00	0.00	Facility
186	10005304	Fire Art Sculpture Aluminum Artist:Linda	A	FIRE DEPARTMENT	11/08/06	10,000.00	10,000.00	0.00	Facility
187	10005305	Fire Art Sculpture Aluminum Artist:Linda	A	FIRE DEPARTMENT	01/13/08	12,000.00	12,000.00	0.00	Facility
188	10005307	Fire Station 91 364 S Atlantic Ave (Beac	A	FIRE DEPARTMENT	06/15/04	1,250.00	1,250.00	0.00	Facility
189	10005308	Fire Station 91 Phase I Site Assessment	A	FIRE DEPARTMENT	07/07/04	2,000.00	2,000.00	0.00	Facility
190	10005309	Fire Station 91 Title Search 4 Parcels O	A	FIRE DEPARTMENT	05/05/04	150.00	150.00	0.00	Facility
191	10005310	Fire Station 91 Fed Ex For Plans	A	FIRE DEPARTMENT	08/24/04	8.53	2.90	5.63	Facility
192	10005311	Fire Station 91 Fed Ex For Plans	A	FIRE DEPARTMENT	08/24/04	6.38	2.17	4.21	Facility
193	10005312	Fire Station 91 Architectural Services	A	FIRE DEPARTMENT	03/18/08	2,400.00	1,200.00	1,200.00	Facility
194	10005313	Fire Station 91 Design Final Payment	A	FIRE DEPARTMENT	09/30/07	5,400.00	2,484.00	2,916.00	Facility
195	10005314	Fire Station 91 Engineering Services	A	FIRE DEPARTMENT	08/05/05	100.00	38.00	62.00	Facility
196	10005315	Fire Station 91 Bond Counsel Costs	A	FIRE DEPARTMENT	09/30/05	2,500.00	950.00	1,550.00	Facility
197	10005316	Fire Station 91 Plan Copies	A	FIRE DEPARTMENT	10/08/04	14.56	5.54	9.02	Facility
198	10005317	Fire Station 91 Appraisal On Granada / S	A	FIRE DEPARTMENT	10/22/04	5,500.00	5,500.00	0.00	Facility
199	10005318	Fire Station 91 Plans Legal Ad	A	FIRE DEPARTMENT	01/05/05	91.50	34.77	56.73	Facility
200	10005319	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	05/05/05	17,440.00	6,627.20	10,812.80	Facility
201	10005320	Fire Station 91 Furnishings Hall Constru	A	FIRE DEPARTMENT	10/27/06	1,022.12	470.18	551.94	Facility
202	10005321	Fire Station 91 Pre-Construction Service	A	FIRE DEPARTMENT	06/10/05	1,499.00	569.62	929.38	Facility
203	10005322	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	06/21/05	49,525.00	18,819.50	30,705.50	Facility
204	10005323	Fire Station 91 Geotechnical Exploration	A	FIRE DEPARTMENT	06/27/05	2,885.50	1,096.49	1,789.01	Facility
205	10005324	Fire Station 91 Pre-Construction Service	A	FIRE DEPARTMENT	07/18/05	7,244.00	2,752.72	4,491.28	Facility
206	10005325	Fire Station 91 Furnishings Communicatio	A	FIRE DEPARTMENT	10/13/06	1,404.36	646.01	758.35	Facility
207	10005326	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	08/16/05	4,840.00	1,839.20	3,000.80	Facility
208	10005327	Fire Station 91 Pre-Construction Service	A	FIRE DEPARTMENT	08/17/05	2,498.00	949.24	1,548.76	Facility

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City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
209	10005328	Fire Station 91 Playground Design Servic	A	FIRE DEPARTMENT	11/12/07	32,954.77	16,477.39	16,477.38	Facility
210	10005329	Fire Station 91 Mast Arm Signal Geotechn	A	FIRE DEPARTMENT	09/13/05	1,245.00	473.10	771.90	Facility
211	10005330	Fire Station 91 Pre-Construction Service	A	FIRE DEPARTMENT	09/16/05	1,249.00	474.62	774.38	Facility
212	10005331	Fire Station 91 Impact Fees - Volusia Co	A	FIRE DEPARTMENT	09/16/05	6,620.40	2,515.74	4,104.66	Other
213	10005332	Fire Station 91 Land Exchange	A	FIRE DEPARTMENT	11/22/04	389,309.11	389,309.11	0.00	Facility
214	10005333	Fire Station 91 Closing Cost For Land	A	FIRE DEPARTMENT	11/10/04	25,000.00	25,000.00	0.00	Facility
215	10005334	Fire Station 91 Prof Services	A	FIRE DEPARTMENT	04/27/05	14,828.00	5,634.64	9,193.36	Facility
216	10005335	Fire Station 91 Fed Ex For Plans	A	FIRE DEPARTMENT	02/18/05	6.59	2.52	4.08	Facility
217	10005336	Fire Station 91 Construction	A	FIRE DEPARTMENT	07/30/05	4,759.00	1,808.42	2,950.58	Facility
218	10005337	Fire Station 91 Construction	A	FIRE DEPARTMENT	05/31/05	8,634.00	3,280.92	5,353.08	Facility
219	10005338	Fire Station 91 Npdes Permit	A	FIRE DEPARTMENT	04/14/05	150.00	57.00	93.00	Facility
220	10005339	Fire Station 91 Stormwater Permit	A	FIRE DEPARTMENT	04/14/05	350.00	133.00	217.00	Facility
221	10005340	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	09/30/05	3,860.00	1,466.80	2,393.20	Facility
222	10005341	Fire Station 91 Construction Payment #1	A	FIRE DEPARTMENT	09/30/05	40,064.00	15,224.32	24,839.68	Facility
223	10005342	Fire Station 91 Construction	A	FIRE DEPARTMENT	11/17/05	40,136.00	16,857.12	23,278.88	Facility
224	10005343	Fire Station 91 All Rebar	A	FIRE DEPARTMENT	12/08/05	3,210.30	1,348.33	1,861.97	Facility
225	10005344	Fire Station 91 Financial Advisory Servi	A	FIRE DEPARTMENT	04/04/05	5,897.97	2,241.23	3,656.75	Facility
226	10005345	Fire Station 91 Bond Issue Costs	A	FIRE DEPARTMENT	03/15/05	347.80	132.17	215.63	Facility
227	10005346	Fire Station 91 Issue Costs	A	FIRE DEPARTMENT	03/15/05	11,250.00	4,275.00	6,975.00	Facility
228	10005347	Fire Station 91 Construction	A	FIRE DEPARTMENT	12/20/05	70,239.00	29,500.38	40,738.62	Facility
229	10005348	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	12/22/05	228.00	95.76	132.24	Facility
230	10005349	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	12/22/05	76.00	31.92	44.08	Facility
231	10005350	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	12/22/05	1,320.00	554.40	765.60	Facility
232	10005351	Fire Station 91 All Rebar	A	FIRE DEPARTMENT	12/22/05	9,479.70	3,981.47	5,498.23	Facility
233	10005352	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	12/29/05	3,160.00	1,327.20	1,832.80	Facility
234	10005353	Fire Station 91 All Airvac System	A	FIRE DEPARTMENT	02/01/06	7,842.00	3,293.64	4,548.36	Facility
235	10005354	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	02/01/06	240.00	100.80	139.20	Facility
236	10005355	Fire Station 91 All Precast Concrete	A	FIRE DEPARTMENT	02/09/06	5,000.00	2,100.00	2,900.00	Facility
237	10005356	Fire Station 91 All Precast Concrete	A	FIRE DEPARTMENT	02/09/06	6,312.00	2,651.04	3,660.96	Facility
238	10005357	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	02/14/06	180.00	75.60	104.40	Facility
239	10005358	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	02/14/06	60.00	25.20	34.80	Facility
240	10005359	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	02/14/06	3,670.00	1,541.40	2,128.60	Facility
241	10005360	Fire Station 91 Construction	A	FIRE DEPARTMENT	02/16/06	45,114.00	18,947.88	26,166.12	Facility
242	10005361	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	02/16/06	156.00	65.52	90.48	Facility
243	10005362	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	02/16/06	95.00	39.90	55.10	Facility
244	10005363	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	03/07/06	185.00	77.70	107.30	Facility
245	10005364	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	03/13/06	2,440.00	1,024.80	1,415.20	Facility
246	10005365	Fire Station 91 Construction	A	FIRE DEPARTMENT	03/14/06	20,290.00	8,521.80	11,768.20	Facility
247	10005366	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	2,136.00	897.12	1,238.88	Facility
248	10005367	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	1,065.75	447.62	618.14	Facility
249	10005368	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	815.50	342.51	472.99	Facility
250	10005369	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	4,115.25	1,728.41	2,386.85	Facility
251	10005370	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	2,684.00	1,127.28	1,556.72	Facility
252	10005371	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	221.50	93.03	128.47	Facility
253	10005372	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	663.75	278.78	384.98	Facility
254	10005373	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	03/15/06	298.25	125.27	172.99	Facility
255	10005374	Fire Station 91 All Trusses	A	FIRE DEPARTMENT	03/15/06	16,426.00	6,898.92	9,527.08	Facility
256	10005375	Fire Station 91 Construction	A	FIRE DEPARTMENT	01/18/06	139,401.00	58,548.42	80,852.58	Facility
257	10005376	Fire Station 91 Construction	A	FIRE DEPARTMENT	04/26/06	37,902.00	15,918.84	21,983.16	Facility
258	10005377	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	06/05/06	3,355.00	1,409.10	1,945.90	Facility
259	10005378	Fire Station 91 Jobsite All Stucco, Meta	A	FIRE DEPARTMENT	06/14/06	286.50	120.33	166.17	Facility
260	10005379	Fire Station 91 All Storefront Doors	A	FIRE DEPARTMENT	06/14/06	2,123.25	891.77	1,231.49	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
261	10005380	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	06/14/06	5,062.08	2,126.08	2,936.00	Facility
262	10005381	Fire Station 91 All Insulation Mater	A	FIRE DEPARTMENT	06/14/06	745.82	313.25	432.57	Facility
263	10005382	Fire Station 91 Construction	A	FIRE DEPARTMENT	05/10/06	101,172.00	42,492.24	58,679.76	Facility
264	10005383	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	05/18/06	3,656.10	1,535.57	2,120.53	Facility
265	10005384	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	05/18/06	2,787.55	1,170.78	1,616.77	Facility
266	10005385	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	05/18/06	2,917.36	1,225.30	1,692.06	Facility
267	10005386	Fire Station 91 All Insulation Materials	A	FIRE DEPARTMENT	05/02/06	108.35	45.52	62.83	Facility
268	10005387	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	04/21/06	659.20	276.86	382.34	Facility
269	10005388	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	04/21/06	1,289.92	541.76	748.16	Facility
270	10005389	Fire Station 91 All Plumbing Materials	A	FIRE DEPARTMENT	05/18/06	228.08	95.80	132.28	Facility
271	10005390	Fire Station 91 All Hvac Equipment	A	FIRE DEPARTMENT	05/02/06	4,215.00	1,770.30	2,444.70	Facility
272	10005391	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	04/21/06	2,260.72	949.50	1,311.22	Facility
273	10005392	Fire Station 91 All Insulation Materials	A	FIRE DEPARTMENT	06/05/06	2,080.51	873.82	1,206.69	Facility
274	10005393	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	04/21/06	3,383.82	1,421.21	1,962.61	Facility
275	10005394	Fire Station 91 All Stucco, Metal	A	FIRE DEPARTMENT	04/21/06	93.00	39.06	53.94	Facility
276	10005395	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	05/08/06	6,600.00	2,772.00	3,828.00	Facility
277	10005396	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	05/02/06	7,668.00	3,220.56	4,447.44	Facility
278	10005397	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	05/02/06	2,620.00	1,100.40	1,519.60	Facility
279	10005398	Fire Station 91 Construction	A	FIRE DEPARTMENT	04/26/06	78,729.00	33,066.18	45,662.82	Facility
280	10005399	Fire Station 91 Alpha 48"" Return, Right	A	FIRE DEPARTMENT	09/27/06	196.08	82.36	113.72	Facility
281	10005400	Fire Station 91 Alpha 66"" Credenza,Left	A	FIRE DEPARTMENT	09/27/06	239.51	100.60	138.91	Facility
282	10005401	Fire Station 91 Alpha 24"" End Table-Wil	A	FIRE DEPARTMENT	10/05/06	184.04	84.66	99.38	Facility
283	10005402	Fire Station 91 Alpha 96"" Conf Table-Wi	A	FIRE DEPARTMENT	10/05/06	306.16	140.82	165.34	Facility
284	10005403	Fire Station 91 42"" Lateral File, 3 Dwr	A	FIRE DEPARTMENT	10/05/06	341.85	157.26	184.59	Facility
285	10005404	Fire Station 91 Rii 75"" Captain'S Bed,	A	FIRE DEPARTMENT	09/27/06	570.61	239.66	330.95	Facility
286	10005405	Fire Station 91 Rii 75"" Captain'S Bed,	A	FIRE DEPARTMENT	10/05/06	2,853.05	1,312.41	1,540.64	Facility
287	10005406	Fire Station 91 Alpha Lateral File, 2 Dr	A	FIRE DEPARTMENT	09/27/06	448.92	188.54	260.38	Facility
288	10005407	Fire Station 91 Alpha 72"" Bookcase, 6-S	A	FIRE DEPARTMENT	09/27/06	360.34	151.35	208.99	Facility
289	10005408	Fire Station 91 24""D X 60""W Workstatio	A	FIRE DEPARTMENT	10/05/06	288.96	132.92	156.04	Facility
290	10005409	Fire Station 91 Acclaim 42"" Lateral Fil	A	FIRE DEPARTMENT	09/28/06	341.85	143.59	198.26	Facility
291	10005410	Fire Station 91 Ez Recliner Overstuf Arm	A	FIRE DEPARTMENT	09/27/06	1,926.40	809.08	1,117.32	Facility
292	10005411	Fire Station 91 Omni Wood Side Chair, Sl	A	FIRE DEPARTMENT	09/27/06	233.92	98.24	135.68	Facility
293	10005412	Fire Station 91 Alpha 60"" Bookcase 5 Sh	A	FIRE DEPARTMENT	10/05/06	304.44	140.04	164.40	Facility
294	10005413	Fire Station 91 Omni Wood Side Chair, Sl	A	FIRE DEPARTMENT	10/05/06	1,637.44	753.22	884.22	Facility
295	10005414	Fire Station 91 Floridian Lo-Bk Chair	A	FIRE DEPARTMENT	10/05/06	498.80	229.45	269.35	Facility
296	10005415	Fire Station 91 Omni Wood Side Chair, Me	A	FIRE DEPARTMENT	09/27/06	239.00	100.38	138.62	Facility
297	10005416	Fire Station 91 Floridian Guest Chair (C	A	FIRE DEPARTMENT	09/27/06	2,317.70	973.43	1,344.27	Facility
298	10005417	Fire Station 91 Table, Tressel, Wood-Din	A	FIRE DEPARTMENT	09/22/06	510.84	214.56	296.28	Facility
299	10005418	Fire Station 91 Floridian Lo-Back Chair	A	FIRE DEPARTMENT	09/27/06	1,496.40	628.48	867.92	Facility
300	10005419	Fire Station 91 Furniture Delivery	A	FIRE DEPARTMENT	08/24/06	45.00	18.90	26.10	Facility
301	10005420	Fire Station 91 Install Dishwasher	A	FIRE DEPARTMENT	08/24/06	100.00	42.00	58.00	Facility
302	10005421	Fire Station 91 Frigidaire Dishwasher, W	A	FIRE DEPARTMENT	08/24/06	299.00	125.58	173.42	Facility
303	10005422	Fire Station 91 Whirlpool Dryer, White	A	FIRE DEPARTMENT	08/24/06	312.00	131.04	180.96	Facility
304	10005423	Fire Station 91 Whirlpool Washing Machin	A	FIRE DEPARTMENT	08/24/06	329.00	138.18	190.82	Facility
305	10005424	Fire Station 91 Dryer Cord	A	FIRE DEPARTMENT	08/24/06	10.00	4.20	5.80	Facility
306	10005425	Fire Station 91 Vent Kit	A	FIRE DEPARTMENT	08/24/06	6.00	2.52	3.48	Facility
307	10005426	Fire Station 91 Frigidaire Glass Top Ran	A	FIRE DEPARTMENT	08/24/06	440.00	184.80	255.20	Facility
308	10005427	Fire Station 91 Range Cord	A	FIRE DEPARTMENT	08/24/06	10.00	4.20	5.80	Facility
309	10005428	Fire Station 91 Whirlpool Range Hood, Wh	A	FIRE DEPARTMENT	08/24/06	35.00	14.70	20.30	Facility
310	10005429	Fire Station 91 Install Hood	A	FIRE DEPARTMENT	08/24/06	80.00	33.60	46.40	Facility
311	10005430	Fire Station 91 Whirlpool Refrigerator,	A	FIRE DEPARTMENT	08/24/06	1,116.00	468.72	647.28	Facility
312	10005431	Fire Station 91 All Painting	A	FIRE DEPARTMENT	08/28/06	18.50	7.77	10.73	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
313	10005432	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/05/06	602.70	277.24	325.46	Facility
314	10005433	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/05/06	22.94	10.55	12.39	Facility
315	10005434	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	10.49	4.82	5.67	Facility
316	10005435	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	85.03	39.12	45.91	Facility
317	10005436	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	14.39	6.61	7.78	Facility
318	10005437	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	602.69	277.23	325.46	Facility
319	10005438	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	428.92	197.29	231.63	Facility
320	10005439	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	07/18/06	3,760.00	1,579.20	2,180.80	Facility
321	10005440	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	07/18/06	550.00	231.00	319.00	Facility
322	10005441	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	07/18/06	2,970.00	1,247.40	1,722.60	Facility
323	10005442	Fire Station 91 Steel Shelving 48 X 24 X	A	FIRE DEPARTMENT	09/21/06	291.88	122.59	169.29	Facility
324	10005443	Fire Station 91 Clocks,Kitchen Items,Coo	A	FIRE DEPARTMENT	09/29/06	376.27	158.04	218.23	Facility
325	10005444	Fire Station 91 Mop Bucket, Vacuum, Shop	A	FIRE DEPARTMENT	11/01/06	322.05	148.15	173.90	Facility
326	10005445	Fire Station 91 Faux Wood Blinds	A	FIRE DEPARTMENT	11/01/06	1,285.45	591.30	694.15	Facility
327	10005446	Fire Station 91 Faux Wood Blinds	A	FIRE DEPARTMENT	11/01/06	127.55	58.68	68.87	Facility
328	10005447	Fire Station 91 Construction	A	FIRE DEPARTMENT	08/01/06	61,254.00	25,726.68	35,527.32	Facility
329	10005448	Fire Station 91 Construction	A	FIRE DEPARTMENT	07/13/06	131,111.00	55,066.62	76,044.38	Facility
330	10005449	Fire Station 91 Millwork	A	FIRE DEPARTMENT	07/18/06	13,000.00	5,460.00	7,540.00	Facility
331	10005450	Fire Station 91 Manitowoc Ice Machine An	A	FIRE DEPARTMENT	09/01/06	2,375.00	997.50	1,377.50	Facility
332	10005451	Fire Station 91 Bunk Room Desk Lamps	A	FIRE DEPARTMENT	11/01/06	184.43	84.83	99.60	Facility
333	10005452	Fire Station 91 Phone, Cordless	A	FIRE DEPARTMENT	09/18/06	122.94	51.63	71.31	Facility
334	10005453	Fire Station 91 Handset, Cordless, Black	A	FIRE DEPARTMENT	09/18/06	179.97	75.58	104.39	Facility
335	10005454	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	10/05/06	90.42	41.58	48.84	Facility
336	10005455	Fire Station 91 Lights & Gear Electric	A	FIRE DEPARTMENT	10/05/06	197.58	90.90	106.68	Facility
337	10005456	Fire Station 91 Small Office Desk	A	FIRE DEPARTMENT	11/10/06	164.95	75.87	89.08	Facility
338	10005457	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	08/21/06	76.00	31.92	44.08	Facility
339	10005458	Fire Station 91 Construction Materials T	A	FIRE DEPARTMENT	08/21/06	60.00	25.20	34.80	Facility
340	10005459	Fire Station 91 Wiring Contract	A	FIRE DEPARTMENT	09/20/06	60.00	25.20	34.80	Facility
341	10005460	Fire Station 91 Sealy Posturpedic Kuleto	A	FIRE DEPARTMENT	09/19/06	1,614.00	677.88	936.12	Facility
342	10005461	Fire Station 91 Desk Lamps, Dry Erase Bd	A	FIRE DEPARTMENT	11/03/06	315.68	145.20	170.48	Facility
343	10005462	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	07/18/06	4,970.99	2,087.81	2,883.18	Facility
344	10005463	Fire Station 91 All Roofing Materials	A	FIRE DEPARTMENT	07/18/06	3,049.06	1,280.61	1,768.45	Facility
345	10005464	Fire Station 91 Drafting Fee/Shipping	A	FIRE DEPARTMENT	10/05/06	718.10	330.34	387.76	Facility
346	10005465	Fire Station 91 All Painting	A	FIRE DEPARTMENT	08/28/06	13.39	5.62	7.77	Facility
347	10005466	Fire Station 91 All Painting	A	FIRE DEPARTMENT	08/28/06	243.40	102.22	141.18	Facility
348	10005467	Fire Station 91 All Painting	A	FIRE DEPARTMENT	08/28/06	25.49	10.70	14.79	Facility
349	10005468	Fire Station 91 All Painting	A	FIRE DEPARTMENT	08/28/06	54.00	22.68	31.32	Facility
350	10005469	Fire Station 91 All Painting	A	FIRE DEPARTMENT	10/24/06	175.48	80.72	94.76	Facility
351	10005470	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	08/21/06	2,210.00	928.20	1,281.80	Facility
352	10005471	Fire Station 91 Survey Emergency Signal	A	FIRE DEPARTMENT	09/28/06	2,380.00	999.60	1,380.40	Facility
353	10005472	Fire Station 91 Mobile 3-Pack Bunker Gea	A	FIRE DEPARTMENT	09/12/06	4,512.00	1,895.04	2,616.96	Equipment
354	10005473	Fire Station 91 Shipping	A	FIRE DEPARTMENT	09/12/06	465.00	195.30	269.70	Facility
355	10005474	Fire Station 91 Installation Of Furnitur	A	FIRE DEPARTMENT	09/27/06	1,259.44	528.96	730.48	Facility
356	10005475	Fire Station 91 Architecture Design	A	FIRE DEPARTMENT	08/31/06	72.00	30.24	41.76	Facility
357	10005476	Fire Station 91 Architecture Design Serv	A	FIRE DEPARTMENT	08/29/06	132.00	55.44	76.56	Facility
358	10005477	Fire Station 91 Architecture Design Serv	A	FIRE DEPARTMENT	07/31/06	155.00	65.10	89.90	Facility
359	10005478	Fire Station 91 Architecture Design Serv	A	FIRE DEPARTMENT	07/24/06	76.00	31.92	44.08	Facility
360	10005479	Fire Station 91 Architecture Design Serv	A	FIRE DEPARTMENT	07/13/06	60.00	25.20	34.80	Facility
361	10005480	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	09/28/06	2,862.84	1,202.40	1,660.44	Facility
362	10005481	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	09/28/06	4,294.48	1,803.68	2,490.80	Facility
363	10005482	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	09/20/06	572.22	240.33	331.89	Facility
364	10005483	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	09/20/06	7,479.32	3,141.32	4,338.00	Facility

