



INVITATION FOR BIDS (“IFB”)

SECTION 1

IFB #: 202050MN

IFB TITLE: PEACE RIVER WATER MAIN INTERCONNECT

1.0 PURPOSE

Sarasota County (“County”), a political subdivision of the State of Florida, will receive bids on the date indicated in BidSync for the purpose of selecting a contractor to provide materials and/or services as stated herein. Bidders are required to comply with the scope of services/specifications attached hereto and incorporated herein.

A public bid opening will be held in accordance with Florida Statutes §255.0518. The public bid opening will take place on the bid end date and time listed in BidSync, or as soon thereafter as possible. The location of the public bid opening will be posted on the County’s Calendar of Events.

2.0 CONTRACTOR QUALIFICATIONS

- 2.1 The bidder must be a licensed Underground Utility and Excavation Contractor or a General Contractor, authorized to do business within the jurisdiction(s) where the project is to be constructed. License(s) must be active at the time of bid opening.
- 2.2 The bidder must submit a minimum of two (2) references that demonstrate their ability to complete pressure pipeline projects similar in size and scope to this project. Determination of whether project references demonstrate experience with projects of similar size and scope is at the sole discretion of the County. Each project reference must have been successfully completed within the last 10 years preceding the bid opening date, have a construction cost of not less than \$10 million dollars where the Bidder was the prime contractor, and must have been for a commercial, industrial, or government project.
- 2.3 Project references must have been: 1) Self performed by bidder or 2) performed by a subcontractor, provided the bidder was the prime contractor, and the subcontractor is part of the bidder’s team for this project and is included on the Contractor’s Qualification Form.
- 2.4 All criteria listed below do not need to be satisfied by each submitted project reference, however all criteria must have been satisfied a minimum of one (1) time on the project references accepted for responsibility. References must demonstrate experience with each of the following:



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- a. Project with installation of at least 5,000 LF (lineal feet) of 24-inch diameter or larger watermain in the State of Florida with tie-in to an existing watermain and passing all required tests.
 - b. Project with a temporary or permanent lane closure along a two-lane road.
 - c. Project with extensive dewatering or working in conditions with a seasonal ground water table of 3-feet or higher.
 - d. Project with installation of 30-inch (nominal) diameter or larger HDPE (High Density Polyethylene) pipe by HDD (horizontal directional drill) with a minimum single pull length of 1,000 LF or longer.
 - e. Project with HDD (horizontal directional drill) installation under a State Road.
- 2.5 Only project references submitted on the Contractor’s Qualification Forms at the time of bid submittal will be used to verify qualifications have been met.
- 2.6 Bidder must be prepared to submit, within five days of Sarasota County’s request, written evidence of documents, such as financial data, additional data related to previous experience, qualifications and previous experience of superintendents and assistants, and evidence of authority to conduct business in the jurisdiction where the project is located.

3.0 FDOT PRE-QUALIFIED CONTRACTORS

Applicable Not Applicable

4.0 PRE-BID CONFERENCE AND/OR SITE VISIT

- 4.1 All conferences and site visits will take place at the time, date and location specified in BidSync.
No pre-bid conference is scheduled.
- 4.2 When applicable, Bidders are advised to visit each location to familiarize themselves with all work areas. Failure to do so will in no manner relieve the Bidder from furnishing materials or services that may be required to carry out and complete the contract in accordance with the intent of the specifications listed herein.
- 4.3 Questions asked at a pre-bid conference will be formally answered via an addendum. Bidders shall not rely on oral communications.



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5.0 BIDDER

- 5.1 For the purpose of this IFB, the term “Bidder” is defined as the legal entity submitting the bid and/or identified on the electronic bid submittal. The Bidder awarded the contract is referred to as either “successful Bidder” or “Contractor” herein.
 - a. Bidders intending to submit a bid as a joint venture with another company must provide documentation attesting to the formation of that joint venture with their bid submittal.
 - b. Bidders proposing to engage in construction contracting as a joint venture or partnership must apply for registration with the State of Florida, Department of Business and Professional Regulation and any other state or local licensing agencies, as required by Florida State Statute 489.119, prior to the date bids are due.
- 5.2 The estimated quantities of work and materials stated in the bid form are approximate only and are intended to be used solely for the comparison of bids. Estimated quantities are not guaranteed. Actual quantities may be more or less than the estimates.
- 5.3 Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the contract documents.
- 5.4 It is understood that quantities may be increased, decreased or deleted as provided in the contract documents without invalidating any of the unit prices bid.
- 5.5 The Bidder shall carefully examine the site of the work, the plans, and other bid documents for the work contemplated. It is the responsibility of the Bidder to investigate and become fully informed of the construction and labor conditions, of obstructions to be encountered, of the character, quality and quantities of work to be performed, materials to be furnished, and requirements of the contract documents. Failure to do so does not relieve a successful Bidder of his obligations to furnish all materials, equipment, and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in his bid.
- 5.6 Submission of a bid constitutes an incontrovertible representation that the Bidder has complied with every requirement of this paragraph and that bid documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of work.



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- 5.7 Should the Bidder discover any ambiguity, inconsistency, or error, Bidder will be required to seek an interpretation as described above in advance of submitting the bid or otherwise will be prohibited from taking advantage of such ambiguity, inconsistency or error. If Bidder has not received a written clarification on an ambiguity, the Bidder shall be required to submit his bid on the basis of the highest price necessary to complete the task in question.

6.0 AWARD

- 6.1 It is the intent of the County to award a contract to:

The responsive and responsible Bidder submitting the lowest Total Bid Price provided the bid is reasonable and in the best interest of the County to accept.

The Bidder is required to bid all Alternate(s) and must indicate if Alternates are to be added or deducted from the Base Bid in order to be responsive. The County will choose which Alternate(s) will be accepted (if any) based on the availability of funding prior to Bid Award. Alternates will be accepted in the order listed until the construction budget is reached.

- 6.2 In the event of a tie, the IFB tie-breaking procedures identified in the Sarasota County Procurement Manual will apply.
- a. To be considered, tied Bidders will be required to provide documentation certifying they have implemented a drug-free workplace program meeting the requirements stipulated in Section 287.087, Florida Statutes. Documentation must be provided within the time specified by the County at the time of request.

- 6.3 Local Preference is only applicable if this box is checked.

In awarding this bid, preference shall be given to local businesses in accordance with Section 2-215 of the Sarasota County Procurement Code.

- 6.4 The Bidder agrees, if this Bid is accepted, to contract with the Board of County Commissioners, Sarasota County to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to construct the work covered by the bid and other contract documents.

- 6.5 Contract

A draft of the contract that the successful Bidder(s) will be expected to sign (a Construction Contract) is posted on the Procurement website,



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shown below. The County may, in its sole discretion, select a different contract type or make revisions to the one referenced above following the recommended award of this solicitation.

<https://www.scgov.net/government/procurement/contract-templates>

7.0 MULTIPLE AWARDS

Applicable Not Applicable

8.0 QUALITY GUARANTEE

- 8.1 Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the work specified by this solicitation shall be new and of the most suitable grade for the purpose intended.
- 8.2 Except where specifically noted, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number shall be regarded as establishing a level of quality, performance, warranty, etc. required and shall not be construed as limiting competition.

9.0 SUBMITTAL INSTRUCTIONS

- 9.1 Bids must be submitted electronically in BidSync no later than the bid end date specified in BidSync. Bids submitted by any other method will not be accepted. The County assumes no responsibility for any bids received after the bid end date. Late submittals will not be accepted.
- 9.2 Bids submitted cannot be viewed by anyone other than the Bidder until the official bid opening occurs. Submitted bids will be made public in accordance with Florida Public Record laws found in Ch. 119, F.S.

10.0 BIDDER CERTIFICATIONS/SUBMITTAL DOCUMENTS

- 10.1 **Electronic Forms** - The forms checked below are provided as attachments to this IFB.
- a. Local Business Certification – Select “N/A” on the Local Business Certification if you do not qualify as a local business.
 Required Not Applicable
- b. Sworn Statement, Compliance with The Florida Trench Safety Act (CON-TRENCH)
Bidder shall be solely responsible for complying with the Florida Trench Safety Act (553.60-553.64 Florida Statutes) and



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Occupational Safety and Health Administration excavation safety standards, 29 CFR 1926.650 (subpart P) as amended. All costs associated with complying with these requirements shall be included in the separate line items of the bid and shall be as detailed in the Sworn Statement of Compliance with the Florida Trench Safety Act. Bidder shall submit the Statement of Compliance with the Florida Trench Safety Act form provided herein with this bid. It may also be requested for work assignments.

Required Not Applicable

10.2 **Attached Documents** - The documents listed below are provided as attachments to this IFB and if checked must be **uploaded** as an electronic attachment with your submittal.

a. Contractor’s Qualification Form(s) (COF)

Required Not Applicable

b. Bid Form

Bidders must use the Bid Form provided by the County to provide line item pricing.

Required Not Applicable

c. Bid Bond – Bidder must upload a copy of its Bid Bond with its submittal. Upon notification by the County, the apparent low bidder must deliver the original Bid Bond (or Cashier’s check) to the Procurement contact identified in BidSync within five (5) business days of the notification. If the apparent low bidder fails to submit the original bid bond (or cashier’s check) within five (5) business days of the notification, that bidder will be deemed non-responsive.

Required Not Applicable

If specified above, a copy of the bid bond or certified cashier’s check payable to the Board of County Commissioners equal to 5% of the total bid must be uploaded in BidSync as part of the bid submittal. Any issuer of a bid bond must be licensed to transact a fidelity and surety business in the State of Florida, with an A.M. Best rating of B+ (Very Good) or better if Contractor’s bid is under \$500,000.00, and A- (Excellent) or better if Contractor’s bid is over \$500,000.00.

Bid bonds shall contain in type or print the description of the construction in the same language as in the invitation for bids.



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- 10.3 **Other Submittal Documents** – The documents listed below must be uploaded as attachments with your bid submittal.
- a. Letter of Bondability
 Required Not Applicable
- 10.4 **Required Qualification Documents** –All Bidders must complete the qualifications listed below in BidSync prior to the submittal due date and time.
- a. (REQUIRED) NO LOBBY: All Bidders must complete a No Lobby qualification in BidSync prior to the submittal due date and time.
 - b. (REQUIRED) IMMIGRATION: All Bidders must verify they meet Federal and State employment eligibility requirements by completing the Immigration Qualification (Employment Eligibility) qualification in BidSync prior to the submittal due date and time.
 - c. (REQUIRED) LOCAL HIRING: All Bidders must acknowledge Sarasota County’s Local Hiring Initiative Resolution 2013-127, by completing the Local Hiring Qualification in BidSync prior to the submittal due date and time.
 - d. (REQUIRED) PUBLIC ENTITY: All Bidders are required to complete the Public Entity Qualification in BidSync prior to the submittal due date and times as an acknowledgement of compliance with Section 287.133(3) (a), Florida Statutes, on Public Entity Crimes.
 - e. (REQUIRED) LEGAL NAME: All Bidders must provide the legal name of the organization submitting the bid by completing the Legal Name qualification in BidSync prior to the submittal due date and time.
- 10.5 **JV (Joint Venture)**: Bidders submitting as a joint venture or partnership must complete the JV qualification (and upload all required joint venture documentation) in BidSync prior to the submittal due date and time.
- 10.6 **PR (Public Record Disclosure)**: Bidders claiming an exemption from public records disclosure under Florida public records law must complete the PR qualification (and upload all required documentation) in BidSync prior to the submittal due date and time.

11.0 FAILURE TO EXECUTE CONTRACT

Following the bid opening and review of the bid(s), the County will post a Notice of Recommended Award. After posting the Notice of Recommended Award, the County will forward to the successful Bidder contract(s) and related documents to be executed. If within 10 days the successful Bidder does not execute the contract documents and furnish the required bonds properly



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signed by the successful Bidder and the surety or sureties satisfactory to the County, along with the insurance as required in the contract documents, the successful Bidder may be deemed to be in default and the County may retain his bid bond. Award may then be made to the next lowest responsive and responsible Bidder or all bids may be rejected.

12.0 PERFORMANCE AND PAYMENT BOND

Required Not Applicable

12.1 For bids (including contingency amounts) of \$200,000.00 or more, a performance and payment bond of 100% of the contract or work assignment amount shall be required. Any bonding company submitting a performance and payment bond to Sarasota County Government must be licensed to transact a fidelity and surety business in the State of Florida, and shall have an A.M. Best rating of: if bond is under \$500,000 "B+" (very good) or better, and over \$500,000 "A-" (excellent) or better, and a "T" Underwriting Limitation not exceeded by this project's bond.

12.2 Execution of Bonds and Power of Attorney

- a. If the successful Bidder is a partnership, each bond should be signed by each of the individuals who are partners; if a corporation, the bonds should be signed in the correct corporate name by a duly authorized officer, agent or attorney-in-fact. The appropriate number of bonds should be executed to correspond to the number of signatories to the contract. Each executed bond should be accompanied by (a) appropriate acknowledgment of the respective parties; (b) appropriate duly certified copy of power-of-attorney or other certification of authority where bond is executed by agent, officer or other representative of successful Bidder or surety; (c) duly certified extract from by-laws or resolutions of Surety under which power-of-attorney or other certificate of authority of its agent, officer or representative was issued.
- b. Attorneys-in-fact who sign bid bonds or performance and payment bonds must file with such bond a certified copy of their power-of-attorney to sign such bonds. Attorneys-in-fact must place name, address, and telephone number on this certificate.

13.0 DESIGNATION OF CONTRACTOR AS OPERATOR

Applicable Not Applicable

It shall be the responsibility of the Contractor to complete, sign and submit with appropriate fee amount to the FDEP, Form 62-621.300(4)(b) Notice of Intent (NOI) to Use Generic Permit For Storm Water Discharge From Large and Small Construction Activities (Rule 62-621.300(4), FAC).



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Proof of acceptance by the FDEP, including the assigned authorization number and a copy of the Contractor’s Storm Water Pollution Prevention Plan for the project shall be submitted to the County prior to commencement of construction activities.

The Contractor shall be considered the operator for duration of the project.

14.0 COUNTY WORKPLACE POLICY COMPLIANCE

- 14.1 Smoking – Smoking is not permitted inside any County facility. Smoking is restricted to designated smoking areas outside a facility.
- 14.2 Parking – The Bidder’s representatives shall abide by all parking restrictions. The Bidder’s vehicles are subject to the same restrictions, limitations, fines and tickets as posted for any other vehicle. Where time limit restrictions exceed the required time to provide services, arrangements shall be made in advance.
- 14.3 Alcohol/Drugs – Service personnel under the influence of alcohol and/or non-prescription drugs are not permitted to work in County facilities. Any person known or thought to be under these influences will be escorted off County property.
- 14.4 Security - The Bidder must adhere to all Sarasota County security procedures. The Bidder’s work force shall be made up of persons legally authorized to perform work in the United States. The Bidder shall, at the County’s request, submit the following information for each of their employees: name, date of birth, social security number and green card (if applicable).

15.0 TRAVEL EXPENSE

Travel expenses will be reimbursed in accordance with Section 112.061, F.S. and the Sarasota County Board of County Commissioners Resolution No. 2016-170.

16.0 IDENTIFICATION

The Bidder shall require all employees to visibly wear identification while on County property. Said identification shall contain a color photograph of the employee, the name of the employee and the name of the company. Persons not conforming to this requirement may be denied access to the building. Denial of access does not alleviate the Bidder’s responsibilities herein.

17.0 MINORITY BUSINESS ENTERPRISES

- 17.1 Bidder(s) awarded construction contracts who intend to subcontract for materials or services required for the project are encouraged to subcontract with certified minority business enterprise/firm(s) or show good faith effort.



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- 17.2 When funding is being provided by an outside agency (Example: Florida Department of Environmental Protection (FDEP), Community Development Block Grant (CDBG), State Revolving Funds (SRF), Florida Department of Transportation (FDOT) Local Agency Program (LAP), Southwest Florida Water Management District (SWFWMD) etc.) their requirements will take precedence.

18.0 APPLICABLE CONSTRUCTION CONTRACT PROVISIONS

The Following terms will be utilized when drafting the resulting contract.

18.1 Section VII Payment:

Retainage Provision to be used is

General Provision 9-5.1

General Conditions 13.5

18.2 Section IX Time for Performance:

- a. The Contractor specifically agrees that contract time will begin on the date both the Project Purchase Order and the Notice to Proceed have been issued.
- b. All work to be performed under the provisions of this Contract shall be completed to Substantial Completion in not more than Four Hundred and Eighty (480) calendar days and an additional Sixty (60) calendar days after County provides a punch list to Contractor to Final Acceptance.

18.3 Section XII. Liquidated Damages:

The amount of liquidated damages to be assessed for each calendar day that Substantial Completion is delayed beyond the required date of Substantial Completion shall be **Two Thousand Dollars and Zero Cents (\$2,000.00)** per day. The amount of liquidated damages to be assessed for each calendar day that Final Acceptance is delayed beyond the required date of Final Acceptance shall be **Five Hundred Dollars and Zero Cents (\$500.00)** per day.

Section 1a – INSURANCE REQUIREMENTS

CONTRACTOR'S INSURANCE

Contractor shall, on a primary basis and at its sole expense, maintain in full force and effect, at all times during the life of this Contract, insurance coverage (including endorsements) and limits as described herein. These requirements, as well as the County's review or acceptance of insurance maintained by Contractor, are not intended to and shall not in any manner limit or qualify the liabilities or obligations assumed by Contractor under this Contract.

Insurance requirements itemized in this Contract and required of the Contractor shall extend to all subcontractors to cover their operations performed under this Contract. The Contractor shall be responsible for any modifications, deviations, or omissions in these insurance requirements as they apply to subcontractors.

Insurance carriers providing coverage required herein must be licensed to conduct business in the State of Florida and must possess a current A.M. Best's Financial Strength Rating of A- Class VII or better.

Each insurance policy required by this Contract shall apply separately to each insured against whom claim is made and suit is brought, except with respect to limits of the insurer's liability.

The Contractor shall be solely responsible for payment of all premiums, deductibles and retentions to which such policies are subject.

Contractor shall furnish Certificates of Insurance to the County Administrative Agent evidencing the types and amounts of coverage, including endorsements, required by this Contract prior to commencement of work and prior to expiration of the insurance contract, when applicable. Such Certificate(s) of Insurance shall be required to provide County with at least 5 days prior written notice of any policy cancellation or non-renewal.

The County reserves the right to review, reject, or accept any required policies of insurance, including limits, coverage, or endorsements, herein from time to time throughout the term of this Contract. County reserves the right, but not the obligation, to review and reject any insurer providing coverage due to its poor financial condition or failure to operate legally.

A. WORKERS' COMPENSATION: Contractor shall maintain Workers' Compensation insurance in accordance with Florida Statutes, Chapter 440. Employers Liability to be included with a minimum limit of \$500,000.00 per accident/per disease/per employee. If work is to be performed over or adjacent to navigable water and involves maritime exposure, applicable LHWCA, Jones Act, or other maritime law coverage shall be included.