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
365	10005484	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	09/20/06	1,499.67	629.85	869.82	Facility
366	10005485	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	08/29/06	302.91	127.21	175.70	Facility
367	10005486	Fire Station 91 Furnishings	A	FIRE DEPARTMENT	08/28/06	4,977.00	2,090.34	2,886.66	Facility
368	10005487	Fire Station 91 Furnishings - Appliances	A	FIRE DEPARTMENT	08/22/06	2,782.00	1,168.44	1,613.56	Facility
369	10005488	Fire Station 91 Furnishings - Art Work	A	FIRE DEPARTMENT	08/18/06	1,086.36	456.28	630.08	Facility
370	10005489	Fire Station 91 Construction	A	FIRE DEPARTMENT	09/30/06	220,113.82	92,447.81	127,666.01	Facility
371	10005490	Fire Station 91 Construction	A	FIRE DEPARTMENT	09/30/06	11,137.00	4,677.54	6,459.46	Facility
372	10005491	Fire Station 91 Computer Wiring Services	A	FIRE DEPARTMENT	09/19/06	60.00	25.20	34.80	Facility
373	10005492	Fire Station 91 Computer Wiring Services	A	FIRE DEPARTMENT	09/19/06	5,440.00	2,284.80	3,155.20	Facility
374	10005493	Fire Station 91 Paint	A	FIRE DEPARTMENT	09/13/06	602.70	253.13	349.57	Facility
375	10005494	Fire Station 91 Paint	A	FIRE DEPARTMENT	09/08/06	22.94	9.63	13.31	Facility
376	10005495	Fire Station 91 Design Services	A	FIRE DEPARTMENT	09/01/06	2,380.00	999.60	1,380.40	Facility
377	10005496	Fire Station 91 Construction	A	FIRE DEPARTMENT	08/31/06	22,930.00	9,630.60	13,299.40	Facility
378	10005497	Fire Station 91 Construction	A	FIRE DEPARTMENT	08/31/06	74,087.00	31,116.54	42,970.46	Facility
379	10005498	Fire Station 91 Building Supplies	A	FIRE DEPARTMENT	08/25/06	5,735.00	2,408.70	3,326.30	Facility
380	10005499	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	08/25/06	4,440.00	1,864.80	2,575.20	Facility
381	10005500	Fire Station 91 All Doors, Frames	A	FIRE DEPARTMENT	08/25/06	1,070.00	449.40	620.60	Facility
382	10005501	Fire Station 91 Plumbing Supplies	A	FIRE DEPARTMENT	08/21/06	1,391.33	584.37	806.96	Facility
383	10005502	Fire Station 91 Electrical Supplies	A	FIRE DEPARTMENT	08/21/06	273.46	114.85	158.61	Facility
384	10005503	Fire Station 91 Hvac Supplies	A	FIRE DEPARTMENT	08/08/06	1,056.00	443.52	612.48	Facility
385	10005504	Fire Station 91 Plumbing Supplies	A	FIRE DEPARTMENT	08/03/06	90.59	38.06	52.53	Facility
386	10005505	Fire Station 91 Plumbing Supplies	A	FIRE DEPARTMENT	08/01/06	3,333.26	1,399.97	1,933.29	Facility
387	10005506	Fire Station 91 Construction	A	FIRE DEPARTMENT	07/30/06	38,624.00	16,222.08	22,401.92	Facility
388	10005507	Fire Station 91 All Millwork	A	FIRE DEPARTMENT	07/21/06	4,061.00	1,705.62	2,355.38	Facility
389	10005508	Fire Station 91 Hvac Supplies	A	FIRE DEPARTMENT	07/14/06	120.00	50.40	69.60	Facility
390	10005509	Fire Station 91 Hvac Supplies	A	FIRE DEPARTMENT	07/13/06	5,566.00	2,337.72	3,228.28	Facility
391	10005510	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	897.58	376.99	520.59	Facility
392	10005511	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	18.50	7.77	10.73	Facility
393	10005512	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	75.42	31.67	43.75	Facility
394	10005513	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	25.49	10.70	14.79	Facility
395	10005514	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	151.00	63.42	87.58	Facility
396	10005515	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	13.39	5.62	7.77	Facility
397	10005516	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/06	54.00	22.68	31.32	Facility
398	10005517	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/12/07	513.90	236.38	277.52	Facility
399	10005518	Fire Station 91 Paint	A	FIRE DEPARTMENT	07/11/07	302.15	138.98	163.17	Facility
400	10005519	Fire Station 91 Design Services	A	FIRE DEPARTMENT	07/07/06	2,210.00	928.20	1,281.80	Facility
401	10005520	Fire Station 91 Electrical Supplies	A	FIRE DEPARTMENT	03/31/06	197.12	82.79	114.33	Facility
402	10005521	Fire Station 91 Building Supplies	A	FIRE DEPARTMENT	05/30/06	118.50	49.77	68.73	Facility
403	10005522	Fire Art Sculpture - Bronze - Artist: Sh	A	FIRE DEPARTMENT	08/17/06	15,000.00	15,000.00	0.00	Facility
404	10005526	Fire Art Sculpture - Bronze - Artist: Sh	A	FIRE DEPARTMENT	03/16/07	12,500.00	12,500.00	0.00	Facility
405	10005527	Fire Art Sculpture - Bronze - Artist: Sh	A	FIRE DEPARTMENT	01/17/08	12,500.00	12,500.00	0.00	Facility
406	10005528	Fire Art Sculpture Base Construction-Fa	A	FIRE DEPARTMENT	03/31/08	1,710.00	1,710.00	0.00	Facility
407	10005529	Fire Art Sculpture Electrical Work-Fa 91	A	FIRE DEPARTMENT	04/24/08	419.68	419.68	0.00	Facility
408	10005530	Fire Art Sculpture Electrical Work-Fa 91	A	FIRE DEPARTMENT	04/23/08	2.91	2.91	0.00	Facility
409	10005531	Fire Art Sculpture Electrical Work-Fa 91	A	FIRE DEPARTMENT	04/23/08	47.34	47.34	0.00	Facility
410	10005532	Fire Art Sculpture Electrical Work-Fa 91	A	FIRE DEPARTMENT	04/23/08	221.06	221.06	0.00	Facility
411	10005736	It-Fire Telestaff Software Fire Report P	A	FIRE DEPARTMENT	02/21/92	1,314.43	0.00	1,314.43	Equipment
412	10005737	It-Fire Telestaff Software/Posicheck Iii	A	FIRE DEPARTMENT	09/29/00	6,200.00	0.00	6,200.00	Equipment
413	10007152	Eqp Defibrillator-Heartstart Mrx Als Mon	A	FIRE DEPARTMENT	04/04/06	14,592.75	0.00	14,592.75	Equipment
414	10007153	Eqp Defibrillator-Heartstart Mrx Als Mon	A	FIRE DEPARTMENT	04/04/06	14,592.75	0.00	14,592.75	Equipment
415	10007154	Eqp Defibrillator-Heartstart Mrx Als Mon	A	FIRE DEPARTMENT	04/04/06	14,592.75	0.00	14,592.75	Equipment
416	10007220	2006 E-One Typhoon	A	FIRE DEPARTMENT	10/12/06	518,831.00	51,883.10	466,947.90	Vehicles

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
417	10007457	1969 General Cargo	A	FIRE DEPARTMENT	08/10/98	2,000.00	0.00	2,000.00	Vehicles
418	10007460	Gen 00 Katolight D35Fgj4 (Fs 93) Generat	A	FIRE DEPARTMENT	03/17/00	14,859.00	0.00	14,859.00	Equipment
419	10007466	Eqp Heartstart Mrx Als Monitor/Cardiac D	A	FIRE DEPARTMENT	07/06/05	14,581.20	0.00	14,581.20	Equipment
420	10007467	Eqp Heartstart Mrx Als Monitor/Cardiac D	A	FIRE DEPARTMENT	07/06/05	14,581.20	0.00	14,581.20	Equipment
421	10007468	Eqp Heartstart Mrx Als Monitor/Cardiac D	A	FIRE DEPARTMENT	07/06/05	14,581.20	0.00	14,581.20	Equipment
422	10007469	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	09/21/05	8,750.00	0.00	8,750.00	Equipment
423	10007470	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	09/21/05	8,750.00	0.00	8,750.00	Equipment
424	10007471	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	09/30/05	8,750.00	0.00	8,750.00	Equipment
425	10007472	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	09/30/05	8,750.00	0.00	8,750.00	Equipment
426	10007473	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	09/30/05	8,750.00	0.00	8,750.00	Equipment
427	10007475	Eqp Heartstart Mrx Als Monitor/Cardiac D	A	FIRE DEPARTMENT	07/06/05	14,581.20	0.00	14,581.20	Equipment
428	10007476	Gen 06 Cummins 64 Kw Generator	A	FIRE DEPARTMENT	08/09/06	26,210.94	873.70	25,337.24	Equipment
429	10007480	Eqp 03 Waterous 204A Diesel Water Pump(F	A	FIRE DEPARTMENT	04/28/03	11,198.75	0.00	11,198.75	Equipment
430	10007629	Eqp Msa-5200 Thermal Imaging Camera	A	FIRE DEPARTMENT	01/02/03	9,700.00	0.00	9,700.00	Equipment
431	10007647	Veh 08 Chevy Silverado	A	FIRE DEPARTMENT	07/07/08	19,738.01	0.00	19,738.01	Vehicles
432	10007785	Fire Equipment	A	FIRE DEPARTMENT	09/30/10	73,895.15	0.00	73,895.15	Equipment
433	10007850	2011 Pierce Ladder	A	FIRE DEPARTMENT	09/30/10	429,970.00	128,990.99	300,979.01	Vehicles
434	10007880	Fema Fire Assistance	A	FIRE DEPARTMENT	09/30/11	58,696.84	0.00	58,696.84	Other
435	10007882	Fire Equipment Grant	A	FIRE DEPARTMENT	09/30/11	13,019.78	0.00	13,019.78	Other
436	10007887	Fire Station 91 Frr - Hvac	A	FIRE DEPARTMENT	09/30/11	10,850.00	6,727.00	4,123.00	Facility
437	10007903	Tahoe	A	FIRE DEPARTMENT	09/30/11	31,152.00	0.00	31,152.00	Vehicles
438	10007904	Genset Station 94	A	FIRE DEPARTMENT	09/30/11	32,457.11	11,900.93	20,556.18	Facility
439	10007905	2011 Chevy Tahoe	A	FIRE DEPARTMENT	09/30/11	24,139.00	0.00	24,139.00	Vehicles
440	10008265	2014 Ford Explorer	A	FIRE DEPARTMENT	09/30/14	24,899.00	0.00	24,899.00	Vehicles
441	10008339	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
442	10008340	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
443	10008341	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
444	10008342	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
445	10008343	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
446	10008344	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
447	10008345	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
448	10008346	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
449	10008347	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
450	10008348	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
451	10008349	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
452	10008350	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
453	10008351	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
454	10008352	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
455	10008353	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
456	10008354	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
457	10008355	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
458	10008356	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
459	10008357	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
460	10008358	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
461	10008359	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
462	10008360	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
463	10008361	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
464	10008362	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
465	10008363	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
466	10008364	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
467	10008365	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment
468	10008366	Msa-Scba-G1 Respirators	A	FIRE DEPARTMENT	09/30/15	6,434.76	0.00	6,434.76	Equipment

Table 7-2
City of Ormond Beach
Fire Services Impact Fee Feasibility Analysis

Fire Department Fixed Assets

Line No.	ASSET	DESCRIPTION	STATUS	LOCATION DESC	DATE ACQ	ACQ COST	CURR BOOK VAL	LTD ACCUM DEPR	Asset Category
469	10008416	2015 Pumper	A	FIRE DEPARTMENT	09/30/15	343,606.00	217,617.12	125,988.88	Vehicles
470	10008443	Afg 2014	A	FIRE DEPARTMENT	09/30/16	22,801.00	2,280.10	20,520.90	Facility
471	10008450	Fs93 Roof Repl	A	FIRE DEPARTMENT	09/30/16	72,837.00	50,985.90	21,851.10	Facility
472	20000061	CARDIAC MONITORS	A	FIRE DEPARTMENT	08/28/17	44,892.61	17,208.84	27,683.77	Equipment
473	20000062	CARDIAC MONITORS	A	FIRE DEPARTMENT	08/28/17	28,595.26	8,578.58	20,016.68	Equipment
474	20000063	CARDIAC MONITORS	A	FIRE DEPARTMENT	08/28/17	28,595.26	8,578.58	20,016.68	Equipment
475	20000064	CARDIAC MONITORS	A	FIRE DEPARTMENT	08/28/17	28,595.26	8,578.58	20,016.68	Equipment
476	20000065	CARDIAC MONITORS	A	FIRE DEPARTMENT	08/28/17	28,595.26	8,578.58	20,016.68	Equipment
477	20000098	WASHER EXTRACTOR STATION 92	A	FIRE DEPARTMENT	09/30/17	9,645.17	3,697.32	5,947.85	Facility
478	20000121	2018 FORD F250 4X4 CREW CAB PICK UP	A	FIRE DEPARTMENT	07/17/18	56,327.73	28,889.60	27,438.13	Vehicles
479	20000168	2018 PIERCE SABER	A	FIRE DEPARTMENT	04/30/18	381,073.00	317,560.83	63,512.17	Vehicles
480	20000180	REPLACE ROOF FIRE STATION 94	A	FIRE DEPARTMENT	09/28/18	24,800.00	20,666.67	4,133.33	Facility
481	20000316	FIRE STATION EXTRICTION	A	FIRE DEPARTMENT	03/24/20	32,720.04	32,065.64	654.40	Facility
482	20000357	5 TON HEAT PUMP*FIRE HOUSE 92 S NOVA RD	A	FIRE DEPARTMENT	04/21/20	5,230.00	5,055.67	174.33	Facility
483	Grand Total					<u>\$8,213,671.23</u>	<u>\$2,957,602.91</u>	<u>\$5,256,068.54</u>	
		Description	Original Cost						
484	Equipment		\$656,223.25						
485	Vehicles		2,402,547.94						
486	Facility		5,076,563.02						
487	Other		78,337.02						
488	Total		\$8,213,671.23						

Select Year: 2021 ▼ Go

The 2021 Florida Statutes

Title XI	Chapter 163	View Entire Chapter
COUNTY ORGANIZATION AND INTERGOVERNMENTAL RELATIONS	INTERGOVERNMENTAL PROGRAMS	

163.31801 Impact fees; short title; intent; minimum requirements; audits; challenges.—

- (1) This section may be cited as the “Florida Impact Fee Act.”
- (2) The Legislature finds that impact fees are an important source of revenue for a local government to use in funding the infrastructure necessitated by new growth. The Legislature further finds that impact fees are an outgrowth of the home rule power of a local government to provide certain services within its jurisdiction. Due to the growth of impact fee collections and local governments’ reliance on impact fees, it is the intent of the Legislature to ensure that, when a county or municipality adopts an impact fee by ordinance or a special district adopts an impact fee by resolution, the governing authority complies with this section.
- (3) For purposes of this section, the term:
 - (a) “Infrastructure” means a fixed capital expenditure or fixed capital outlay, excluding the cost of repairs or maintenance, associated with the construction, reconstruction, or improvement of public facilities that have a life expectancy of at least 5 years; related land acquisition, land improvement, design, engineering, and permitting costs; and other related construction costs required to bring the public facility into service. The term also includes a fire department vehicle, an emergency medical service vehicle, a sheriff’s office vehicle, a police department vehicle, a school bus as defined in s. [1006.25](#), and the equipment necessary to outfit the vehicle or bus for its official use. For independent special fire control districts, the term includes new facilities as defined in s. [191.009](#)(4).
 - (b) “Public facilities” has the same meaning as in s. [163.3164](#) and includes emergency medical, fire, and law enforcement facilities.
 - (c) At a minimum, each local government that adopts and collects an impact fee by ordinance and each special district that adopts, collects, and administers an impact fee by resolution must:
 - (a) Ensure that the calculation of the impact fee is based on the most recent and localized data.
 - (b) Provide for accounting and reporting of impact fee collections and expenditures and account for the revenues and expenditures of such impact fee in a separate accounting fund.
 - (c) Limit administrative charges for the collection of impact fees to actual costs.
 - (d) Provide notice at least 90 days before the effective date of an ordinance or resolution imposing a new or increased impact fee. A local government is not required to wait 90 days to decrease, suspend, or eliminate an impact fee. Unless the result is to reduce the total mitigation costs or impact fees imposed on an applicant, new or increased impact fees may not apply to current or pending permit applications submitted before the effective date of a new or increased impact fee.
 - (e) Ensure that collection of the impact fee may not be required to occur earlier than the date of issuance of the building permit for the property that is subject to the fee.
 - (f) Ensure that the impact fee is proportional and reasonably connected to, or has a rational nexus with, the need for additional capital facilities and the increased impact generated by the new residential or commercial construction.
 - (g) Ensure that the impact fee is proportional and reasonably connected to, or has a rational nexus with, the expenditures of the funds collected and the benefits accruing to the new residential or nonresidential

construction.

(h) Specifically earmark funds collected under the impact fee for use in acquiring, constructing, or improving capital facilities to benefit new users.

(i) Ensure that revenues generated by the impact fee are not used, in whole or in part, to pay existing debt or for previously approved projects unless the expenditure is reasonably connected to, or has a rational nexus with, the increased impact generated by the new residential or nonresidential construction.

(5)(a) Notwithstanding any charter provision, comprehensive plan policy, ordinance, development order, development permit, or resolution, the local government or special district must credit against the collection of the impact fee any contribution, whether identified in a proportionate share agreement or other form of exaction, related to public facilities or infrastructure, including land dedication, site planning and design, or construction. Any contribution must be applied on a dollar-for-dollar basis at fair market value to reduce any impact fee collected for the general category or class of public facilities or infrastructure for which the contribution was made.

(b) If a local government or special district does not charge and collect an impact fee for the general category or class of public facilities or infrastructure contributed, a credit may not be applied under paragraph (a).

(6) A local government, school district, or special district may increase an impact fee only as provided in this subsection.

(a) An impact fee may be increased only pursuant to a plan for the imposition, collection, and use of the increased impact fees which complies with this section.

(b) An increase to a current impact fee rate of not more than 25 percent of the current rate must be implemented in two equal annual increments beginning with the date on which the increased fee is adopted.

(c) An increase to a current impact fee rate which exceeds 25 percent but is not more than 50 percent of the current rate must be implemented in four equal installments beginning with the date the increased fee is adopted.

(d) An impact fee increase may not exceed 50 percent of the current impact fee rate.

(e) An impact fee may not be increased more than once every 4 years.

(f) An impact fee may not be increased retroactively for a previous or current fiscal or calendar year.

(g) A local government, school district, or special district may increase an impact fee rate beyond the phase-in limitations established under paragraph (b), paragraph (c), paragraph (d), or paragraph (e) by establishing the need for such increase in full compliance with the requirements of subsection (4), provided the following criteria are met:

1. A demonstrated-need study justifying any increase in excess of those authorized in paragraph (b), paragraph (c), paragraph (d), or paragraph (e) has been completed within the 12 months before the adoption of the impact fee increase and expressly demonstrates the extraordinary circumstances necessitating the need to exceed the phase-in limitations.

2. The local government jurisdiction has held not less than two publicly noticed workshops dedicated to the extraordinary circumstances necessitating the need to exceed the phase-in limitations set forth in paragraph (b), paragraph (c), paragraph (d), or paragraph (e).

3. The impact fee increase ordinance is approved by at least a two-thirds vote of the governing body.

(h) This subsection operates retroactively to January 1, 2021.

(7) If an impact fee is increased, the holder of any impact fee credits, whether such credits are granted under s. 163.3180, s. 380.06, or otherwise, which were in existence before the increase, is entitled to the full benefit of the intensity or density prepaid by the credit balance as of the date it was first established.

(8) A local government, school district, or special district must submit with its annual financial report required under s. 218.32 or its financial audit report required under s. 218.39 a separate affidavit signed by its chief financial officer or, if there is no chief financial officer, its executive officer attesting, to the best of his or her knowledge, that all impact fees were collected and expended by the local government, school district, or special district, or were collected and expended on its behalf, in full compliance with the spending period provision in the local ordinance or resolution, and that funds expended from each impact fee account were used only to acquire, construct, or improve specific infrastructure needs.

(9) In any action challenging an impact fee or the government's failure to provide required dollar-for-dollar credits for the payment of impact fees as provided in s. 163.3180(6)(h)2.b., the government has the burden of proving by a preponderance of the evidence that the imposition or amount of the fee or credit meets the requirements of state legal precedent and this section. The court may not use a deferential standard for the benefit of the government.

(10) Impact fee credits are assignable and transferable at any time after establishment from one development or parcel to any other that is within the same impact fee zone or impact fee district or that is within an adjoining impact fee zone or impact fee district within the same local government jurisdiction and which receives benefits from the improvement or contribution that generated the credits. This subsection applies to all impact fee credits regardless of whether the credits were established before or after June 4, 2021.

(11) A county, municipality, or special district may provide an exception or waiver for an impact fee for the development or construction of housing that is affordable, as defined in s. 420.9071. If a county, municipality, or special district provides such an exception or waiver, it is not required to use any revenues to offset the impact.

(12) This section does not apply to water and sewer connection fees.

(13) In addition to the items that must be reported in the annual financial reports under s. 218.32, a local government, school district, or special district must report all of the following information on all impact fees charged:

(a) The specific purpose of the impact fee, including the specific infrastructure needs to be met, including, but not limited to, transportation, parks, water, sewer, and schools.

(b) The impact fee schedule policy describing the method of calculating impact fees, such as flat fees, tiered scales based on number of bedrooms, or tiered scales based on square footage.

(c) The amount assessed for each purpose and for each type of dwelling.

(d) The total amount of impact fees charged by type of dwelling.

(e) Each exception and waiver provided for construction or development of housing that is affordable.

History.—s. 9, ch. 2006-218; s. 1, ch. 2009-49; s. 5, ch. 2009-96; s. 5, ch. 2011-14; s. 1, ch. 2011-149; s. 1, ch. 2019-106; s. 5, ch. 2019-165; s. 5, ch. 2020-27; s. 1, ch. 2020-58; ss. 1, 2, ch. 2021-63.

CITY OF **Ormond Beach**

Police & Fire Impact Fees Study

Draft Report 1 / January 27, 2023

January 27, 2023

Honorable Mayor and
Members of the City Commission
City of Ormond Beach
22 South Beach Street
Ormond Beach, FL 32174

Subject: **Police and Fire Impact Fees Study**

Ladies and Gentlemen:

We have completed our study of the police and fire impact fees for the City of Ormond Beach (City) and have summarized the results of our analysis, assumptions, and conclusions in this report, which is submitted for your consideration. This report summarizes both the basis for the proposed impact fees in order to provide funds to meet the City's capital expenditure requirements for such services allocable to growth as well as basis for the recommendation regarding potential implementation of police and fire impact fees.

During the course of the study, it was determined that the proposed impact fees should meet a number of goals and objectives. These goals and objectives primarily deal with fee sufficiency and level. Specifically, the major objectives considered in this study include:

- The Impact Fees should be sufficient to fund the projected capital requirements associated with providing service to new growth and development;
- The Impact Fees should not be used to fund deficiencies in capital needs of the City, if any; and
- The Impact Fees should be based upon reasonable level of service standards which meet the needs of the City and are similar to industry standards.

The proposed police and fire services impact fees presented in this report should meet the above objectives, as identified by the City during this study. As such, based on information provided by the City and the assumptions and considerations reflected in this report, Raftelis Financial Consultants, Inc. (Raftelis) considers the proposed fees to be cost-based, reasonable, and representative of the funding requirements of the City.

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Honorable Mayor and Members of the City Commission
City of Ormond Beach
January 27, 2023
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DRAFT 1

We appreciate the cooperation and assistance given to us by the City and its staff in the completion of the study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Anthony Hairston
Vice President

Shawn Ocasio
Manager

AH/dc
Attachments

Draft 1-27-2023

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Draft 1-27-2023

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

The purpose of an impact fee is to assign, to the extent practical, growth-related capital costs to new development responsible for such costs. To the extent new population growth and associated development imposes identifiable capital costs to municipal services, equity and modern capital funding practices suggest the assignment of such cost to those residents or system users responsible for such costs. The City of Ormond Beach (City) has recognized this capital funding strategy as being an appropriate method of funding the certain future capital requirements of the City and has decided to pursue these fees for first time implementation.

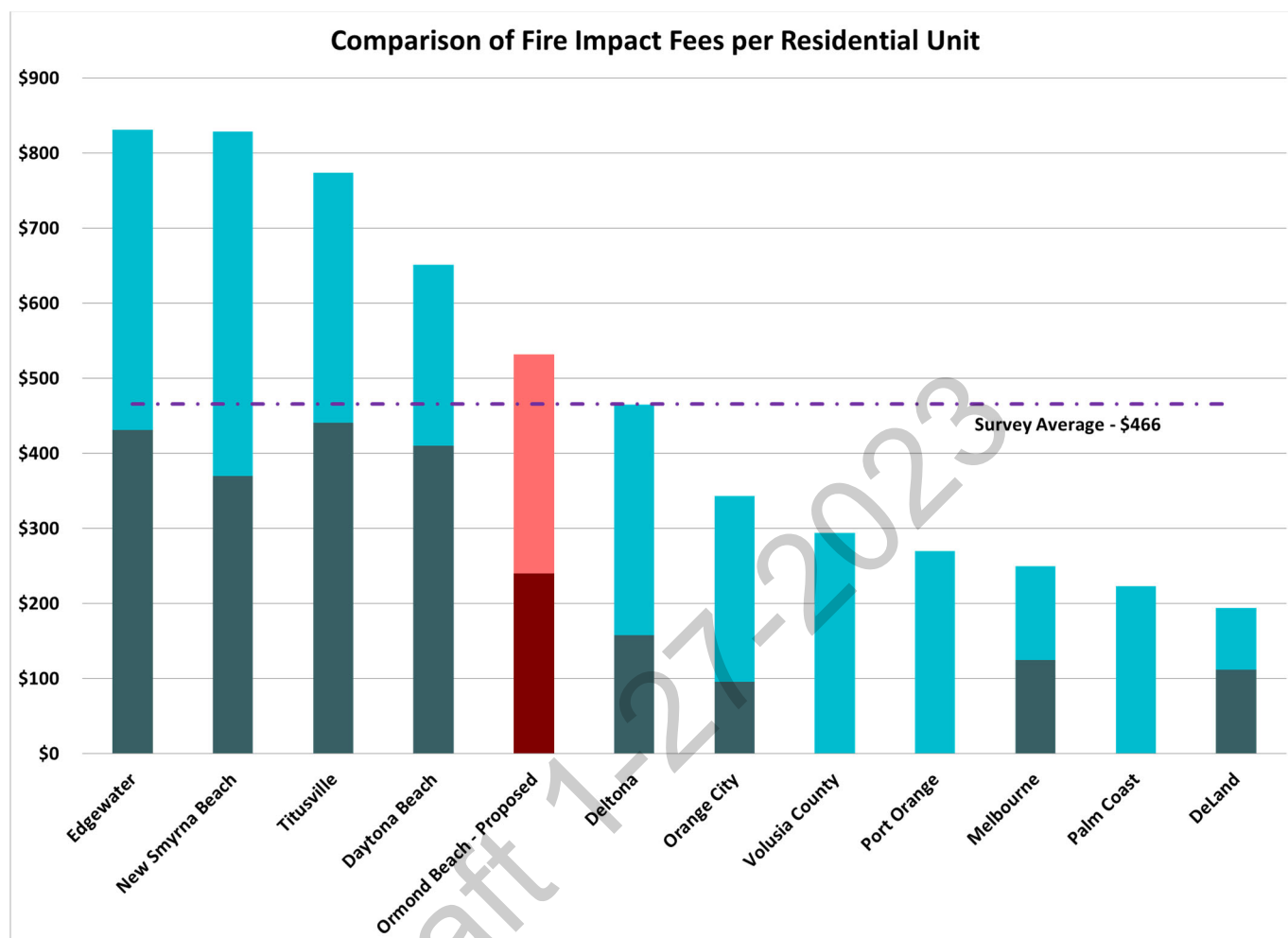
This report addresses the proposed impact fees associated with police and fire services. As a part of the Municipal Impact Fee Study, Raftelis conducted a feasibility analysis for police and fire services fire services in order to determine if the City should consider implementing police and fire impact fees. It was found that the City had ability and justification to charge police and fire impact fees.

Based on the subsequent discussions in this section, the following table summarizes the City's proposed impact fees for the single-family residential classification as follows:

Single-family Residential Impact Fees		
	Existing Fees	Proposed Fess
Police	N/A	\$240.00
Fire	N/A	292.00
Total	N/A	\$532.00

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A comparison of the City's existing and proposed single-family residential police and fire impact fees levels to other local municipalities is shown below for informational purposes.