In the event the Contractor has "leased" employees, the Contractor or the employee leasing company must provide evidence of a Workers' Compensation policy for all personnel on the worksite.

B. COMMERCIAL GENERAL LIABILITY: Contractor shall maintain Commercial General Liability per ISO form CG0001 or its equivalent, including but not limited

Section 1a – INSURANCE REQUIREMENTS

to coverage for premises and operations, personal injury, products & completed operations, liability assumed under an insured contract, and independent contractors with limits of not less than \$1,000,000.00 each occurrence, \$2,000,000.00 aggregate covering all work performed under this Contract. There shall be no exclusions for explosion, collapse and underground hazards.

Contractor agrees to endorse **Sarasota County Government** as an additional insured on the Commercial General Liability coverage.

- C. BUSINESS AUTOMOBILE LIABILITY:** Contractor agrees to maintain Business Automobile Liability with limits not less than \$1,000,000.00 combined single limit for each accident covering all Owned, Non-Owned & Hired automobiles used in the performance of this Contract. In the event Contractor does not own automobiles, Contractor agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

If the Contractor is shipping a product via common carrier, the contractor shall be responsible for any loss or damage sustained in delivery/transit.

- D. UMBRELLA/EXCESS LIABILITY:** Contractor agrees to maintain Umbrella or Excess Liability with limits not less than \$2,000,000.00 each occurrence and in the aggregate. Coverage shall follow the terms of the underlying insurance, including the additional insured provisions.

BID FORM

PEACE RIVER WATER MAIN INTERCONNECT, BID #202050MN					
ADDENDUM NO. 1					
Bidders must provide prices for each line item for their bid to be considered responsive.					
Item no.	Description	Unit	Qty	Unit Price(\$)	Amount (\$)
1	Mobilization and Demobilization (not to exceed 5% Subtotal of Line Items no. 2-41)*	LS	1	\$ -	\$ -
2	Water Main-Open Cut Installation - 30" C900 PVC	LF	26,040	\$ -	\$ -
3	Water Main - Open Cut Installation - 24" DIP	LF	227	\$ -	\$ -
4	Water Main - Horizontal Directional Drill Installation - 30" HDPE DR-11	LF	2,466	\$ -	\$ -
5	Water Main - Horizontal Directional Drill Installation - 30" HDPE DR-9	LF	1,134	\$ -	\$ -
6	Water Main-Jack & Bore Installation-42" Steel Casing	LF	60	\$ -	\$ -
7	Water Main - Above Grade Installation - 24" DIP	LF	119	\$ -	\$ -
8	Water Main - Above Grade Installation - 16" DIP	LF	25	\$ -	\$ -
9	Water Main Relocation -8" C900 PVC	LF	400	\$ -	\$ -
10	Water Main Relocation -10"	LF	20	\$ -	\$ -
11	Force Main Relocation - 4" C900 PVC	LF	200	\$ -	\$ -
12	Private Utility Relocation - Buried Electric	LF	80	\$ -	\$ -
13	Private Utility Relocation - Buried Telephone	LF	1,520	\$ -	\$ -
14	Butterfly Valves - 24" Diameter	EA	4	\$ -	\$ -
15	Gate Valves - 30" Diameter	EA	12	\$ -	\$ -
16	Gate Valves - 24" Diameter	EA	4	\$ -	\$ -
17	Gate Valves - 16" Diameter	EA	2	\$ -	\$ -
18	Inspection Manhole	EA	1	\$ -	\$ -
19	Air Release Valve Assemblies - 2" Diameter	EA	12	\$ -	\$ -
20	Fire Hydrant Assemblies	EA	8	\$ -	\$ -
21	Altitude Valves - 24" Diameter	EA	1	\$ -	\$ -
22	Connections to Existing 30" Water Main	EA	1	\$ -	\$ -
23	Holding of FPL (Florida Power & Light)-Utility Poles	EA	0	\$ _____	\$ _____
23	Water Storage Side Wall Tank Penetrations (CROM) - 16" Diameter	EA	2	\$ -	\$ -
24	Water Storage Side Wall Tank Penetrations (CROM) - Altitude Valve Tank Sense Line	EA	1	\$ -	\$ -
25	Chemical Injection Improvements	LS	1	\$ -	\$ -
26	Instrumentation and Control Improvements	LS	1	\$ -	\$ -

BID FORM

PEACE RIVER WATER MAIN INTERCONNECT, BID #202050MN					
ADDENDUM NO. 1					
Bidders must provide prices for each line item for their bid to be considered responsive.					
Item no.	Description	Unit	Qty	Unit Price(\$)	Amount (\$)
27	Collector Road Milling Existing Asphalt Pavement (3-1/2" Depth)	SY	3,743	\$ -	\$ -
28	Collector Road Superpave Asphaltic Concrete, Traffic C	TN	544	\$ -	\$ -
29	Collector Road Optional Base, Base Group 9	SY	5,439	\$ -	\$ -
30	Collector Road Type B Stabilization	SY	5,439	\$ -	\$ -
31	Local Road Milling Existing Asphalt Pavement (1-1/2" Depth)	SY	2,312	\$ -	\$ -
32	Local Road Superpave Asphaltic Concrete, Traffic B	TN	398	\$ -	\$ -
33	Local Road Optional Base, Base Group 6	SY	5,304	\$ -	\$ -
34	Local Road Type B Stabilization	SY	5,304	\$ -	\$ -
35	Concrte Sidewalk Restoration	SY	921	\$ -	\$ -
36	Driveway Restoration	SY	109	\$ -	\$ -
37	Concrete Curb & Gutter Restoration	LF	492	\$ -	\$ -
38	Flush Curb (Pump Station No. 5 Driveway)	LF	50	\$ -	\$ -
39	PVC Conduit - 3" Diameter PVC	LF	23,821	\$ -	\$ -
40	Pull Boxes	EA	24	\$ -	\$ -
SUBTOTAL BASE BID ITEMS - PEACE RIVER WATER MAIN INTERCONNECT					\$ -
PLUS CONTINGENCY ALLOWANCE (5% OF SUBTOTAL BASE BID PRICE)					\$ -
PLUS PERMIT ALLOWANCE					\$ 5,000.00
TOTAL BASE BID PRICE- PEACE RIVER WATER MAIN INTERCONNECT					
ALTERNATE A - POTABLE WATER MAIN INTERCONNECT					
Item No.	Description	Unit	Qty	Unit Price(\$)	Amount (\$)
41	Water Main - Open Cut Installation - 30" DIP	LF	26,040		\$ -
SUBTOTAL ALTERNATE A -POTABLE WATER MAIN INTERCONNECT					\$ -
*If an amount greater than 5% of the subtotal of Line Items no. 2-41 is entered, the cell will turn red and be illegible.					
*** If the Alternate A is selected the difference between Item No. 2 and Item No. 42 will added to the amount of the award.					

CONTRACTOR QUALIFICATION FORM

BIDDER NAME:		LICENSE #	
Project Name		Project, Contract, or Bid Number	
Owner Name		Reference Contact Name	
Reference Phone Number		Reference E-Mail Address	
Criteria #	Experience for Project: (Refer to Section 1, Paragraph 2.0, (IFB) Invitation for Bid)		
2.2	Was this project completed within the last TEN (10) years preceding the bid opening and for a commercial, industrial or government project? <u>Projects that do not meet this requirement will not be considered.</u>	Specify the month and year completed: <input type="checkbox"/> Governmental <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial	
2.3	Was this project Self-Performed with Bidder employees, or performed by a subcontractor?	<input type="checkbox"/> Self-Performed <input type="checkbox"/> Performed by Subcontractor Name of Subcontractor _____ Contact Information: _____	
2.4.a	Did this project have an installation of at least 5,000 LF (lineal feet) of 24-inch diameter or larger watermain in the State of Florida with tie-in to an existing watermain and passing all required tests?	<input type="checkbox"/> YES <input type="checkbox"/> NO Linear Feet _____ Pipe diameter _____	
2.4.b	Did this project have a temporary or permanent lane closure along a two-lane road?	<input type="checkbox"/> YES <input type="checkbox"/> NO Permanent or Temporary: _____	
2.4.c	Did this project have extensive dewatering or working in conditions with a seasonal ground water table of 3-feet or higher?	<input type="checkbox"/> YES <input type="checkbox"/> NO Ground water table height: _____	
2.4.d	Did this project have installation of 30-inch (nominal) diameter or larger HDPE (High Density Polyethylene) pipe by HDD (horizontal directional drill) with a minimum single pull length of 1,000 LF or longer?	<input type="checkbox"/> YES <input type="checkbox"/> NO Diameter _____ Lineal feet of pull _____	

CONTRACTOR QUALIFICATION FORM

2.4.e	Did this project have HDD (horizontal directional drill) installation under a State Road?	<input type="checkbox"/> YES <input type="checkbox"/> NO Road: _____
2.4.f	Did this project have a contract price of not less than \$10 million dollars where the bidder was the prime contractor?	<input type="checkbox"/> YES <input type="checkbox"/> NO Specify contract price \$_____

Contractor is to reproduce the form as necessary to demonstrate previous experience.

BID BOND

State of Florida, County of Sarasota

Know all men by these presents that we, _____ as Principal, and _____, as Surety, a Corporation chartered and existing under the laws of the State of _____, with its principal offices in the City of _____, and authorized to do business in the State of Florida are held and firmly bound unto the sponsor in the full and just sum of 5% of the Total Bid Price, in good and lawful money of the United States of America, to be paid upon demand by sponsor, to which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, and assigns, joint and severally and firmly by these presents.

The condition of this obligation is such, that whereas the Principal has submitted the attached Bid, dated _____, for **Peace River Water Main Interconnect, Bid # 202050MN**. Now, therefore, if the Principal shall withdraw said Bid prior to the date of opening the same, or shall within 10 days after the prescribed forms are presented to him for signature enter into a written Contract with Sarasota County Florida in accordance with the Bid as accepted and give a Performance and Payment Bond with good and sufficient surety or sureties as may be required for the faithful performance and proper fulfillment of such Contract and for the prompt payment of all persons furnishing labor or materials in connection therewith or, in the event of failure to enter into such Contract and give such bond within the time specified, if the principal shall pay the County the difference between the amount specified in said Bid and the amount for which the County may procure the required work and/or supplies provided the latter amount to be in excess of the amount specified in said Bid, then the above obligations shall be void; otherwise, to remain in full force and effect.

In witness whereof, the above written parties have executed this instrument under their several seals dated _____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Sign here if the Contractor is an Individual)

IN THE PRESENCE OF: _____(SEAL)
Individual Principal

Address Business Address

(Sign here if the Contractor is a Partnership)

IN THE PRESENCE OF: _____(SEAL)
Firm Name

General Partner

Address Business Address

(Sign here if the Contractor is a Corporation)

ATTEST: _____
Corporation Principal

BY: _____
As President

(AFFIX CORPORATE SEAL) _____
Business Address

Corporate Surety

BY: _____
As Authorized Agent

(AFFIX CORPORATE SEAL) _____
Business Address

State of Florida, County of Sarasota

SECTION 6

**OTHER
CONTRACT
FORMS**

**SARASOTA COUNTY GOVERNMENT
CONSENT OF SURETY TO FINAL PAYMENT**

SURETY:

BOND NO.:

OWNER: SARASOTA COUNTY BOARD OF COUNTY COMMISSIONERS

PROJECT TITLE: Peace River Water Main Interconnect

CONTRACT #

CONTRACTOR:

EFFECTIVE DATE OF BOND:

In accordance with the provisions of the Contract referenced above between the above Owner and Contractor, the Surety Company named below:

SURETY COMPANY NAME:
SURETY COMPANY ADDRESS:

under Bond with the Contractor named below:

CONTRACTOR NAME:
CONTRACTOR ADDRESS:

Hereby approves final payment by the Owner to the Contractor and agrees that final payment does not relieve the Surety of its obligations under the Bond to the Owner named below:

SARASOTA COUNTY COMMISSION
1660 RINGLING BOULEVARD
SARASOTA, FL 34234

IN WITNESS WHEREOF, the Surety has hereto set its hands on this date _____, 20__

Surety

Signature of Authorized Representative

Printed Name and Title

Attest/Witness:
(Seal): _____

Attached: Notarized Power of Attorney

**SARASOTA COUNTY
LOCAL HIRING INITIATIVE
Participation Form**

Instructions:

In Sarasota County's Local Hiring Initiative Resolution No. 2013-127, the CONTRACTOR is encouraged to work with Career Source Suncoast (formerly known as Suncoast Workforce, Inc.), or any other agency designated by the State of Florida as a Workforce development agency, to increase employment opportunities for local residents. Local residents are defined as "residents of Sarasota County," but that definition may be expanded to include Manatee and Charlotte Counties if the requisite skill-set is not available in Sarasota County. Resolution No. 2013-127 establishes an aspirational goal for contractor and subcontractors to hire 15% minimum local residents as the new hires for construction and construction related projects.

The CONTRACTOR shall complete the information below to provide information on any new hires needed by the Contractor or their subcontractor(s) to complete the Project.

This information must be submitted as part of the monthly pay requests.

Date: _____
 Project Name: _____ Contract Number: _____
 Contractor: _____ Submitted by: _____

Report on New Hires – Please indicate Any New Hires during the past month.

County of Resident	Number of New Hires Required to Complete Project	Number New Hires Local Residents	Cumulative New Hires to Date (Include previous months totals)
Sarasota			
Manatee			
Charlotte			
Other			

- By checking this box, the CONTRACTOR hereby acknowledges Sarasota County's Local Hiring Initiative and indicates that no New Hires were required by the CONTRACTOR or their subcontractor(s) to complete the Project.

**Standard Form For
CONTRACTOR'S FINAL AFFIDAVIT & RELEASE of LIEN**

STATE OF FLORIDA, COUNTY OF SARASOTA

Before me, the undersigned authority, personally appeared _____,
who, after being by me first duly sworn, deposes and says that:

1. He is _____ of _____,
(Title of Officer) (Name of Company)
doing business in the State of Florida, hereinafter called "Contractor".

2. Contractor pursuant to a Contract dated _____,
hereinafter referred to as "Contract", with Sarasota County, Florida, hereinafter
referred to as "County", has heretofore furnished or caused to be furnished labor,
material and services for the construction of certain improvements as more
particularly set forth in said contract.

3. Contractor represents that all work to be performed under the aforesaid Contract has
been fully completed and that all persons and firms who furnished material, labor
and/or services incident to the completion of said work have been paid in full except
to the following:

(Write in "None" if all persons and firms have been paid in full)

<u>NAME</u>	<u>ADDRESS</u>	<u>AMOUNT DUE</u>

4. The undersigned affiant for and in consideration of final payment to him in the
amount of \$_____, and all other previous payments paid by County
to contractor, does hereby for and in behalf of the Contractor, waive, release, remise
and relinquish the contractor's right to claim, demand or impose a lien or liens for
work done or materials and/or services furnished or any other class of lien
whatsoever, on any of the premises owned by County on which improvements have
been completed in connection with the aforementioned contract.

5. The affiant herein does hereby represent that he has authority to execute a full and
final Release of Lien for and in behalf of the Contractor as set forth above.

6. The affiant herein makes this Affidavit and Release of Lien for the express purpose of
inducing County to make final disbursement and payment to the Contractor in the
amount of \$_____.

7. This Affidavit and Release of Lien is made by affiant with full knowledge of the
applicable laws of the State of Florida. In addition to such rights as may be afforded
to County under said applicable laws, affiant expressly agrees to indemnify and save
County harmless from any and all actual costs and expenses, including reasonable
attorney's fees, arising out of claims by laborers, subcontractors or materialmen who
might claim that they have not been paid for services or material furnished by or
through the contractor in connection with the work performed under the
aforementioned Contract.

Name of Corporation

By: _____
President

(CORPORATE SEAL)

ATTEST:

Name of Corporation

Secretary

Sworn to and subscribed before me
this day

(date)

Notary Public

(NOTARY SEAL)

My Commission Expires: _____

STORED MATERIALS AFFIDAVIT

STATE OF FLORIDA, COUNTY OF SARASOTA

Before me, the undersigned authority, personally appeared _____, who being duly sworn, says that he is a subcontractor for _____ of _____, General Contractor for _____ Project, and that all materials billed on the attached invoice are being held in the subcontractor's warehouse at _____, Florida, for this project, and are fully insured against loss or damage.

(Subcontractor Firm Name)

By: _____
(Name of Representative)

(Title of Representative)

SWORN TO AND SUBSCRIBED BEFORE ME THIS ____ DAY OF _____, 20____

Notary Public:

My commission expires: _____

FOR

General Contractor for this project states that the stored materials constitute a part of the Performance, payment and guarantee bond, and are for this project only.

SWORN TO AND SUBSCRIBED BEFORE ME THIS ____ DAY OF _____, 20____

Notary Public:

My commission expires: _____

SARASOTA COUNTY GOVERNMENT
PERFORMANCE AND PAYMENT BOND

In compliance with F.S. Chapter 255.05(1)(a)

BOND NO.: _____
CONTRACTOR NAME: _____
CONTRACTOR ADDRESS: _____

CONTRACTOR PHONE NO.: _____
SURETY COMPANY: _____

SURETY AGENT: _____

OWNER NAME: _____
OWNER ADDRESS: _____
Sarasota County Board of County Commissioners
1660 Ringling Boulevard
Sarasota FL 34236

OWNER PHONE NO.: _____
941-861-5000

BOND AMOUNT: _____
CONTRACT NO.: (if applicable) _____

DESCRIPTION OF WORK: _____
Installation of new potable water transmission
main, chemical injection, instrumentation and
controls improvements at the County's Pump
Station No. 5. Includes all the valves, fittings,
restoration and all incidental appurtenances
as required to complete the work.

PROJECT ADDRESS: _____
5949 Proctor Road, Sarasota, FL 34233P

LEGAL DESCRIPTION: _____
PART OF LOTS 10 & 12 BLK 4 DESC AS COM SE
COR SEC 1 TH N-89-29-39-W 405.17 FT TH
N-030-21-E 109.54 FT FOR POB TH N-89-40-13-
W 227.94 FT TH S-84-53-41-W 453.87 FT TH
N-5-6-19-W 240 FT TH N-84-53-41-E 712.02 FT
TH SLY ALG 1-75 263.45 FT TO POB, SARASOTA
VENICE CO SUB, COUNT 3.89 AC M/L.

By this bond, we, _____, as Principal and
_____, a corporation, as Surety, are bound to Sarasota

**SARASOTA COUNTY GOVERNMENT
PERFORMANCE AND PAYMENT BOND**

In compliance with F.S. Chapter 255.05(1)(a)

County Board of County Commissioners, herein called Owner, in the sum of \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

The conditions of this bond is that if Principal:

1. Performs the Contract dated _____, between principal and Owner for construction of **Peace River Water Main Interconnect, Bid # 202050MN** the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05 (1) Florida Statutes, supplying principal with labor, materials, or supplies, used directly or indirectly by principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by principal under the contract work; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect surety's obligation under this bond.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

**SARASOTA COUNTY GOVERNMENT
PERFORMANCE AND PAYMENT BOND**

In compliance with F.S. Chapter 255.05(1)(a)

In witness whereof, the said Principal and Surety have signed and sealed this instrument

this

_____ (date)

Principal

By:

As President
(SEAL)

Surety

By:

Approved as to form and execution:

By: _____
Attorney to Board of
County Commissioners of
Sarasota County, Florida

Any Claims under this bond may be addressed to
(name and address of Surety):

Telephone No: _____

Name and address of agent or representative in Florida if different from above:

Telephone No: _____

SECTION 7

**GENERAL
CONDITIONS**

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GENERAL CONDITIONS

1.0 DEFINITIONS AND TERMS

1.1 GENERAL: Wherever used in the Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural, as well as pronouns used in their place. This list is not meant to be all inclusive, as other terms may be defined elsewhere in the Contract Documents printed with initial capital letters.

ADDENDA: Written or graphic instruments issued prior to the opening of bids which clarify, correct, or change the Contract Documents.

ADMINISTRATIVE AGENT: The County staff person acting as the County's authorized representative, responsible for the performance and final acceptance of the Work. This agent, named in the Contract, has responsibility for Contract Document interpretations, Contractor compliance with the terms of the Contract, and resolutions in cases of Contract Document discrepancies, claims, disputes, and non-compliance.

APPLICATION FOR PAYMENT: The form acceptable to the County which is to be used by the Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract.

CLAIM: A written demand or assertion by the County or the Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract.

CONFORMED CONTRACT DOCUMENTS: The formal Contract Documents prepared by the County, incorporating all addenda, completed bid form, Performance and Payment Bond, Insurance Certificate(s), and other forms required by the Contract into a bound set of final documents which will be exclusively used and recognized during the construction of the Work. Each set of Conformed Contract Documents will be so labeled and sequentially numbered as to be readily identifiable as copies of the authentic Contract Documents.

CONSTRUCTION CONTRACT: The written Contract executed by the County and the Contractor for the performance of the Work, which incorporates by reference, all Contract Documents.

CONSTRUCTION PLANS/DRAWINGS: A set of drawings prepared and/or approved by the Engineer/Architect of Record, which graphically shows the scope, extent, and character of the work to be furnished and performed by the Contractor. Shop Drawings and other Contractor submittals are not Construction Plans/Drawings as so defined.

CONSTRUCTION/PROGRESS SCHEDULE: A time schedule prepared and submitted by the Contractor in an approved form and in a Primavera compatible approved format, describing the sequence and duration of activities comprising the Contractor's plan to accomplish the Work within the prescribed Contract Times.

CONSTRUCTION PROJECT MANAGER: Authorized County representative with specific responsibilities and duties as defined by the County for management of specified portions of the Contract.

CONTRACT: The totality of the Contract Documents.

CONTRACT AMENDMENT: A form of Contract Modification requiring formal Sarasota County Commission approval.

CONTRACT DOCUMENTS: All documents listed in Article III of the Construction Contract.

CONTRACT MODIFICATION: A document signed by the County and the Contractor authorizing an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Contract.

CONTRACT PRICE: The Contractor's bid price accepted by the County, including or excluding additive or deductive alternates, as stipulated in Article II of the Construction Contract.

CONTRACT TIMES: The number of calendar days stipulated in Article VIII of the Construction Contract provided to the Contractor to achieve Milestones (as stipulated), Substantial Completion, and Final Completion of the Work, as defined herein.

CONTRACTOR: The person, firm, or corporation who executed the Construction Contract with the County, and who is responsible for the completion of the Work.

COUNTY: Political subdivision of the State of Florida including the SARASOTA COUNTY COMMISSION, the entity with whom the Contractor has entered into the Contract and for whom the Work is to be performed, including the County Engineer or designated representative.

DAY: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

EFFECTIVE DATE OF THE CONTRACT: The date the Construction Contract is approved and signed by the County, on which date the Contract becomes effective.

ENGINEER/ARCHITECT OF RECORD: The person, firm or corporation registered in the State of Florida as a Professional Engineer/Architect, or Professional Engineering/ Architectural Company, responsible for the preparation and approval of the Construction Plans/Drawings and Technical Specifications; the permitting of the project with Federal, State, and local agencies having jurisdiction over the Work; and for certification that the Work completed was in substantial conformance with the approved plans and specifications, and/or noting and recording exceptions that did not substantially affect the functionality or quality of the Work required for its intended use. The Engineer/Architect of Record may be one or more persons, firms or corporations.

FIELD ADJUSTMENT: A minor modification to the Construction Plans/Drawings directed by the County, which may involve a structure location or quantity change as may be found desirable to avoid any obstructions, interference with existing structures, or for other reasons that would benefit the Work, without causing or creating a scope change to the Work.

FINAL COMPLETION AND ACCEPTANCE: The date when the Work is completed and approved by the County and the Contractor, including completion of all punch list items, submittal of approved as-built drawings, and completion of all other project close-out requirements, all as defined in the Contract Documents. Evidence witnessing this date will be issued in the "Final Completion and Acceptance Certificate".

INTERIM FIELD CHANGE AGREEMENT (IFCA): A form of Contract Modification within the general scope of the Contract, which does not result in the Contract Price exceeding the amount stipulated in the Construction Contract. This Contract document, approved and signed by the County and the Contractor, authorizes an addition, deletion, or revision in the Work or an allocation of the Contract contingency or adjustment to the Contract Times, issued on or after the Effective Date of the Contract.

JOBSITE: Lands or areas indicated in the Contract Documents as being furnished by the County upon which the Work is to be performed, including rights-of-ways and easements for access thereto, and such other lands indicated by the County which are designated for the use of the Contractor.

MILESTONE: A principal event or Work item, specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

NOTICE: A formal written correspondence rendered by the Contractor or the County for the purposes of providing notice to the parties of transmittals, requesting information, conditions discovered, pending actions, claims, and other actions pursuant to the Contract requirements.

NOTICE TO PROCEED: A written notice given by the County to the Contractor fixing the date on which the Contract Times will commence to run and on which date the Contractor shall start to perform the Work under the Contract. The Notice to Proceed will fix the dates of Milestones, where applicable, Substantial Completion, and Final Completion of the Contract, based on the stipulated Contract Times.

"OR EQUAL"/SUBSTITUTION: An item reviewed and approved by the County following the effective date of the Contract based on the Contractor's submittal of alternates or substitutions for equipment/supplies/materials in response to the Technical Specifications denoting the item by a brand name followed by the term "or equal".

PROJECT: The entire construction or installation to be performed which the Work under this Contract may be the whole or part.

PROJECT REPRESENTATIVE (PR)/ INSPECTOR: Authorized field representative of the County, responsible for periodic oversight of the Work, with specific duties and limitations as outlined in these General Conditions.

SCHEDULE OF SUBMITTALS: A schedule of submittals required by the Contract Documents prepared and maintained by the Contractor, of required submittals and the time requirements to support scheduled performance of related Work activities.

SCHEDULE OF VALUES: A cost schedule prepared and maintained by the Contractor, allocating portions of the Contract Price to various Lump Sum items of the Work as defined in the Contract Documents, and used as the basis for reviewing and approving the Contractor's application for payment.

SHOP DRAWINGS: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work.

SUBCONTRACTOR: An individual or entity having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work.

SUBSTANTIAL COMPLETION: Occurs when the Work is sufficiently complete, in accordance with the Contract Documents, so that the Project or specified part of the Project can be utilized for the purpose for which it was intended. The date of Substantial Completion will be evidenced in writing by the "Certificate of Substantial Completion", approved and signed by the Contractor and the County's Administrative Agent.

SUPPLEMENTAL GENERAL CONDITIONS: That part of the Contract Documents which amends or supplements these General Conditions.

SURETY: Any person, firm, or corporation that has executed as Surety the Contractor's Bid Bond and/or Performance and Payment Bond securing the performance of the Construction Contract.

TECHNICAL SPECIFICATIONS: That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

UNDERGROUND FACILITIES: All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other facilities or attachments, and encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone, or other communications, cable television, water, wastewater, reuse water, storm water, other liquids or chemicals, or traffic or other control systems.

WORK: The entire construction required to be provided under the Contract. Work includes and is the result of performing or providing all plant, labor, equipment, tools, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

2.0 CONTRACTOR REQUIREMENTS

- 2.1 GENERAL: The Work covered by the Contract Documents includes the furnishing of all plant, labor, equipment, tools, materials and performing all operations and construction work, including all appurtenant work, in accordance with the Contract Documents. The Contractor shall perform all operations, construction, and incidentals necessary to complete the Work in a turnkey condition. The Contractor may subcontract a portion of the Work, but shall perform with his own organization work amounting to not less than fifty one percent (51%) of the total Contract Price.

3.0 CONTRACT DOCUMENTS

- 3.1 CONTRACT DOCUMENTS: Refer to Article III of the Construction Contract for the list of Contract Documents included in the Contract. The Contract Documents comprise the entire Contract between the County and Contractor.

3.2 INTENT:

- A. It is the intent of the Contract Documents to describe the Work (or part thereof) to be constructed by the Contractor, which results in a complete and functional product. Any plant, labor, materials, equipment, tools, and services that may be reasonably inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended results will be provided whether or not specifically called for at no additional cost to the County.
- B. The several parts of the Contract are intended to be complimentary in describing the Work and the responsibilities of the Contractor and the County and any requirements stipulated in one part of the Contract Documents is as binding on the parties as though occurring in all. In the event there are any conflicting provisions or requirements among the Contract Documents, the provisions and requirements of the Contract Documents shall take the following order of precedence:
1. IFCA and Contract Amendments
 2. Construction Contract
 3. Special Conditions
 4. Supplemental General Conditions
 5. General Conditions
 6. Technical Specifications
 7. Construction Plans/Drawings

In case of discrepancy concerning dimension, quantity, and location, graphic drawings will take precedence over the specifications; explanatory notes on the drawings will take precedence over conflicting drawn indications; and large-scale details will take precedence over smaller scaled drawings. In case of discrepancy concerning quality and/or quantity within the documents, the Contractor shall include the better quality and/or the greater quantity, unless otherwise determined in writing by the County.

Interpretations and resolution of discrepancies within the Contract Documents shall be made solely by the County's Administrative Agent and issued in writing upon receipt of the Contractor's written request.

- C. The Contractor shall fully comply with all requirements of the Contract. No verbal agreement or conversation with any agent or employee of the County, Construction Project Manager or the Engineer/Architect of Record either before or after the execution of the Construction Contract shall affect or modify any of the terms or obligations contained in the Contract.

- 3.3 CONFORMED CONTRACT DOCUMENTS: Following award of the Contract, the County will prepare the Conformed Contract Documents, providing one (1) originally signed and executed set to the Contractor. Up to three (3) additional copies of the Conformed Contract Documents will be provided to the Contractor at no charge. Additional copies of the Conformed Contract Documents may be obtained from the County upon payment of reproduction costs. One complete set of Construction Plans/Drawings and Technical Specifications shall be maintained at the Jobsite for as-built drawings preparation by the Contractor, and shall be available for review by the County at all times.
- 3.4 CONSTRUCTION PLANS/DRAWINGS:
- A. Refer to Article III of the Construction Contract for the list of Construction Plans/Drawings.
 - B. The general character and scope of the work is illustrated by the Construction Plans/Drawings. These drawings, which show the scope, extent and character of the work to be furnished and performed by the Contractor have been prepared and/or approved by the Engineer/Architect of Record, and are referred to in the Contract Documents. Shop drawings are not Construction Plans/Drawings as so defined.
 - C. Checking of Drawings and Dimensions:
 - 1) The Contractor shall check all drawings immediately upon their receipt and shall promptly notify the County in writing of any discrepancies. Anything shown on the drawings and not mentioned in the Technical Specifications, or mentioned in the Technical Specifications and not shown on the drawings, shall be of like effect as if shown or mentioned in both.
 - 2) Figures marked on all drawings shall, in general, be followed in preference to scale measurements. Large-scale drawings shall, in general, govern small-scale drawings. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby. When dimensions on the drawings are affected by the type of equipment selected, the Contractor shall adjust such dimensions as conditions may require, upon written notification and approval of the County.
- 3.5 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS:
- A. The Contract may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by an Interim Field Change Agreement (IFCA), or a Contract Amendment.
 - B. The requirements of the Contract may be supplemented and minor variations and deviations in the Work may be authorized by a written interpretation or clarification, or by a Field Adjustment as directed by the County.
- 3.6 REFERENCE STANDARDS:
- A. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to laws or regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or laws or regulations in effect on the Effective Date of the Contract, except as may be otherwise specifically stated in the Contract.
 - B. No provision of any such standard, specification, manual, or any instruction of a manufacturer or supplier shall be effective to change the duties or responsibilities of the County or the Contractor or any of their Subcontractors, consultants, agents, or employees from those set forth in the Contract. No such provision or instruction shall be effective to assign to the County or any of their authorized representatives, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract.

3.7 REUSE OF DOCUMENTS:

- A. The Contractor and any Subcontractor or supplier or other individual or entity performing or furnishing all or any portion of the Work, shall not:
 - 1) 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 the Engineer/Architect of Record or the Engineer/Architect of Record's consultants, including electronic media editions.
 - 2) Reuse any of such drawings, specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of the County and the Engineer/Architect of Record and specific written verification or adaption by the Engineer/Architect of Record.
- B. The prohibition of this paragraph will survive final payment, or termination of the Contract. Nothing herein shall preclude the Contractor from retaining copies of the Contract Documents for record purposes.

4.0 **PRE-CONSTRUCTION ACTIVITIES**

4.1 PRE-CONSTRUCTION CONFERENCE:

- A. Following award of the Contract, the County may schedule a pre-construction conference. Attendees of the conference shall be the Contractor and the Contractor's proposed superintendent, the County and authorized representative(s), utility company representatives, and other interested parties.
- B. The pre-construction conference is intended to establish a working understanding among the parties, and to review work schedules, procedures for handling shop drawings and other submissions, processing of progress payments, and such other matters as may be pertinent to the Work. The Contractor shall submit, for approval by the County, a summary of the proposed work approach, a preliminary Schedule of Values, a preliminary Submittals Schedule, a preliminary Construction/Progress Schedule, emergency contact phone numbers, Labor and Equipment Rate Schedule (excluding overhead and profit), and any other information as required for the pre-construction conference.

4.2 PRELIMINARY SCHEDULES SUBMISSION AND ACCEPTANCE:

A. SCHEDULE OF VALUES:

- 1) This schedule includes quantities and prices for all Lump Sum bid items, which when added together equal the Lump Sum Contract Price for each such item bid, and subdivides the Lump Sum items into component parts in sufficient detail to serve as the basis for the review and approval of progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each Lump Sum item of Work bid.
- 2) The Contractor's Schedule of Values will be acceptable to the County as to form and substance if it provides a reasonable allocation of the Lump Sum Contract Prices to component parts of the Lump Sum item of Work.

B. SUBMITTALS SCHEDULE:

- 1) This schedule, which is incorporated into the Construction/Progress Schedule, provides for the review and acceptance of the Contractor's submittals required by the Contract Documents, and must provide sufficient time for the County review so as to comply with the Contract Times.
- 2) This schedule shall also include any Contractor proposed substitutions/"or equal" products requiring review by and approval of the County. The Contractor shall provide sufficient time in the Construction/Progress Schedule for such product review.

- 3) The Contractor's schedule of submittals will be acceptable to the County if it provides for a workable arrangement for reviewing and processing the required submittals as shown on the Progress Schedule.

C. CONSTRUCTION/PROGRESS SCHEDULE:

- 1) This construction schedule, prepared in Primavera compatible critical path format, indicating the times (numbers of days or dates) for starting and completing the various items and stages of the Work, including the scheduling of any Milestones specified in the Contract Documents, Substantial Completion, and Final Completion. The initial submittal shall, at a minimum, indicate the late start dates and late finish dates required to meet the Contract Times.
- 2) The Contractor's Progress Schedule will be acceptable to the County if it provides for an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on the County responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve the Contractor from the Contractor's full responsibility therefore.

D. The County will provide the Contractor with its comments to the above schedules. No Progress Payment will be made to the Contractor until acceptable schedules are submitted to the County.

4.3 NOTICE TO PROCEED: A written Notice will be provided to the Contractor by the County affirming the date on which the Contract Times will commence to run. The date of the Notice to Proceed generally begins the Contract Times unless another date is otherwise agreed to by the County and the Contractor, and is the date on which the Contractor shall start to perform the Contractor's obligations under this Contract. This Notice to Proceed will also set the completion dates for Milestones (where applicable), Substantial Completion, and Final Completion of the Work. No work shall commence at the Jobsite prior to the date on which the Contract Times commence to run.

4.4 EARTH MOVING PERMIT:

- A. Temporary storage and stockpiling of materials resulting from earthmoving activities on private property will require a permit based on the Sarasota County Earthmoving Ordinance. The Contractor is responsible for obtaining an Earthmoving Permit prior to commencing construction, in the event the Contractor plans on storing and stockpiling such materials on private property.
- B. Earthmoving activities, such as excavating, hauling, receiving, and stockpiling, performed in connection with a Sarasota County construction or maintenance project, and performed within and upon County owned property and rights-of-ways, is authorized under the Sarasota County Earthmoving Ordinance as an exemption. These activities, however, may be subject to certain submittals per the Earthmoving Ordinance. The Contractor is responsible for determining what, if any, submittals are required in order to comply with the Earthmoving Ordinance.

4.5 NOTIFICATIONS:

- A. Notice to the County: The Contractor shall give the County five (5) days advanced written notice of the date scheduled to commence Work under this Contract in order that required County actions may be started sufficiently in advance of the Contractor's operations. This Notice to the County shall be given within the time frame of the issuance of the Notice to Proceed.
- B. Notification of Utility Companies: The Contractor shall notify the utility companies and agencies well ahead of the proposed Work. The Contractor shall cooperate with all affected utility companies and provide schedules, etc., when requested.
- C. Emergency Vehicle Notification: The Contractor shall notify the police, fire department, and ambulance services of the proposed construction schedule one week in advance of the proposed Work.

D. Resident Notification: The Contractor will provide notification to all residents affected by, and adjacent to the Work. The notification will be delivered no less than one week prior to construction commencement. Notices shall be hand-delivered door to door to the properties first affected by the construction; thereafter properties to be affected within five (5) days of construction shall receive notice thereof. The door hanger format shall be developed by the County for use by the Contractor.

4.6 AUDIO-VISUAL PRE-CONSTRUCTION RECORD: Prior to commencing the Work, the Contractor shall have a continuous color audio-video record in digital video format taken at and around the Jobsite, and along the length of the proposed Work, to serve as a record of pre-construction conditions. No construction shall begin prior to review and acceptance of the digital video's covering the Work area(s) by the County.

The County shall have the authority to reject all or any portion of the audio-video recordings not conforming to the specifications and order that it be redone at no additional charge. The Contractor shall promptly reschedule the re-recording of unacceptable coverage after being notified. The County will designate those areas, if any, to be omitted from or added to the audio-video coverage. The audio-video recordings shall not be made more than thirty days prior to construction start. All audio/video recordings and written records related to the recordings shall become property of the County. Submittals of pre and post Construction digital video recordings will be as specified in the Contract Documents.