As shown above, the City's calculated impact fees are comparable to the impact fees charged other Florida communities surveyed.

The proposed fee shown above for police and fire will also be charged to non-residential properties. The non-residential fees are unique to the service requirements of each property. A detailed discussion on impact fees for both residential and non-residential properties is provided for in subsequent sections of this study report.

Findings and Recommendations

The following is a summary of the observations and recommendations following our investigation, analyses, and preparation of this report:

1. The impact fees must be reasonably related to the cost of providing capital facilities / equipment needed to accommodate new growth. The impact fees collected must be used by the City to address the capital costs related to serving new development. Based on the information made available by the City, the proposed impact fees are designed to meet these Florida legal requirements.

2. Pursuant to Florida Statutes Section 163.31801, the City must provide notice no less than 90 days before the effective date of an ordinance or resolution imposing a new or increased impact fee.
3. Collection of the fee may not be required before the issuance of the building permit.
4. In compliance with Florida Statutes the City should collect and maintain revenue from each type of municipal fee in designated sub-accounts and use such fees on those facilities designated for each purpose.
5. The City should adopt the impact fees as proposed to ensure adequate funding sources are available to fund future service expansion projects needed to provide the identified level of service to new growth.
6. The fees developed within this report reflect recovery of identified costs and the City has discretion to phase-in or otherwise adopt less than the fully calculated fees. However, the adoption of fees less than the fully calculated rates should be applied to all land uses equally in order to maintain the calculations herein in correct proportion. Adopting less than the calculated rates would increase the reliance on general fund and other revenue sources to meet the demands of growth.

The subsequent sections of this report provide detailed discussions on the proposed impact fees for police and fire services.

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SECTION 1 – INTRODUCTION

Introduction

The City of Ormond Beach (City) is located in Volusia County (County) north of Daytona Beach and south of Palm Coast. The City comprises 38.91 square miles and provides an array of services to year-round and seasonal residents. Based on the published U.S. Census in 2020, the City's permanent population was 43,080. Based on the University of Florida's Bureau of Economic Business Research (BEER), the 2022 population was estimated at 44,677. It is anticipated that the City will have modest growth over the next 20 years with the City's population projected to reach 50,630 with approximately 21,730 housing units by 2040 (Forecast Period). In addition to housing, the City anticipates commercial development to continue to support new residents. In order to meet this anticipated growth and development and to maintain current levels of service, the City will need to fund capital improvements to serve such development.

The City does not currently charge police or fire impact fees. As a part of the 2022 Municipal Impact Fee Study, a fee feasibility analysis was conducted to determine whether the City could potentially charge police and fire impact fees. As a result of the feasibility analysis, it was found that both the police and fire departments are generally configured in a manner that would support the charging of fees and that both departments can provide the necessary data to develop a support proposed fees. Therefore, the City authorized Raftelis to develop proposed impact fees for police and fire services.

Authorization

Raftelis was authorized by the City to develop police and fire impact fees pursuant to an agreement between the City and Raftelis. The scope of work for this project, as defined in the agreement, was to:

1. For each service, review and analyze the capital requirements of the City that are needed to meet the level of service standards for the municipal function. This analysis includes a review of: i) the existing and future facility and equipment inventory of each specific municipal function; ii) service area population and development demographics and future needs; and iii) services provided by class of customers.
2. Where appropriate, develop a fee to be charged to new development in order to recover the capital costs associated with providing municipal services. This analysis includes the apportionment of costs among customer / development classifications, and the development of the fee per equivalent billing unit.
3. Develop a comparison of the impact fees and associated billing attributes for similar charges imposed by other neighboring jurisdictions.
4. Prepare a report that documents our analyses, assumptions, and conclusions for consideration by the City Manager and City Commission.

Criteria for Impact Fees

The purpose of an impact fee is to assign, to the extent practical, growth-related capital costs to those new customers that benefit from the facilities funded by such expenditures. To the extent new population growth and associated development imposes identifiable capital costs to municipal services, equity and modern capital funding practices

suggest the assignment of such costs to those residents or system users responsible for such costs rather than the existing population base. Generally, this practice has been labeled as “growth paying its own way”.

Historically, impact fees in Florida were a result of home rule powers with the requirements associated with the development, administration, accounting and expenditure governed by case law. However, Section 163.31801 of the Florida Statutes, known as the “Florida Impact Fee Act”, was created on June 14, 2006, which placed specific requirements and limitations on that home rule authority. This statute has been amended several times since its initial adoption, including significant additional provisions in 2021 such as limiting the percentage increase for a change in impact fees. Appendix A at the end of the report includes the full Florida impact fee statute.

The statute provides specific impact fee criteria, certain precedents established by case law also constitute the legal requirements associated with impact fees. Some of the major criteria includes the following:

1. The impact fee should be reasonably equitable to all parties; that is, the amount of the fee must bear a relationship to the amount of services requested;
2. The system of fees and charges should be set up so that there is not an intentional windfall to existing users;
3. The impact fee should, to the extent practical, only cover the capital cost of construction and related costs thereto (engineering, legal, financing, administrative, etc.) for increases in or expansions of capacity or capital requirements that are required solely due to growth. Therefore, expenses due to normal renewal and replacement of a facility (e.g., replacement of a capital asset) should be borne by all users of the facility or municipality. Similarly, increased expenses due to operation and maintenance of that facility should be borne by all users of the facility; and
4. The local government must adopt a revenue-producing ordinance that explicitly sets forth restrictions on revenues (uses thereof) that the imposition of the impact fee generates. Therefore, the funds collected from the impact fees should be retained in a separate account, and separate accounting must be made for those funds to ensure that they are used only for the lawful purposes described.

Based on the criteria provided above, the impact fees herein will: 1) include local current costs of improvements associated with the capacities needed to serve new growth; 2) not reflect costs of improvements associated with the renewal and replacement (R&R) of existing capital assets or deficiencies in level of service attributed to existing development; and 3) not include any costs of operation and maintenance of the capital improvements and equipment.

This section provides only a general background regarding impact fees. Certain circumstances and issues regarding the interpretation of specific statutes or case law should be addressed by qualified legal counsel.

Impact Fee Methods

There are several different methods for the calculation of an impact fee. The calculation is dependent on the type of fee being calculated (e.g., recreational services, transportation, etc.), cost and engineering data available, and the availability of other local data such as household and population projections, current levels of service, and other related items. The proposed police and fire services impact fees reflected in this report are predominately based on two (2) separate methods. These two (2) methods were: i) the improvements-driven method; and ii) the buy-in or recoupment approach. These methods have been utilized in the development of impact fees for local governments throughout Florida.

The improvements-driven method is an approach that utilizes a specific list of existing or planned capital improvements over a period of time. For example, the fee may correspond to the level of capital improvements that have been identified in the capital improvements element of the Comprehensive Plan or capital improvement budget of the entity. The buy-in or recoupment method is based on this historical cost of assets, and adjustments to the basis of these assets, currently in service and the current population. The primary difference between the three (3) methodologies is how the capital costs, which must be recovered from the application of the fee, are calculated.

The proposed impact fees herein for police and fire services include the application of these methods based on the capital facilities required to provide services and meet the City's service level standards. Where appropriate, the blending of methods occurred, and a more complete discussion of the methods used for the determination of the impact fees are presented in Sections 3 and 4.

Summary of Report

In addition to Section 1, this report has been subdivided into three (3) other sections. The following is a brief discussion of the remaining sections included in this report.

Section 2 – City Demographics. This section of the report provides a general discussion of the residential land use characteristics. Also presented in this section is the forecast of the residential dwelling units and the derivation of the functional population factors used in the development of residential and nonresidential fees.

Section 3 – Police Facilities Impact Fee. This section discusses the development of the proposed impact fee for police services, including the capital requirements associated with providing police services, the methodology for the determination of the proposed fee, assumptions utilized in the design of the fees, and other factors associated with the fee determination.

Section 4 – Fire Protection Facilities Impact Fee. This section discusses the development of the proposed impact fee for fire protection services, including the capital requirements associated with providing fire and rescue services, the methodology for the determination of the proposed fees, assumptions utilized in the design of the fees, and other factors associated with the fee determination.

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SECTION 2 – CITY DEMOGRAPHICS

General

This section provides a general discussion of the current service area, including population and housing statistics and other demographic information related to land use. Additionally, a discussion of the anticipated growth in population and associated growth in residential dwelling units is also contained in this section.

Population and Development Forecast

Regardless of the approach taken to formulate impact fees, a forecast of the population of the City is needed in order to: i) have an appropriate planning horizon to ensure that capital improvement needs and costs are apportioned over a suitable growth segment; ii) link LOS requirements to the capital facility plan; and iii) identify any deficiencies in existing capital facilities related to the LOS standards and current population served.

As shown in Table 2-1 at the end of this section, the City's total estimated population is 44,677 in 2022. Based on information provided by the City, it is estimated that the total population will approach approximately 45,829 residents by 2025 and 50,630 residents by the year 2040. Thus, the population growth anticipated by the City is expected to be moderate, approximately 1.00% on an average annual basis through the year 2030 and then conservatively by 0.50% percent through the year 2040.

Historical and Projected Population and Dwelling Units			
Year	Total Population	Total Dwelling Units	Average Persons per Occupied Dwelling Unit
2020 [1]	43,080	18,489	2.33
2021	44,041	18,902	2.33
2022	44,677	19,175	2.33
2025	45,829	19,669	2.33
2030	48,167	20,673	2.33
2040	50,630	21,730	2.33

[1] Future population estimates shown based on a review of historical population growth as obtained from the U.S. Census Bureau, from projections from the University of Florida's Florida Housing Data Clearinghouse, and discussions with City staff.

To the extent the projection of future development materially changes, it would then be appropriate for the City to re-evaluate the impact fees developed in this report.

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Functional Population Allocation

In order to develop police and fire impact fees by land use, the capital costs need to be apportioned between residential and non-residential properties. The apportionment is accomplished through a functional population allocation method.

The use of functional population^[1] to develop more equitable impact fees has widely been used in Florida since the 1980s and remains a vital tool in estimating service demands between customer classes. Specifically, this methodology is applied to apportion capital costs associated with public facilities, police protection, fire rescue, and other municipal services allocable to the non-residential classes.

The concept of functional population is incorporated in order to spread capital costs more equitably between residential and non-residential land-uses. Businesses place demands upon public services in the same manner as residents do, and it is equitable to spread these costs based on the average number of people expected to be present. For residential use, the allocation is calculated per resident based on the average amount of time spent at the residence. The resident's remaining time is then allocated as either an employee and/or visitor to the remaining non-residential classes as determined using traffic generations, employees staffed, and anticipated operations. The net result is the total number of person hours per location.

Table 2-2 provides the details used to estimate the functional population coefficients. The functional population results were used to calculate police and fire services impact fees as provided in Sections 3 and 4 of this report.

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[1] Nicholas, Nelson, and Juergensmeyer. A Practitioner's Guide to Development Impact Fees. American Planning Association, 1991.

Section 2
City of Ormond Beach
Municipal Impact Fee Study

List of Tables

Table	Description
2-1	Population and Housing Forecast
2-2	Development of Functional Population Coefficients

Draft 1-27-2023

Table 2-1
City of Ormond Beach
Municipal Impact Fee Study

Population and Housing Forecast

Line No.	Fiscal Year	Annual Average Rate	Total Population [1]	Total Units	Average Pop. per Unit
3	2020	4.36%	43,080	18,489	2.33
4	2021	2.23%	44,041	18,902	2.33
5	2022	1.44%	44,677	19,175	2.33
6	2025	1.00%	45,829	19,669	2.33
7	2026	1.00%	46,491	19,953	2.33
8	2030	1.00%	48,167	20,673	2.33
9	2040	0.50%	50,630	21,730	2.33
10	Overall 2020 - 2040	0.81%			

Footnote:

- [1] Future population estimates based on a review of historical population growth as obtained from the US Census Bureau and from projections from the City.

Table 2-2
City of Ormond Beach
Municipal Impact Fee Study

Development of Functional Population Coefficients

Line No.	Land Use Category	ITE Code	Impact Unit	Trips per Unit per Day [a]	One-way Trip factor (50%) [b]	Occupants per Trip per Day		People per Unit per Day		Hours per Visitor [g]	Hours Operation [h]	Days per Week [i]	Weekly Person Hours on Site			Functional Pop. Factor [m]
						Employees [1]	Visitors [d]	Employees [e]	Visitors [f]				Per Employee [j]	Per Visitor [k]	Total [l]	
1	Residential - per person [2]		Resident	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.625769
	Non-Residential															
2	Industrial/Warehousing	150	1,000 Sq Ft	1.71	0.86	1.05	1.75	0.34	0.93	0.25	9.00	5.00	15.24	1.16	16.40	0.097620
3	Institutional	610	1,000 Sq Ft	10.77	5.39	1.05	1.77	2.86	4.72	1.00	12.00	7.00	239.97	33.04	273.01	1.625049
4	Hotel/Motel	310	Rooms	7.99	4.00	1.05	2.03	0.56	7.03	1.00	24.00	7.00	93.61	49.21	142.82	0.850099
5	Office Buildings	710	1,000 Sq Ft	10.84	5.42	1.05	1.19	3.26	2.76	1.00	12.00	5.00	195.32	13.80	209.12	1.244734
6	Retail	820	1,000 Sq Ft	37.01	18.51	1.05	2.03	2.12	33.46	1.00	9.00	7.00	133.85	234.22	368.07	2.190880

Footnotes

- [a] From 11th Edition ITE Manual
[b] This factor is used to divide the trip rate in half which provides the basis for estimating visitors per day per impact unit
[c] Assumptions below
[d] From 2017 National Household Travel Survey, vehicle occupancy by trip purpose
[e] From 11th Edition ITE Manual per employee
[f] = $((b) - (c)/(e)) * (d)$
[g] Time assumption per visitor
[h] Time assumption per employee
[i] Time assumption
[j] = $(e) * (h) * (i)$
[k] = $(f) * (g) * (i)$
[l] = $(j) + (k)$
[m] = $(l) / 24 * 7$

- [1] Estimated Occupants per Vehicle based on recent census data:

Total Workers	28,691
Percent Carpooling	9.1%
Workers Carpooled	2,611
Workers Not Carpooled	26,080
Total Vehicles	27,386
Estimated Workers per Vehicle	1.05

- [2] Residential population converted to Functional Population based upon the following assumptions related to recent census data:

Estimated Population (2019)	41,282
Percent of Eligible Workers	71.4%
Available Workforce	29,457
Percent Unemployed	2.6%
Total Workers	28,691
Hours Available per Day	24.00
Total Hours	990,768
Hours per Day at Residence - Workday	12.00
Average Hours per Day at Residence - Workforce	13.71
Total Workforce Hours at Residence	393,354
Average Hours per Day at Residence - Non-workforce	18.00
Total Non-workforce Hours at Residence	226,638
Total Hours at Residence	619,992
Total Hours as Employee and/or Visitor	370,776
Percent of Total Hours at Residence	0.6258

SECTION 3 – POLICE FACILITIES IMPACT FEE

General

This section provides a discussion of the development and design of the impact fee for police services. Included in this section is a discussion of the level of service requirements, capital costs included in the fee determination, and the design of the impact fee for police services to be applied to new growth within the City.

Level of Service and Department Staffing

In the evaluation of the capital facility needs for providing municipal services such as police protection, a level of service (LOS) standard should be developed. As shown on Table 3-1, the City currently staffs 94.0 full-time equivalent (FTE) positions, including 74.0 sworn officers and 20.0 administrative / support staff. Using the 2022 population of 44,677, the police department currently provides a LOS of 1.66 sworn officers per 1,000 population.

Existing Investment in Department

In the development of the fee, the original costs of the existing assets and any grant funding or contributions towards those assets were considered. The City's existing assets are categorized by major type and are summarized below. Since the eligible impact fee costs under the Florida Impact Fee Act are limited to major capital items, certain costs are excluded from the impact fee analysis including items such as uniforms, radios, and other equipment items that do not have a minimum five- (5) year life.

Existing City Investment in Police Assets [1]			
Description	Original Cost	Allocation to Impact Fee	Allocated Costs
Machinery and Equipment	\$422,303	0.0%	\$0
Major Vehicles	3,185,118	100.0%	3,185,118
Other Capital Equipment and Facilities	3,638,947	100.0%	3,638,947
Subtotal	\$7,246,368	94.2%	\$6,824,064
Grant Funded Assets	(\$0)	100.0%	(\$0)
Net Recoverable Costs	<u>\$7,246,368</u>	<u>94.2%</u>	<u>\$6,824,064</u>

[1] Amounts as shown on Table 3-2.

As shown above, of the \$7,246,368 in police department assets, \$6,824,064 of major assets are included in the calculation of the impact fee. Additionally, based on information provided by the City the department has received no grant funding and capital contributions which could offset the capital costs included in the proposed impact fees.

Planned Future Investment in Department

In the development of the proposed impact fees, the following future capital improvement requirements were provided by the City. Along with the City's existing investment in police assets, these capital requirements are anticipated and designed to maintain the department's ability to provide service to the City's existing and future

population levels and fulfill the identified level of service standards. The City's capital requirements are categorized by type of expenditure and are summarized below.

Projected Future City Investment in Police Assets (Capital Plan) [1]			
Description	Total Capital Improvements	Adjustments	Adjusted Total
Police Department Roof	\$345,000	(\$345,000)	\$0
PAL House	350,000	(350,000)	0
Police Impound Lot	150,000	0	150,000
SANS Replacement / Upgrade	125,000	0	125,000
Police Vehicle Replacements	2,230,000	(2,230,000)	0
Police Department Roof	\$345,000	(\$345,000)	\$0
Planned Future City Investments in Police Assets	<u>\$3,200,000</u>	<u>(\$2,925,000)</u>	<u>\$275,000</u>

[1] Amounts as shown on Table 3-3.

As can be seen above, the City anticipates spending \$275,000 in order to further develop and upgrade the police assets and facilities to provide the desired level of service to the City as it grows through 2027. This amount is net of adjustments associated with replacement related capital projects as shown on Table 3-3.

Total Capital Costs

Table 3-4 summarizes the existing and future capital investment in the police rescue services. The total capital costs included in the calculation of the police impact fee is \$7,099,064.

Summary of Capital Costs	
Description	Total Investment
Existing Investment:	
Machinery and Equipment	\$0
Major Vehicles and Vehicle-related Equipment	3,185,118
Other Capital Equipment and Facilities	3,638,947
Existing Investment Subtotal	\$6,824,064
Projected Future Investment:	
Proposed Capital Additions	\$275,000
Total Existing and Future Investment Subtotal	\$7,099,064
Grant Adjustments	(\$0)
Total Adjusted Costs	<u>\$7,099,064</u>

[1] Amounts as shown on Table 3-4.

Design of Police Facilities Impact Fee

The method used to determine the police impact fee is a combination of the improvements-driven method and buy-in method as the recoupment of a portion of existing investments availability to serve new growth and the costs

associated with adding additional capacity to service the City's future needs are recognized. This method was based upon a three- (3) step process. Table 3-6 helps to illustrate the results of the approach. The following is a brief description of the method used in this study.

- Development of Total Capital Need – Based on discussions with the City the existing and incremental facilities and related costs to serve the population through the forecast period reflected in the analysis were developed.
- Allocation of Capital Costs to Customer Classes – This step allocates the total capital costs to provided police services between residential and non-residential based upon call demand.
- Calculation of Cost per Equivalent Impact Fee Unit – Once capital costs are allocated between residential and non-residential land uses, they are summarized and presented as a unit of measure basis; per dwelling unit for residential and per 1,000 square feet for non-residential. The allocation of the non-residential land uses are based upon a “functional population.” Table 3-6 provides a detailed listing of the proposed impact fees and their appropriate land use and measures.

POLICE IMPACT FEE ASSUMPTIONS

The development of the police impact fees required several assumptions. The major assumptions used in the development of the proposed impact fees are as follows:

1. In the development of the capital costs to serve growth, the total existing and projected major capital costs of providing police services were developed as described previously based on existing asset records and proposed capital expenditures through 2040. The total existing and projected investment of \$7.1 million was the cost basis used in the development of the fees.
2. The estimated capital base costs or reserved service capacity, allocable to all customer classes were allocated between the residential and non-residential customer classes based on an assumed base level of service and historical call data. Non-residential classes were then allocated between five (5) customer classes: Industrial / Warehousing, Institutional, Hotel / Motel, Office Buildings, and Retail based on “functional population” estimates. The concept of functional population is incorporated in order to spread capital costs more equitably between non-residential land uses. Businesses place demands on police services in the same manner as residents do, and it is equitable to spread these costs based on the average number of people expected to be present. For the non-residential uses, the allocation is calculated based on the average amount of time spent at each non-residential class and is determined using traffic generations, estimated employment data, and operational details. The net result is the total number of person hours per location as derived from Table 2-2 in Section 2. The costs are calculated on a per person basis and then applied to the non-residential land-uses based upon the respective functional population coefficient.

IMPACT FEE CALCULATION

Based on the above-referenced assumptions, the allocated capital facilities considered necessary to maintain the level of service requirements, and the residential units and land use projections of the City, the police services impact fees for the residential and non-residential customer classifications were estimated. As shown in Table 3-5 at the end of this section, the cost per equivalent impact fee unit by customer classification was calculated. The following summarizes the proposed police impact fees:

Proposed Residential Police Impact Fee		
Description	Impact Unit	Proposed
Single-family	Dwelling Unit	\$240.00
Multi-family	Dwelling Unit	198.00
Mobile Homes	Dwelling Unit	166.00

Proposed Non-residential Police Impact Fees		
Description	Impact Unit	Proposed Fee
Industrial / Warehousing	Per Square Foot	\$0.015
Institutional	Per Square Foot	\$0.249
Hotel / Motel	Per Room	\$130.00
Office Buildings	Per Square Foot	\$0.191
Retail	Per Square Foot	\$0.336

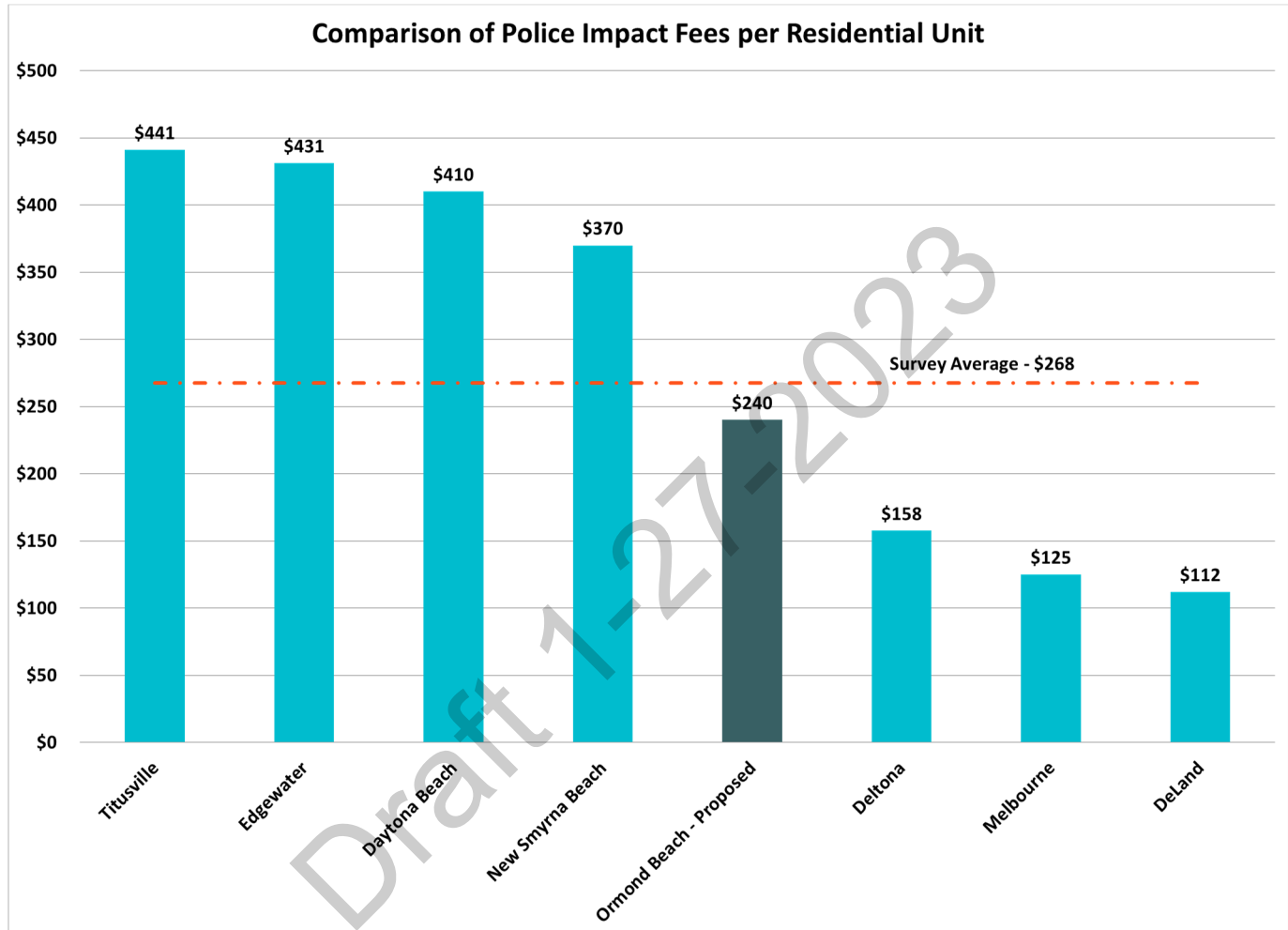
Taking into account the methodology used for the determination of the fee and the estimates associated with determining the police capital needs of the City, it is concluded that the proposed impact fees are reasonable. It should be noted that in the development of the fee per equivalent impact fee unit, that no credits associated with developer land dedication or other similar activities have been recognized. Also, it should be noted that the proposed incremental capital improvements are stated in Fiscal Year 2022 dollars and do not include any inflationary allowances.