4.7 COMMUNICATIONS/NOTICES:

A. Communications: Except as otherwise provided in the Contract, the County and the Contractor shall endeavor to communicate to each other on matters arising out of or relating to the management of the Work. Communications by and with the County's consultants shall be through the County. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the County.

B. Notices: All forms of notices given by the Contractor or the County must be in writing, and delivered to the other party in the manner of and within the time prescribed by the Contract Documents. If a written notice is not presented in a timely manner, it is presumed not to have been given.

5.0 **PROGRESS AND CONTROL OF THE WORK**

5.1 TIMELY PERFORMANCE OF THE WORK:

A. Time limits stated in the Construction Contract are of the essence of the Contract. By executing the Contract, the Contractor confirms that the Contract Times stated in the Construction Contract are reasonable periods for performing the Work.

B. The Contractor shall execute the Work in such time and with such forces of workers, materials, equipment and tools as are required to complete the Work as contemplated in the Contract Documents and detailed in the current Construction/Progress Schedule. If at any time the workers, materials, equipment and tools used are insufficient or improper for securing the quality of work required, or the required rate of progress, the Contractor shall increase its efficiency and improve the quality of its work to comply with the Contract Documents and as is necessary to complete the Work within the Contract Times.

5.2 SEQUENCE OF WORK:

A. The Contractor shall schedule the Work as set forth in the Contract Documents, and where shown, perform the Work in stages as indicated in the Contract Documents.

- B. The Contractor shall submit a Work sequence schedule/plan to the County for review prior to any construction activity. This Work sequencing, once approved, shall be reflected in the Construction/Progress Schedule. The Contractor shall take into consideration any special conditions, restrictions and allowances identified in the Contract Documents, when developing the sequence schedule and implementing the Work.
- C. Special conditions, restrictions and allowances may be required to minimize inconvenience to the general public and to expedite the restoration efforts.

5.3 TEMPORARY FACILITIES/STAGING AND STORAGE AREA(S):

- A. The Contractor shall provide adequate facilities at every stage of performing the Work.
- B. The types of facilities and utility services required for general temporary use at the Jobsite may include the following (other specific services may be required for specific construction methods or operations):
 - 1) Water service (potable for certain uses).
 - 2) Portable sanitary facilities.
 - 3) Drainage and run-off control facilities.
 - 4) Compressed air service.
 - 5) Electric power service.
- C. In setting up temporary facilities, the Contractor shall:
 - 1) Follow all applicable codes and ordinances that may govern the permitting and inspection by governing authorities in establishing the temporary facilities.
 - 2) Comply with pollution and environmental protection regulations for the use of water and other services, and for the discharge of wastes and storm water drainage from the Work area.
 - 3) Enforce strict discipline in the use of utility services. Limit availability to essential uses, so as to minimize waste. Do not allow the installations to be abused or endangered.
 - 4) Provide adequate signs, fences, barricades, and flashing lights, and take all necessary precautions for the protection of the Work area and the safety of the public.
- D. Staging and Storage Areas:
 - 1) The Contractor shall be responsible for locating, securing, and paying for staging and storage areas located outside of the County owned property and rights-of-ways.
 - 2) The Contractor's attention is directed to the County requirements involving permitting for Earth Moving activities. (See Article 4 – Pre-Construction Activities).
- E. Storage of Materials:
 - 1) All materials, supplies and equipment, including the County supplied materials, supplies and equipment, intended for use in the Work shall be suitably stored by the Contractor at the Contractor's expense, to prevent damage from exposure to the elements of nature, mixture with foreign substances, vandalism or theft, or other cause. The Contractor shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting there from. Delivered materials shall be stored in a manner recommended by the manufacturer or supplier and acceptable to the County before any payment will be made.
 - 2) The County will refuse to accept, or sample for testing any materials, supplies or equipment that have been improperly stored or have become contaminated in any way. Materials found unfit for use shall not be incorporated in the Work and shall immediately be removed from the Jobsite.
 - 3) All materials removed from the Jobsite for disposal as called for in the Contract Documents or directed by the County, shall be performed in a legal manner in conformance with all local, State, and Federal laws and regulations.

5.4 USE OF JOBSITE AND OTHER AREAS:

- A. The Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Jobsite and other areas permitted by laws and regulations, and shall not unreasonably encumber the Jobsite and other areas with construction equipment or other materials or equipment. The Contractor shall allow use of the Jobsite by other contractors, by the County, and by the public, as applicable.
- B. The Contractor shall keep the Jobsite free of rubbish and waste materials on a continual basis, and shall restore to their original condition those portions of the Jobsite disrupted by the construction.

5.5 MOBILIZATION:

- A. The Contractor shall mobilize as required for the proper performance and completion of the Work.

5.6 WORK HOURS:

- A. Regular working hours are defined as up to ten (10) hours per day, Monday through Friday, beginning no earlier than 7:00 A.M. and ending no later than 5:00 P.M., excluding Saturdays, Sundays, and Holidays.
- B. Whenever the Contractor is performing any part of the Work, with the exception of equipment maintenance and cleanup, inspection of the Work will be required.
- C. Requests for approval by the County to work other than regular working hours must be submitted to the County at least 48 hours prior to any proposed weekend work or scheduled extended workweek hours.
- D. Periodic unscheduled work hours on weekdays will be permitted provided that two hours notice is provided to the County. Maintenance and cleanup may be performed during hours other than regular working hours.

5.7 REIMBURSEMENTS TO THE COUNTY FOR UNSCHEDULED WORK HOURS: The Contractor shall reimburse the County for additional construction management and/or inspection costs incurred as a result of unscheduled work in excess of regular working hours. At the County's option, unscheduled work costs may either be deducted from the Contractor's monthly payment request or deducted from the Contractor's retainage prior to release of final payment. Construction management/inspection costs shall be as follows: Overtime and Saturday rates shall be at 1.5 times the prevailing staff rates; and Sunday and holiday rates will be at 2 times the prevailing staff rates.

5.8 PROGRESS MEETINGS:

- A. On days and at a location mutually agreed upon at the pre-construction conference, regular progress meetings shall be held at the Jobsite, at the County's designated office, or at the Contractor's project office, to review the progress of the Work, identify any utility issues and potential delays or problems, review any required project submittals, review progress payment applications, and discuss other issues that may arise.

5.9 CONSTRUCTION/PROGRESS SCHEDULE:

- A. The Contractor shall adhere to the currently accepted Construction/Progress Schedule as it may be adjusted from time to time as provided below, and as may be further detailed in the Contract Documents.
 - 1) Schedule adjustments with no change in Contract Times: The Contractor shall submit to the County for acceptance, proposed adjustments in the Construction/Progress Schedule that will not result in changing the Contract Times. Such adjustments, if accepted, shall be incorporated into a revised Progress Schedule which will be submitted with the Contractor's next progress payment application.

- 2) Proposed schedule adjustments with a change in Contract Times: Proposed changes to the Construction/Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11. Adjustments in Contract Times may only be modified by an IFCA or Contract Amendment.

5.10 AS-BUILT DOCUMENTS:

- A. The Contractor shall maintain in a safe place at the Jobsite one record set of Conformed Contract Documents, IFCA's, Contract Amendments, and written interpretations and clarifications in good order and annotated to show changes made during construction.
- B. All approved shop drawings, product data sheets, and samples, are to be made available to the County at all times during the progress of the Work.
- C. During the progress of the Work, the Contractor shall maintain accurate daily written records of the Work performed and conditions of the Work.
- D. The record set of Construction Plans/Drawings, which will become the "as-built" drawings, shall be "red-lined" by the Contractor to show all changes in the Work, including approved materials and equipment changes and approved changes in horizontal and vertical alignments made during the course of the Work. All locations and dimensions shall be referenced by two (2) point swing-ties taken from permanent, readily identifiable reference points, such as building walls and corners, columns, utility poles, hydrants, valves, etc. All depths or elevations are to be taken from finished floors, finished grades, or from permanent bench marks shown on the Construction Plans/Drawings.
- E. Prior to approval of the Contractor's monthly payment applications, the County shall review the as-built drawings to ensure that they are up-to-date, and accurate. The County may withhold progress payments should the review reveal that the as-built drawings have not been properly maintained.
- F. Upon completion of the Work, and as a pre-requisite to Final Completion and Acceptance, these as-built drawings shall be delivered in good condition to the County.
- G. The Contractor shall be held responsible for the accuracy of the as-built drawings, and shall bear any costs incurred in finding utilities or other concealed or buried Work items, as a result of incorrect data furnished by the Contractor. The review of the as-built drawings by the County does not relieve the Contractor from obligations under the Contract, and for providing the necessary information on Work completed for the Engineer/Architect of Record's certification.

5.11 PERMITS, LICENSES, TAXES, AND LAWS AND REGULATIONS:

- A. Unless otherwise provided in the Contract, the Contractor shall obtain and pay for all necessary permits and licenses required by Federal, State, and local agencies having jurisdiction over the Work, prior to the start of construction. The Contractor shall adhere to the permit conditions provided in the permits issued by all such agencies, and shall post all permits in a conspicuous location at the Jobsite.
- B. The Contractor shall pay all sales, consumer, use and other similar taxes required by the laws and regulations of the place where the Work is performed.
- C. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations related to the Work.

5.12 WORK WITHIN THE COUNTY/STATE RIGHTS-OF-WAYS:

- A. The Contractor shall refer to the latest revised editions of the Sarasota County Mobility standards, and the Florida Department of Transportation specifications and regulations for all work within the County and State rights-of-ways.

- B. Contractor shall apply for, pay, and obtain the necessary city, County, and State Right-of-Way Permit(s) prior to the start of any Work within a public right-of-way.
- C. All private and public right-of ways, which are used or affected by the Work, will be maintained and preserved from damage during the Contractor's operations and restored to their original or better condition upon completion or cessation of Work.

5.13 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property.
- B. The Contractor shall comply with all provisions of the Florida Trench Safety Act. the Contractor shall comply with all OSHA regulations referenced in the Florida Trench Safety Act, and applicable to the construction of the Work.
- C. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by vehicles, pedestrians and workmen.
- D. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the County may require special construction procedures such as limiting the length of open trench and prohibiting stacking excavated material in the street.
- E. Access to driveways must be maintained and, if disturbed or damaged, restored as soon as practical by the Contractor.
- F. The maximum length of open trench shall be forty (40) feet at any one time. Trenches shall not remain open overnight.
- G. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.
- H. All costs in connection with open excavations shall be included in the Unit Price and/or Lump Sum prices.

5.14 EROSION CONTROL:

- A. The Contractor shall develop and maintain a plan to control erosion at the Jobsite, and submit the plan to the County for approval prior to the start of construction. The plan shall incorporate best management practices in the use of erosion control methods, be complete and in place prior to the start of construction in accordance with the Contract Documents, and as directed by the County.
- B. The Contractor shall not commence clearing, grubbing, grading, or other construction activities which may cause erosion until the erosion control plan is in place, and approved by the County.
- C. Where certain thresholds are met relative to the amount of area disturbed by the Work, a National Pollutant Discharge Elimination System (NPDES) permit will be required to be obtained by the Contractor, in accordance with the Contract Documents.
- D. The Contractor shall regularly inspect, maintain, and repair or replace damaged components of the erosion control system. The Contractor shall maintain the erosion control system until final acceptance, and thereafter, remove the temporary erosion and sediment control system promptly.

5.15 MAINTENANCE OF TRAFFIC (MOT):

- A. The Contractor shall be responsible for the design, submittal, and approval by the proper reviewing agencies, of maintenance of traffic (MOT) plans for each stage of the Work. It will be the Contractor's responsibility to set up and maintain the MOT according to State and local transportation agency regulations. All MOT work shall conform to the requirements of the Sarasota County Mobility standards.

- B. The Contractor's work under this section includes preparing, constructing, and maintaining of approved ingress and egress features at the temporary storage/staging facility to reduce/eliminate tracking of mud, silt, and dust onto public and private residential streets.
- C. The Contractor shall at all times so conduct his work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Work, and to insure the protection of persons and property, in a manner satisfactory to the County.
- D. The Contractor may not begin work until the maintenance of traffic (MOT) plan is approved in writing by Sarasota County Mobility. Any modification to the MOT plan requires Sarasota County Mobility written approval.
- E. All spills caused by the Contractor's operation will be cleaned up immediately.
- F. All public and private streets affected by the Contractor's hauling operations, shall be cleared of dust, debris, and minor drippings at the end of each work day.
- G. Unless otherwise provided in the Bid Form, all costs in connection with the maintenance of traffic work shall be included in the Unit Price and/or Lump Sum prices.

5.16 SUBSURFACE AND PHYSICAL CONDITIONS:

- A. Geotechnical Reports and Soil Borings: Technical data, such as reports and explorations and tests of subsurface conditions at or contiguous to the Jobsite are included, if applicable, in the Contract Documents, and were used by the Engineer/Architect of Record in preparing the Construction Drawings.
- B. Limited Reliance by the Contractor on Technical Data: The Contractor may rely upon the general accuracy of the technical data contained in such reports. Except for such reliance on such technical data, the Contractor may not rely upon or make any claim against the County or the Engineer/Architect of Record, or any of their representatives or agents with respect to:
 - 1) The completeness of such reports for the Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor, and safety precautions and programs incident thereto; or
 - 2) Other data, interpretations, opinions, and information contained in such reports; or
 - 3) Any Contractor interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions, or information.
- C. Differing Subsurface or Physical Conditions:
 - 1) Immediately upon discovery by the Contractor of substantially differing subsurface and physical conditions than those shown in the Contract Documents, or unusual from conditions normally expected at Jobsites of this type, the Contractor shall promptly notify the County to obtain a determination on how to proceed with the Work. Except in an emergency, the Contractor shall not further disturb the Jobsite until the County investigates the conditions, provides further testing where required, resolves the issue, and directs the Contractor to proceed with the Work.
 - 2) Should the County determine the conditions differ materially and increase or decrease the Contractor's costs or time in the performance of the Work, and upon approval of the County, an IFCA or Contract Amendment will be prepared in accordance with the Contract.
 - 3) If the County determines that the conditions are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the County shall promptly notify the Contractor in writing, stating the reasons therefore.

- 4) In such cases, the Contractor shall move to another area of the Work until the issue is resolved.

5.17 EXISTING UNDERGROUND FACILITIES:

- A. The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Jobsite is based on information and data furnished to the County or the Engineer/Architect of Record by the owners of such underground facilities, including the County, or by others. The County and the Engineer/Architect of Record shall not be responsible for the accuracy or completeness of any such information or data.
- B. The Contractor shall be responsible to maintain water, telephone, electric, cable TV, sewer, gas and other related utility services throughout the construction of the Work at no additional cost to the County.
- C. The Contractor shall fully cooperate with all private and public utilities during the installation of their new facilities, or repair or relocation of their existing facilities. The Contractor shall coordinate his work accordingly and shall have no claim except for time extension for delays associated with the proposed utility improvements.
- D. The Contractor shall be fully responsible for providing all temporary piping, electrical hook-ups, lighting, temporary structures, or whatever is required to maintain the existing utility systems.
- E. The cost of all of the following will be included in the Contract Price and the Contractor shall have full responsibility for:
 - 1) Reviewing and checking all such Underground Facilities information and data.
 - 2) Locating all Underground Facilities shown or indicated in the Contract Documents.
 - 3) Coordination of the Work and cooperating with the owners of such Underground Facilities, including the County, during construction.
 - 4) The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- F. If an Underground Facility is uncovered or revealed at or contiguous to the Jobsite which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, or not field located by the utility owner(s) with the accuracy required by Sunshine State One Call of Florida, the Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency), identify the owner of such Underground Facility and give notice to that owner of the facility, and to the County.
 - 1) The County will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, the Contractor shall be responsible for the safety and protection of such Underground Facility.
 - 2) If the County concludes that the conflict can be avoided with a minor modification of the Work, the County will require a Field Adjustment, instructing the Contractor how to proceed with the Work, and document the event.
 - 3) If the County concludes that a change in the Contract Documents is required, an IFCA or Contract Amendment will be issued to reflect and document the event and the required adjustments to the Work. Following consultation with the utility owner, either the utility owner will relocate the existing Underground Facility, or an IFCA or Contract Amendment will be issued to the Contractor for the relocation of the existing utility.
 - 4) An equitable adjustment shall be made in the Contract Times, to the extent attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents or field locates.

- G. In order to comply with Chapter 556 of the Florida Statutes, the Contractor is responsible for contacting Sunshine State One Call of Florida (SSOCOF) @ 811, or 1-800-432-4770, to request a locate ticket so that SSOCOF members that own or operate underground facilities can locate and mark their underground facilities at and adjacent to the Jobsite. This requirement includes all operations such as demolition, grading, dredging, ditching, drilling, boring, cable plowing or other such activities. Notification requirements are as follows:
- 1) The Contractor must notify SSOCOF a minimum of two (2) full business days, excluding Saturdays, Sundays and legal holidays, prior to excavating. Day one begins the day after the call is made.
 - 2) If the Contractor's dig site is in an area that is underwater, the Contractor must call ten (10) full business days before digging.

5.18 QUALITY CONTROL:

- A. The Contractor shall establish and maintain appropriate quality control for the Work. The Contractor shall record any problems in complying with laws, regulations and ordinances, and corrective actions taken. Any problems with the Work shall be reported to the County immediately, followed by written notification of the occurrence of the incidences.
- B. The Contractor shall not deviate from the approved Project permits, Construction Plans/Drawings and Technical Specifications, without specific authorization from the County. In the event that the Contractor determines modifications are required, the Contractor shall prepare and submit a written request to the County including an explanation of the problem and justification for the suggested modification.
- C. The Contractor shall establish and maintain the Contractor's own quality control program for the Work.
- D. Cutting and Patching: The Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly 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 County and the others whose work will be affected.

5.19 MATERIALS, EQUIPMENT, AND WORKMANSHIP:

- A. Unless otherwise stated in the Contract Documents, all workmanship, materials, and articles incorporated in the Work shall be of good quality and new and of the most suitable grade of their respective kinds for the purpose and shall be acceptable to the County. The County shall decide the question of quality where the terms, "or equal", "approved equal" or "equivalent", are used in the Technical Specifications following reference to a specific manufacturer of equipment or materials. When and to the extent required by the Technical Specifications or by the County for review, the Contractor shall provide full information, including reports and tests, concerning the materials, equipment, or methods of work which the Contractor contemplates incorporating in the Work. Samples of materials shall be submitted for review where required. Materials and equipment installed or used, or unusual methods of work used without such review may be rejected without liability to the County.
- B. Defective Material, Equipment, or Work:
- 1) When any material or equipment not conforming to the requirements of the Contract Documents has been delivered to the Jobsite, or incorporated in the Work, or whenever any Work performed does not conform to the Contract Documents or is of inferior and unacceptable quality, then such material, equipment, or work shall be deemed to be defective. All such defective materials, equipment, or Work shall be corrected, removed, replaced or made satisfactory to the County at no additional cost to the County.
 - 2) The Contractor shall not be entitled to an extension of the Contract Time for correcting or removing and replacing defective Work.

- C. All materials, equipment, and installation shall be applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the manufacturer or applicable supplier, except as otherwise may be provided in the Contract Documents.
- D. Special Warranties and Guaranties: All special warranties and guaranties required by the Technical Specifications shall expressly run to the benefit of the County.

5.20 INSPECTION AND TESTING OF MATERIALS AND EQUIPMENT:

- A. Unless otherwise provided in the Bid Form, all testing shall be at the expense of the Contractor.
- B. The Contractor shall employ and pay for the services of an independent testing laboratory approved by the County, to perform all inspections and tests required by the Contract Documents.
- C. The Contractor shall arrange for all such testing, and give the County timely notice of the readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- D. The Contractor shall pay for all factory tests required on equipment and materials. Copies of test results or where acceptable, certifications of compliance on equipment and materials made at the factory or manufacturing plant, shall be furnished to the County. Test reports on equipment shall be reviewed by the County before the equipment covered by the tests is delivered to the Jobsite. Test requirements are set out in the detailed Technical Specifications for the particular equipment and materials.
- E. If laws or regulations of any public body having jurisdiction require any portion of the Work specifically to be inspected, tested, or approved by an employee or other representative of such public body, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish the County the required certificates of inspection or approvals.
- F. Copies of all test results shall be provided to the County as soon as they are available.
- G. Uncovering Work:
 - 1) If any Work required to be inspected, tested, or approved, is covered prior to such inspection, testing, or approval without written concurrence of the County, it must, if requested by the County, be uncovered for the County's inspection, testing, and approval, and replaced at the Contractor's expense.
 - 2) If, after written concurrence by the County to cover the Work, the County considers it necessary or advisable that the covered Work be observed, inspected, or tested by others, the Contractor, at the County's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the County may require, that portion of the Work in question, furnishing all necessary labor, tools, material, and equipment.
 - 3) If it is found that the uncovered Work is defective, the Contractor shall pay all costs arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory repairing, replacing, or reconstructing the defective Work, including but not limited to all costs of repair or replacement of work of others.
 - 4) If it is found that the uncovered Work previously consented in writing by the County to be covered, is not found to be defective, the Contractor shall submit a Claim to the County for an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

H. Correction or Removal and Replacement of Defective Work: Within seven (7) days of issuance of a written notice of defective Work by the County, the Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by the County, remove it from the Jobsite and replace it with Work that is not defective. The Contractor shall pay all costs arising out of or relating to such correction or removal and replacement, including but not limited to all costs of repair or replacement of work of others, caused by the defective Work.

5.21 SANITARY REGULATIONS: Adequate sanitary facilities for the use of persons employed in the Work, properly secluded from public observations, shall be provided and maintained by the Contractor in such a manner and at such points as shall be approved by the County. These facilities shall be maintained at all times without nuisance and their use shall be strictly enforced. Upon completion of the Work, they shall be removed from the Jobsite, leaving it clean and free from nuisance.

5.22 SAFETY AND HEALTH REGULATIONS/ PROTECTION OF PROPERTY:

- A. The Contractor shall comply with, and ensure that the Contractor's personnel and subcontracted personnel comply with all current applicable local, State and Federal policies, regulations, laws, and standards relating to safety and health, including the Occupational Safety and Health Administration (OSHA) for the General Industry (29 CFR 1910) and for the Construction Industry (29 CFR 1926). The Contractor shall follow the Federal Environmental Protection Agency Standards and Florida Trench and Safety Act under Florida Statutes Section 553.60-553.64. The Contractor shall observe, follow and comply with all OSHA permitting instructions and regulations for Confined Space Entry, 29 CFR 1910.146 as related to the project. These forms can be obtained electronically from OSHA's website. The Contractor shall post all required OSHA notices at the Jobsite.
- B. The Contractor shall be solely 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:
 - 1) All persons on the Jobsite or who may be affected by the Work.
 - 2) All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Jobsite.
 - 3) Other property at the Jobsite or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of the Work.
- C. The Contractor shall comply with all applicable laws and regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when execution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- D. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be promptly remedied by the Contractor.
- E. The Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed, and the County has issued the Final Completion and Acceptance Certificate.

5.23 HAZARDOUS ENVIRONMENTAL CONDITIONS:

- A. If the Contractor encounters a hazardous environmental condition or if the Contractor or anyone for whom the Contractor is responsible creates a hazardous environmental condition, the Contractor shall immediately:
 - 1) Secure or otherwise isolate such condition.
 - 2) Stop all Work in connection with such condition and in any area affected thereby except in an emergency.
 - 3) Notify the County promptly and thereafter within 48 hours in writing confirming such notice.
 - 4) The County shall promptly determine the necessity for the County to retain a qualified expert to evaluate such condition or take corrective action, if any.
- B. In such cases where a hazardous environmental condition is discovered, the Contractor shall move to another area of the Work until the issue is resolved.
- C. The Contractor shall not resume Work in connection with such condition or in any affected area until after the County has obtained any required permits or clearances related thereto and delivered to the Contractor written notice:
 - 1) Specifying that such condition and any affected area is or has been rendered safe for the resumption of the Work; or
 - 2) Specifying any special conditions under which such Work may be resumed safely.
 - 3) The County shall prepare an IFCA for an adjustment in Contract Times, as a result of such delay, and stipulate any special conditions under which Work is agreed to be resumed by the Contractor.
- D. Contractor shall not be responsible for any hazardous environmental condition uncovered or revealed at the Jobsite which was not shown, indicated, or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a hazardous environmental condition created with any materials brought to the Jobsite by Contractor, Subcontractors, suppliers, or anyone else for whom Contractor is responsible.

5.24 SALVAGED EQUIPMENT AND MATERIALS:

- A. Unless otherwise directed by the County, salvaged materials, equipment or supplies are the property of the County and shall be kept clean and properly stored as directed by the County.
- B. Should the County choose to not accept these materials they shall be removed from the Project site by the Contractor as soon as practical.
- C. All materials excavated by the Contractor and suitable for fill shall be stockpiled and used by the Contractor as fill material for the Work. Excess suitable fill material not required for the Work shall remain the property of the County and shall be transported by the Contractor within a 5-mile radius and unloaded at a location determined by the County at no additional cost.
- D. All materials excavated by the Contractor and not suitable for fill, and material not required by the County shall be hauled and be properly disposed of by the Contractor at no additional expense to the County.

5.25 CLEAN-UP AND DISPOSAL:

- A. Cleanup and restoration shall be accomplished on a continuing basis throughout the performance of the Work, and in such a manner as to maintain a minimum of nuisance and interference to the County, residents and workers at or adjacent to the Jobsite.
- B. Removal of Debris during Performance of the Work: During the progress of the Work, the Contractor shall keep the Jobsite and other areas free from accumulations of construction debris, waste materials, rubbish, and other debris. The Contractor shall, within a reasonable time, dispose of all residues resulting from the Work, and shall remove and properly dispose of any surplus excavation, broken pavement, concrete, brick, lumber, and other construction materials, and any refuse as these items accumulate.

- C. Removal and disposal of such construction debris, waste materials, rubbish, and other debris shall conform to applicable laws and regulations.
- D. Removal of Temporary Facilities: At the time the need for temporary structures or temporary utility services or a substantial portion thereof has ended, or when the temporary structures and services have been replaced by permanent Work, and not later than the time of substantial completion, the Contractor shall promptly remove the installations. The Contractor shall complete and restore work, which may have been delayed or affected by the installation and use of the temporary facilities, including any required repairs, grading, restoration, and cleaning of exposed surfaces, and replace any work damaged beyond acceptable restoration.
- E. Final Clean-up: Prior to Final Completion and Acceptance of the Work, the Contractor shall clean the Jobsite and the Work and make it ready for utilization by the County. At the completion of the Work, the Contractor shall remove from the Jobsite all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition or better, all property not designated for alteration by the Contract Documents.

6.0 COUNTY'S RIGHTS

- 6.1 COUNTY ACCESS TO WORK: The County, including its authorized representatives and agents, and governmental agency representatives with jurisdictional interests, shall at all times have access to the Work wherever it is in preparation or progress, and may visit the Jobsite and observe the Work to ensure compliance with the Contract. The Contractor shall provide the County and its agents proper and safe conditions for such access and advise them of the Contractor's Jobsite safety procedures and programs so that they may comply.
- 6.2 COUNTY MAY STOP WORK:
 - A. If the Contractor's work is repeatedly defective, or the Contractor fails to supply sufficient skilled workers or suitable materials or equipment to complete the Work, or fails to correct a safety issue brought to the Contractor's attention, or fails or neglects to perform the Work in such a way that the completed Work will not meet the Contract Time requirements, or violates in a substantial way any provisions of the Contract, the County, may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.
 - B. The County may terminate payments to the Contractor for those portions of the Work affected by a stop work order.
 - C. The Contractor, upon receipt of a stop work order, shall, after securing the Jobsite, immediately cease work, and shall not be entitled to a Change in Contract Price or Contract Times as a result of such order.
 - D. The Contractor may be allowed to resume work following the submission and acceptance of a work plan addressing the cause of the stop work order, and provided that the corrective work is carried out within seven (7) days of resuming work.
- 6.3 COUNTY MAY CORRECT DEFECTIVE WORK:
 - A. The County may, without prejudice to other remedies the County may have, issue a stop work order to the Contractor for failure or neglect to carry out the provisions of the Contract as noted above, and after seven (7) days written notice to the Contractor, proceed to correct or remedy any such deficiencies either by its own forces or through the services of another contractor.
 - B. In such case, an appropriate IFCA or Contract Amendment shall be issued deducting from payments then or thereafter due the Contractor the reasonable costs of correcting such deficiencies, including the County's expenses for additional services made necessary by such default, neglect, or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor, or Surety, shall pay the difference to the County.

C. The Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by the County of the County's rights and remedies under the Contract.

6.4 RIGHT TO RETAIN DEFECTIVE WORK:

A. If, instead of requiring correction or removal and replacement of defective Work, the County finds and decides that any part or portion of the imperfect work is not of sufficient magnitude or importance as to make the Work dangerous or undesirable, or if the removal of such Work would create conditions which are dangerous or undesirable, and the County prefers to accept the defective Work or portions thereof, the County may do so. Any portion of work not so accepted by the County shall be removed and replaced as required by the Contract Documents. The Contractor shall be responsible for all attributable costs of the County's evaluation of and determination to accept such defective Work as well as the diminished value of the Work to the extent not otherwise due to the Contractor.

B. If any such acceptance of defective Work occurs prior to final payment, an IFCA may be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and the County shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted, and the cost of evaluating the defective Work for acceptance. If the acceptance occurs after final payment, the appropriate costs will be paid by the Contractor, or Surety, to the County.

C. Such retention of a portion of the Work that would be considered defective shall not constitute a waiver by the County of the Contractor's remaining obligations under the Contract.

6.5 COUNTY MAY SUSPEND WORK:

A. The County may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) consecutive days by notice in writing to the Contractor. Such Notice shall fix the date on which the Work shall be resumed. The Contractor shall resume the Work on the date so fixed. The Contractor may request an increase in Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if a timely Claim is made pursuant to the Contract.

6.6 COUNTY MAY TERMINATE FOR CAUSE:

A. The occurrence of any one or more of the following events will justify termination for cause:

- 1) The Contractor's persistent failure to perform the Work in accordance with the Contract Documents including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the approved Construction/Progress Schedule, adjusted from time to time pursuant to the Contract Documents.
- 2) The Contractor's disregard of laws or regulations of any public body having jurisdiction.
- 3) The Contractor's disregard of the authority of the County's authorized agents.
- 4) The Contractor's failure to repair or remove and replace defective materials or Work.
- 5) The Contractor's violation in any substantial way of any provisions of the Contract.

B. If one or more of the events identified above occur, the County may, after giving the Contractor and Surety seven (7) days written notice of its intent to terminate the services of the Contractor:

- 1) Exclude the Contractor from the Jobsite, and take possession of the Work and of all the Contractor's tools, appliances, construction equipment, and machinery at the Jobsite, and use the same to the full extent they could be used by the Contractor (without liability to the Contractor for trespass or conversion),
- 2) Incorporate in the unfinished Work all materials and equipment stored at the Jobsite or elsewhere for which the County has paid the Contractor, and
- 3) Complete the Work as the County may deem expedient.

C. If the County proceeds as provided above, the Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price (less any unused Allowance balances), exceeds all claims, costs, losses, and damages sustained by the County arising out of or relating to completing the Work, such excess will be paid to the Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, the Contractor or Surety shall pay the difference to the County. When exercising any rights or remedies allowed under the Contract, the County shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding the above, the Contractor's services will not be terminated if the Contractor begins within seven (7) days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure all such noted failures within no more than thirty (30) days of receipt of said notice.

E. Where the Contractor's services have been so terminated by the County, the termination will not affect any rights or remedies of the County against the Contractor then existing or which may thereafter accrue. Any retainage or payment of moneys due the Contractor by the County will not release the Contractor from liability under the Contract.

F. In the case of termination of the Contract for any cause before completion, the Contractor, if notified to do so by the County, shall promptly remove any part or all of the Contractor's equipment and supplies at the expense of the Contractor.

6.7 COUNTY MAY TERMINATE FOR CONVENIENCE:

A. Upon seven (7) days written notice to the Contractor, the County may, without cause and without prejudice to any other right or remedy of the County, terminate the Contract for the County's convenience. In such case, the Contractor shall, upon properly securing the Jobsite, be paid for (without duplication of any items):

- 1) Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination.
- 2) Documented expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work.
- 3) Documented claims, costs, losses, and damages incurred in settlement of terminated contracts with subcontractors, suppliers, and others.
- 4) Reasonable expenses directly attributable to termination.

B. The Contractor shall not be paid on account of loss of anticipated profits or revenue for Work not completed by the Contractor, or for other economic losses arising out of or resulting from such termination.

6.8 PARTIAL UTILIZATION:

- A. Prior to Substantial Completion of all the Work, the County may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which the County and the Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the County for its intended purpose without significant interference with the Contractor's performance of the remainder of the Work, subject to the following conditions:
- 1) The County at any time may request the Contractor in writing to permit the County to use or occupy any such part of the Work which the County believes to be ready for its intended use and substantially complete. If and when the Contractor agrees that such part of the Work is substantially complete, the Contractor will certify to the County that such part of the Work is substantially complete and request the County to inspect that portion of the Work, and issue, with the County's approval, a certificate of Substantial Completion for that part of the Work.
 - 2) The Contractor at any time may notify the County in writing that the Contractor certifies any such part of the Work ready for its intended use and substantially complete and request the County to inspect that portion of the Work, and, with the County's approval, issue a certificate of Substantial Completion for that part of the Work.
 - 3) Within a reasonable time after either such request, the County and the Contractor shall make an inspection of that part of the Work to determine its status of completion. If the County does not consider that part of the Work to be substantially complete, the County will notify the Contractor in writing giving the reasons therefore. If the County considers that part of the Work to be substantially complete, the County will prepare a Certification of Substantial Completion of that part of the Work, designating the date of the Substantial Completion, noting any work remaining to bring that portion of Work to final completion, and list the division of responsibilities between the County and the Contractor for partial utilization of the Work, including the start of any warranty period and the transfer of property insurance coverage, where applicable.

6.9 PROJECT AUDIT:

- A. Authorized representatives of the County, its agents, and governmental agency representatives with jurisdictional interests, shall have access to all books, documents, papers, and records of the Contractor specifically relating and directly pertinent to the Work for the purpose of conducting a project audit.
- B. The Contractor, its employees and agents including all Subcontractors, shall allow access to its records during normal business hours following sufficient notification.

7.0 CONTRACTOR'S RIGHTS AND RESPONSIBILITIES

7.1 GENERAL:

- A. The Contractor shall supervise, inspect, 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. The Contractor shall strictly comply with all specifications, drawings and terms of the Contract.
- B. The Contractor shall cooperate with the County during the progress of the Work, and coordinate with utility companies and the County's other contractors (when applicable), working at or in the vicinity of the Jobsite, to ensure continuous workflow while minimizing delays.

- C. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, procedures, and coordination of all portions of the Work under the Contract.
- D. It is understood and agreed that the Contractor, by careful examination, is satisfied as to the nature and location of the Work, the conditions of the Jobsite, the character, quality and quantity of the materials to be employed, the character of equipment and facilities needed for the execution of the Work, the general and local conditions, and all other matters which can in any way affect the performance of the Work.
- E. The Contractor shall provide and assume full responsibility for all plant, materials, equipment, tools, labor, services, transportation, construction equipment and machinery, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, bonds and insurance policies, overhead, office, and all other costs and expenses of facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- F. The Contractor shall be responsible to the County for acts and omissions of the Contractor, the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.
- G. The Contractor shall be responsible for inspection of portions of work performed by others to determine that such portions are in proper condition to receive subsequent Work by the Contractor. The Contractor shall immediately notify the County if any such work is defective or unsuitable to accept the Work by the Contractor.

7.2 SUPERVISION AND SUPERINTENDENCY:

- A. The Contractor representative named in the Construction Contract, shall have full power and authority to act on the Contractor's behalf, in all matters dealing with the Contract. All communications and directions given to, received by, or received from the Contractor representative shall be binding on the Contractor.
- B. The Contractor shall assign a competent superintendent, who may be the Contractor's representative or authorized designee, who shall personally oversee and direct the Work on a daily basis. The superintendent will be the Contractor's representative on the Jobsite and shall have complete authority to act on behalf of the Contractor. All communications and directions given to, received by, or received from the superintendent shall be binding on the Contractor, unless otherwise conveyed to the County in writing.
- C. The Contractor shall assign other supervisory personnel as necessary to assure faithful prosecution and timely delivery of services pursuant to the requirements of the Contract. The Contractor shall notify the County in writing of the names and credentials of the superintendent and supervisory personnel at the pre-construction conference.
- D. The Contractor representative and superintendent shall be the points of contact for the County.
- E. The Contractor representative and superintendent shall not be changed except by written consent of the County, unless this person or persons cease to be employed by the Contractor. The Contractor shall provide written notice to the County of any such changes within two (2) working days.

7.3 SUBCONTRACTORS AND MATERIAL SUPPLIERS:

- A. The Contractor shall provide an initial list of proposed Subcontractors, including the portions of Work to be performed by each of the Subcontractors. The list of Subcontractors shall be finalized and submitted to the County at the pre-construction conference for approval. The list of material suppliers shall be developed through Shop Drawing reviews.

- B. If the County has reasonable objection to any Subcontractor or material supplier, whether identified in the Bid or subsequently, the Contractor shall submit an acceptable substitute without entitlement to any change in Contract Price. After acceptance by the County of any particular Subcontractor or material supplier, the Contractor shall make no substitution without written approval of the County, which will not be unreasonably withheld.
- C. The Contractor is fully responsible to the County for the acts and omissions of its Subcontractors and material suppliers, and of persons either directly or indirectly employed by them.
- D. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor or material/equipment supplier and the County.
- E. Work performed for the Contractor by a Subcontractor, and materials and equipment provided by material/equipment suppliers will be pursuant to appropriate Contracts between the Contractor and the Subcontractor or supplier, which specifically binds the Subcontractor or supplier to the applicable terms and conditions of the Contract for the benefit of the County.