In the development of the cost per equivalent impact fee unit, it was determined that the rate should be applied on a “per dwelling unit” basis for the residential class and primarily on a “per square footage” of commercial development for the non-residential class. These factors are common throughout the state as the equivalent impact fee unit for fee determination. The use of these equivalency factors was based on discussions with the City, comparisons of fee applicability provisions of neighboring jurisdictions, and promotion of administrative simplicity.

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Impact Fee Comparisons

In order to provide the City additional information about the proposed impact fees, a comparison of the proposed fees for the City and those charged by other neighboring jurisdictions was prepared. Table 3-5 at the end of this section and the chart below summarize the impact fees for police services charged by other communities with the proposed rates of the City.



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Section 3
City of Ormond
Police Facilities Impact Fee Analysis

List of Tables

Table	Description
3-1	Summary of Existing Personnel
3-2	Summary of Existing Capital Equipment, Vehicles and Facilities
3-3	Inventory of Proposed Capital Equipment, Vehicles and Facilities
3-4	Summary of Capital Costs to Provide Police Protection Services
3-5	Impact Fee Design
3-6	Police Facilities Impact Fee Comparison

Table 3-1
City of Ormond Beach
Police Facilities Impact Fee Analysis

Summary of Existing Personnel

Line No.	Description	Current Staff [1]	Allocation Basis	Achieved LOS
Personnel				
1	Police Chief	1.0		
2	Captain	2.0		
3	Lieutenant	3.0		
4	Sergeant	7.0		
5	Corporal	5.0		
6	Police Officer	56.0		
7	Total Sworn Officers	74.0	Per 1,000 Population	1.66
8	Accreditation Manager	1.0		
9	Public Information Officer	1.0		
10	Community Program Coordinator	1.0		
11	After School Aide	1.0		
12	Recreation Leader	1.0		
13	Victim Advocate Coordinator	2.0		
14	Evidence/Crime Scene Supervisor	1.0		
15	Evidence/Crime Scene Technician	2.0		
16	Office Assistant	1.0		
17	Community Service Officer	4.0		
18	Lead Community Service Officer	1.0		
19	Records Clerk	3.0		
20	Office Manager	1.0		
21	Police Officer (Training)	0.0		
22	Total Personnel	94.0		

Footnotes:

[1] As shown in the 2023 Budget.

Table 3-2
City of Ormond Beach
Police Facilities Impact Fee Analysis

Summary of Existing Capital Equipment, Vehicles and Facilities

Line No.	Description	Estimated Costs [1]	Allocation to Existing Units	Allocated Costs	Total Officers Served [2]	Average Cost Per Officer
	Machinery & Equipment					
1	General Equipment	\$422,303	0.0%	\$0	74.0	\$0
2	Major Vehicles & Vehicle Related Equipment	3,185,118	100.0%	3,185,118	74.0	43,042
	Other Capital Equipment and Facilities					
3	Land, Building and Other Major Capital Equipment	3,638,947	100.0%	3,638,947	74.0	49,175
4	Subtotal Other Capital Equipment and Facilities	<u>\$7,246,368</u>	<u>94.2%</u>	<u>\$6,824,064</u>		<u>\$92,217</u>
5	Grants Funded / Contributed Assets	\$0	100.0%	\$0	74.0	\$0
6	Total Adjusted Existing Capital Investment	<u><u>\$7,246,368</u></u>	<u><u>94.2%</u></u>	<u><u>\$6,824,064</u></u>		<u><u>\$92,217</u></u>

Footnotes:

[1] Amounts shown based on cost information provided by the City and detailed in Appendix 2.

[2] Based on existing number of officers as shown on Table 3-1.

Table 3-3
City of Ormond Beach
Police Facilities Impact Fee Analysis

Inventory of Proposed Capital Equipment, Vehicles and Facilities

Line No.	Description	Total	Adjustments [1]	Adjusted Total	New, R&R, or Upgrade
1	Police Department Roof	\$345,000	(\$345,000)	\$0	R&R
2	PAL House	350,000	(350,000)	0	R&R
3	Police Impound Lot	150,000	0	150,000	Upgrade
4	SANS Replacement / Upgrade	125,000	0	125,000	Upgrade
5	Police Vehicle Replacements	2,230,000	(2,230,000)	0	R&R
6	Total Proposed Capital Equipment, Vehicles and Facilities	\$3,200,000	(\$2,925,000)	\$275,000	

Footnotes:

[1] Renewal and replacement cost improvements have excluded from the impact fee calculation.

Table 3-4
City of Ormond Beach
Police Facilities Impact Fee Analysis

Summary of Capital Costs to Provide Police Protection Services

Line No.	Description	Total Existing & Planned Costs [1]
	<u>Recoupment Costs</u>	
1	Machinery & Equipment	\$0
2	Major Vehicles	3,185,118
3	Facilities & Other Capital Equipment	3,638,947
4	Total Recoupment Costs	<u>\$6,824,064</u>
	<u>Proposed Capital Additions</u>	
5	Major Vehicles & Facilities	\$275,000
6	Total Proposed Costs	<u>\$275,000</u>
	<u>Additional Cost or Adjustments</u>	
7	Borrowing Costs	\$0
8	Less Historical Capital Grants Received for Equipment	0
9	Less Proposed Future Capital Grants	0
10	Total Additional Costs or Adjustments	<u>\$0</u>
11	Total Allocated Costs	<u><u>\$7,099,064</u></u>

Footnotes:

[1] Amounts based on information provided on Table 3-2 and Table 3-3.

Table 3-5
City of Ormond Beach
Police Facilities Impact Fee Analysis

Impact Fee Design

Line No.	Land Use	Unit of Measure	Functional Pop. Factor	Persons per Unit	Base Cost per Person [1]	Base Cost Per Unit	Variable Cost Per Unit [2]	Proposed Impact Fee (Rounded)
Residential								
1	Single Family	Dwelling Unit	0.625769	2.53	\$138.95	\$220.38	\$19.63	\$240.00
2	Multi-Family	Dwelling Unit	0.625769	2.05	138.95	178.19	\$19.63	198.00
3	Mobile Home	Dwelling Unit	0.625769	1.68	138.95	146.19	\$19.63	166.00
Non-Residential								
4	Industrial/Warehousing	1,000 Sq Ft	0.097620	N/A	\$138.95	\$13.56	\$1.39	\$15.00
5	Institutional	1,000 Sq Ft	1.625049	N/A	138.95	225.80	23.11	249.00
6	Hotel/Motel	Rooms	0.850099	N/A	138.95	118.12	12.09	130.00
7	Office Buildings	1,000 Sq Ft	1.244734	N/A	138.95	172.96	17.70	191.00
8	Retail	1,000 Sq Ft	2.190880	N/A	138.95	304.42	31.15	336.00

- 9 Should none of the above land uses adequately define a proposed non-residential development as determined by the City Manager, at the Manager's discretion the following average charge per non-residential development is considered appropriate:

	<u>Non-residential</u>
10	Total Cost per Person [Base] [1]
11	Percent Allocable to Resident
12	Amount Allocable to the Resident
13	Amount Allocable to Non-residential
14	Plus Cost per Person [Variable] [2]
15	Amount Allocable to Non-residential
16	Square Feet of Non-residential Development per Person
17	Persons per 1,000 Square Feet
18	Average Cost per 1,000 Square Feet of Non-residential Development

Table 3-5
City of Ormond Beach
Police Facilities Impact Fee Analysis

Impact Fee Design

Footnotes

[1] Base Capacity estimated as follows:

Existing Population	44,677
Existing LOS per 1,000 population	1.66
Total Patrol Officers Required - LOS	<u>74</u>
Minimum Service Level per 1,000 population	1.50
Total Minimum Officers	67
Percent Base Capacity - LOS	91%

Total Base capacity estimated as follows:

Total Estimated Capital Costs - Investment in Police Services	\$7,099,064
Percent Base Capacity	91%
Total Estimated Base Capacity Costs	<u>\$6,460,149</u>
Total in Population 2026	46,491
Total Cost per Person	<u><u>\$138.95</u></u>

[2] Variable Cost per Unit estimated as follows:

Total Estimated Capital Costs - Investment in Police Services	\$7,099,064
Less Amount allocated to Base Capacity	<u>6,460,149</u>
Total Variable Cost	\$638,915
Percent Residential (Historical Calls)	61.29%
Total Residential Costs	<u>\$391,586</u>
Total Non-residential Costs	\$247,329
Residential Variable Allocation	
Total Residential Costs	\$391,586
2026 Estimated Units	<u>19,953</u>
Variable Cost per Unit	<u><u>\$19.63</u></u>
Non-residential Variable Allocation	
Total Non-residential Costs	\$247,329
Effective 2026 Non-residential Population	<u>17,397</u>
Variable Cost per Unit	<u><u>\$14.22</u></u>

Table 3-6
City of Ormond Beach
Police Facilities Impact Fee Analysis

Police Facilities Impact Fee Comparison [*]

Line No.	Municipality	Police
1	Ormond Beach - Existing	N/A
2	Ormond Beach - Proposed	\$240.00
3	New Smyrna Beach	\$370.00
4	Daytona Beach	\$410.00
5	DeLand	\$112.00
6	Deltona	\$157.50
7	Edgewater	\$431.11
8	Melbourne	\$125.00
9	Orange City	\$95.32
10	Palm Coast	N/A
11	Port Orange	N/A
12	Titusville	\$441.00
13	Volusia County	N/A
14	Average Fee	\$267.74
15	Median Fee	\$263.75

[*] As of October 2021

SECTION 4 – FIRE PROTECTION FACILITIES IMPACT FEE

General

This section provides a discussion of the development and design of the impact fee for fire services. Included in this section is a discussion of the level of service requirements and capital costs included as the basis for the determination of the fee level and the design of the fee proposed to be applied to new growth within the City.

Level of Service Requirements

There is currently no formally adopted level of service for the City's fire protection services; however, it is the City's intent to maintain staffing levels that provide services to all developed areas in order to be able to respond to service calls within a specified time period to maintain the City's Insurance Service Organization (ISO) property insurance rating of 3/3X in the community. As a practical matter, this response time standard (four [4] minutes with a one- [1] minute turnout or less) is based upon recognized industry standards not only having to do with property protection, but also in providing Emergency Medical Support services (EMS). In each case, it is necessary to reach property and residents of the City within the response time standard to maximize the effectiveness of fire suppression activities and/or emergency medical care. The City currently has an average response time of approximately 6.5 minutes with approximately 75% of calls being responded to in eight (8) minutes or less. In discussions with City staff, it was determined that the existing staffing levels of the City can provide adequate fire rescue services for the existing and future daily average population of the City.

Presently, the City has 48 full-time primary personnel budgeted for 2023 as shown on Table 4-1 and below.

Primary Personnel	Summary of Existing Personnel
Fire Chief	1.0
Deputy Fire Chief	1.0
Fire Battalion Commander	3.0
Captain	12.0
Driver Engineer	12.0
Firefighters	18.0
Office Manager (Support)	1.0
Total Current Full-Time Personnel	48.0

Based on the primary personnel listed above, the level of service in terms of the number of direct fire personnel per 1,000 residents is about 1.05.

Existing Investment in Department

In the development of the fee, the original costs of the existing assets and any grant funding or contributions towards those assets were considered. The City's existing assets are categorized by major type and are summarized below. Since eligible impact fee costs under the Florida Impact Fee Act are limited to major capital items, certain costs are excluded from the impact fee analysis including items such as uniforms, radios, and other equipment items that do not have a minimum five- (5) year life.

Existing City Investment in Fire Assets [1]			
Description	Original Cost	Allocation to Impact Fee	Allocated Costs
Machinery and Equipment	\$703,577	0.0%	\$0
Major Vehicles	3,233,125	100.0%	3,233,125
Other Capital Equipment and Facilities	5,087,047	100.0%	5,087,047
Subtotal	\$9,023,749	92.2%	\$8,320,172
Grant Funded Assets	(\$0)	100.0%	(\$0)
Net Recoverable Costs	\$9,023,749	92.2%	\$8,320,172

[1] Amounts as shown on Table 4-2.

As shown above, of the \$9,023,749 in fire department assets, \$8,320,172 of major assets are included in the calculation of the impact fee. Additionally, based on information provided by the City the department has received no grant funding and capital contributions which could offset the capital costs included in the proposed impact fees

Planned Future Investment in Department

In the development of the proposed impact fees, the following capital improvement requirements were provided by the City. Along with the City's existing investment in fire rescue assets, these capital requirements are anticipated and designed to maintain the department's ability to provide service to the City's existing and future population levels and fulfill the identified level of service standards. The City's capital requirements are categorized by type of expenditure and are summarized below.

Projected Future City Investment in Fire Service (Capital Plan) [1]			
Description	Total Capital Improvements	Adjustments	Adjusted Total
Station Alerting	\$240,000	(\$240,000)	\$0
Fire Station 91 and 93 Generator	250,000	(250,000)	0
Point to Point Wireless Upgrades	27,000	(27,000)	0
Brush Truck Replacement	175,000	0	175,000
Bunker Gear Dryers	14,000	(14,000)	0
Quint Fire Apparatus	1,000,000	(581,831)	481,169
Brush Attack Apparatus	25,000	0	25,000
Planned Future City Investment in Fire Assets	\$1,731,000	(\$1,049,831)	\$681,169

[1] Amounts as provided by City staff and are shown on Table 4-3.

As can be seen above, the City anticipates spending \$681,169 in order to further develop capital-related fire rescue facilities to provide the desired LOS to the City as it grows through 2040. This amount is net of adjustments associated with replacement related capital projects as shown on Table 4-3.

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Total Capital Costs

Table 4-4 summarizes the existing and future capital investment in the fire rescue services. The total capital costs included in the calculation of the fire impact fee is \$9,001,341.

Summary of Capital Costs [1]	
	Total Projected Investment
Machinery and Equipment	\$0
Major Vehicles and Vehicle-related Equipment	3,233,125
Other Capital Equipment and Facilities	5,087,047
Subtotal	\$8,320,172
Proposed Capital Additions	681,169
Subtotal	\$9,001,341
Grant Adjustments	(\$0)
Total Allocated Costs	\$9,001,341

Design of Fire Protection Facilities Impact Fee

The method used to determine the fire rescue services impact fee is a combination of the improvements-driven method and buy-in method as the recoupment of a portion of existing investments availability to serve new growth and the costs associated with adding additional capacity to service the City's future needs are recognized. This method was based upon a three- (3) step process. Table 4-6 helps to illustrate the results of the approach. The following is a brief description of the method used in this study.

- Development of Total Capital Need – Based on discussions with the City and the LOS requirements related to the maintenance of first response time, existing and the incremental facilities and related costs to serve the population through the forecast period reflected in the analysis were developed.
- Allocation of Capital Costs to Customer Classes – This step allocates the total capital costs to provided fire services between residential and non-residential based upon call demand.
- Calculation of Cost per Equivalent Impact Fee Unit – Once capital costs are allocated between residential and non-residential land uses, they are summarized and presented as a unit of measure basis; per dwelling unit for residential and per 1,000 square feet for non-residential. The allocation of the non-residential land uses are based upon a “functional population.” Table 4-6 provides a detailed listing of the proposed impact fees and their appropriate land use and measures.

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FIRE PROTECTION FACILITIES IMPACT FEE ASSUMPTIONS

The development of the fire services impact fees required several assumptions. The major assumptions used in the development of the proposed impact fees are as follows:

1. In the development of the capital costs to serve growth, the total existing and projected major capital costs of providing fire services were developed as described previously based on existing asset records and proposed capital expenditures through 2040. The total existing and projected investment of \$9.0 million was the cost basis used in the development of the fees.
2. The estimated capital base costs or reserved service capacity, allocable to all customer classes were allocated between the residential and non-residential customer classes based on historical call data. Non-residential classes were then allocated between five (5) customer classes: Industrial / Warehousing, Institutional, Hotel / Motel, Office Buildings, and Retail based on “functional population” estimates. The concept of functional population is incorporated in order to spread capital costs more equitably between non-residential land uses. Businesses place demands on fire services in the same manner as residents do, and it is equitable to spread these costs based on the average number of people expected to be present. For the non-residential uses, the allocation is calculated based on the average amount of time spent at each non-residential class and is determined using traffic generations, estimated employment data, and operational details. The net result is the total number of person hours per location as derived from Table 2-2 in Section 2. The costs are calculated on a per person basis and then applied to the non-residential land-uses based upon the respective functional population coefficient.

IMPACT FEE CALCULATION

Based on the above-referenced assumptions, the allocated capital facilities considered necessary to maintain the level of service requirements, and the residential units and land use projections of the City, the fire services impact fees for the residential and non-residential customer classifications were estimated. As shown in Table 4-6 at the end of this section, the cost per equivalent impact fee unit by customer classification was calculated. The following summarizes the proposed fire impact fees:

Proposed Residential Fire Impact Fee		
Description	Impact Unit	Proposed
Single-family	Dwelling Unit	\$292.00
Multi-family	Dwelling Unit	262.00
Mobile Homes	Dwelling Unit	240.00

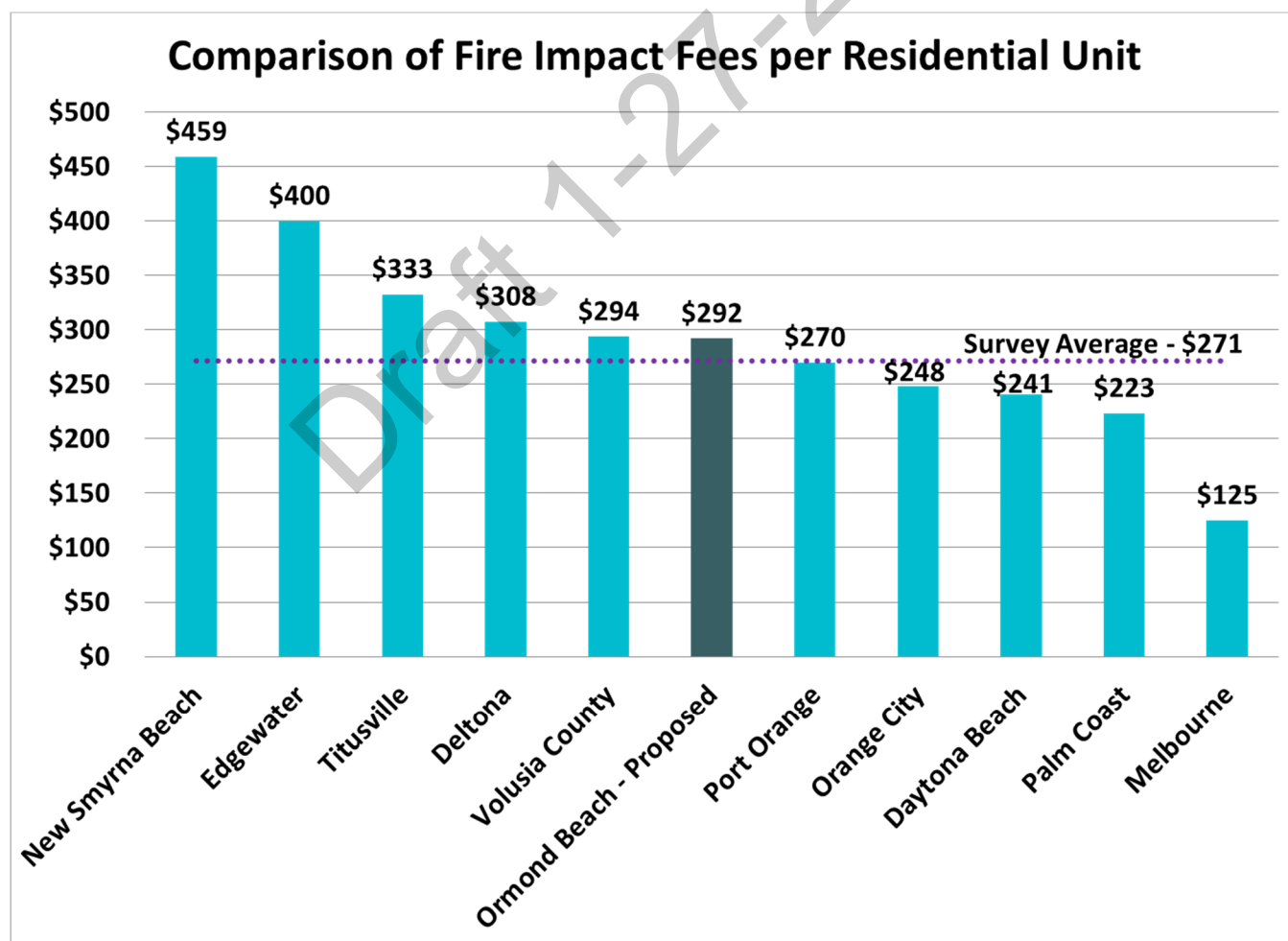
Proposed Non-residential Fire Impact Fees		
Description	Impact Unit	Proposed Fee
Industrial / Warehousing	Per Square Foot	\$0.019
Institutional	Per Square Foot	\$0.320
Hotel / Motel	Per Room	\$167.00
Office Buildings	Per Square Foot	\$0.245
Retail	Per Square Foot	\$0.432

Taking into account the methodology used for the determination of the fee and the estimates associated with determining the capital needs of the City, it is concluded that the proposed impact fee utilizing the City's LOS standard are reasonable. It should be noted that in the development of the fee per equivalent impact fee unit, that no credits associated with developer land dedication or other similar activities have been recognized. Also, it should be noted that the proposed incremental capital improvements are stated in Fiscal Year 2022 dollars and do not include any inflationary allowances.

In the development of the cost per equivalent impact fee unit, it was determined that the rate should be applied on a "per dwelling unit" basis for the residential classes and primarily on a "per square footage" of commercial development for the non-residential class. These factors are common throughout the state as the equivalent impact fee unit for fee determination. The use of these equivalency factors was based on discussions with the City, comparisons of fee applicability provisions of neighboring jurisdictions, and promotion of administrative simplicity.

Impact Fee Comparisons

In order to provide the City additional information about the proposed impact fees, a comparison of the proposed fees for the City and those charged by other neighboring jurisdictions were prepared. Table 4-7 at the end of this section and the chart below summarize the impact fees for fire services charged by other communities with the proposed rates of the City.



Section 4
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

List of Tables

Table	Description
4-1	Summary of Existing Personnel
4-2	Summary of Existing Capital Equipment, Vehicles, and Facilities
4-3	Inventory of Proposed Capital Equipment, Vehicles, and Facilities
4-4	Summary of Capital Costs to Provide Fire Protection Service
4-5	Historical 2021 & 2022 Fire Call Data by Property Use
4-6	Impact Fee Design
4-7	Fire Protection Facilities Impact Fee Comparison

Table 4-1
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Summary of Existing Personnel

Line No.		Existing Personnel [1]	Allocation Basis	Achieved LOS
	Personnel			
1	Fire Chief	1.0		
2	Deputy Fire Chief	1.0		
3	Fire Battalion Commander	3.0		
4	Captain	12.0		
5	Driver Engineer	12.0		
6	Firefighters	18.0		
7	Total Personnel	<u>47.0</u>	Per 1,000 Population	1.05
	Support			
8	Office Manager (Support)	1.0		
9	Total Support	<u>1.0</u>		
10	Total Personnel & Support	<u><u>48.0</u></u>		

Footnotes:

[1] As provided in the Fiscal Year 2023 Budget.

Table 4-2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Summary of Existing Capital Equipment, Vehicles, and Facilities

Line No.	Description	Estimated Costs [1]	Allocation to Existing Units	Allocated Costs	Total Firefighters Served [2]	Average Cost Per Firefighter
Machinery & Equipment						
1	General Equipment	\$703,577	0.0%	\$0	47.0	\$0
2	Major Vehicles & Vehicle Related Equipment	3,233,125	100.0%	3,233,125	47.0	68,790
Other Capital Equipment and Facilities						
3	Land, Building and Other Major Capital Equipment	5,087,047	100.0%	5,087,047	47.0	108,235
4	Subtotal Other Capital Equipment and Facilities	<u>\$9,023,749</u>	<u>92.2%</u>	<u>\$8,320,172</u>		<u>\$177,025</u>
5	Grants Funded / Contributed Assets	\$0	100.0%	\$0	47.0	\$0
6	Total Adjusted Existing Capital Investment	<u><u>\$9,023,749</u></u>	<u><u>92.2%</u></u>	<u><u>\$8,320,172</u></u>		<u><u>\$177,025</u></u>

Footnotes:

[1] Amounts shown based on cost information provided by the City and detailed in Appendix 2.

[2] Based on existing number of firefighters as shown on Table 4-1.

Table 4-3
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Inventory of Proposed Capital Equipment, Vehicles, and Facilities [1]

Line No.	Description	FY 23 - 27 Total	Adjustments	Adjusted Total	New, R&R, or Upgrade
1	Station Alerting [2]	\$240,000	(\$240,000)	\$0	R&R
2	Fire Station 91 & 93 Generator [2]	250,000	(250,000)	0	R&R
4	Point to Point Wireless Upgrades [2]	27,000	(27,000)	0	R&R
5	Brush Truck	175,000	0	175,000	New
6	Bunker Gear Dryers [3]	14,000	(14,000)	0	Upgrade
7	Quint Fire Apparatus [4]	1,000,000	(518,831)	481,169	Upgrade
8	Brush Attack Apparatus	25,000	0	25,000	Upgrade
10	Total Capital Improvements	<u>\$1,731,000</u>	<u>(\$1,049,831)</u>	<u>\$681,169</u>	

Footnotes:

- [1] Capital improvement plan as provided by the department.
[2] Renewal and replacement cost improvements have excluded from the impact fee calculation.
[3] Equipment projects have been excluded from the impact fee calculation.
[4] Adjustment shown to remove value of existing apparatus being replaced.

Table 4-4
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Summary of Capital Costs to Provide Fire Protection Services

Line No.	Description	Total Cost [1]
	<u>Recoupment Costs</u>	
1	Machinery & Equipment	\$0
2	Major Vehicles & Fire Fighting Equipment	3,233,125
3	Other Capital Equipment & Facilities	5,087,047
4	Total Recoupment Costs	<u>\$8,320,172</u>
	<u>Proposed Capital Additions</u>	
5	Major Vehicles & Facilities	\$681,169
6	Total Proposed Costs	<u>\$681,169</u>
	<u>Additional Cost or Adjustments</u>	
7	Less Historical Capital Grants Received	\$0
8	Less Proposed Future Capital Grants	0
9	Total Additional Costs or Adjustments	<u>\$0</u>
10	Total Capital Costs	<u><u>\$9,001,341</u></u>

Footnotes:

[1] Total estimated capital costs in Table 4-2 and Table 4-3.