7.4 LABOR:

- A. 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 Jobsite.
- B. The Contractor shall ensure that all key personnel, support personnel and other agents are fully qualified and capable to perform their assigned tasks. The County shall have the right to require the Contractor to remove personnel assigned at any level for their performance of the Work or conduct on the Jobsite.

7.5 REPORTING DISCREPANCIES:

- A. The Contractor's Review of Contract Documents Before Starting Work: Before undertaking each part of the Work, the Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. The Contractor shall promptly report in writing to the County any conflict, error, ambiguity, or discrepancy which the Contractor may discover and shall obtain a written interpretation or clarification from the County before proceeding with any Work affected thereby.
- B. The Contractor's Review of Contract Documents During Performance of Work: If, during the performance of the Work, the Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any law or regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any manufacturer/supplier, the Contractor shall immediately report it verbally to the County and provide written, along with a fully detailed explanation, within 48 hours of discovery. The Contractor shall not proceed with the Work affected thereby (except in an emergency) until receiving a written interpretation or clarification from the County.

7.6 PROJECT LAYOUT:

- A. The Contractor is responsible for laying out the Work based on the reference points provided by the County, and shall protect and preserve the established reference points and any property monuments existing prior to the start of the Work. The Contractor shall make no changes or relocations to these reference points or property monuments without the prior written approval of the County.

- B. The Contractor shall report to the County whenever any reference point or property monument is lost or destroyed or requires relocation. If such relocation is necessary due to changes in grade or Work location, the County will be responsible for their removal and relocation. If the reference point or property monument is lost or destroyed as a result of the Contractor's operations, the Contractor shall be responsible for the accurate replacement or relocation of such reference point or property monument by a State of Florida Registered Professional Surveyor and Mapper.
 - C. The Contractor shall furnish all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies, as necessary and required for the Work, and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the Work.
- 7.7 COORDINATION WITH OTHER CONTRACTORS: The Contractor shall coordinate the Work with other contractors that may be working in the Project vicinity performing other work.
- 7.8 EMERGENCIES: In emergencies affecting the immediate safety or protection of persons or the Work or property at the Jobsite or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. The Contractor shall give the County prompt Notice if the Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by or are required as a result of an emergency.
- 7.9 PATENT FEES AND ROYALTIES: The 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.
- 7.10 SAFETY REPRESENTATIVE: The Contractor shall designate a qualified and experienced safety representative at the Jobsite whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.
- 7.11 HAZARD COMMUNICATION PROGRAM: The Contractor shall be responsible for coordinating any exchange with the County of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employees at the Jobsite in accordance with laws or regulations.
- 7.12 RISK OF LOSS: Prior to the Final Completion and Acceptance of the Work by the County, risk of loss for the Work shall remain at the risk of the Contractor and said Contractor shall be required to repair, replace, renew and make good at the Contractor's own expense all damages caused by force or violence of the elements or any cause whatsoever, provided however, that in such cases the Contractor shall be entitled to a reasonable extension of time within which to complete the Work, unless the delay is due to the negligence, fault, or omission of the Contractor.
- 7.13 PROTECTION AND RESTORATION OF PUBLIC AND PRIVATE PROPERTY:
- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work on the part of the Contractor, or Subcontractors or agents, such property shall be restored by the Contractor, at the Contractor's expense, to its original or better condition to that existing before the damage was done, or the Contractor shall make good the damage in another manner acceptable to the County.
 - B. Should any claim be made by any adjacent property owner or occupant because of the performance of the Work, the Contractor shall promptly settle with such owners or occupants by negotiation or otherwise resolve the claim.

- C. Along the location of the Work, all sidewalks, streets, driveways, mailboxes, walks, lawns, landscaped areas, bushes, trees, shrubbery, irrigation systems and other above and below ground physical features shall be protected by the Contractor, and where disturbed or damaged, promptly restored to their original or better condition by use of similar or comparable materials. Fences, walls, and other features removed by the Contractor shall be replaced as soon as conditions permit. All grassed areas, which have been damaged by the Contractor, shall be re-graded, and sodded or seeded and mulched as directed by the County.
- D. Trees close to the Work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches and roots that are liable to damage because of the Contractor's operations, but in no case shall any tree be cut or removed without prior notification of the County.

All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials. The Contractor shall abide by the County's Tree Protection Ordinance.

- E. The protection, removal, replacement, and restoration of existing physical features along the line of Work shall be a part of the Work under the Construction Contract. Final acceptance will not be provided, and final payment will not be made until all public and private property has been restored to the satisfaction of the County.
- F. In case of failure on the part of the Contractor to promptly restore damaged property, or make good such damage or injury, the County may, after providing seven (7) days written notice to the Contractor, proceed to repair, rebuild or otherwise restore such property and the cost thereof will be deducted from any monies due or which may become due the Contractor under the Contract.
- G. Weather Conditions: Sarasota County is subject to severe weather conditions such as hurricanes, tropical storms, tornadoes, strong winds, heavy rains, lightning, and the like. It is the Contractor's responsibility at all times to: (1) monitor current and developing weather conditions; (2) to develop and implement appropriate contingency plans to ensure proper storage of materials, supplies, and equipment, and (3) to secure the Project site so as to not endanger public health and safety, or public and private property.
The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work, as required by the Contract Documents and all laws, codes, and standards. Contractor shall take all necessary precautions for the safety of, and protection to prevent damage, injury or loss to:
 - 1) Persons on and adjacent to the Site.
 - 2) The Work, including materials, supplies, and equipment incorporated therein.
 - 3) Public and private property adjacent to the Site.

7.14 PROTECTION OF ENVIRONMENTAL RESOURCES: The Contractor shall comply with all applicable Federal, State, and local environmental laws and regulations. The environmental resources within and adjacent to the Jobsite (not impacted by permit), shall be protected during the entire period of the Work. The Contractor shall confine activities to areas defined by the Contract Documents.

7.15 PROTECTION OF HISTORIC AND ARCHEOLOGICAL RESOURCES:

- A. If historic or archeological resources are encountered during the Contractor's operations, the Contractor shall notify the County immediately, stop Work in the area until directed to restart, and proceed as directed below.
- B. The Contractor shall comply with Sarasota County Ordinance #2004-073 and with the Historic Preservation chapter of Apoxsee: The Revised and Updated Sarasota County Comprehensive Plan.

- C. According to Florida Statutes Chapter 872, it is unlawful to disturb, vandalize, or damage a human burial.
- D. In such cases, the Contractor shall move to another area of the Work until the issue is resolved.

8.0 COUNTY'S RESPONSIBILITIES AND DUTIES

- 8.1 STATUS OF THE CONSTRUCTION PROJECT MANAGER: The Construction Project Manager shall be the authorized County representative with specific responsibilities and duties as defined by the County for management of specified portions of the Contract.
- 8.2 REVIEW AND APPROVAL OF THE WORK: The Contractor's Work shall at all times be subject to the review, testing and approval of the County or authorized designee(s). The County shall decide any and all questions which may arise as to the quality and acceptability of the materials and equipment furnished, the Work performed, the rate of progress of Work, the conditions of the Jobsite, the maintenance of schedules, the interpretation of the Contract Documents through the County's Administrative Agent, and all questions as to the acceptable performance of the Contractor relative to the requirements of the Contract Documents.
- 8.3 RESOLUTION OF DISCREPANCIES: In case of differences discovered and reported by the Contractor between the Construction Plans/Drawings and Technical Specifications, the County, through the Administrative Agent, shall make a determination whether the Construction Plans/Drawings or Technical Specifications represent the intent of the Contract, and such determination shall be communicated to the Contractor in writing. Should the County discover a discrepancy between the Construction Plans/Drawings and Technical Specifications, a written determination shall be provided to the Contractor.
- 8.4 RECOMMENDATION OF PROGRESS PAYMENTS:
 - A. The County will evaluate the Contractor's payment application and if in agreement, will sign the application indicating the County's recommendation to pay the amounts shown.
 - B. Should the County disagree with any item of Work shown on the application, the County will promptly return it to the Contractor for correction and re-submittal.
 - C. Should the Contractor disagree with the County's determination of Work completed and monies due, the Contractor may request approval of the Work items that are not in question by resubmitting the payment application and file a timely Claim in reference to items of disagreement. In such a case, the County shall recommend approval of the resubmitted payment application for only those items of Work recommended for payment.
- 8.5 INSPECTION AND EXAMINATION OF THE WORK:
 - A. The County and/or authorized designee(s), shall have free access to the Work of the Contractor at any time for purposes of inspection and testing, and shall be reasonably assisted by the Contractor in conducting such inspections and testing of the Work performed and the nature of same. Such assistance of the Contractor shall, if necessary, include the uncovering, testing or removal of portions of finished Work.
 - B. The County will not supervise, direct, control, or have authority over or be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with laws and regulations applicable to the performance of the Work.

- C. All materials and equipment shall be subject to inspection, examination and testing by the County at any time during manufacture, and at places where manufacturing of the materials and equipment is taking place. The County may reject defective materials and equipment during manufacture or before or after they have been incorporated into the Work. If the Contractor fails to replace defective Work or rejected materials and equipment, the County may replace such materials and equipment or correct such defective Work and charge the cost thereof to the Contractor.
- D. No final inspection, acceptance of Work, materials or equipment or final or interim acceptance of same by the County or certification of the Engineer/Architect of Record shall relieve the obligation of the Contractor to the County to do the Work in a good, workmanlike manner, and to furnish proper, specified equipment and materials, and to perform properly all terms and any obligations of the Contract.

8.6 PROJECT REPRESENTATIVE/INSPECTOR: The Construction Project Manager's duly authorized on-site Project Representative (PR), or the County's duly authorized Inspector may be assigned to the Project, or any part thereof, at any time. The presence or absence of the RPR/Inspector does not lessen the responsibility of the Contractor to perform the Work in accordance with the Contract Documents. In case of dispute between the Contractor and the PR/Inspector as to materials furnished, or the manner and method of performing the Work, the PR/Inspector has authority to reject materials or Work, and to stop the Work until the issue can be referred to, and decided by the County. The PR/Inspector is not authorized to revoke, alter, enlarge, relax, release, or amend any of the Contract requirements, nor to issue any instructions on, nor to approve or accept any portion of the Work, or materials, or equipment; nor are any of his/her actions, authorized or unauthorized, to be so construed.

8.7 RIGHT TO REJECT DEFECTIVE WORK:

- A. The County has the authority to reject Work which the County believes to be defective, or that the County believes will not produce a completed Work that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Work as a functioning whole as indicated by the Contract Documents. The County also has authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. Prompt notice of all defective Work of which the County has actual knowledge will be given to the Contractor.

8.8 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES:

- A. The Contractor shall submit Shop Drawings, product data sheets, and samples to the County for review and acceptance in accordance with the approved Schedule of Submittals.
 - 1) Shop Drawings: Submit number of copies specified in the Contract Documents. The Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show the services, materials, and equipment the Contractor proposes to provide and to enable review of the information as required for approval.
 - 2) Product Data: Submit number of product data sheets specified in the Contract Documents. The data sheets shall include standard printed information on materials, products, and systems not custom prepared, from which selections can be designated by the Contractor. Information shall include product dimensions, tolerances, manufacturer's recommendations for application and use, compliance with standards, and other information indicating that the material, product, or system meets or exceeds the Technical Specifications requirements.

- 3) Samples: Submit number of samples specified in the Contract Documents. Clearly identify each sample as to material, supplier, pertinent data such as catalog numbers, the use for which intended and other data as the Engineer/Architect of Record may require, enabling review of the information as required for approval.
- B. Where a Shop Drawing, product data sheet, or sample is required by the Contract Documents or the Schedule of Submittals, any related Work shall not be performed by the Contractor until the review and approval process of the pertinent submittal is complete. Shop Drawings, product data sheets, and samples submittals will be at the sole expense and responsibility of the Contractor.
 - C. The Engineer/Architect of Record will review, or take other appropriate action on submittals only for the limited purpose of checking for conformance with the information provided to the requirements of the Contract Documents. The Contractor shall be responsible for the adequacy of the performance of the materials and equipment submitted.
 - D. Submittal Procedures:
 - 1) Before submitting each Shop Drawing, product data sheet, and sample, the Contractor shall have determined and verified:
 - a. All field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto.
 - b. The suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work.
 - c. All information relative to the Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 - d. The review and coordination of each Shop Drawing, product data sheet, or sample with other Shop Drawings, product data sheets, and samples and with the requirements of the Work and the Contract Documents.
 - 2) Each submittal shall bear a stamp or specific written certification that the Contractor has satisfied its obligations under the Contract Documents with respect to the Contractor's review and approval of that submittal.
 - 3) With each submittal, the Contractor shall give the County specific written notice of any variations, that the Shop Drawing, product data, or sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing, product data sheet, or sample submittal; and, in addition, by a specific notation made on each Shop Drawing, product data sheet, or sample submitted to the County for each such variation.
 - E. Re-submittals: The Contractor shall make corrections required and shall return the required number of corrected copies of Shop Drawings and product data; and submit, as required, new samples for review and approval. The Contractor shall direct specific attention in writing to revisions other than the corrections called for on previous submittals.

8.9 "OR EQUAL" AND SUBSTITUTIONS:

- A. "Or Equal" Items: Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the specification or description is intended to establish the type, function, appearance, and quality of the material or equipment required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other suppliers may be submitted to the County for review under the following circumstances:

- 1) "Or-Equal" Items: If in the County's sole discretion an item of material or equipment proposed by the Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by the County as an "or-equal" item, in which case review and approval of the proposed item may, in the County's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. A proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. It is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics.
 - b. It will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Work as a functioning whole.
 - c. It has a proven record of performance and availability of responsive service.
- 2) The Contractor certifies that, if approved and incorporated into the Work:
 - a. There will be no increase in cost to the County or increase in Contract Times, and
 - b. It will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. Substitute Items:

- 1) If in the County's sole discretion an item of material or equipment proposed by the Contractor does not qualify as an "or-equal" item, it may be considered a proposed substitute item or it may be rejected entirely.
- 2) The Contractor shall submit sufficient information as provided below to allow the County to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by the County from anyone other than the Contractor.
- 3) The requirements for review by the County will be as set forth below, as may be supplemented elsewhere in the Contract Documents, and as the County may decide is appropriate under the circumstances.
- 4) A substitute will not be considered by the County unless there is an associated reduction in cost for its use.
- 5) The Contractor shall make written application to the County for review of a proposed substitute item of material or equipment that the Contractor seeks to furnish or use. The application shall include the following:
 - a. The Contractor shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design; be similar in substance to that specified; and be suited to the same use as that specified.
 - b. The Contractor will state the extent, if any, to which the use of the proposed substitute item will prejudice the Contractor's achievement of Substantial Completion on time; whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the County for other work on the Project) to adapt the design to the proposed substitute item; and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - c. The Contractor will identify all variations of the proposed substitute item from that specified; provide information on available engineering, sales, maintenance, repair, and replacement services; and shall contain an itemized estimate of all credits that will result directly or indirectly from use of such substitute item.

- 6) Special Warranty and Guarantee: The County may require the Contractor to furnish at the Contractor's expense a special performance warranty and guarantee with respect to any substitute accepted by the County.
 - C. COST REIMBURSEMENT: The County will record costs of evaluating a substitute proposed or submitted by the Contractor. Whether or not the County approves a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the County for the charges of evaluating each such proposed substitute. The Contractor shall also reimburse the County for the charges for making changes in the Contract Documents (or in the provisions of any other direct contract with the County) resulting from the acceptance of each proposed substitute.
 - D. CONTRACTOR'S EXPENSE: The Contractor shall provide all data in support of any proposed "or equal" or substitute at the Contractor's expense, and shall have no claim for additional cost or time should the item be rejected.
 - E. The County's approval or rejection of any "or equal" or substitute item submitted by the Contractor is final.
- 8.10 CLAIMS: All Contractor claims shall be submitted to the County for evaluation, review, and recommendation to the County. Claims must be filed in accordance with Article 12 of these General Conditions.
- 8.11 RECOMMENDATION OF SUBSTANTIAL COMPLETION AND FINAL PAYMENT:
- A. Upon receipt of a written request by the Contractor, the County shall schedule and conduct a Substantial Completion inspection. Should the County determine that the Work is Substantially Complete, the County will prepare and sign a Certificate of Substantial Completion in accordance with Article 13 of these General Conditions.
 - B. Upon receipt of a written request by the Contractor, the County shall schedule and conduct a Final Completion inspection. Should the County determine that the Work is complete and ready for the County's acceptance, the County will prepare and sign a Final Completion and Acceptance Certificate in accordance with Article 13 of these General Conditions.
- 8.12 COOPERATION: The County shall endeavor to cooperate with the Contractor to achieve successful completion of the Work. The County will promptly respond to requests for information and Construction Document interpretations; and will make all reasonable efforts to work with the Contractor to resolve any Claims or disputes.
- 8.13 AVAILABILITY OF LANDS FOR WORK:
- A. The County represents that it owns the lands, or is permitted to perform work on and over the land, upon which the Work is to be constructed. Upon request of the Contractor, the County shall furnish copies of available land surveys of the Jobsite. Permanent easements for permanent structures or utilities, and temporary easements shall be secured and paid for by the County.
 - B. The County shall notify the Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Jobsite with which the Contractor must comply in performing the Work, including any permit conditions required under any Federal, State, and local permit obtained by the County for the Work.
 - C. The Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of materials and equipment, together with right of access to the same.
- 8.14 SURVEY/PROJECT CONTROLS:
- A. The County shall provide Construction Plans/Drawings based on surveys establishing both horizontal and vertical reference points, which in the Engineer/Architect of Record's/County's judgment are necessary to enable the Contractor to layout the Work.

- B. The Contractor shall be responsible for laying out the Work based on the reference points provided, shall protect and preserve the established reference points and any property monuments existing prior to the start of the Work, and shall make no changes or relocations without the prior written approval of the County.

9.0 WORK BY OTHERS

9.1 CONSTRUCTION BY THE COUNTY OR BY SEPARATE CONTRACTORS:

- A. The County reserves the right to perform construction or operations related to the Project with the County's own forces, or under separate contracts with other contractors. The Contractor shall have no claims for delay or additional cost involved due to such actions by the County.
- B. The County shall be responsible for and provide coordination of the activities of the County's own forces and other contractors with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other contractors and the County in reviewing their construction schedules.