Table 4-5
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Historical 2021 & 2022 Fire Call Data by Property Use [1]

Line No.	Property Use	2021 Count	2022 Count	Total	Percent of Total
1	Total Residential Calls	8,893	4,875	13,768	61.3%
2	Total Non-residential Calls	5,512	3,184	8,696	38.7%
3	Total Calls	<u>14,405</u>	<u>8,059</u>	<u>22,464</u>	<u>100.0%</u>

Footnotes:

[1] Call data as provided by the department.

Draft 1-27-2023

Table 4-6
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Impact Fee Design

Line No.	Land Use	Unit of Measure	Functional Pop. Factor	Persons per Unit	Base Cost per Person [2]	Base Cost per Unit	Variable Cost Per Unit [3]	Proposed Impact Fee (Rounded)
Residential								
1	Single Family	Dwelling Unit	0.625769	2.53	\$96.81	\$153.54	\$138.24	\$292.00
2	Multi-Family	Dwelling Unit	0.625769	2.05	96.81	124.15	138.24	262.00
3	Mobile Home	Dwelling Unit	0.625769	1.68	96.81	101.85	138.24	240.00
Non-Residential								
4	Industrial/Warehousing	1,000 Sq Ft	0.097620	N/A	\$96.81	\$9.45	\$9.78	\$19.00
5	Institutional	1,000 Sq Ft	1.625049	N/A	96.81	157.32	162.75	320.00
6	Hotel/Motel	Rooms	0.850099	N/A	96.81	82.30	85.14	167.00
7	Office Buildings	1,000 Sq Ft	1.244734	N/A	96.81	120.50	124.66	245.00
8	Retail	1,000 Sq Ft	2.190880	N/A	96.81	212.10	219.42	432.00
9	Should none of the above land uses adequately define a proposed non-residential development as determined by the City Manager, at the Manager's discretion the following average charge per non-residential development is considered appropriate:							
10		<u>Non-residential</u>						
11	Total Cost per Person [Base] [1]	\$96.81						
12	Percent Allocable to Resident	<u>62.58%</u>						
13	Amount Allocable to the Resident	\$60.58						
14	Amount Allocable to Non-residential	\$36.23						
15	Plus Cost per Person [Variable] [2]	<u>100.15</u>						
16	Amount Allocable to Non-residential	\$136.38						
17	Square Feet of Non-residential Development per Person	<u>300.00</u>						
18	Persons per 1,000 Square Feet	<u>3.33</u>						
19	Average Cost per 1,000 Square Feet of Non-residential Development	<u><u>\$454.00</u></u>						

Table 4-6
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Impact Fee Design

Line No.	Land Use	Unit of Measure	Functional Pop. Factor	Persons per Unit	Base Cost per Person [2]	Base Cost per Unit	Variable Cost Per Unit [3]	Proposed Impact Fee (Rounded)
Footnotes								
[1]	Coefficients as shown on Table 2-2.							
[2]	Total Base Capacity estimated as follows:							
	Total Estimated Capital Costs - Investment in Fire Services		\$9,001,341					
	Percent Base Capacity		50%					
	Total Estimated Base Capacity Costs		\$4,500,670					
	Total Population 2026		46,491					
	Total Cost per Person		\$96.81					
[3]	Variable Cost per Unit estimated as follows:							
	Total Estimated Capital Costs - Investment in Fire Services		\$9,001,341					
	Less Amount allocated to Base Capacity		4,500,670					
	Total Variable Cost		\$4,500,671					
	Percent Residential (Historical)		61.29%					
	Total Residential Costs		\$2,758,424					
	Total Non-residential Costs		\$1,742,247					
	Residential Variable Allocation							
	Total Residential Costs		\$2,758,424					
	2026 Estimated Units		19,953					
	Variable Cost per Unit		\$138.24					
	Non-residential Variable Allocation							
	Total Non-residential Costs		\$1,742,247					
	Effective 2026 Non-residential Population		17,397					
	Variable Cost per Unit		\$100.15					

Table 4-7
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Fire Protection Facilities Impact Fee Comparison [*]

Line No.	Municipality	Fire
1	Ormond Beach - Existing	N/A
2	Ormond Beach - Proposed	\$292.00
3	New Smyrna Beach	\$459.00
4	Daytona Beach	\$241.00
5	DeLand	\$82.00
6	Deltona	\$307.50
7	Edgewater	\$400.03
8	Melbourne	\$125.00
9	Orange City	\$248.33
10	Palm Coast	\$223.38
11	Port Orange	\$270.00
12	Titusville	\$332.66
13	Volusia County	\$293.73
14	Average Fee	\$271.15
15	Median Fee	\$271.03

[*] As of October 2021

Appendix 1
City of Ormond Beach
Police Facilities Impact Fee Analysis

Inventory of Existing Capital Equipment, Vehicles and Facilities [1]

Line No.	Asset #	Description	Date Acq.	Acq. Cost	LTD Accum Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
1	10002875	Cmplx-Police Station 160 W Granada Blvd	5/15/2000	\$77,210	\$69,489	Facilities	\$0	\$0	\$77,210	\$0	\$77,210
2	10002876	Bluelines	6/19/2000	2,774	2,497	Excluded	0	0	0	2,774	2,774
3	10002878	Analysis & Design	2/25/2000	795	716	Excluded	0	0	0	795	795
4	10002879	Demo Detective Bldg.	6/10/2000	11,316	10,184	Facilities	0	0	11,316	0	11,316
5	10002880	Asbestos Survey	6/30/2000	450	405	Excluded	0	0	0	450	450
6	10002881	Bluelines	7/8/2000	73	66	Excluded	0	0	0	73	73
7	10002882	Copies & Bluelines	7/3/2000	826	743	Excluded	0	0	0	826	826
8	10002883	Bluelines	8/10/2000	166	150	Excluded	0	0	0	166	166
9	10002884	In Place Density Test	9/29/2000	819	737	Excluded	0	0	0	819	819
10	10002885	Relocate Communication Tower	9/30/2000	1,498	1,348	Excluded	0	0	0	1,498	1,498
11	10002886	Architect Fees	8/2/2000	8,317	7,485	Excluded	0	0	0	8,317	8,317
12	10002887	Geotechnical Evaluation	7/31/2000	2,835	2,552	Excluded	0	0	0	2,835	2,835
13	10002888	Analysis	9/8/2000	14,634	13,171	Excluded	0	0	0	14,634	14,634
14	10002889	Pmt For Const	8/2/2000	22,095	19,886	Facilities	0	0	22,095	0	22,095
15	10002890	Pmt 1	9/30/2000	71,620	64,458	Facilities	0	0	71,620	0	71,620
16	10002891	Cmplx Police Station Analysis & Design	8/13/2001	58,845	50,607	Facilities	0	0	58,845	0	58,845
17	10002892	Technology Services Conduit/Recepticle	3/7/2001	3,213	2,763	Excluded	0	0	0	3,213	3,213
18	10002893	Painting	8/15/2001	10,649	9,158	Excluded	0	0	0	10,649	10,649
19	10002894	Finishing Materials/Stucco Etc	8/7/2001	45,090	38,777	Excluded	0	0	0	45,090	45,090
20	10002895	Glass*Glazing Mirrors	8/20/2001	66,127	56,869	Excluded	0	0	0	66,127	66,127
21	10002896	Security Door Control	7/31/2001	32,107	27,612	Facilities	0	0	32,107	0	32,107
22	10002897	Plumbing Materials	7/5/2001	3,547	3,050	Excluded	0	0	0	3,547	3,547
23	10002898	Building Const. Payments #2-8.	12/30/2000	1,523,266	1,310,009	Facilities	0	0	1,523,266	0	1,523,266
24	10002899	Doors Frames & Hardware	2/24/2001	31,305	26,922	Facilities	0	0	31,305	0	31,305
25	10002900	Masonry Materials	11/3/2000	69,774	60,005	Facilities	0	0	69,774	0	69,774
26	10002901	Electrical Materials	4/27/2001	80,929	69,599	Facilities	0	0	80,929	0	80,929
27	10002902	Roofing Materials	3/16/2001	23,188	19,942	Facilities	0	0	23,188	0	23,188
28	10002903	Window Shading Devices	6/10/2001	3,000	2,580	Facilities	0	0	3,000	0	3,000
29	10002904	Hvac Equipment	1/2/2001	52,540	45,184	Facilities	0	0	52,540	0	52,540
30	10002905	Generator/Diesel	3/20/2001	40,350	34,701	Facilities	0	0	40,350	0	40,350
31	10002906	Roofing Materials	3/16/2001	16,311	14,027	Facilities	0	0	16,311	0	16,311
32	10002907	Joist & Deck Package	2/7/2001	35,000	30,100	Facilities	0	0	35,000	0	35,000
33	10002908	Fire Sprinkler Materials	5/9/2001	4,854	4,175	Facilities	0	0	4,854	0	4,854
34	10002909	Structural Steel	12/5/2000	10,674	9,180	Facilities	0	0	10,674	0	10,674
35	10002910	Rebar Materials	12/21/2000	11,302	9,720	Facilities	0	0	11,302	0	11,302
36	10002911	Density Test	8/17/2001	7,672	6,598	Excluded	0	0	0	7,672	7,672
37	10002912	Film Processing	6/22/2001	37	31	Excluded	0	0	0	37	37
38	10002913	Amendment Of Master Plan/Legal Services	11/6/2000	1,510	1,298	Excluded	0	0	0	1,510	1,510
39	10002914	Shooting Range	10/19/2000	1,171	1,007	Facilities	0	0	1,171	0	1,171
40	10002915	Door Supplies	8/23/2001	464	399	Excluded	0	0	0	464	464
41	10002916	Hvac Equipment	8/30/2001	39,973	34,377	Mach. & Equip.	39,973	0	0	0	39,973
42	10002917	Contractors Payment	9/28/2001	626,938	539,167	Facilities	0	0	626,938	0	626,938
43	10002918	Contractors Payment	8/29/2001	52,206	44,897	Facilities	0	0	52,206	0	52,206
44	10002920	Paint	8/29/2001	728	626	Facilities	0	0	728	0	728
45	10002921	Prof Services	9/20/2001	738	634	Excluded	0	0	0	738	738
46	10002922	Architect Services	9/30/2001	5,634	4,845	Excluded	0	0	0	5,634	5,634
47	10002923	Window Shading Devices	8/28/2001	10,900	9,374	Facilities	0	0	10,900	0	10,900
48	10002924	Plaque	9/24/2001	725	624	Facilities	0	0	725	0	725
49	10002925	Doors, Frames & Hardware Mat.	9/29/2001	15,600	13,416	Facilities	0	0	15,600	0	15,600
50	10002926	Frames, Doors & Materials	9/29/2001	7,002	6,022	Facilities	0	0	7,002	0	7,002
51	10002927	Concrete Test/Asphalt Extration	10/1/2001	220	180	Excluded	0	0	0	220	220
52	10002928	Technology	10/31/2001	25,660	21,041	Excluded	0	0	0	25,660	25,660
53	10002929	Doors, Frames And Hardware	10/25/2001	4,763	3,905	Facilities	0	0	4,763	0	4,763
54	10002930	Engineering Services	11/7/2001	342	280	Excluded	0	0	0	342	342
55	10002931	Cisco Routers	11/28/2001	10,354	8,490	Excluded	0	0	0	10,354	10,354

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56	10002932	73 Interior Signage, 6 Exterior Signage	10/3/2001	1,998	1,638	Facilities	0	0	1,998	0	1,998
57	10002934	Plumbing Materials	12/7/2001	10,188	8,354	Facilities	0	0	10,188	0	10,188
58	10002935	Hall Const Payment	10/30/2001	41,067	33,675	Facilities	0	0	41,067	0	41,067
59	10002936	Hall Const Pmt	11/30/2001	3,425	2,809	Facilities	0	0	3,425	0	3,425
60	10002940	Cmplx Police Sta Furniture Additional Pu	9/30/2002	50,223	41,183	Facilities	0	0	50,223	0	50,223
61	10002941	Cmplx Police Sta - Addtl Hall Const Paym	9/30/2002	66,325	54,387	Facilities	0	0	66,325	0	66,325
62	10002942	Architectural Services	12/10/2001	2,180	1,788	Excluded	0	0	0	2,180	2,180
63	10002943	Pmt #4	12/30/2001	2,146	1,760	Facilities	0	0	2,146	0	2,146
64	10002944	Cmplx Police Sta Planter Boxes	11/14/2002	2,153	1,679	Facilities	0	0	2,153	0	2,153
65	10002945	Facility Analysis & Design	2/11/2002	501	411	Excluded	0	0	0	501	501
66	10002946	Pmt #13	5/31/2002	75,279	61,729	Facilities	0	0	75,279	0	75,279
67	10002947	Cmplx Pd Fac Analysis & Design Engineeri	9/30/1999	27,795	26,128	Facilities	0	0	27,795	0	27,795
68	10002948	Final Payment	9/30/2002	20,050	16,441	Facilities	0	0	20,050	0	20,050
69	10002950	Analysis - Facility Task	9/29/1997	32,163	32,163	Facilities	0	0	32,163	0	32,163
70	10002951	Analysis For New Station	9/30/1991	6,873	6,873	Facilities	0	0	6,873	0	6,873
71	10002952	Cmplx-Police Station Telephone System Up	9/22/2003	480	374	Excluded	0	0	0	480	480
72	10002953	Cmplx-Police Station-Telephone System Up	9/19/2003	17,870	13,939	Excluded	0	0	0	17,870	17,870
73	10002954	Cmplx Police Sta Decorative Plants	9/16/2003	1,150	897	Facilities	0	0	1,150	0	1,150
74	10002955	Cmplx Police Sta Planter Boxes	11/15/2002	3,252	2,537	Facilities	0	0	3,252	0	3,252
75	10002956	Pd Facility Study Engineering Services	5/19/1998	8,600	8,428	Facilities	0	0	8,600	0	8,600
76	10004550	Cmplx Pal House 2.5 Ton Air Conditioner	6/10/1996	700	700	Facilities	0	0	700	0	700
77	10004551	Cmplx Pal House Consulting - Rfp Ad	12/3/2003	94	70	Excluded	0	0	0	94	94
78	10004553	Cmplx Pal House Forfeiture Bldg Value (D	4/19/1996	14,476	14,476	Excluded	0	0	0	14,476	14,476
79	10008540	Hvac Drive Motor Pd	9/30/2016	11,600	5,027	Mach. & Equip.	11,600	0	0	0	11,600
80	20000001	POLICE DEPARTMENT ROOF	9/30/2017	24,272	8,225	Facilities	0	0	24,272	0	24,272
81	20000050	POLICE SALLY PORT REPAIR	6/20/2018	55,215	9,939	Facilities	0	0	55,215	0	55,215
82	20000144	PUMP REPLACEMENT HVAC PD TACO PUMPS	4/27/2018	18,880	5,664	Mach. & Equip.	18,880	0	0	0	18,880
83	20000399	PAINT/CARPET OFFICES*PD ADMIN*PD PATROL	9/14/2021	12,000	3,600	Facilities	0	0	12,000	0	12,000
84	20000416	ROOF REPAIRS POLICE DEPT	2/17/2021	18,341	1,834	Facilities	0	0	18,341	0	18,341
85	20000619	Carpeting @ PD CONFERENCE ROOM,HALLWA	3/22/2022	20,606	2,061	Facilities	0	0	20,606	0	20,606
86	20000620	INTERIOR OFFICE PAINTING AT*PD	5/25/2022	5,000	100	Facilities	0	0	5,000	0	5,000
87	10002877	Stormwater Permit Application	4/5/2000	350	315	Excluded	0	0	0	350	350
88	10002919	County Road Impact Fee	9/28/2001	4,541	3,905	Excluded	0	0	0	4,541	4,541
89	10004541	Cmplx Pal House Lumber & 2 Park Benches	9/28/2001	335	288	Excluded	0	0	0	335	335
90	10004542	Cmplx Pal House Concrete	10/19/2001	786	645	Excluded	0	0	0	786	786
91	10004543	Cmplx Pal House Trash Receptacles	10/11/2001	314	257	Excluded	0	0	0	314	314
92	10004544	Cmplx Pal House Mulch	10/26/2001	326	267	Excluded	0	0	0	326	326
93	10004545	Cmplx Pal House Sod	10/26/2001	150	123	Excluded	0	0	0	150	150
94	10004546	Cmplx Pal House Plants	10/18/2001	1,276	1,047	Excluded	0	0	0	1,276	1,276
95	10004547	Cmplx Pal House Irrigation System	10/31/2001	2,935	2,407	Excluded	0	0	0	2,935	2,935
96	10004548	Cmplx Pal House Picnic Tables	11/5/2001	300	246	Excluded	0	0	0	300	300
97	10008208	Police Fence	9/30/2014	32,206	10,950	Facilities	0	0	32,206	0	32,206
98	10008316	Police Fencing	9/30/2015	16,897	5,069	Facilities	0	0	16,897	0	16,897
99	20000507	*PD ACCESS CONTROL	9/30/2022	153,961	0	Facilities	0	0	153,961	0	153,961
100	10000003	Rst 93 Ford F700 K74 Dump Truck	10/30/1992	29,937	29,937	Vehicles	0	29,937	0	0	29,937
101	10000018	Eqp Surveillance Equipment	8/14/1991	7,547	7,547	Excluded	0	0	0	7,547	7,547
102	10002622	It-Imaging Document System/Records-Polic	4/5/1999	8,087	8,087	Excluded	0	0	0	8,087	8,087
103	10007205	Eqp 9' Stop Stick Rack Kit, Black	5/25/2007	18,120	18,120	Mach. & Equip.	18,120	0	0	0	18,120
104	10007456	Eqp Bar Code System Evidence Room	7/6/2001	14,985	14,985	Mach. & Equip.	14,985	0	0	0	14,985
105	10007461	It-Internal Affairs Management Software	2/26/2002	1,500	1,500	Excluded	0	0	0	1,500	1,500
106	10007479	Rst 03 Command Htl01 Mobile Command Vehi	10/20/2003	99,978	99,978	Vehicles	0	99,978	0	0	99,978
107	10007640	Eqp Citation Writer	6/25/2008	11,070	11,070	Excluded	0	0	0	11,070	11,070
108	10008524	2016 Smart Trailer	9/30/2016	6,602	2,861	Mach. & Equip.	6,602	0	0	0	6,602
109	20000209	SOLAR POWERED PORTABLE MESSAGE SIGN	11/8/2018	13,079	3,052	Mach. & Equip.	13,079	0	0	0	13,079
110	20000272	Body Cameras & cloud based storage syste	5/2/2019	78,226	18,253	Mach. & Equip.	78,226	0	0	0	78,226

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111	20000314	POLICE CAMERA EQUIPMENT PD	1/22/2020	110,598	18,433	Mach. & Equip.	110,598	0	0	0	110,598
112	20000516	ROBOTS FOR POLICE DEPT	11/30/2021	53,600	1,787	Mach. & Equip.	53,600	0	0	0	53,600
113	20000517	ROADWARRIOR SPEED TRAILER	2/28/2022	31,150	1,038	Mach. & Equip.	31,150	0	0	0	31,150
114	20000555	TRAILER W/SPEED SIGN F	4/11/2022	9,158	305	Mach. & Equip.	9,158	0	0	0	9,158
115	10005860	Veh 05 Ford Ranger Truck	6/1/2005	13,897	13,897	Vehicles	0	13,897	0	0	13,897
116	10007504	Veh 08 Ford Crown Victoria	11/2/2007	21,255	21,255	Vehicles	0	21,255	0	0	21,255
117	10007506	Veh 08 Ford Crown Victoria	11/2/2007	21,255	21,255	Vehicles	0	21,255	0	0	21,255
118	10007507	Veh 08 Chevy Colorado 4X4	4/2/2008	13,203	13,203	Vehicles	0	13,203	0	0	13,203
119	10007706	2009 Crown Vic	9/30/2009	23,454	23,454	Vehicles	0	23,454	0	0	23,454
120	10007800	2010 Ford Crown Vic	9/30/2010	24,879	24,879	Vehicles	0	24,879	0	0	24,879
121	10007801	2010 Ford Crown Vic	9/30/2010	24,879	24,879	Vehicles	0	24,879	0	0	24,879
122	10007804	Impala 105	9/30/2010	19,286	19,286	Vehicles	0	19,286	0	0	19,286
123	10007909	2011 Ford Crown Vic	9/30/2011	27,469	27,469	Vehicles	0	27,469	0	0	27,469
124	10007910	2011 Ford Crown Vic	9/30/2011	27,469	27,469	Vehicles	0	27,469	0	0	27,469
125	10007912	Chevy Impala	9/30/2011	19,419	19,419	Vehicles	0	19,419	0	0	19,419
126	10007913	2011 Ford Explorer	9/30/2011	24,139	24,139	Vehicles	0	24,139	0	0	24,139
127	10007914	Equinox	9/30/2011	21,387	21,387	Vehicles	0	21,387	0	0	21,387
128	10008009	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
129	10008010	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
130	10008011	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
131	10008012	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
132	10008013	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
133	10008014	2012 Chevy Caprice	9/30/2012	30,893	30,893	Vehicles	0	30,893	0	0	30,893
134	10008015	2012 Chevy Caprice	9/30/2012	31,367	31,367	Vehicles	0	31,367	0	0	31,367
135	10008016	2012 F150	9/30/2012	19,528	19,528	Vehicles	0	19,528	0	0	19,528
136	10008017	2012 Chevy Malibu	9/30/2012	19,186	19,186	Vehicles	0	19,186	0	0	19,186
137	10008018	2012 Chevy Impala	9/30/2012	24,258	24,258	Vehicles	0	24,258	0	0	24,258
138	10008020	2012 Chevy Pu	9/30/2012	18,133	18,133	Vehicles	0	18,133	0	0	18,133
139	10008021	2012 For Taurus	9/30/2012	22,446	22,446	Vehicles	0	22,446	0	0	22,446
140	10008028	2012 Chevy Colorado	9/30/2012	18,064	18,064	Vehicles	0	18,064	0	0	18,064
141	10008081	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
142	10008082	Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
143	10008083	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
144	10008084	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
145	10008085	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
146	10008086	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
147	10008087	2012 Chevy Caprice Graphics	9/30/2013	394	394	Mach. & Equip.	394	0	0	0	394
148	10008088	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
149	10008089	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
150	10008090	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
151	10008091	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
152	10008092	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
153	10008093	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
154	10008094	Chevy Caprice Graphics	9/30/2013	1,114	1,114	Mach. & Equip.	1,114	0	0	0	1,114
155	10008109	Ford F150	9/30/2013	19,084	19,084	Vehicles	0	19,084	0	0	19,084
156	10008114	Ford Fusion	9/30/2013	19,639	19,639	Vehicles	0	19,639	0	0	19,639
157	10008249	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
158	10008250	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
159	10008251	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
160	10008252	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
161	10008253	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
162	10008254	2013 Chevy Caprice	9/30/2014	32,386	32,386	Vehicles	0	32,386	0	0	32,386
163	10008255	2013 Chevy Caprice	9/30/2014	32,594	32,594	Vehicles	0	32,594	0	0	32,594
164	10008256	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
165	10008257	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476

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166	10008258	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
167	10008259	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
168	10008260	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
169	10008261	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
170	10008262	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
171	10008263	2014 Chevy Caprice	9/30/2014	33,476	33,476	Vehicles	0	33,476	0	0	33,476
172	10008264	2013 Chevy Caprice	9/30/2014	24,766	24,766	Vehicles	0	24,766	0	0	24,766
173	10008329	2014 Chevy Caprice	9/30/2015	33,215	33,215	Vehicles	0	33,215	0	0	33,215
174	10008330	2014 Chevy Caprice	9/30/2015	33,215	33,215	Vehicles	0	33,215	0	0	33,215
175	10008331	2014 Chevy Caprice	9/30/2015	33,215	33,215	Vehicles	0	33,215	0	0	33,215
176	10008332	2014 Chevy Caprice	9/30/2015	33,215	33,215	Vehicles	0	33,215	0	0	33,215
177	10008333	2014 Chevy Caprice	9/30/2015	33,215	33,215	Vehicles	0	33,215	0	0	33,215
178	10008334	2015 Chevy Impala	9/30/2015	20,577	20,577	Vehicles	0	20,577	0	0	20,577
179	10008335	2015 Chevy Malibu	9/30/2015	18,758	18,758	Vehicles	0	18,758	0	0	18,758
180	10008336	2015 Ford Taurus	9/30/2015	22,542	22,542	Vehicles	0	22,542	0	0	22,542
181	10008337	2015 Ford Transit Connect	9/30/2015	18,718	18,718	Vehicles	0	18,718	0	0	18,718
182	10008338	2015 Ford Transit Connect	9/30/2015	21,668	21,668	Vehicles	0	21,668	0	0	21,668
183	10008510	2016 Ford Transit Cargo	9/30/2016	30,731	30,731	Vehicles	0	30,731	0	0	30,731
184	10008513	2016 Chevy Cruze	9/30/2016	17,455	17,455	Vehicles	0	17,455	0	0	17,455
185	10008515	2016 Ford F150	9/30/2016	19,599	19,599	Vehicles	0	19,599	0	0	19,599
186	10008517	2016 Ford F150	9/30/2016	19,599	19,599	Vehicles	0	19,599	0	0	19,599
187	10008518	2016 Ford F150	9/30/2016	24,991	24,991	Vehicles	0	24,991	0	0	24,991
188	10008521	2014 Chevy Caprice	9/30/2016	29,858	29,858	Vehicles	0	29,858	0	0	29,858
189	10008523	2017 Harley Davidson	9/30/2016	33,921	33,921	Vehicles	0	33,921	0	0	33,921
190	20000003	2017 FORD TRANSIT	11/8/2016	22,385	22,385	Vehicles	0	22,385	0	0	22,385
191	20000004	2015 CHEVY CAPRICE PATROL VEHICLE	3/9/2017	24,998	24,998	Vehicles	0	24,998	0	0	24,998
192	20000034	2017 FORD F-150 TRUCK	9/19/2017	20,769	20,769	Vehicles	0	20,769	0	0	20,769
193	20000035	#4 HARLEY DAVIDSON MOTORCYCLES	6/2/2017	34,343	34,343	Vehicles	0	34,343	0	0	34,343
194	20000036	#4 HARLEY DAVIDSON MOTORCYCLES	6/2/2017	33,007	33,007	Vehicles	0	33,007	0	0	33,007
195	20000037	#4 HARLEY DAVIDSON MOTORCYCLES	6/2/2017	31,931	31,931	Vehicles	0	31,931	0	0	31,931
196	20000038	2017 CHEVROLET CAPRICE	8/9/2017	37,861	37,861	Vehicles	0	37,861	0	0	37,861
197	20000039	2017 CHEVROLET CAPRICE	8/9/2017	41,415	41,415	Vehicles	0	41,415	0	0	41,415
198	20000040	2017 Chevrolet Caprice Patrol Car	8/30/2017	38,548	38,548	Vehicles	0	38,548	0	0	38,548
199	20000041	2017 FORD EXPLORER	9/19/2017	41,253	41,253	Vehicles	0	41,253	0	0	41,253
200	20000042	2017 FORD F-150 TRUCK	8/28/2017	20,769	20,769	Vehicles	0	20,769	0	0	20,769
201	20000051	LIGHTBARS/CHARGERS/PUDDLE LIGHTSDODGECAR	8/8/2017	19,138	19,138	Vehicles	0	19,138	0	0	19,138
202	20000111	2018 DODGE CHARGER	10/20/2017	24,372	21,935	Vehicles	0	24,372	0	0	24,372
203	20000112	2018 dodge charger	10/20/2017	25,892	23,303	Vehicles	0	25,892	0	0	25,892
204	20000113	2018 dodge charger	10/20/2017	28,880	25,992	Vehicles	0	28,880	0	0	28,880
205	20000120	2018 DODGE CHARGER	4/26/2018	24,148	21,733	Vehicles	0	24,148	0	0	24,148
206	20000186	2018 HARLEY DAVIDSON	6/9/2018	22,700	20,430	Vehicles	0	22,700	0	0	22,700
207	20000205	2019 DODGE CHARGER FLEET	3/18/2019	51,833	36,283	Vehicles	0	51,833	0	0	51,833
208	20000206	2019 DODGE CHARGER FLEET	3/18/2019	32,352	22,646	Vehicles	0	32,352	0	0	32,352
209	20000207	2019 DODGE CHARGER FLEET	3/26/2019	32,060	22,442	Vehicles	0	32,060	0	0	32,060
210	20000208	2019 DODGE CHARGER FLEET	3/18/2019	40,311	28,217	Vehicles	0	40,311	0	0	40,311
211	20000251	2019 DODGE CHARGER*POLICE	12/27/2018	24,924	17,447	Vehicles	0	24,924	0	0	24,924
212	20000300	TRUCKS (INCLUDING, DIESEL, GASOLINE, ELE	1/2/2020	5,300	2,650	Mach. & Equip.	5,300	0	0	0	5,300
213	20000317	2019 DODGE CHARGER 2C3CDXAG7KG748480	12/31/2019	24,924	12,462	Vehicles	0	24,924	0	0	24,924
214	20000318	2020 DODGE DURANGO SN 1C4RDJFG7LC369835	7/28/2020	47,619	23,810	Vehicles	0	47,619	0	0	47,619
215	20000319	2020 DODGE DURANGO SN 1C4RDJFG6LC30878	7/28/2020	28,181	14,091	Vehicles	0	28,181	0	0	28,181
216	20000320	2020 DODGE DURANGO SN 1C4RDJFG4LC308	7/28/2020	28,181	14,091	Vehicles	0	28,181	0	0	28,181
217	20000321	2020 DODGE DURANGO	8/13/2020	28,181	14,091	Vehicles	0	28,181	0	0	28,181
218	20000387	2020 DODGE DURANGO S/N 1C4RDJFG3LC37130	10/6/2020	55,247	16,574	Vehicles	0	55,247	0	0	55,247
219	20000388	2020 DODGE DURANGO S/N1C4RDJFG5LC371308	10/6/2020	58,140	17,442	Vehicles	0	58,140	0	0	58,140
220	20000389	2021 DODGE CHGR*PD PATROL CAR & ACCESSOR	7/20/2021	57,720	17,316	Vehicles	0	57,720	0	0	57,720

Appendix 1
City of Ormond Beach
Police Facilities Impact Fee Analysis

Inventory of Existing Capital Equipment, Vehicles and Facilities [1]

Line No.	Asset #	Description	Date Acq.	Acq. Cost	LTD Accum Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
221	20000390	2021 DODGE CHGR*PD PATROL CAR & ACCESSOR	7/20/2021	56,702	17,011	Vehicles	0	56,702	0	0	56,702
222	20000391	2021 DODGE CHGR*PD PATROL CAR & ACCESSOR	7/20/2021	60,590	18,177	Vehicles	0	60,590	0	0	60,590
223	20000552	2021 DODGE CHARGER S/N 2C3CDXKG3MH653	12/22/2021	31,212	3,121	Vehicles	0	31,212	0	0	31,212
224	20000553	2021 ELECTRA GLIDE MOTORCYCLE	10/27/2021	19,300	1,930	Vehicles	0	19,300	0	0	19,300
225	20000556	2022 FORD POLICE INTER VIN#GB50779*FLEE	9/13/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
226	20000557	2022 FORD POLICE GOV VIN#GB48051*FLEET	9/13/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
227	20000558	2022 FORD POLICE GOV VIN#GB48462*FLEET	9/13/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
228	20000559	2022 FORD POLICE INTER VIN#GB50683*FLEET	9/13/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
229	20000560	2022 FORD POLICE GOV VIN#GB50132*FLEET	9/23/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
230	20000561	2022 FORD POLICE INTER VIN#GB48076*FLEE	9/23/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
231	20000562	2022 FORD POLICE GOV VIN#GB48095*FLEET	9/23/2022	33,168	3,317	Vehicles	0	33,168	0	0	33,168
232	20000622	2021 DODGE CHARGER POLICE PATROL	11/22/2021	30,113	3,011	Vehicles	0	30,113	0	0	30,113
233	10002933	Land 179 Tomoka Ave Bowles Property	12/10/2001	350	0	Mach. & Equip.	350	0	0	0	350
234	10002937	Title Search*Bowles (Police Sta Parking	12/7/2001	125	0	Mach. & Equip.	125	0	0	0	125
235	10002938	Land - 170 West Granada Blvd	9/30/1975	24,588	0	Facilities	0	0	24,588	0	24,588
236	10002939	Police - Land - Was Old 194 W Granada Bl	9/30/1974	15,000	0	Facilities	0	0	15,000	0	15,000
237	10002949	Property Appraisal - Southern Appraisal	2/11/1999	850	0	Excluded	0	0	0	850	850
238	10004540	Cmplx-Pal House/Waldo O Berry Heritage P	10/1/2000	1	0	Facilities	0	0	1	0	1
239	10004549	Cmplx Pal House/Cirelli-Scofield Prop Ti	4/19/1996	8,006	0	Facilities	0	0	8,006	0	8,006
240	10004552	Cmplx Pal House Forfeiture Land Value (D	4/19/1996	3,750	0	Facilities	0	0	3,750	0	3,750
241		Total		<u>\$7,536,777</u>	<u>\$5,786,857</u>		<u>\$422,303</u>	<u>\$3,185,118</u>	<u>\$3,638,947</u>	<u>\$290,409</u>	<u>\$7,536,777</u>

Footnotes:

[1] Fixed assets as of September 30, 2022 as provided by the City.

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
1	Station Information	10000005	Fire Station 94 2301 Airport Road	3/7/1989	\$5,350	\$0	Facilities	\$0	\$0	\$5,350	\$0	\$5,350
2	Station Information	10000006	Fire Station 94 2301 Airport Road	6/30/1993	456,174	456,174	Facilities	0	0	456,174	0	456,174
3	Station Information	10000007	Fire Station 94 Hurricane Rollup Shutter	6/6/2001	20,105	17,290	Facilities	0	0	20,105	0	20,105
4	Station Information	10001060	1995 Frghtliner Fl60	11/8/1994	136,978	136,978	Vehicles	0	136,978	0	0	136,978
5	Station Information	10001061	1995 Frghtliner Fl60	11/1/1994	610	610	Vehicles	0	610	0	0	610
6	Station Information	10002608	Fire Station 93 300 Wilmette Ave	8/3/1998	21,021	0	Facilities	0	0	21,021	0	21,021
7	Station Information	10002609	Fire Station 93 Architectural Services	9/30/1999	54,371	51,109	Facilities	0	0	54,371	0	54,371
8	Station Information	10002610	Fire Station 93 Irrigation/Landscape	5/17/2000	23,284	20,956	Facilities	0	0	23,284	0	23,284
9	Station Information	10002611	Fire Station 93 - Original Land Purchase	6/15/1988	44,686	0	Facilities	0	0	44,686	0	44,686
10	Station Information	10002612	Fire Station 93 Install Sign	4/27/2000	2,080	1,872	Facilities	0	0	2,080	0	2,080
11	Station Information	10002613	Fire Station 93 Crane Rental	3/31/2000	210	189	Facilities	0	0	210	0	210
12	Station Information	10002614	Fire Station 93 Additional Strwtr Modeli	1/20/2000	870	783	Facilities	0	0	870	0	870
13	Station Information	10002615	Fire Station 93 Sign	10/20/1999	235	212	Facilities	0	0	235	0	235
14	Station Information	10002616	Fire Station 93 Architectural Service	5/5/2000	41,956	37,760	Facilities	0	0	41,956	0	41,956
15	Station Information	10002617	Fire Station 93 Engineering Services	5/3/2000	3,520	3,168	Facilities	0	0	3,520	0	3,520
16	Station Information	10002618	Fire Station 93 Construction	10/27/1999	605,285	544,757	Facilities	0	0	605,285	0	605,285
17	Station Equipment	10002619	Fire Station No 93 Real Estate Taxes	5/10/1999	164	0	Facilities	0	0	164	0	164
18	Station Equipment	10002629	Eqp Robot For Fire Safety Training	6/11/1999	7,450	7,450	Mach. & Equip.	7,450	0	0	0	7,450
19	Station Equipment	10002637	Rst 69 General Cargo Truck	5/16/2000	7,500	7,500	Vehicles	0	7,500	0	0	7,500
20	Station Equipment	10002638	Rst Water Tank Polyprene Brush Truck (06	9/1/2000	5,606	5,606	Vehicles	0	5,606	0	0	5,606
21	Station Equipment	10003850	Gen 00 Katolight D50Fjj4 Generator	11/21/2000	9,943	9,943	Mach. & Equip.	9,943	0	0	0	9,943
22	Station Equipment	10003860	Veh 01 Chevy 1/2 Ton 8 Passenger Van	8/7/2001	20,640	20,640	Vehicles	0	20,640	0	0	20,640
23	Station Equipment	10005143	Fire Station 92 189 S Nova Rd (Old Cemet	4/15/2004	14,430	10,678	Facilities	0	0	14,430	0	14,430
24	Station Equipment	10005144	Fire Station 92 Geotechnical Services	6/23/2004	3,730	2,760	Facilities	0	0	3,730	0	3,730
25	Station Equipment	10005145	Fire Station 92 Excavation	6/23/2004	1,783	1,319	Facilities	0	0	1,783	0	1,783
26	Station Equipment	10005146	Fire Station 92 Pre-Construction	8/2/2004	3,865	2,860	Facilities	0	0	3,865	0	3,865
27	Station Equipment	10005147	Fire Station 92 Design	9/30/2004	55,320	40,937	Facilities	0	0	55,320	0	55,320
28	Station Equipment	10005148	Fire Station 92 Pre-Construction	12/13/2004	7,835	5,485	Facilities	0	0	7,835	0	7,835
29	Station Equipment	10005149	Fire Station 92 Architectural Services	9/22/2003	4,500	3,510	Facilities	0	0	4,500	0	4,500
30	Station Equipment	10005150	Fire Station 92 Design	2/1/2005	9,676	6,773	Facilities	0	0	9,676	0	9,676
31	Station Equipment	10005151	Fire Station 92 Construction	4/7/2005	39,234	27,464	Facilities	0	0	39,234	0	39,234
32	Station Equipment	10005152	Fire Station 92 Construction	4/22/2005	44,516	31,161	Facilities	0	0	44,516	0	44,516
33	Station Equipment	10005153	Fire Station 92 Furnish/Deliver All Door	5/5/2005	1,940	1,358	Facilities	0	0	1,940	0	1,940
34	Station Equipment	10005154	Fire Station 92 Construction	5/11/2005	84,349	59,044	Facilities	0	0	84,349	0	84,349
35	Station Equipment	10005155	Fire Station 92 Construction	6/10/2005	69,745	48,822	Facilities	0	0	69,745	0	69,745
36	Station Equipment	10005156	Fire Station 92 All ""Electrical""	7/28/2005	233	163	Facilities	0	0	233	0	233
37	Station Equipment	10005157	Fire Station 92 ""Electrical""	7/28/2005	1,006	704	Facilities	0	0	1,006	0	1,006
38	Station Equipment	10005158	Fire Station 92 All ""Electrical""	7/28/2005	740	518	Facilities	0	0	740	0	740
39	Station Equipment	10005159	Fire Station 92 All ""Electrical""	7/28/2005	235	165	Facilities	0	0	235	0	235
40	Station Equipment	10005160	Fire Station 92 All Trusses	7/28/2005	18,450	12,915	Facilities	0	0	18,450	0	18,450
41	Station Equipment	10005161	Fire Station 92 All Airvac System	7/28/2005	11,510	8,057	Facilities	0	0	11,510	0	11,510
42	Station Equipment	10005162	Fire Station 92 Construction	8/3/2005	74,883	52,418	Facilities	0	0	74,883	0	74,883
43	Station Equipment	10005163	Fire Station 92 All ""Brick""	7/28/2005	3,427	2,399	Facilities	0	0	3,427	0	3,427
44	Station Equipment	10005164	Fire Station 92 All ""Electrical""	7/28/2005	3,873	2,711	Facilities	0	0	3,873	0	3,873
45	Station Equipment	10005165	Fire Station 92 All ""Electrical""	7/28/2005	1,030	721	Facilities	0	0	1,030	0	1,030
46	Station Equipment	10005166	Fire Station 92 ""Electrical""	7/28/2005	3,649	2,554	Facilities	0	0	3,649	0	3,649
47	Station Equipment	10005167	Fire Station 92 All ""Electrical""	7/28/2005	1,375	963	Facilities	0	0	1,375	0	1,375
48	Station Equipment	10005168	Fire Station 92 Construction	7/6/2005	78,977	55,284	Facilities	0	0	78,977	0	78,977
49	Station Equipment	10005169	Fire Station 92 Attorney Fee For Gob Iss	12/11/2003	510	377	Facilities	0	0	510	0	510
50	Station Equipment	10005170	Fire Station 92 All ""Electrical""	6/30/2005	743	520	Facilities	0	0	743	0	743
51	Station Equipment	10005171	Fire Station 92 All ""Electrical""	6/30/2005	792	555	Facilities	0	0	792	0	792
52	Station Equipment	10005172	Fire Station 92 All ""Electrical""	6/30/2005	794	556	Facilities	0	0	794	0	794
53	Station Equipment	10005173	Fire Station 92 All ""Electrical""	6/30/2005	345	242	Facilities	0	0	345	0	345
54	Station Equipment	10005174	Fire Station 92 All ""Electrical""	6/30/2005	525	368	Facilities	0	0	525	0	525
55	Station Equipment	10005175	Fire Station 92 Construction	6/29/2005	325	228	Facilities	0	0	325	0	325
56	Station Equipment	10005176	Fire Station 92 All ""Electrical""	6/29/2005	950	665	Facilities	0	0	950	0	950
57	Station Equipment	10005177	Fire Station 92 All ""Brick""	6/29/2005	3,215	2,251	Facilities	0	0	3,215	0	3,215

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
58	Station Equipment	10005178	Fire Station 92 189 S Nova Road (Old Cem	6/24/1976	108,000	0	Facilities	0	0	108,000	0	108,000
59	Station Equipment	10005179	Fire Station 92 Metal Roofing Materials	8/16/2005	34,909	24,436	Facilities	0	0	34,909	0	34,909
60	Station Equipment	10005180	Fire Station 92 Design	8/16/2005	6,426	4,498	Facilities	0	0	6,426	0	6,426
61	Station Equipment	10005181	Fire Station 92 Construction Materials	8/17/2005	320	224	Facilities	0	0	320	0	320
62	Station Equipment	10005182	Fire Station 92 All Doors, Frames	8/18/2005	1,140	798	Facilities	0	0	1,140	0	1,140
63	Station Equipment	10005183	Fire Station 92 Construction	9/12/2005	169,255	118,479	Facilities	0	0	169,255	0	169,255
64	Station Equipment	10005184	Fire Station 92 Carrier Hvac Equipment	9/14/2005	3,198	2,239	Facilities	0	0	3,198	0	3,198
65	Station Equipment	10005185	Fire Station 92 Metal Roofing Materials	9/14/2005	25,388	17,772	Facilities	0	0	25,388	0	25,388
66	Station Equipment	10005186	Fire Station 92 Fob Jobsite All Doors, F	9/14/2005	1,110	777	Facilities	0	0	1,110	0	1,110
67	Station Equipment	10005187	Fire Station 92 Inspection Photos	8/12/2005	9	6	Facilities	0	0	9	0	9
68	Station Equipment	10005188	Fire Station 92 Bricks	6/8/2005	3,215	2,251	Facilities	0	0	3,215	0	3,215
69	Station Equipment	10005189	Fire Station 92 All Drywall & Stucco	9/27/2005	3,506	2,454	Facilities	0	0	3,506	0	3,506
70	Station Equipment	10005190	Fire Station 92 Dectron Hvac Equipment	9/21/2005	798	559	Facilities	0	0	798	0	798
71	Station Equipment	10005191	Fire Station 92 Construction	9/30/2005	83,004	58,103	Facilities	0	0	83,004	0	83,004
72	Station Equipment	10005192	Fire Station 92 Design	9/30/2005	5,355	3,749	Facilities	0	0	5,355	0	5,355
73	Station Equipment	10005193	Fire Station 92 Construction Materials	9/30/2005	72	50	Facilities	0	0	72	0	72
74	Station Equipment	10005194	Fire Station 92 All ""Electrical""	6/21/2005	1,659	1,161	Facilities	0	0	1,659	0	1,659
75	Station Equipment	10005195	Fire Station 92 Construction	9/30/2005	435	305	Facilities	0	0	435	0	435
76	Station Equipment	10005196	Fire Station 92 Construction	9/30/2005	65	46	Facilities	0	0	65	0	65
77	Station Equipment	10005197	Fire Station 92 All ""Electrical""	9/23/2005	786	550	Facilities	0	0	786	0	786
78	Station Equipment	10005198	Fire Station 92 Dectron Hvac Equipment	11/2/2005	16,060	10,600	Facilities	0	0	16,060	0	16,060
79	Station Equipment	10005199	Fire Station 92 Construction	11/17/2005	150,930	99,614	Facilities	0	0	150,930	0	150,930
80	Station Equipment	10005200	Fire Station 92 Sign	10/4/2005	490	323	Facilities	0	0	490	0	490
81	Station Equipment	10005201	Fire Station 92 All Doors, Frames &	12/8/2005	6,560	4,330	Facilities	0	0	6,560	0	6,560
82	Station Equipment	10005202	Fire Station 92 Architectural	12/8/2005	12,200	8,052	Facilities	0	0	12,200	0	12,200
83	Vehicle and Apparatus	10005203	Fire Station 92 Carrier Hvac Equipment	12/8/2005	11,345	7,488	Facilities	0	0	11,345	0	11,345
84	Vehicle and Apparatus	10005204	Fire Station 92 Survey - July 1988 (G.O.	7/1/1988	350	0	Facilities	0	0	350	0	350
85	Vehicle and Apparatus	10005205	Fire Station 92 Bricks For Fire Station	6/3/2005	3,427	2,399	Facilities	0	0	3,427	0	3,427
86	Vehicle and Apparatus	10005206	Fire Station 92 Construction	12/20/2005	94,665	62,479	Facilities	0	0	94,665	0	94,665
87	Vehicle and Apparatus	10005207	Fire Station 92 Gear Mobile 3-Pack Bunke	12/29/2005	5,640	3,722	Mach. & Equip.	5,640	0	0	0	5,640
88	Vehicle and Apparatus	10005208	Fire Station 92 All Doors, Frames	12/22/2005	3,755	2,478	Facilities	0	0	3,755	0	3,755
89	Vehicle and Apparatus	10005209	Fire Station 92 All Doors, Frames	12/22/2005	616	407	Facilities	0	0	616	0	616
90	Vehicle and Apparatus	10005210	Fire Station 92 Construction	12/22/2005	519	343	Facilities	0	0	519	0	519
91	Vehicle and Apparatus	10005211	Fire Station 92 Engineering	12/22/2005	529	349	Facilities	0	0	529	0	529
92	Vehicle and Apparatus	10005212	Fire Station 92 Engineering	12/22/2005	65	43	Facilities	0	0	65	0	65
93	Vehicle and Apparatus	10005213	Fire Station 92 Engineering	12/22/2005	75	50	Facilities	0	0	75	0	75
94	Vehicle and Apparatus	10005214	Fire Station 92 Design	12/29/2005	3,660	2,416	Facilities	0	0	3,660	0	3,660
95	Vehicle and Apparatus	10005215	Fire Station 92 "" Horizontal Blinds, W	1/27/2006	1,299	857	Facilities	0	0	1,299	0	1,299
96	Vehicle and Apparatus	10005216	Fire Station 92 All ""Electrical""	2/1/2006	110	73	Facilities	0	0	110	0	110
97	Vehicle and Apparatus	10005217	Fire Station 92 Engineering	2/1/2006	145	96	Facilities	0	0	145	0	145
98	Vehicle and Apparatus	10005218	Fire Station 92 Engineering	2/14/2006	3,666	2,420	Facilities	0	0	3,666	0	3,666
99	Vehicle and Apparatus	10005219	Fire Station 92 Carts, Mailbox, Ladder,	2/14/2006	380	251	Facilities	0	0	380	0	380
100	Vehicle and Apparatus	10005220	Fire Station 92 Shelves For Handicap Res	2/14/2006	16	11	Facilities	0	0	16	0	16
101	Vehicle and Apparatus	10005221	Fire Station 92 Networking Materials	2/14/2006	52	34	Facilities	0	0	52	0	52
102	Vehicle and Apparatus	10005222	Fire Station 92 Shelving Units	2/14/2006	380	251	Facilities	0	0	380	0	380
103	Vehicle and Apparatus	10005223	Fire Station 92 Waste Baskets, Lamps, Ch	2/14/2006	292	192	Facilities	0	0	292	0	292
104	Vehicle and Apparatus	10005224	Fire Station 92 Bunker Gear Storage	2/14/2006	302	199	Facilities	0	0	302	0	302
105	Vehicle and Apparatus	10005225	Fire Station 92 Shelving Supplies	2/14/2006	151	100	Facilities	0	0	151	0	151
106	Vehicle and Apparatus	10005226	Fire Station 92 Mats,Clocks,Kitchen Item	2/14/2006	367	242	Facilities	0	0	367	0	367
107	Vehicle and Apparatus	10005227	Fire Station 92 Silk Plant	2/14/2006	49	32	Facilities	0	0	49	0	49
108	Vehicle and Apparatus	10005228	Fire Station 92 Sheets,Art,Clocks,Flatwa	2/14/2006	174	115	Facilities	0	0	174	0	174
109	Vehicle and Apparatus	10005229	Fire Station 92 Side Tables, Drill Bit	2/14/2006	182	120	Facilities	0	0	182	0	182
110	Apparatus Equipment	10005230	Fire Station 92 Construction	2/16/2006	24,004	15,843	Facilities	0	0	24,004	0	24,004
111	Apparatus Equipment	10005231	Fire Station 92 Stereopatch Cable For Ra	2/16/2006	53	35	Facilities	0	0	53	0	53
112	Apparatus Equipment	10005232	Fire Station 92 Engineering	2/16/2006	170	112	Facilities	0	0	170	0	170
113	Apparatus Equipment	10005233	Fire Station 92 Office Chair, Big & Tall	2/17/2006	252	166	Facilities	0	0	252	0	252
114	Apparatus Equipment	10005234	Fire Station 92 All Carpet, Vinyl Tile	2/28/2006	3,540	2,336	Facilities	0	0	3,540	0	3,540
115	Apparatus Equipment	10005235	Fire Station 92 Pgt Windows	2/28/2006	8,083	5,334	Facilities	0	0	8,083	0	8,083