The Contractor shall make any revisions to the construction schedule deemed necessary after joint review and mutual agreement. This construction schedule shall then constitute the schedules to be used by the Contractor, the County's own work force, and separate contractors unless subsequently revised.
- C. Work in the Project area may also be performed by utility owners repairing or relocating their existing facilities or constructing new facilities. The Contractor shall coordinate his Work with that of these utility owners and cooperate with them fully.
- D. The County will endeavor to provide sufficient written notice to the Contractor prior to starting any such work by others.
- E. The Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and the County's forces, proper and safe access to the Jobsite, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs.
- F. If the proper execution or results of any part of the Contractor's Work depends upon work performed by others, the Contractor shall inspect such other work and promptly report to the County in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of the Contractor's Work. The Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with the Contractor's Work except for latent defects and deficiencies that may be later discovered in such other work.

10.0 COST OF THE WORK

10.1 LUMP SUM WORK:

- A. Where the Contract Documents provide that all or part of the Work is to be Lump Sum Work, the Contract Price will be deemed to include an amount equal to the sum of all the items appearing in the Bid Form as "Lump Sum."
- B. At the pre-construction conference, the Contractor will be required to submit a Schedule of Values which breaks down the Lump Sum items into smaller components as approved by the County, and includes the cost of each component. The Schedule of Values, which requires approval by the County, will be used to review and approve the Contractor's progress payments based on the approved Work performed on each component of the Lump Sum item in the previous month.
- C. Each Lump Sum item will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor's total expenses required to complete each such item on the Bid Form, including all overhead, profit, and direct and indirect expenses for each such identified item.

10.2 UNIT PRICE WORK:

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price work, initially, the Contract Price will be deemed to include an amount equal to the sum of all the unit prices bid for each separately identified item times the estimated quantity of each item as indicated in the Bid Form.
- B. The estimated quantities of items of Unit Price work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price work performed by the Contractor will be made by the County, and based on the approved actual quantities installed in the Work.
- C. Each Unit Price will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor's total expenses required to complete each item on the Bid Form, including all overhead, profit, and direct and indirect expenses for each separately identified item.
- D. The Contractor shall not be allowed an adjustment in the Contract Price if the quantity of any item of Unit Price work performed by the Contractor differs materially and significantly from the estimated quantity of such item indicated in the Bid Form.
- E. Final payment will be issued as recommended by the County, to reflect actual amounts due the Contractor for approved Work covered by Unit Prices, and the final Contract Price shall be correspondingly adjusted.

10.3 ALLOWANCES:

- A. It is understood that the Contractor has included in the Contract Price all allowances shown in the Bid Form and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to the County.
- B. The allowances indicated on the Bid Form and as defined in the Contract Documents, include the cost to the Contractor of materials and equipment required by the allowances to be delivered to the Jobsite, all applicable taxes, and the Contractor's costs for unloading and handling at the Jobsite. It is also agreed that all labor, equipment and installation costs, as well as overhead, profit, and other expenses contemplated for the Work have been included in the Contract Price, and no demand for additional payment on account of any of the foregoing will be valid.
- C. Contingency Allowance: The Contractor agrees that contingency allowance items, as defined in the Contract Documents, are for the sole use of the County.
- D. Final payment will be issued as approved by the County to reflect actual amounts due the Contractor on account of Work covered by allowances, and the final Contract Price shall be correspondingly adjusted.

11.0 CHANGES, DELAYS, AND TIME EXTENSIONS

11.1 CHANGES IN THE WORK:

- A. AUTHORIZED CHANGES IN THE WORK:
 - 1) Without invalidating the Contract and without notice to any surety, the County may, at any time or from time to time, order additions, deletions, or revisions in the Work by issuance of a Contract Modification. Upon receipt, the Contractor shall sign the Contract Modification and proceed with the Work involved, which will be performed under the applicable conditions of the Contract.
 - 2) If the Contractor is unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that is allowed by the Contract Modification, a Claim may be made as provided in Article 12 of these General Conditions.

B. UNAUTHORIZED CHANGES IN THE WORK:

- 1) The Contractor shall not make any changes or substitutions in the Work without the express written consent of the County, and only after evaluation by the County in accordance with the Contract Documents.
- 2) The Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented by an executed Contract Modification, except in the case of an emergency.

C. MINOR VARIATIONS TO THE WORK: The County may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Work as a functioning whole as indicated by the Contract Documents. These minor variations shall be accomplished by the Contractor, who shall perform the work involved promptly.

11.2 INTERIM FIELD CHANGE AGREEMENT (IFCA)/CONTRACT AMENDMENT:

A. A Contract Modification will either be an IFCA or a Contract Amendment, depending on whether the Contract Price stipulated in the Construction Contract will be exceeded or not.

- 1) An IFCA will be issued for changes within the general Scope of the Work that will not exceed the Contract Price. Once the IFCA is signed by the County and the Contractor, the Contractor shall promptly proceed with the Work involved.
- 2) A Contract Amendment will be issued for changes in the Scope of Work or any change that will increase the Contract Price. The County, with the Contractor's input, will determine the extent of adjustment to Contract Price and Contract Times and will prepare the Contract Amendment. The Contract Amendment shall be signed by the Contractor and approved by the County.

B. The IFCA/Contract Amendment will include a detailed description of the Work covered under the Contract Modification, and any adjustments in the Contract Price or Contract Times, or both which are agreed to by the parties. The IFCA/Contract Amendment may also include supporting data detailing the costs associated with the change in the Work.

C. Except in an emergency endangering life or property, no changes in the Work shall be performed by the Contractor unless a properly executed IFCA or Contract Amendment is received by the Contractor.

11.3 CHANGE IN CONTRACT PRICE:

A. The County, without invalidating the Contract, may order extra work or make changes by altering, adding to, or deducting from the Work; the Contract Price being adjusted accordingly. All such work shall be performed under the conditions of the Contract.

B. For any such changes in the Work, a Contract Modification shall be prepared and authorized as above described.

C. The value of any such changes in the Work, whether by additions or deletions in the original scope of the Work, shall be determined in one or more of the following ways:

- 1) By established Contract Unit Price.
- 2) By an agreed upon Unit Price if the item of Work is not included in the Bid Form.
- 3) By an agreed upon Lump Sum price.
- 4) By the Cost-Plus method described below.

D. Cost-Plus: In the event that unit prices are not available, or a lump sum price cannot be agreed upon, then the value of the change in the Work shall be determined by the following cost items during their time of use in completing the change in the Work:

- 1) Labor costs, including foremen, but excluding superintendent and overhead and profit.
- 2) Materials or equipment entering permanently into the work.
- 3) Construction plant and equipment (owned or rented).
- 4) Power and consumable supplies for the operation of power equipment.
- 5) Insurance, Social Security, retirement and unemployment contributions.

- 6) A fixed Contractor's fee in the form of a percentage applied to the above items.
- E. Labor and equipment costs under the Cost-Plus method shall be determined from the Labor and Equipment Rate Schedule provided by the Contractor at the start of Work on or about the date of the pre-construction conference. The Labor and Equipment Rate Schedule shall exclude overhead and profit.
- F. Contractor's Fee: The Contractor's fee for overhead and profit under the Cost-Plus method shall be determined as follows:
 - 1) A mutually acceptable fixed fee, or
 - 2) Based on the following percentages:
 - a. For Work performed by the Contractor's work force: ten (10%) percent.
 - b. For Work performed by a Subcontractor, regardless of tier: fifteen (15%) percent.
 - c. Maximum Contractor's fee for overhead and profit under the Cost-Plus method: 15%
- G. The amount of credit to be allowed under the Cost-Plus method by the Contractor to the County for any change in the Work which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in the Contractor's fee by an amount equal to ten (10%) percent of such net decrease.
- H. When both additions and credits are involved in any one change in the Work under the Cost-Plus method, the adjustment in the Contractor's fee shall be computed on the basis of the net change in the costs.
- I. The value of the changes in the Work shall be determined at the time that the IFCA or Contract Amendment is authorized and agreed upon. No change in the Work shall proceed until a fully signed and authorized IFCA or Contract Amendment is received by the Contractor.

11.4 CHANGE IN CONTRACT TIMES:

- A. Time extensions for changes in the Work or allowable delays, will depend upon the extent, if any, by which the changes or delays cause additional time in the completion of the critical path elements of Work as shown on the most current Construction/Progress Schedule. The IFCA/Contract Amendment granting the time extension may provide that the Contract Time be extended only for those specific elements so delayed. The remaining Contract completion dates for all other portions of the Work will not be altered. Approved time extensions will provide for an adjustment of Contract Times under the resulting revised Construction/Progress Schedule.
- B. The Contract Times may only be changed by an IFCA or a Contract Amendment.
- C. If the Contractor does not agree with the Contract Times adjustment approved by the County, the Contractor may make a written Claim, provided the Claim is timely and submitted in accordance with the provisions of Article 12 of these General Conditions.

11.5 DELAYS AND TIME EXTENSIONS:

- A. No Claims for Delays:
 - 1) No claim for damages or any claim other than for an extension of Contract Times shall be made or asserted against the County by reason of any delays caused by the County or others.
 - 2) The Contractor shall not be entitled to an increase in the Contract Price or payment or compensation of any kind from the County for direct, indirect, consequential, impact or other costs, expenses, or damages, including but not limited to cost of acceleration or inefficiency, arising because of delay, disruption, interference or hindrance from any cause.
 - 3) This provision shall not preclude recovery of damages by the Contractor for hindrances or delays due solely to bad faith or willful, malicious, or grossly negligent conduct on the part of the County or its agents.

B. Delay Claims: No extension of Contract Times shall be granted by the County unless a timely Claim is made by the Contractor in writing to the County within seven (7) days of the event or incident causing the delay. The Contractor shall demonstrate in its Claim the impact on the critical path of the Construction/Progress Schedule to justify the extension of time requested. Any identified float is not time for the exclusive use or benefit of either the County or the Contractor. Extensions of time for performance may be granted by the County only to the extent that equitable time adjustments for the activity or activities affected exceed the total float. Such justification must be submitted, in writing, within fifteen (15) days of the Claim. If the Contractor can, or could have moved to another part of the Work without affecting the Construction/Progress Schedule's critical path, a time extension will not be granted by the County.

- 1) Delays by the County: If the Contractor should be delayed at any time in the progress of the work by any act or neglect of the County or its agents or employees, or by any other contractor employed by the County, or by utility owners, or by changes ordered in the Work, or by fire, unusual delay in transportation, unavoidable casualties or by delay authorized by the County pending mediation, or by any cause which the County determines justifies the delay, then the time of completion may be reasonably extended by the County.
- 2) Utility Conflicts: The Contractor may be granted an extension of time for delays caused by utility conflicts discovered during the prosecution of the Work, provided a timely Claim is submitted, and the Contractor was unaware of such potential conflict. If, however, the potential conflict was shown on the Construction Plans/Drawings and the Contractor failed to uncover the potential conflict ahead of the Work, the Claim for additional time will not be granted.
- 3) Rain Delays: Reasonable extensions of time, as determined by the County, will be granted to the Contractor for time lost due to rainfall over and above the norm for the County, based on U.S. Weather Bureau statistics. If the Contractor can show that the rain caused additional delays at the Jobsite beyond the actual rain events, additional time extensions may be granted.
- 4) Force Majeure: The Contractor will be granted a reasonable time extension for a Force Majeure occurrence: an unexpected event that crucially affects the Contractor's ability to perform the Work, and includes forces of nature (Act of God), such as natural fires, floods, hurricanes, tornados, epidemics; or an event beyond the Contractor's control, such as major workers strikes, government shut down; or other major catastrophic events. Except as otherwise expressly provided herein, neither party shall be liable for any delay due to causes not reasonably within its control, including but not limited to, acts of civil or military authority, including courts and regulatory agencies, acts of God, war, riot or insurrection, inability to obtain required construction permits, blockades, embargoes, sabotage, epidemics, fires, floods, strikes, lockouts or other labor difficulties, provided such labor difficulties do not arise from inequitable labor practices. In the event of any delay resulting from such causes, the time for performance hereunder shall be extended for a period of time reasonably necessary to overcome the effect of such delays. This shall constitute the sole remedy to either party in the event of such delays.
- 5) Time Extension Only: Should the Contractor be delayed in the commencement, prosecution or completion of the work by the act, omission or default of the County, or anyone employed by them on the Project, or utility owners or other contractors, or the results of differing subsurface or physical conditions, or the discovery of hazardous environmental conditions, then the Contractor may submit a Claim for an adjustment of Contract Times if justified and as approved by the County, and there shall be no damages for delays.
- 6) Contractor Delays: The Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of the Contractor. Delays attributable to and within the control of a Subcontractor or supplier shall be deemed to be delays within the control of the Contractor.

- 7) Delay of Other Projects: The County shall not be liable to the Contractor for any claims, costs, losses, or damages, including reasonable attorney's fees, and court costs sustained by the Contractor on or in connection with any other project or anticipated project resulting from delays of any kind.

11.6 NOTICE TO SURETY: When required, it is the Contractor's responsibility to provide notice to its Surety of any changes affecting the general scope of the Work or change in the Contract Price or Contract Times, and to ensure that the amount of the applicable Performance and Payment Bond be adjusted accordingly.

- A. IFCA: The Contractor shall furnish proof of notice to Surety of an adjustment to the Contract Times by providing the County with a copy of a letter confirmation from the Surety within fifteen (15) days following the issuance of the IFCA affecting the change.
- B. Contract Amendment: The Contractor shall furnish, with the executed Contract Amendment, a performance and payment bond rider, or similar instrument approved by the County, signed by an authorized Surety representative, in the amount of any addition to the Contract Price affected by the Contract Amendment.

12.0 CLAIMS AND DAMAGES

12.1 TIME OF CLAIM:

- A. No claim of the Contractor shall be allowed by the County unless:
 - 1) The Contractor has given written notice to the County within seven (7) Days of the incident arising to the Claim.
 - 2) Within fifteen (15) Days after the Contractor has given the written Notice, the Contractor shall submit to the County a detailed claim setting forth the Contractor's justification for adjustments in Contract Price, Contract Times, or both, or other matters in dispute or question, in accordance with the Contract.
- B. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment has been made under the Contract.

12.2 VALUE OF CLAIM:

- A. The value of a Claim will be limited to only those additional or incremental costs required because of any change in the Work. Such costs shall be in amounts no higher than those prevailing in the locality of the Work.
- B. The procedure for determining the value of the Claim shall be as set forth in Article 11 – Changes, Delays, and Time Extensions.

12.3 CLAIM FORM:

- A. The responsibility to substantiate a Claim shall rest with the party making the Claim.
- B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of the event or events giving rise to the Claim.
- C. Documentation: The Contractor will provide a narrative of the basis of the Claim, including all details and supporting documentation relating to the Claim. The Contractor shall establish and maintain records of all such details and documentation in accordance with generally accepted accounting practices and submit this information, along with any associated itemized cost breakdown and/or time adjustment calculations, in a form acceptable to the County.

12.4 CLAIMS FOR CONTRACT PRICE AND CONTRACT TIMES ADJUSTMENT:

- A. A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 11.3 above.

B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 11.4 above.

12.5 CONTINUATION OF THE WORK: The Contractor shall carry on the Work and adhere to the Construction/ Progress Schedule during all disputes, claims, or disagreements with the County. No Work shall be delayed or postponed pending resolution of any disputes, claims, or disagreements, except in the case where Work is stopped by the County in accordance with the Contract, or as the County and the Contractor may otherwise mutually agree in writing.

12.6 COUNTY'S ACTION:

A. The County will review each Claim and, within fifteen (15) days after receipt of the last submittal of the Contractor, take one of the following actions in writing:

- 1) Deny the Claim in whole or in part setting forth the reasons for the decision.
- 2) Suggest a compromise between the parties.
- 3) Recommend approval of the Claim, and prepare an IFCA or Contract Amendment adjusting the Contract Price, or Contract Times, or both for the County's approval.
- 4) Notify the parties that the County is unable to resolve the Claim. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- 5) In the event that the County does not take action on a Claim within said fifteen (15) days, the Claim shall be deemed denied.

B. The County's written action, or inaction will be final and binding upon the Contractor, unless the Contractor invokes the dispute resolution procedure set forth in the Construction Contract within thirty (30) days of such action, inaction, or denial.

C. At its sole discretion, the County may deny the Claim in whole or in part. If such action is taken, the County shall provide written notice, with a copy to the Contractor, setting forth the reasons for such the County's decision. The County's written action will be final and binding upon the Contractor, unless the Contractor invokes the dispute resolution procedure set forth in the Construction Contract within thirty (30) days of such action.

13.0 PAYMENTS TO CONTRACTOR AND COMPLETION

13.1 GENERAL:

A. On or about the day of the month agreed to at the pre-construction conference, but not more often than once a month, the Contractor may submit for the County's review, a payment application covering the work completed the previous month up to the date of the application. The progress payment application shall be submitted on the form prescribed and approved by the County.

B. Contractor's Warranty of Title: The Contractor warrants and guaranties that title to all work, materials and equipment covered by any application for payment, whether incorporated in the Work or not, will pass to the County 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"). The Contractor will not sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion of it, or of rights, title, or interest therein without the express written consent of the County.

13.2 SUPPORTING DOCUMENTATION:

A. As-Builts: The Contractor shall maintain a set of as-built drawings at the Jobsite. At the time payment application is made, the County shall review the as-built drawings to ensure they are current, accurate, and reflect all changes in the Work as of the date of the application. The County may withhold payment if the as-built drawings have not been maintained by the Contractor in accordance with the Contract Documents.

- B. Schedule of Values: The Contractor shall submit the approved Schedule of Values with each progress payment application, indicating the amount of work completed for the previous month on the various components of the Lump Sum Bid Items. The County will review the Schedule of Values for accuracy, and, if in agreement, shall recommend payment.
 - C. Construction/Progress Schedule: With each payment application, the Contractor shall submit an updated Construction/ Progress Schedule using compatible scheduling software for review and approval by the County. The County may withhold payment if the Contractor fails to submit an updated and approved Construction/Progress Schedule. Should the schedule show that the Contractor is lagging behind the initial (baseline) schedule approved at the start of construction, the County may withhold additional sums as indicated on the "Retainage Table Guidelines" below.
 - D. Release of Liens: Beginning with the second application for payment, the Contractor shall furnish an affidavit stating that all laborers, material and equipment suppliers, and Subcontractors have been paid for Work covered by all previous months' applications for payment and shall obtain a partial or complete Release of Lien, as may be necessary, properly executed by all laborers, material and equipment suppliers, and Subcontractors sufficient to secure the County from any claims whatsoever arising out of the Work.
- 13.3 PROGRESS PAYMENTS: Progress Payments will be made once a month as Work progresses. Said payments will be based upon estimates prepared by the Contractor and approved by the County, of the value of the work performed and materials delivered. Any payment application not approved by the County shall be promptly returned to the Contractor for correction and re-submittal. The payment applications shall be submitted with all required documentation specified in the Contract Documents. Payment applications shall be prepared by the Contractor and submitted to: Sarasota County Public Works, 1001 Sarasota Center Boulevard, Sarasota, FL 34240, through the County's web-based contract management software. Should the web-based program be off-line for any length of time, the payment application may be mailed or hand delivered to: Sarasota County Public Works, 1001 Sarasota Center Boulevard, Sarasota, FL 34240 Attn: Project Manager. The Contractor shall contact the County to coordinate access to the website and training on the use of the County's contract management software.
- 13.4 PAYMENT FOR STORED MATERIALS: If requested by the Contractor, progress payments may be made to the extent of the delivered cost of materials to be incorporated in the Work, provided the materials are identified in the Bid Form, sufficiently covered from loss by appropriate property insurance, and meet the requirements of the Construction Plans/Drawings and Technical Specifications when delivered to the Jobsite or stored in an acceptable storage location off-site. The Contractor shall submit a "Stored Materials Affidavit" on the form prescribed, for materials for which payment is sought. In any event, progress payments for materials on hand shall not exceed the price of the item bid, and shall not be made without an invoice marked "PAID" and acceptable to the County.
- 13.5 RETAINAGE: From the total of the amounts ascertained as payable, an amount as indicated in the "Retainage Table" below will be deducted and retained by the County until completion of the entire Contract in an acceptable manner, unless otherwise released by the County in accordance with the Contract Documents. The balance, less all previous payments, shall be certified by the Contractor and recommended by the County for payment.