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
116	Apparatus Equipment	10005236	Fire Station 92 Pgt Windows	2/28/2006	683	451	Facilities	0	0	683	0	683
117	Apparatus Equipment	10005237	Fire Station 92 Framing & Matting Of 2 A	3/6/2006	196	129	Facilities	0	0	196	0	196
118	Apparatus Equipment	10005238	Fire Station 92 Dry Erase Board, 4X8	3/8/2006	254	168	Facilities	0	0	254	0	254
119	Apparatus Equipment	10005239	Fire Station 92 Dispatch System	3/9/2006	1,219	804	Facilities	0	0	1,219	0	1,219
120	Apparatus Equipment	10005240	Fire Station 92 All Plumbing	3/15/2006	206	136	Facilities	0	0	206	0	206
121	Apparatus Equipment	10005241	Fire Station 92 All Plumbing	3/15/2006	39	26	Facilities	0	0	39	0	39
122	Apparatus Equipment	10005242	Fire Station 92 All Plumbing	3/15/2006	3,722	2,457	Facilities	0	0	3,722	0	3,722
123	Apparatus Equipment	10005243	Fire Station 92 All Plumbing	3/15/2006	101	67	Facilities	0	0	101	0	101
124	Apparatus Equipment	10005244	Fire Station 92 All Plumbing	3/15/2006	335	221	Facilities	0	0	335	0	335
125	Apparatus Equipment	10005245	Fire Station 92 Men, Women, Capt, Div Ch	3/16/2006	134	88	Facilities	0	0	134	0	134
126	Apparatus Equipment	10005246	Fire Station 92 Restroom, Conference/Tra	3/16/2006	156	103	Facilities	0	0	156	0	156
127	Apparatus Equipment	10005247	Fire Station 92 Wiring Contract	1/11/2006	4,997	3,298	Facilities	0	0	4,997	0	4,997
128	Apparatus Equipment	10005248	Fire Station 92 Architectural	1/13/2006	4,000	2,640	Facilities	0	0	4,000	0	4,000
129	Apparatus Equipment	10005249	Fire Station 92 42"" 3-Dwr Lateral File,	1/18/2006	684	451	Facilities	0	0	684	0	684
130	Apparatus Equipment	10005250	Fire Station 92 Table Oval, Laminate Wil	1/18/2006	349	230	Facilities	0	0	349	0	349
131	Apparatus Equipment	10005251	Fire Station 92 Arm Chair, Freestanding,	1/18/2006	288	190	Facilities	0	0	288	0	288
132	Apparatus Equipment	10005252	Fire Station 92 Cluster Corner Table, Ch	1/18/2006	141	93	Facilities	0	0	141	0	141
133	Apparatus Equipment	10005253	Fire Station 92 Conference Lo-Bk Caster	1/18/2006	1,746	1,152	Facilities	0	0	1,746	0	1,746
134	Apparatus Equipment	10005254	Fire Station 92 Omni Side Chair,M-Bk,Woo	1/18/2006	478	316	Facilities	0	0	478	0	478
135	Apparatus Equipment	10005255	Fire Station 92 Omni Side Chair, M-Bk, M	1/18/2006	631	417	Facilities	0	0	631	0	631
136	Apparatus Equipment	10005256	Fire Station 92 Construction	8/5/2006	478	315	Facilities	0	0	478	0	478
137	Apparatus Equipment	10005257	Fire Station 92 Straight Table, Laminate	1/18/2006	91	60	Facilities	0	0	91	0	91
138	Apparatus Equipment	10005258	Fire Station 92 Installation Cost	1/18/2006	1,764	1,164	Facilities	0	0	1,764	0	1,764
139	Apparatus Equipment	10005259	Fire Station 92 Shipping Charges	1/18/2006	511	337	Facilities	0	0	511	0	511
140	Apparatus Equipment	10005260	Fire Station 92 Alpha 72"" Desk, Left Pe	1/18/2006	561	370	Facilities	0	0	561	0	561
141	Apparatus Equipment	10005261	Fire Station 92 Alpha 48"" Return, Right	1/18/2006	196	129	Facilities	0	0	196	0	196
142	Apparatus Equipment	10005262	Fire Station 92 Alpha 66"" Credenza Righ	1/18/2006	240	158	Facilities	0	0	240	0	240
143	Apparatus Equipment	10005263	Fire Station 92 Alpha 62"" Hutch, Wild C	1/18/2006	289	191	Facilities	0	0	289	0	289
144	Apparatus Equipment	10005264	Fire Station 92 Alpha 44"" Hutch, Wild C	1/18/2006	251	165	Facilities	0	0	251	0	251
145	Apparatus Equipment	10005265	Fire Station 92 Alpha 48"" Bridge, Wild	1/18/2006	83	55	Facilities	0	0	83	0	83
146	Apparatus Equipment	10005266	Fire Station 92 Alpha 72"" Bookcase, 6 S	1/18/2006	360	238	Facilities	0	0	360	0	360
147	Apparatus Equipment	10005267	Fire Station 92 Alpha 48"" Bookcase, 4 S	1/18/2006	129	85	Facilities	0	0	129	0	129
148	Apparatus Equipment	10005268	Fire Station 92 Alpha 48"" Dia Conflable	1/18/2006	203	134	Facilities	0	0	203	0	203
149	Apparatus Equipment	10005269	Fire Station 92 24""Dx60""W Workstation,	1/18/2006	2,167	1,430	Facilities	0	0	2,167	0	2,167
150	Apparatus Equipment	10005270	Fire Station 92 Keydwr W/Swivel/Mouse Tr	1/18/2006	255	168	Facilities	0	0	255	0	255
151	Apparatus Equipment	10005271	Fire Station 92 Pencil Dwr, Low Profile,	1/18/2006	55	36	Facilities	0	0	55	0	55
152	Apparatus Equipment	10005272	Fire Station 92 Hutch Light	1/18/2006	127	84	Facilities	0	0	127	0	127
153	Apparatus Equipment	10005273	Fire Station 92 R11 Captain'S Bed, W/4 D	1/18/2006	2,282	1,506	Facilities	0	0	2,282	0	2,282
154	Apparatus Equipment	10005274	Fire Station 92 R11 24"" Night Stand,Sgl	1/18/2006	154	101	Facilities	0	0	154	0	154
155	Apparatus Equipment	10005275	Fire Station 92 Installation Cost	1/18/2006	1,024	676	Facilities	0	0	1,024	0	1,024
156	Apparatus Equipment	10005276	Fire Station 92 Whirlpool 21 Cu Frefrig	1/18/2006	1,100	726	Facilities	0	0	1,100	0	1,100
157	Apparatus Equipment	10005277	Fire Station 92 Frigidaire Dishwasher, W	1/18/2006	350	231	Facilities	0	0	350	0	350
158	Apparatus Equipment	10005278	Fire Station 92 Kitchenaid Washer, White	1/18/2006	400	264	Facilities	0	0	400	0	400
159	Apparatus Equipment	10005279	Fire Station 92 Ge Hood, 30"" 3Way, Whit	1/18/2006	40	26	Facilities	0	0	40	0	40
160	Apparatus Equipment	10005280	Fire Station 92 Installation And Deliver	1/18/2006	150	99	Facilities	0	0	150	0	150
161	Apparatus Equipment	10005281	Fire Station 92 Sealy Posturpedic Kuleto	1/18/2006	1,072	708	Facilities	0	0	1,072	0	1,072
162	Apparatus Equipment	10005282	Fire Station 92 Construction	1/18/2006	83,217	54,923	Facilities	0	0	83,217	0	83,217
163	Apparatus Equipment	10005283	Fire Station 92 Shelving, Wire, Connecto	1/19/2006	397	262	Facilities	0	0	397	0	397
164	Apparatus Equipment	10005284	Fire Station 92 Magic Chef Glass Top Ran	1/24/2006	430	284	Facilities	0	0	430	0	430
165	Apparatus Equipment	10005285	Fire Station 92 Ice Machine And Storage	1/24/2006	2,375	1,568	Facilities	0	0	2,375	0	2,375
166	Apparatus Equipment	10005286	Fire Station 92 Twin Murphy Bed Incherry	1/27/2006	1,025	677	Facilities	0	0	1,025	0	1,025
167	Apparatus Equipment	10005287	Fire Station 92 Construction	3/2/2006	27,681	18,269	Facilities	0	0	27,681	0	27,681
168	Apparatus Equipment	10005288	Fire Station 92 Install Wall Mirrors In	5/18/2006	700	462	Facilities	0	0	700	0	700
169	Apparatus Equipment	10005289	Fire Station 92 Install Monument Sign	4/20/2006	450	297	Facilities	0	0	450	0	450
170	Apparatus Equipment	10005290	Fire Station 92 Routed Lettering Monumen	4/20/2006	490	323	Facilities	0	0	490	0	490
171	Apparatus Equipment	10005291	Fire Station 92 24"" City Logos Monument	4/20/2006	490	323	Facilities	0	0	490	0	490
172	Apparatus Equipment	10005292	Fire Station 92 Electrical Services	11/28/2005	278	184	Facilities	0	0	278	0	278
173	Apparatus Equipment	10005293	Fire Station 92 Prof Services	11/28/2005	516	341	Facilities	0	0	516	0	516

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
174	Apparatus Equipment	10005294	Fire Station 92 Relocation Exp Hall Cons	11/30/2006	5,680	3,522	Facilities	0	0	5,680	0	5,680
175	Apparatus Equipment	10005295	Fire Station 92 Shipping Charges	1/27/2006	20	13	Facilities	0	0	20	0	20
176	Apparatus Equipment	10005296	Fire Station 92 Frame/Matt Pictures	1/23/2006	485	320	Facilities	0	0	485	0	485
177	Apparatus Equipment	10005297	Fire Station 92 Office Furniture	1/20/2006	1,350	891	Facilities	0	0	1,350	0	1,350
178	Apparatus Equipment	10005298	Fire Station 92 Office Furniture	1/19/2006	2,457	1,622	Facilities	0	0	2,457	0	2,457
179	Apparatus Equipment	10005299	Fire Station 92 Security, Fire Safety Se	1/27/2006	1,219	804	Facilities	0	0	1,219	0	1,219
180	Apparatus Equipment	10005300	Fire Station 92 Office Furnishings	9/2/2006	122	80	Facilities	0	0	122	0	122
181	Apparatus Equipment	10005301	Fire Station 92 Office Furnishings	8/30/2006	508	335	Facilities	0	0	508	0	508
182	Apparatus Equipment	10005302	Fire Station 92 Construction	3/16/2006	6,593	4,351	Facilities	0	0	6,593	0	6,593
183	Apparatus Equipment	10005303	Fire Art Sculpture Aluminum Artist:Linda	8/17/2006	10,000	0	Facilities	0	0	10,000	0	10,000
184	Apparatus Equipment	10005304	Fire Art Sculpture Aluminum Artist:Linda	11/8/2006	10,000	0	Facilities	0	0	10,000	0	10,000
185	Apparatus Equipment	10005305	Fire Art Sculpture Aluminum Artist:Linda	1/13/2008	12,000	0	Facilities	0	0	12,000	0	12,000
186	Apparatus Equipment	10005307	Fire Station 91 364 S Atlantic Ave (Beac	6/15/2004	1,250	0	Facilities	0	0	1,250	0	1,250
187	Apparatus Equipment	10005308	Fire Station 91 Phase I Site Assessment	7/7/2004	2,000	0	Facilities	0	0	2,000	0	2,000
188	Apparatus Equipment	10005309	Fire Station 91 Title Search 4 Parcels O	5/5/2004	150	0	Facilities	0	0	150	0	150
189	Apparatus Equipment	10005310	Fire Station 91 Fed Ex For Plans	8/24/2004	9	6	Facilities	0	0	9	0	9
190	Apparatus Equipment	10005311	Fire Station 91 Fed Ex For Plans	8/24/2004	6	5	Facilities	0	0	6	0	6
191	Apparatus Equipment	10005312	Fire Station 91 Architectural Services	3/18/2008	2,400	1,392	Facilities	0	0	2,400	0	2,400
192	Apparatus Equipment	10005313	Fire Station 91 Design Final Payment	9/30/2007	5,400	3,348	Facilities	0	0	5,400	0	5,400
193	Apparatus Equipment	10005314	Fire Station 91 Engineering Services	8/5/2005	100	70	Facilities	0	0	100	0	100
194	Apparatus Equipment	10005315	Fire Station 91 Bond Counsel Costs	9/30/2005	2,500	1,750	Facilities	0	0	2,500	0	2,500
195	Apparatus Equipment	10005316	Fire Station 91 Plan Copies	10/8/2004	15	10	Facilities	0	0	15	0	15
196	Apparatus Equipment	10005317	Fire Station 91 Appraisal On Granada / S	10/22/2004	5,500	0	Facilities	0	0	5,500	0	5,500
197	Apparatus Equipment	10005318	Fire Station 91 Plans Legal Ad	1/5/2005	92	64	Facilities	0	0	92	0	92
198	Apparatus Equipment	10005319	Fire Station 91 Survey Emergency Signal	5/5/2005	17,440	12,208	Facilities	0	0	17,440	0	17,440
199	Apparatus Equipment	10005320	Fire Station 91 Furnishings Hall Constr	10/27/2006	1,022	634	Facilities	0	0	1,022	0	1,022
200	Apparatus Equipment	10005321	Fire Station 91 Pre-Construction Service	6/10/2005	1,499	1,049	Facilities	0	0	1,499	0	1,499
201	Apparatus Equipment	10005322	Fire Station 91 Survey Emergency Signal	6/21/2005	49,525	34,668	Facilities	0	0	49,525	0	49,525
202	Apparatus Equipment	10005323	Fire Station 91 Geotechnical Exploration	6/27/2005	2,886	2,020	Facilities	0	0	2,886	0	2,886
203	Apparatus Equipment	10005324	Fire Station 91 Pre-Construction Service	7/18/2005	7,244	5,071	Facilities	0	0	7,244	0	7,244
204	Apparatus Equipment	10005325	Fire Station 91 Furnishings Communicatio	10/13/2006	1,404	871	Facilities	0	0	1,404	0	1,404
205	Apparatus Equipment	10005326	Fire Station 91 Survey Emergency Signal	8/16/2005	4,840	3,388	Facilities	0	0	4,840	0	4,840
206	Apparatus Equipment	10005327	Fire Station 91 Pre-Construction Service	8/17/2005	2,498	1,749	Facilities	0	0	2,498	0	2,498
207	Apparatus Equipment	10005328	Fire Station 91 Playground Design Servic	11/12/2007	32,955	19,114	Facilities	0	0	32,955	0	32,955
208	Apparatus Equipment	10005329	Fire Station 91 Mast Arm Signal Geotechn	9/13/2005	1,245	872	Facilities	0	0	1,245	0	1,245
209	Apparatus Equipment	10005330	Fire Station 91 Pre-Construction Service	9/16/2005	1,249	874	Facilities	0	0	1,249	0	1,249
210	Apparatus Equipment	10005331	Fire Station 91 Impact Fees - Volusia Co	9/16/2005	6,620	4,634	Excluded	0	0	0	6,620	6,620
211	Apparatus Equipment	10005332	Fire Station 91 Land Exchange	11/22/2004	389,309	0	Facilities	0	0	389,309	0	389,309
212	Apparatus Equipment	10005333	Fire Station 91 Closing Cost For Land	11/10/2004	25,000	0	Facilities	0	0	25,000	0	25,000
213	Apparatus Equipment	10005334	Fire Station 91 Prof Services	4/27/2005	14,828	10,380	Facilities	0	0	14,828	0	14,828
214	Apparatus Equipment	10005335	Fire Station 91 Fed Ex For Plans	2/18/2005	7	5	Facilities	0	0	7	0	7
215	Apparatus Equipment	10005336	Fire Station 91 Construction	7/30/2005	4,759	3,331	Facilities	0	0	4,759	0	4,759
216	Apparatus Equipment	10005337	Fire Station 91 Construction	5/31/2005	8,634	6,044	Facilities	0	0	8,634	0	8,634
217	Apparatus Equipment	10005338	Fire Station 91 Npdes Permit	4/14/2005	150	105	Facilities	0	0	150	0	150
218	Apparatus Equipment	10005339	Fire Station 91 Stormwater Permit	4/14/2005	350	245	Facilities	0	0	350	0	350
219	Apparatus Equipment	10005340	Fire Station 91 Survey Emergency Signal	9/30/2005	3,860	2,702	Facilities	0	0	3,860	0	3,860
220	Apparatus Equipment	10005341	Fire Station 91 Construction Payment #1	9/30/2005	40,064	28,045	Facilities	0	0	40,064	0	40,064
221	Apparatus Equipment	10005342	Fire Station 91 Construction	11/17/2005	40,136	26,490	Facilities	0	0	40,136	0	40,136
222	Apparatus Equipment	10005343	Fire Station 91 All Rebar	12/8/2005	3,210	2,119	Facilities	0	0	3,210	0	3,210
223	Apparatus Equipment	10005344	Fire Station 91 Financial Advisory Servi	4/4/2005	5,898	4,129	Facilities	0	0	5,898	0	5,898
224	Apparatus Equipment	10005345	Fire Station 91 Bond Issue Costs	3/15/2005	348	243	Facilities	0	0	348	0	348
225	Apparatus Equipment	10005346	Fire Station 91 Issue Costs	3/15/2005	11,250	7,875	Facilities	0	0	11,250	0	11,250
226	Apparatus Equipment	10005347	Fire Station 91 Construction	12/20/2005	70,239	46,358	Facilities	0	0	70,239	0	70,239
227	Apparatus Equipment	10005348	Fire Station 91 Construction Materials T	12/22/2005	228	150	Facilities	0	0	228	0	228
228	Apparatus Equipment	10005349	Fire Station 91 Construction Materials T	12/22/2005	76	50	Facilities	0	0	76	0	76
229	Apparatus Equipment	10005350	Fire Station 91 All Doors, Frames	12/22/2005	1,320	871	Facilities	0	0	1,320	0	1,320
230	Apparatus Equipment	10005351	Fire Station 91 All Rebar	12/22/2005	9,480	6,257	Facilities	0	0	9,480	0	9,480
231	Apparatus Equipment	10005352	Fire Station 91 Survey Emergency Signal	12/29/2005	3,160	2,086	Facilities	0	0	3,160	0	3,160

Appendix 2
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Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
232	Apparatus Equipment	10005353	Fire Station 91 All Airvac System	2/1/2006	7,842	5,176	Facilities	0	0	7,842	0	7,842
233	Apparatus Equipment	10005354	Fire Station 91 All Doors, Frames	2/1/2006	240	158	Facilities	0	0	240	0	240
234	Apparatus Equipment	10005355	Fire Station 91 All Precast Concrete	2/9/2006	5,000	3,300	Facilities	0	0	5,000	0	5,000
235	Apparatus Equipment	10005356	Fire Station 91 All Precast Concrete	2/9/2006	6,312	4,166	Facilities	0	0	6,312	0	6,312
236	Apparatus Equipment	10005357	Fire Station 91 Construction Materials T	2/14/2006	180	119	Facilities	0	0	180	0	180
237	Apparatus Equipment	10005358	Fire Station 91 Construction Materials T	2/14/2006	60	40	Facilities	0	0	60	0	60
238	Apparatus Equipment	10005359	Fire Station 91 Survey Emergency Signal	2/14/2006	3,670	2,422	Facilities	0	0	3,670	0	3,670
239	Apparatus Equipment	10005360	Fire Station 91 Construction	2/16/2006	45,114	29,775	Facilities	0	0	45,114	0	45,114
240	Apparatus Equipment	10005361	Fire Station 91 Construction Materials T	2/16/2006	156	103	Facilities	0	0	156	0	156
241	Apparatus Equipment	10005362	Fire Station 91 Construction Materials T	2/16/2006	95	63	Facilities	0	0	95	0	95
242	Apparatus Equipment	10005363	Fire Station 91 Construction Materials T	3/7/2006	185	122	Facilities	0	0	185	0	185
243	Apparatus Equipment	10005364	Fire Station 91 Survey Emergency Signal	3/13/2006	2,440	1,610	Facilities	0	0	2,440	0	2,440
244	Apparatus Equipment	10005365	Fire Station 91 Construction	3/14/2006	20,290	13,391	Facilities	0	0	20,290	0	20,290
245	Apparatus Equipment	10005366	Fire Station 91 Lights & Gear Electric	3/15/2006	2,136	1,410	Facilities	0	0	2,136	0	2,136
246	Apparatus Equipment	10005367	Fire Station 91 Lights & Gear Electric	3/15/2006	1,066	703	Facilities	0	0	1,066	0	1,066
247	Apparatus Equipment	10005368	Fire Station 91 Lights & Gear Electric	3/15/2006	816	538	Facilities	0	0	816	0	816
248	Apparatus Equipment	10005369	Fire Station 91 Lights & Gear Electric	3/15/2006	4,115	2,716	Facilities	0	0	4,115	0	4,115
249	Apparatus Equipment	10005370	Fire Station 91 Lights & Gear Electric	3/15/2006	2,684	1,771	Facilities	0	0	2,684	0	2,684
250	Apparatus Equipment	10005371	Fire Station 91 Lights & Gear Electric	3/15/2006	222	146	Facilities	0	0	222	0	222
251	Apparatus Equipment	10005372	Fire Station 91 Lights & Gear Electric	3/15/2006	664	438	Facilities	0	0	664	0	664
252	Apparatus Equipment	10005373	Fire Station 91 Lights & Gear Electric	3/15/2006	298	197	Facilities	0	0	298	0	298
253	Apparatus Equipment	10005374	Fire Station 91 All Trusses	3/15/2006	16,426	10,841	Facilities	0	0	16,426	0	16,426
254	Apparatus Equipment	10005375	Fire Station 91 Construction	1/18/2006	139,401	92,005	Facilities	0	0	139,401	0	139,401
255	Apparatus Equipment	10005376	Fire Station 91 Construction	4/26/2006	37,902	25,015	Facilities	0	0	37,902	0	37,902
256	Apparatus Equipment	10005377	Fire Station 91 Survey Emergency Signal	6/5/2006	3,355	2,214	Facilities	0	0	3,355	0	3,355
257	Apparatus Equipment	10005378	Fire Station 91 Jobsite All Stucco, Meta	6/14/2006	287	189	Facilities	0	0	287	0	287
258	Apparatus Equipment	10005379	Fire Station 91 All Storefront Doors	6/14/2006	2,123	1,401	Facilities	0	0	2,123	0	2,123
259	Apparatus Equipment	10005380	Fire Station 91 All Stucco, Metal	6/14/2006	5,062	3,341	Facilities	0	0	5,062	0	5,062
260	Apparatus Equipment	10005381	Fire Station 91 All Insulation Mater	6/14/2006	746	492	Facilities	0	0	746	0	746
261	Apparatus Equipment	10005382	Fire Station 91 Construction	5/10/2006	101,172	66,774	Facilities	0	0	101,172	0	101,172
262	Apparatus Equipment	10005383	Fire Station 91 All Roofing Materials	5/18/2006	3,656	2,413	Facilities	0	0	3,656	0	3,656
263	Apparatus Equipment	10005384	Fire Station 91 All Roofing Materials	5/18/2006	2,788	1,840	Facilities	0	0	2,788	0	2,788
264	Apparatus Equipment	10005385	Fire Station 91 All Roofing Materials	5/18/2006	2,917	1,925	Facilities	0	0	2,917	0	2,917
265	Apparatus Equipment	10005386	Fire Station 91 All Insulation Materials	5/2/2006	108	72	Facilities	0	0	108	0	108
266	Apparatus Equipment	10005387	Fire Station 91 All Stucco, Metal	4/21/2006	659	435	Facilities	0	0	659	0	659
267	Apparatus Equipment	10005388	Fire Station 91 All Stucco, Metal	4/21/2006	1,290	851	Facilities	0	0	1,290	0	1,290
268	Apparatus Equipment	10005389	Fire Station 91 All Plumbing Materials	5/18/2006	228	151	Facilities	0	0	228	0	228
269	Apparatus Equipment	10005390	Fire Station 91 All Hvac Equipment	5/2/2006	4,215	2,782	Facilities	0	0	4,215	0	4,215
270	Apparatus Equipment	10005391	Fire Station 91 All Stucco, Metal	4/21/2006	2,261	1,492	Facilities	0	0	2,261	0	2,261
271	Apparatus Equipment	10005392	Fire Station 91 All Insulation Materials	6/5/2006	2,081	1,373	Facilities	0	0	2,081	0	2,081
272	Apparatus Equipment	10005393	Fire Station 91 All Stucco, Metal	4/21/2006	3,384	2,233	Facilities	0	0	3,384	0	3,384
273	Apparatus Equipment	10005394	Fire Station 91 All Stucco, Metal	4/21/2006	93	61	Facilities	0	0	93	0	93
274	Apparatus Equipment	10005395	Fire Station 91 Lights & Gear Electric	5/8/2006	6,600	4,356	Facilities	0	0	6,600	0	6,600
275	Apparatus Equipment	10005396	Fire Station 91 All Roofing Materials	5/2/2006	7,668	5,061	Facilities	0	0	7,668	0	7,668
276	Apparatus Equipment	10005397	Fire Station 91 All Doors, Frames	5/2/2006	2,620	1,729	Facilities	0	0	2,620	0	2,620
277	Apparatus Equipment	10005398	Fire Station 91 Construction	4/26/2006	78,729	51,961	Facilities	0	0	78,729	0	78,729
278	Apparatus Equipment	10005399	Fire Station 91 Alpha 48"" Return, Right	9/27/2006	196	129	Facilities	0	0	196	0	196
279	Apparatus Equipment	10005400	Fire Station 91 Alpha 66"" Credenza, Left	9/27/2006	240	158	Facilities	0	0	240	0	240
280	Apparatus Equipment	10005401	Fire Station 91 Alpha 24"" End Table-Wil	10/5/2006	184	114	Facilities	0	0	184	0	184
281	Apparatus Equipment	10005402	Fire Station 91 Alpha 96"" Conf Table-Wi	10/5/2006	306	190	Facilities	0	0	306	0	306
282	Apparatus Equipment	10005403	Fire Station 91 42"" Lateral File, 3 Dwr	10/5/2006	342	212	Facilities	0	0	342	0	342
283	Apparatus Equipment	10005404	Fire Station 91 Rii 75"" Captain'S Bed,	9/27/2006	571	377	Facilities	0	0	571	0	571
284	Apparatus Equipment	10005405	Fire Station 91 Rii 75"" Captain'S Bed,	10/5/2006	2,853	1,769	Facilities	0	0	2,853	0	2,853
285	Apparatus Equipment	10005406	Fire Station 91 Alpha Lateral File, 2 Dr	9/27/2006	449	296	Facilities	0	0	449	0	449
286	Apparatus Equipment	10005407	Fire Station 91 Alpha 72"" Bookcase, 6-S	9/27/2006	360	238	Facilities	0	0	360	0	360
287	Apparatus Equipment	10005408	Fire Station 91 24""D X 60""W Workstation	10/5/2006	289	179	Facilities	0	0	289	0	289
288	Apparatus Equipment	10005409	Fire Station 91 Acclaim 42"" Lateral Fil	9/28/2006	342	226	Facilities	0	0	342	0	342
289	Apparatus Equipment	10005410	Fire Station 91 Ez Recliner Overstuf Arm	9/27/2006	1,926	1,271	Facilities	0	0	1,926	0	1,926

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
290	Apparatus Equipment	10005411	Fire Station 91 Omni Wood Side Chair, Sl	9/27/2006	234	154	Facilities	0	0	234	0	234
291	Apparatus Equipment	10005412	Fire Station 91 Alpha 60"" Bookcase 5 Sh	10/5/2006	304	189	Facilities	0	0	304	0	304
292	Apparatus Equipment	10005413	Fire Station 91 Omni Wood Side Chair, Sl	10/5/2006	1,637	1,015	Facilities	0	0	1,637	0	1,637
293	Apparatus Equipment	10005414	Fire Station 91 Floridian Lo-Bk Chair	10/5/2006	499	309	Facilities	0	0	499	0	499
294	Apparatus Equipment	10005415	Fire Station 91 Omni Wood Side Chair, Me	9/27/2006	239	158	Facilities	0	0	239	0	239
295	Apparatus Equipment	10005416	Fire Station 91 Floridian Guest Chair (C	9/27/2006	2,318	1,530	Facilities	0	0	2,318	0	2,318
296	Apparatus Equipment	10005417	Fire Station 91 Table, Tressel, Wood-Din	9/22/2006	511	337	Facilities	0	0	511	0	511
297	Apparatus Equipment	10005418	Fire Station 91 Floridian Lo-Back Chair	9/27/2006	1,496	988	Facilities	0	0	1,496	0	1,496
298	Apparatus Equipment	10005419	Fire Station 91 Furniture Delivery	8/24/2006	45	30	Facilities	0	0	45	0	45
299	Apparatus Equipment	10005420	Fire Station 91 Install Dishwasher	8/24/2006	100	66	Facilities	0	0	100	0	100
300	Apparatus Equipment	10005421	Fire Station 91 Frigidaire Dishwasher, W	8/24/2006	299	197	Facilities	0	0	299	0	299
301	Apparatus Equipment	10005422	Fire Station 91 Whirlpool Dryer, White	8/24/2006	312	206	Facilities	0	0	312	0	312
302	Apparatus Equipment	10005423	Fire Station 91 Whirlpool Washing Machin	8/24/2006	329	217	Facilities	0	0	329	0	329
303	Apparatus Equipment	10005424	Fire Station 91 Dryer Cord	8/24/2006	10	7	Facilities	0	0	10	0	10
304	Apparatus Equipment	10005425	Fire Station 91 Vent Kit	8/24/2006	6	4	Facilities	0	0	6	0	6
305	Apparatus Equipment	10005426	Fire Station 91 Frigidaire Glass Top Ran	8/24/2006	440	290	Facilities	0	0	440	0	440
306	Apparatus Equipment	10005427	Fire Station 91 Range Cord	8/24/2006	10	7	Facilities	0	0	10	0	10
307	Apparatus Equipment	10005428	Fire Station 91 Whirlpool Range Hood, Wh	8/24/2006	35	23	Facilities	0	0	35	0	35
308	Apparatus Equipment	10005429	Fire Station 91 Install Hood	8/24/2006	80	53	Facilities	0	0	80	0	80
309	Apparatus Equipment	10005430	Fire Station 91 Whirlpool Refrigerator,	8/24/2006	1,116	737	Facilities	0	0	1,116	0	1,116
310	Apparatus Equipment	10005431	Fire Station 91 All Painting	8/28/2006	19	12	Facilities	0	0	19	0	19
311	Apparatus Equipment	10005432	Fire Station 91 All Painting	10/5/2006	603	374	Facilities	0	0	603	0	603
312	Apparatus Equipment	10005433	Fire Station 91 All Painting	10/5/2006	23	14	Facilities	0	0	23	0	23
313	Apparatus Equipment	10005434	Fire Station 91 All Painting	10/24/2006	10	7	Facilities	0	0	10	0	10
314	Apparatus Equipment	10005435	Fire Station 91 All Painting	10/24/2006	85	53	Facilities	0	0	85	0	85
315	Apparatus Equipment	10005436	Fire Station 91 All Painting	10/24/2006	14	9	Facilities	0	0	14	0	14
316	Apparatus Equipment	10005437	Fire Station 91 All Painting	10/24/2006	603	374	Facilities	0	0	603	0	603
317	Apparatus Equipment	10005438	Fire Station 91 All Painting	10/24/2006	429	266	Facilities	0	0	429	0	429
318	Apparatus Equipment	10005439	Fire Station 91 All Doors, Frames	7/18/2006	3,760	2,482	Facilities	0	0	3,760	0	3,760
319	Apparatus Equipment	10005440	Fire Station 91 All Doors, Frames	7/18/2006	550	363	Facilities	0	0	550	0	550
320	Apparatus Equipment	10005441	Fire Station 91 All Doors, Frames	7/18/2006	2,970	1,960	Facilities	0	0	2,970	0	2,970
321	Apparatus Equipment	10005442	Fire Station 91 Steel Shelving 48 X 24 X	9/21/2006	292	193	Facilities	0	0	292	0	292
322	Apparatus Equipment	10005443	Fire Station 91 Clocks,Kitchen Items,Coo	9/29/2006	376	248	Facilities	0	0	376	0	376
323	Apparatus Equipment	10005444	Fire Station 91 Mop Bucket, Vacuum, Shop	11/1/2006	322	200	Facilities	0	0	322	0	322
324	Apparatus Equipment	10005445	Fire Station 91 Faux Wood Blinds	11/1/2006	1,285	797	Facilities	0	0	1,285	0	1,285
325	Apparatus Equipment	10005446	Fire Station 91 Faux Wood Blinds	11/1/2006	128	79	Facilities	0	0	128	0	128
326	Support Equipment	10005447	Fire Station 91 Construction	8/1/2006	61,254	40,428	Facilities	0	0	61,254	0	61,254
327	Support Equipment	10005448	Fire Station 91 Construction	7/13/2006	131,111	86,533	Facilities	0	0	131,111	0	131,111
328	Support Equipment	10005449	Fire Station 91 All Millwork	7/18/2006	13,000	8,580	Facilities	0	0	13,000	0	13,000
329	Support Equipment	10005450	Fire Station 91 Manitowoc Ice Machine An	9/1/2006	2,375	1,568	Facilities	0	0	2,375	0	2,375
330	Support Equipment	10005451	Fire Station 91 Bunk Room Desk Lamps	11/1/2006	184	114	Facilities	0	0	184	0	184
331	Support Equipment	10005452	Fire Station 91 Phone, Cordless	9/18/2006	123	81	Facilities	0	0	123	0	123
332	PPE	10005453	Fire Station 91 Handset, Cordless, Black	9/18/2006	180	119	Facilities	0	0	180	0	180
333	PPE	10005454	Fire Station 91 Lights & Gear Electric	10/5/2006	90	56	Facilities	0	0	90	0	90
334	PPE	10005455	Fire Station 91 Lights & Gear Electric	10/5/2006	198	122	Facilities	0	0	198	0	198
335	PPE	10005456	Fire Station 91 Small Office Desk	11/10/2006	165	102	Facilities	0	0	165	0	165
336	PPE	10005457	Fire Station 91 Construction Materials T	8/21/2006	76	50	Facilities	0	0	76	0	76
337	PPE	10005458	Fire Station 91 Construction Materials T	8/21/2006	60	40	Facilities	0	0	60	0	60
338	PPE	10005459	Fire Station 91 Wiring Contract	9/20/2006	60	40	Facilities	0	0	60	0	60
339	PPE	10005460	Fire Station 91 Sealy Posturpedic Kuleto	9/19/2006	1,614	1,065	Facilities	0	0	1,614	0	1,614
340	PPE	10005461	Fire Station 91 Desk Lamps, Dry Erase Bd	11/3/2006	316	196	Facilities	0	0	316	0	316
341	PPE	10005462	Fire Station 91 All Roofing Materials	7/18/2006	4,971	3,281	Facilities	0	0	4,971	0	4,971
342	PPE	10005463	Fire Station 91 All Roofing Materials	7/18/2006	3,049	2,012	Facilities	0	0	3,049	0	3,049
343	PPE	10005464	Fire Station 91 Drafting Fee/Shipping	10/5/2006	718	445	Facilities	0	0	718	0	718
344	PPE	10005465	Fire Station 91 All Painting	8/28/2006	13	9	Facilities	0	0	13	0	13
345	PPE	10005466	Fire Station 91 All Painting	8/28/2006	243	161	Facilities	0	0	243	0	243
346	PPE	10005467	Fire Station 91 All Painting	8/28/2006	25	17	Facilities	0	0	25	0	25
347	PPE	10005468	Fire Station 91 All Painting	8/28/2006	54	36	Facilities	0	0	54	0	54

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
348	PPE	10005469	Fire Station 91 All Painting	10/24/2006	175	109	Facilities	0	0	175	0	175
349	PPE	10005470	Fire Station 91 Survey Emergency Signal	8/21/2006	2,210	1,459	Facilities	0	0	2,210	0	2,210
350	PPE	10005471	Fire Station 91 Survey Emergency Signal	9/28/2006	2,380	1,571	Facilities	0	0	2,380	0	2,380
351	PPE	10005472	Fire Station 91 Mobile 3-Pack Bunker Gea	9/12/2006	4,512	2,978	Mach. & Equip.	4,512	0	0	0	4,512
352	PPE	10005473	Fire Station 91 Shipping	9/12/2006	465	307	Facilities	0	0	465	0	465
353	PPE	10005474	Fire Station 91 Installation Of Furnitur	9/27/2006	1,259	831	Facilities	0	0	1,259	0	1,259
354	PPE	10005475	Fire Station 91 Architecture Design	8/31/2006	72	48	Facilities	0	0	72	0	72
355	PPE	10005476	Fire Station 91 Architecture Design Serv	8/29/2006	132	87	Facilities	0	0	132	0	132
356	PPE	10005477	Fire Station 91 Architecture Design Serv	7/31/2006	155	102	Facilities	0	0	155	0	155
357	PPE	10005478	Fire Station 91 Architecture Design Serv	7/24/2006	76	50	Facilities	0	0	76	0	76
358	PPE	10005479	Fire Station 91 Architecture Design Serv	7/13/2006	60	40	Facilities	0	0	60	0	60
359	PPE	10005480	Fire Station 91 Furnishings	9/28/2006	2,863	1,889	Facilities	0	0	2,863	0	2,863
360	PPE	10005481	Fire Station 91 Furnishings	9/28/2006	4,294	2,834	Facilities	0	0	4,294	0	4,294
361	PPE	10005482	Fire Station 91 Furnishings	9/20/2006	572	378	Facilities	0	0	572	0	572
362	PPE	10005483	Fire Station 91 Furnishings	9/20/2006	7,479	4,936	Facilities	0	0	7,479	0	7,479
363	PPE	10005484	Fire Station 91 Furnishings	9/20/2006	1,500	990	Facilities	0	0	1,500	0	1,500
364	PPE	10005485	Fire Station 91 Furnishings	8/29/2006	303	200	Facilities	0	0	303	0	303
365	PPE	10005486	Fire Station 91 Furnishings	8/28/2006	4,977	3,285	Facilities	0	0	4,977	0	4,977
366	PPE	10005487	Fire Station 91 Furnishings - Appliances	8/22/2006	2,782	1,836	Facilities	0	0	2,782	0	2,782
367	PPE	10005488	Fire Station 91 Furnishings - Art Work	8/18/2006	1,086	717	Facilities	0	0	1,086	0	1,086
368	PPE	10005489	Fire Station 91 Construction	9/30/2006	220,114	145,275	Facilities	0	0	220,114	0	220,114
369	PPE	10005490	Fire Station 91 Construction	9/30/2006	11,137	7,350	Facilities	0	0	11,137	0	11,137
370	PPE	10005491	Fire Station 91 Computer Wiring Services	9/19/2006	60	40	Facilities	0	0	60	0	60
371	PPE	10005492	Fire Station 91 Computer Wiring Services	9/19/2006	5,440	3,590	Facilities	0	0	5,440	0	5,440
372	PPE	10005493	Fire Station 91 Paint	9/13/2006	603	398	Facilities	0	0	603	0	603
373	PPE	10005494	Fire Station 91 Paint	9/8/2006	23	15	Facilities	0	0	23	0	23
374	PPE	10005495	Fire Station 91 Design Services	9/1/2006	2,380	1,571	Facilities	0	0	2,380	0	2,380
375	PPE	10005496	Fire Station 91 Construction	8/31/2006	22,930	15,134	Facilities	0	0	22,930	0	22,930
376	PPE	10005497	Fire Station 91 Construction	8/31/2006	74,087	48,897	Facilities	0	0	74,087	0	74,087
377	PPE	10005498	Fire Station 91 Building Supplies	8/25/2006	5,735	3,785	Facilities	0	0	5,735	0	5,735
378	PPE	10005499	Fire Station 91 All Doors, Frames	8/25/2006	4,440	2,930	Facilities	0	0	4,440	0	4,440
379	PPE	10005500	Fire Station 91 All Doors, Frames	8/25/2006	1,070	706	Facilities	0	0	1,070	0	1,070
380	PPE	10005501	Fire Station 91 Plumbing Supplies	8/21/2006	1,391	918	Facilities	0	0	1,391	0	1,391
381	PPE	10005502	Fire Station 91 Electrical Supplies	8/21/2006	273	180	Facilities	0	0	273	0	273
382	PPE	10005503	Fire Station 91 Hvac Supplies	8/8/2006	1,056	697	Facilities	0	0	1,056	0	1,056
383	PPE	10005504	Fire Station 91 Plumbing Supplies	8/3/2006	91	60	Facilities	0	0	91	0	91
384	PPE	10005505	Fire Station 91 Plumbing Supplies	8/1/2006	3,333	2,200	Facilities	0	0	3,333	0	3,333
385	PPE	10005506	Fire Station 91 Construction	7/30/2006	38,624	25,492	Facilities	0	0	38,624	0	38,624
386	PPE	10005507	Fire Station 91 All Millwork	7/21/2006	4,061	2,680	Facilities	0	0	4,061	0	4,061
387	PPE	10005508	Fire Station 91 Hvac Supplies	7/14/2006	120	79	Facilities	0	0	120	0	120
388	PPE	10005509	Fire Station 91 Hvac Supplies	7/13/2006	5,566	3,674	Facilities	0	0	5,566	0	5,566
389	PPE	10005510	Fire Station 91 Paint	7/12/2006	898	592	Facilities	0	0	898	0	898
390	PPE	10005511	Fire Station 91 Paint	7/12/2006	19	12	Facilities	0	0	19	0	19
391	PPE	10005512	Fire Station 91 Paint	7/12/2006	75	50	Facilities	0	0	75	0	75
392	PPE	10005513	Fire Station 91 Paint	7/12/2006	25	17	Facilities	0	0	25	0	25
393	PPE	10005514	Fire Station 91 Paint	7/12/2006	151	100	Facilities	0	0	151	0	151
394	PPE	10005515	Fire Station 91 Paint	7/12/2006	13	9	Facilities	0	0	13	0	13
395	PPE	10005516	Fire Station 91 Paint	7/12/2006	54	36	Facilities	0	0	54	0	54
396	PPE	10005517	Fire Station 91 Paint	7/12/2007	514	319	Facilities	0	0	514	0	514
397	PPE	10005518	Fire Station 91 Paint	7/11/2007	302	187	Facilities	0	0	302	0	302
398	PPE	10005519	Fire Station 91 Design Services	7/7/2006	2,210	1,459	Facilities	0	0	2,210	0	2,210
399	PPE	10005520	Fire Station 91 Electrical Supplies	3/31/2006	197	130	Facilities	0	0	197	0	197
400	PPE	10005521	Fire Station 91 Building Supplies	5/30/2006	119	78	Facilities	0	0	119	0	119
401	PPE	10005522	Fire Art Sculpture - Bronze - Artist: Sh	8/17/2006	15,000	0	Facilities	0	0	15,000	0	15,000
402	PPE	10005526	Fire Art Sculpture - Bronze - Artist: Sh	3/16/2007	12,500	0	Facilities	0	0	12,500	0	12,500
403	PPE	10005527	Fire Art Sculpture - Bronze - Artist: Sh	1/17/2008	12,500	0	Facilities	0	0	12,500	0	12,500
404	PPE	10005528	Fire Art Sculpture Base Construction-Fa	3/31/2008	1,710	0	Facilities	0	0	1,710	0	1,710
405	PPE	10005529	Fire Art Sculpture Electrical Work-Fa 91	4/24/2008	420	0	Facilities	0	0	420	0	420

Appendix 2
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Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
406	PPE	10005530	Fire Art Sculpture Electrical Work-Fa 91	4/23/2008	3	0	Facilities	0	0	3	0	3
407	PPE	10005531	Fire Art Sculpture Electrical Work-Fa 91	4/23/2008	47	0	Facilities	0	0	47	0	47
408	PPE	10005532	Fire Art Sculpture Electrical Work-Fa 91	4/23/2008	221	0	Facilities	0	0	221	0	221
409	PPE	10005736	It-Fire Telestaff Software Fire Report P	2/21/1992	1,314	1,314	Mach. & Equip.	1,314	0	0	0	1,314
410	PPE	10005737	It-Fire Telestaff Software/Posicheck Iii	9/29/2000	6,200	6,200	Mach. & Equip.	6,200	0	0	0	6,200
411	PPE	10007152	Eqp Defibrillator-Heartstart Mrx Als Mon	4/4/2006	14,593	14,593	Mach. & Equip.	14,593	0	0	0	14,593
412	PPE	10007153	Eqp Defibrillator-Heartstart Mrx Als Mon	4/4/2006	14,593	14,593	Mach. & Equip.	14,593	0	0	0	14,593
413	PPE	10007154	Eqp Defibrillator-Heartstart Mrx Als Mon	4/4/2006	14,593	14,593	Mach. & Equip.	14,593	0	0	0	14,593
414	PPE	10007220	2006 E-One Typhoon	10/12/2006	518,831	518,831	Vehicles	0	518,831	0	0	518,831
415	PPE	10007457	1969 General Cargo	8/10/1998	2,000	2,000	Vehicles	0	2,000	0	0	2,000
416	PPE	10007460	Gen 00 Katolight D35Fgj4 (Fs 93) Generat	3/17/2000	14,859	14,859	Mach. & Equip.	14,859	0	0	0	14,859
417	PPE	10007466	Eqp Heartstart Mrx Als Monitor/Cardiac D	7/6/2005	14,581	14,581	Mach. & Equip.	14,581	0	0	0	14,581
418	PPE	10007467	Eqp Heartstart Mrx Als Monitor/Cardiac D	7/6/2005	14,581	14,581	Mach. & Equip.	14,581	0	0	0	14,581
419	PPE	10007468	Eqp Heartstart Mrx Als Monitor/Cardiac D	7/6/2005	14,581	14,581	Mach. & Equip.	14,581	0	0	0	14,581
420	PPE	10007469	Eqp Msa-5200 Thermal Imaging Camera	9/21/2005	8,750	8,750	Mach. & Equip.	8,750	0	0	0	8,750
421	PPE	10007470	Eqp Msa-5200 Thermal Imaging Camera	9/21/2005	8,750	8,750	Mach. & Equip.	8,750	0	0	0	8,750
422	PPE	10007471	Eqp Msa-5200 Thermal Imaging Camera	9/30/2005	8,750	8,750	Mach. & Equip.	8,750	0	0	0	8,750
423	PPE	10007472	Eqp Msa-5200 Thermal Imaging Camera	9/30/2005	8,750	8,750	Mach. & Equip.	8,750	0	0	0	8,750
424	PPE	10007473	Eqp Msa-5200 Thermal Imaging Camera	9/30/2005	8,750	8,750	Mach. & Equip.	8,750	0	0	0	8,750
425	PPE	10007475	Eqp Heartstart Mrx Als Monitor/Cardiac D	7/6/2005	14,581	14,581	Mach. & Equip.	14,581	0	0	0	14,581
426	PPE	10007476	Gen 06 Cummins 64 Kw Generator	8/9/2006	26,211	26,211	Mach. & Equip.	26,211	0	0	0	26,211
427	PPE	10007480	Eqp 03 Waterous 204A Diesel Water Pump(F	4/28/2003	11,199	11,199	Mach. & Equip.	11,199	0	0	0	11,199
428	PPE	10007629	Eqp Msa-5200 Thermal Imaging Camera	1/2/2003	9,700	9,700	Mach. & Equip.	9,700	0	0	0	9,700
429	PPE	10007647	Veh 08 Chevy Silverado	7/7/2008	19,738	19,738	Vehicles	0	19,738	0	0	19,738
430	PPE	10007785	Fire Equipment	9/30/2010	73,895	73,895	Mach. & Equip.	73,895	0	0	0	73,895
431	PPE	10007850	2011 Pierce Ladder	9/30/2010	429,970	358,308	Vehicles	0	429,970	0	0	429,970
432	PPE	10007880	Fema Fire Assistance	9/30/2011	58,697	58,697	Excluded	0	0	0	58,697	58,697
433	PPE	10007882	Fire Equipment Grant	9/30/2011	13,020	13,020	Excluded	0	0	0	13,020	13,020
434	PPE	10007887	Fire Station 91 Frr - Hvac	9/30/2011	10,850	4,991	Facilities	0	0	10,850	0	10,850
435	PPE	10007903	Tahoe	9/30/2011	31,152	31,152	Vehicles	0	31,152	0	0	31,152
436	PPE	10007904	Genset Station 94	9/30/2011	32,457	24,884	Facilities	0	0	32,457	0	32,457
437	PPE	10007905	2011 Chevy Tahoe	9/30/2011	24,139	24,139	Vehicles	0	24,139	0	0	24,139
438	PPE	10008265	2014 Ford Explorer	9/30/2014	24,899	24,899	Vehicles	0	24,899	0	0	24,899
439	PPE	10008339	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
440	PPE	10008340	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
441	PPE	10008341	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
442	PPE	10008342	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
443	PPE	10008343	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
444	PPE	10008344	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
445	PPE	10008345	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
446	PPE	10008346	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
447	PPE	10008347	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
448	PPE	10008348	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
449	PPE	10008349	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
450	PPE	10008350	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
451	PPE	10008351	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
452	PPE	10008352	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
453	PPE	10008353	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
454	PPE	10008354	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
455	PPE	10008355	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
456	PPE	10008356	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
457	PPE	10008357	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
458	PPE	10008358	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
459	PPE	10008359	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
460	PPE	10008360	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
461	PPE	10008361	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
462	PPE	10008362	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
463	PPE	10008363	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435

Appendix 2
City of Ormond Beach
Fire Protection Facilities Impact Fee Analysis

Existing Capital Equipment, Vehicles, & Facilities [1]

Line No.	Category	Asset #	Description	Date Acq.	Acq. Cost	LTD Depreciation	Asset Allocation Factor	Machinery & Equipment	Major Vehicles	Facilities & Other Capital Equipment	Excluded	Total Historical Cost
464	PPE	10008364	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
465	PPE	10008365	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
466	PPE	10008366	Msa-Scba-G1 Respirators	9/30/2015	6,435	6,435	Mach. & Equip.	6,435	0	0	0	6,435
467	PPE	10008416	2015 Pumper	9/30/2015	343,606	171,803	Vehicles	0	343,606	0	0	343,606
468	PPE	10008443	Afg 2014	9/30/2016	22,801	22,801	Facilities	0	0	22,801	0	22,801
469	PPE	10008450	Fs93 Roof Repl	9/30/2016	72,837	31,563	Facilities	0	0	72,837	0	72,837
470	PPE	20000061	CARDIAC MONITORS	8/28/2017	44,893	44,893	Mach. & Equip.	44,893	0	0	0	44,893
471	PPE	20000062	CARDIAC MONITORS	8/28/2017	28,595	28,595	Mach. & Equip.	28,595	0	0	0	28,595
472	PPE	20000063	CARDIAC MONITORS	8/28/2017	28,595	28,595	Mach. & Equip.	28,595	0	0	0	28,595
473	PPE	20000064	CARDIAC MONITORS	8/28/2017	28,595	28,595	Mach. & Equip.	28,595	0	0	0	28,595
474	PPE	20000065	CARDIAC MONITORS	8/28/2017	28,595	28,595	Mach. & Equip.	28,595	0	0	0	28,595
475	PPE	20000098	WASHER EXTRACTOR STATION 92	9/30/2017	9,645	9,645	Facilities	0	0	9,645	0	9,645
476	PPE	20000121	2018 FORD F250 4X4 CREW CAB PICK UP	7/17/2018	56,328	50,550	Vehicles	0	56,328	0	0	56,328
477	PPE	20000168	2018 PIERCE SABER	4/30/2018	381,073	114,322	Vehicles	0	381,073	0	0	381,073
478	PPE	20000180	REPLACE ROOF FIRE STATION 94	9/28/2018	24,800	7,440	Facilities	0	0	24,800	0	24,800
479	PPE	20000316	FIRE STATION EXTRICTION	3/24/2020	32,720	3,272	Facilities	0	0	32,720	0	32,720
480	PPE	20000357	5 TON HEAT PUMP*FIRE HOUSE 92 S NOVA RD	4/21/2020	5,230	872	Facilities	0	0	5,230	0	5,230
481		20000396	THERMAL CAMERAS,SCBA EQUIPMENT FIRE	3/16/2021	47,354	14,206	Mach. & Equip.	47,354	0	0	0	47,354
482		20000459	DEMO & INSTALL TILE IN SHOWER*FIRE STATI	2/17/2021	10,484	629	Facilities	0	0	10,484	0	10,484
483		20000484	2021 PIERCE PUMPER	8/6/2021	577,913	57,791	Vehicles	0	577,913	0	0	577,913
484		20000485	2021 PIERCE PUMPER	8/6/2021	577,913	57,791	Vehicles	0	577,913	0	0	577,913
485		20000551	RADIOS POLICE DEPT	12/27/2021	883,787	88,379	Excluded	0	0	0	883,787	883,787
486		20000563	2022 FORD FIRE EXPLORER	3/4/2022	37,115	3,712	Vehicles	0	37,115	0	0	37,115
487		20000564	2022 FORD FIRE EXPLORER	3/4/2022	37,115	3,712	Vehicles	0	37,115	0	0	37,115
488	Total				<u>\$ 9,985,873</u>	<u>\$ 5,691,552</u>		<u>\$ 703,577</u>	<u>\$ 3,233,125</u>	<u>\$ 5,087,047</u>	<u>\$ 962,124</u>	<u>\$ 9,985,873</u>

Footnotes:

[1] Fixed asset data as of September 30, 2022 as provided by the City.