Retainage Table				
Value of Contract	% of Contract Amount (\$) Earned			Total Retainage at Substantial Completion*
	0 to < 25 % Retained**	25 to < 50 % Retained**	50 to Substantial Completion % Retained**	
Less than \$1M	10%	10%	5.0%	5.00%
>\$1M to <\$5M	5%	5%	2.5%	2.50%
>\$5M	5%	5%	2.5%	2.50%

* Provided Work has been performed within the Contract Times.

** The cost for deficient work that is not corrected may be estimated at an amount of up to one and one half (1.5) times the value of the work, and may be withheld in addition to the retainage amounts shown in the above table.

13.6 COUNTY MAY WITHHOLD PAYMENTS:

- A. The County may reduce or withhold payments in the amounts and to such extent as may be necessary to protect itself from loss for which the Contractor is responsible, including:
- 1) Defective Work not remedied.
 - 2) Third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the County is provided by the Contractor.
 - 3) Failure of the Contractor to make payments to Subcontractors or material or equipment suppliers.
 - 4) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price.
 - 5) Damage to the County or a separate contractor.
 - 6) Reasonable evidence that the Work will not be completed within the Contract Times, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay.
 - 7) Repeated failure to carry out the Work in accordance with the Contract Documents.

13.7 LIQUIDATED DAMAGES:

- A. For each day any work remains uncompleted after the Contract Times specified, the sum of money per day specified as liquidated damages in the Construction Contract will be deducted from any money due the Contractor. The Contractor will not pay liquidated damages for days in which an extension of time was granted pursuant to an approved IFCA or Contract Amendment. Allowing the Contractor to finish any of the Work after the Contract Times, including time extensions, does not waive the County's rights under the Contract.
- B. Additional County Expense: Should the Contractor fail to complete the Work within the specified Contract Times, it is agreed that for each day of overrun until final completion, all costs of construction management supervision and inspection furnished by the County shall be at the costs of the Contractor and/or his Surety. Such construction management costs shall be considered to be equal to the job payroll of the County plus 150 percent thereof for overhead, plus on-the-job mileage. Such costs will be deducted from monies due the Contractor at final payment. The amount of such expenses shall be construed to be in addition to other damages that might be assessed by the County.

- 13.8 PROMPT PAYMENT: The County shall pay the Contractor through payments issued by the Sarasota County Clerk of Courts in accordance with the Local Government Prompt Payment Act, Section 218.70 F.S., upon receipt of the invoice approved by the County and with written approval by the County's Administrative Agent or his assigned designee indicating that the services have been rendered in conformity with this Contract. The Contractor shall submit an invoice for payment on a monthly basis for those specific services that were completed during the invoicing period, as described in the Bid Form or as listed on the approved Schedule of Values.
- 13.9 SUBSTANTIAL COMPLETION:
- A. When the Contractor considers the entire Work, or a portion thereof (see GC 6.8), ready for its intended use, the Contractor shall notify the County in writing that the Work is substantially complete, listing items of work remaining to be completed by the Contractor (Punch List), and request that the County schedule a Substantial Completion inspection.
 - B. Promptly after the Contractor's notification, the County and the Contractor, shall make an inspection of the Work to determine the status of completion.
 - C. Should the County discover major Work items left uncompleted, or defective Work requiring correction or removal and replacement, the County shall discontinue the inspection, notify the Contractor of the deficiencies observed, and advise the Contractor to re-schedule the Substantial Completion inspection and of potential additional costs which may be incurred.
 - D. If uncompleted or defective Work is discovered during the initial inspection, the Contractor shall promptly complete the Work, and if required, remove from the Jobsite any and all materials and Work rejected by the County as failing to conform to the Contract Documents, whether incorporated into the work or not. The Contractor shall promptly replace the defective Work in accordance with the Contract Documents without expense to the County, including bearing the costs of making good all work by others damaged or destroyed by the Contractor's removal and replacement of such defective Work.
 - E. If the County considers the Work substantially complete with only minor corrections, adjustments, and clean-up items remaining, the County will prepare, sign, and date the Certificate of Substantial Completion, which shall fix the date of Substantial Completion. The County shall prepare a tentative list of items to be completed or corrected for final completion of the Project (Punch List), and attach the list to the Certificate. The items noted at the time of Substantial Completion should not be considered as all inclusive of the necessary actions required by the Contractor to achieve Final Acceptance and Completion. The Contractor and the County shall likewise sign the Certificate of Substantial Completion.
 - F. At the time of preparation of the Certificate of Substantial Completion, the County will deliver to the Contractor a written recommendation as to division of responsibilities pending final completion, acceptance, and payment between the County and the Contractor with respect to security, operations, safety, protection of the Work, maintenance, heat, utilities, insurance, and warranty and guarantee issues. These recommendations, once agreed upon by the County and the Contractor, shall be incorporated into the Certificate of Substantial Completion.
 - G. Substantial Completion shall be achieved within the Contract Time stipulated for Substantial Completion of the Work, including approved time extensions.

- H. Provided Substantial Completion is reached by the Contractor in a timely manner, and based on the value of the work remaining, the Contractor may submit a payment application requesting a reduction in retainage, prior to Final Completion and Acceptance. The County will review the request, and based on the value of work remaining, make a recommendation to release a portion of the retainage, while allowing sufficient funds to remain with which to complete the Work. The County may accept or reject this recommendation, based solely on its discretion, and information which may become available to the County, which may warrant withholding a larger portion or all of the retainage.
- I. The County shall have the right to exclude the Contractor from the Jobsite after the date of Substantial Completion subject to allowing the Contractor reasonable access to complete or correct items on the Punch List.

13.10 FINAL INSPECTION:

- A. When the Contractor has completed the Work and has provided all as-built information to the County in compliance with the Contract Documents, the Contractor shall notify the County in writing that the Work is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what is required to prepare the Work or a portion thereof for final inspection. When the County determines the Work or portion thereof is ready for final inspection, the County and the Contractor shall perform the final inspection. Upon completion of the final inspection, the County will prepare a list of defects, if any, of either commission or omission by the Contractor reasonably observable and determined under the conditions governing and restricting said final inspection.

When all such defects have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the Work has been completed in compliance with the Contract Documents as can best and reasonably be observed and determined under the conditions governing and restricting said final inspection. The County will then, pursuant to such inspection and re-inspection(s) (if required), certify as to completion of final inspection. It is understood that the certification covers only those items which can be physically inspected and that the County's certification indicates compliance within the standards of the construction industry as interpreted by the County.

- B. Should the final re-inspection find items not completed from the list of defects prepared as part of the final inspection, the Contractor shall be responsible for all additional construction management and inspection costs associated with correcting the items on the list of defects. The additional costs shall include construction management supervision and inspection furnished by the County required following the first re-inspection of the Work. Such construction management costs shall be considered to be equal to the job payroll of the County staff performing the re-inspections plus 150 percent thereof for overhead, plus on-the-job mileage. Such costs will be deducted from monies due the Contractor at final payment.

13.11 FINAL ACCEPTANCE:

- A. When the County recommends that the Work has been fully completed and all supporting documents required under the Contract Documents have been submitted and approved, the Contractor may make request for final payment. With the request for final payment, the Contractor shall furnish satisfactory evidence to the County that the Contractor has fully paid all claims for labor, materials, and equipment incurred in connection with the Work.

The Contractor shall provide all evidence and supporting documentation required by the Contract Documents to assure the County of complete compliance with all terms of the Contract. Such supporting documentation shall include extended insurance and bond coverage, as-built drawings, operations and maintenance manuals, system diagrams, warranties and guaranties and special warranties and guarantees, and other documents all as required under the Contract. When the County has satisfied itself as to compliance with the terms of the Contract and has recommended final completion, the County will notify the Contractor of final acceptance.

- B. Final acceptance of the Work will be evidenced by the "Final Completion and Acceptance Certificate" recommended and signed by the County and signed by the Contractor which will stipulate the date of final completion of the Contract and acceptance of maintenance by the County.

13.12 RELEASE OF LIENS: Neither the final payment nor any part of the retained percentage shall become due until the Contractor delivers to the County a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and in addition thereto, in either case, an affidavit stating that so far as the Contractor has knowledge or information, the releases and receipts include all labor, material and equipment supplies, and Subcontracting services for which a lien could be filed. The Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the County to indemnify the County against any lien. If any lien remains unsatisfied after all payments are made, the Contractor or Surety shall refund to the County all money payments that the County may be compelled to pay in discharging such liens, including all costs and interest, including attorney's fees and court costs.

13.13 FINAL PAYMENT:

- A. The County shall make final payment to the Contractor through payment issued by the Sarasota County Clerk of the Courts in accordance with the Local Government Prompt Payment Act, Section 218.70 F.S., upon receipt of the Contractor's final invoice and written approval of same by the County and the County's Administrative Agent indicating that all contracted services have been rendered in conformity with the Contract.
- B. Waiver of Claims: Acceptance of final payment by the Contractor shall constitute a waiver of all Claims by the Contractor against the County.

13.14 FINAL COMPLETION DELAYED: If, through no fault of the Contractor, final completion of the Work is significantly delayed, the County, shall upon receipt of the Contractor's final application for payment (for Work fully completed and accepted), and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.0 MANUFACTURER'S INSTRUCTIONS AND SERVICES

14.1 MANUFACTURER'S INSTRUCTION, SERVICE AND PARTS MANUAL: Before final payment is made, the Contractor shall furnish to the County, five (5) complete sets of manufacturer's instructions, and service and parts manuals on each piece of equipment furnished under the Contract. This includes descriptive literature, installation and operating instructions, maintenance requirements, lubrication requirements, parts lists, and other pertinent data. All data shall be bound in a hardback, 3-ring loose leaf binder(s).

14.2 MANUFACTURER'S SUPERVISION: The Contractor shall provide the services of a qualified representative of the manufacturer as required in the Contract Documents, to supervise the installation, testing, adjusting and starting-up and initial operation of each item of equipment furnished under the Contract. This representative shall also instruct the County's personnel on-site, at an agreeable date and time, as to the proper operation and maintenance of the equipment.

15.0 WARRANTY AND GUARANTEE PROVISIONS

15.1 WARRANTY AND GUARANTEE PROVISIONS:

- A. All materials and equipment furnished by the Contractor and all Work and workmanship involved in the Contract shall be free from defects due either to faulty materials or equipment or faulty workmanship and the same is hereby warranted and guaranteed by the Contractor for a minimum period of one (1) year from the date of the Final Completion and Acceptance Certificate issued by the County, or such longer period of time as may be prescribed by the terms of any applicable special guarantees and warranties required by the Contract Documents. All materials, equipment and workmanship furnished, installed and performed by the Contractor shall be warranted and guaranteed by the Contractor to the County to meet the required Technical Specifications and applicable standards; and to accomplish the purposes and functions of the Work as defined, detailed and specified in the Contract Documents.
- B. The County shall, following discovery thereof, promptly provide written notice to the Contractor and Surety of defective materials, equipment, or workmanship within the period of the warranty and guarantee. Any part of the material, equipment, or workmanship which does not comply with the warranty and guarantee shall be repaired or removed and replaced by the Contractor within ten (10) days from the date of the County's notice, at the Contractor's expense and at no cost to the County.
- C. In addition to the above repair and replacement costs, the Contractor is responsible to the County for all costs incurred with respect to all warranty and guarantee items under this Contract, including all construction management expenses such as expense for repetitive trips by the County required for the warranty and guarantee work. Such expense shall be considered to be equal to the job payroll of the County, plus 150 percent thereof for overhead plus on-the-job mileage.
- D. If the Contractor does not promptly comply with the terms of the County's written notice, or in the case of an emergency where delay would cause serious risk of loss or damage, the County may, after providing notice to the Contractor and Surety, have the defective Work corrected or repaired, or may have the defective Work removed and replaced. All claims, costs, losses, and damages, including but not limited to all fees and charges for construction management and inspection, attorneys, and other professionals, and all court costs arising out of or relating to such correction or repair or such removal and replacement, including but not limited to all costs of repair or replacement of work of others resulting there from, will be paid by the Contractor or Surety.
- E. Where defective Work and damage to other work resulting from such defective Work has been corrected or removed and replaced, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- F. The warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of warranty or breach of guarantee that the County might have against parties other than the Contractor, and do not constitute exclusive remedies of the County against the Contractor and are not intended to and shall not limit any other rights, remedies, or causes of action which the County might exercise against the Contractor, and shall not alter or modify the application of the Statute of Limitations as established by the Statutes of the State of Florida.
- G. Survival of Obligations: All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations stipulated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of the Contractor.

16.0 MISCELLANEOUS

16.1 CERTIFIED CHEMICALS:

- A. The Contractor shall only use U.S.D.A. or E.P.A. or F.D.A. certified chemicals during the performance of all Work under the Contract. All chemicals used in or furnished for the Work, whether herbicide, pesticide, disinfectant, polymer, reactant or other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residue shall be in strict conformance with manufacturer's instructions and local, State and Federal rules and regulations.
- B. The Contractor shall submit two (2) copies of all chemical Material Safety Data Sheets (M.S.D.S.) information forms to the County. One (1) set of M.S.D.S. information forms shall be posted at the Jobsite at all times and shall be available for inspection.

16.2 FUELS ADJUSTMENTS: The County will not adjust the Contract Price to reflect increases or decreases in gasoline and diesel fuel prices from those in effect on the Effective Date of the Contract.

16.3 EQUIPMENT MAINTENANCE: Equipment shall be maintained to prevent fuel, oil, and lubricant spills. Refueling, repairs, and lubrication will be performed at safe distances from any watercourse or drainage conveyance devices. Should a fuel or oil leak or hydraulic pipe rupture occur during construction, the Contractor's operators shall immediately cease operation and remove the equipment to a safe area and take prompt action to minimize damage and safeguard the Jobsite. The Contractor shall immediately report the spill or discharge in accordance with applicable State or Federal rules and regulations; the requirements of the Florida Statute Chapter 376 Pollution Discharged Prevention and Removal will also be followed. In addition, the County shall immediately be notified.

16.4 SPILL PREVENTION/CONTAINMENT: An OSHA-approved spill containment kit must be kept at the Jobsite and staging area(s), and shall be sized for the maximum potential spill/leak volume associated with the largest single equipment unit at the Jobsite. It is the Contractor's responsibility to provide and maintain the required spill containment equipment.

16.5 DISPOSAL OF POLLUTANTS: The Contractor shall provide tanks or barrels to be used for off-site disposal of chemical pollutants such as drained lubricating or transmission oils, greases, etc. produced as a by-product of the Work. Washing, fueling or servicing of equipment will not be permitted where spillage or wash water can enter any watercourse or drainage conveyance device. Removal and disposal of all pollutants shall be in strict accordance with all local, State and Federal rules and regulations.

END OF GENERAL CONDITIONS

SECTION 8

**SUPPLEMENTAL
GENERAL
CONDITIONS
AND
SPECIAL
CONDITIONS**

SECTION 8

**SUPPLEMENTAL
GENERAL
CONDITIONS**

SUPPLEMENTAL GENERAL CONDITIONS

1.0 DEFINITIONS AND TERMS

ADD the following Definitions to the General Conditions Section 1.1 GENERAL:

DOH: Sarasota County Department of Health

FDEP: Florida Department of Environmental Protection

NASSCO: National Association of Sewer Services Companies

STANDARD SPECIFICATIONS: Standard Specifications shall refer to the current edition of the FDOT's *Standard Specifications for Road and Bridge Construction*, unless otherwise specified herein.

Where FDOT specifications refer to "Department", "Engineer", "Engineer of Tests", or "Division of Tests", it shall mean the County.

UTILITY SYSTEMS CODE: All construction shall meet or exceed the requirements of the Sarasota County *Uniform Water, Wastewater and Reclaimed Water Systems Code*, latest revision, and the Contract Documents. In case there is a conflict between the Code and Specification, the most stringent requirement shall be met.

CHANGE the following Definitions to the General Conditions Section 1.1 GENERAL:

CONSTRUCTION PROGRESS SCHEDULE: **REMOVE** reference to Primavera, **ADD** "County Contract Management Program".

CONTRACT TIMES: **CHANGE** Article VIII to Article IX.

3.0 CONTRACT DOCUMENTS

ADD the following to the General Conditions Section 3.2 INTENT

D. The Contractor shall recognize that the primary function of this project is to provide utility service to the residents of Sarasota County. The Contractor shall provide temporary utility service to any businesses or dwellings affected during the construction of this Project.

CHANGE the word "complimentary" in General Conditions Section 3.2.B INTENT in the first sentence to read "complementary".

4.0 PRE-CONSTRUCTION ACTIVITIES

REPLACE the last sentence of the General Conditions Section 4.2.B.2) with the following: "The Contractor shall provide a minimum of 15 days in the Construction/ Progress Schedule for such product review."

REPLACE 'Primavera' in the first sentence of the General Condition Section 4.2.C.1) with "Project Management Information System"

5.0 PROGRESS AND CONTROL OF THE WORK

ADD the following to the General Conditions Section 5.3 Temporary Facilities/Staging and Storage Areas:

5.3 D. Staging and Storage Areas:

- 3) The Contractor shall be responsible for locating, securing and paying for staging and storage areas. Prior to utilization of such area (including proposed areas within the Project limits, County owned property and rights of ways), Contractor shall submit to the County for review and approval a staging and storage area usage plan including, but not limited to:

SUPPLEMENTAL GENERAL CONDITIONS

- A detailed site plan outlining all properties that will be utilized. The site plan shall be designed to provide protection of, and minimize disruption to, adjoining properties,
 - A minimum ten (10) foot setback will be maintained along all property boundaries. This area will not be utilized for any project purpose to include driving or parking. This setback also applies along any right of way line.
 - A plan for daily clean up, dust control and regular removal of trash, garbage or any other odor producing material.
 - Identification of all uses on the property (i.e. material locations and proposed heights, equipment staging, construction trailers, etc.),
 - Provide for protection from adverse noise, odor and visual impacts by providing appropriate fencing and/or screening measures.
- 4) The staging area will be surrounded by a privacy fence. The fence will be a minimum of eight (8) feet high or the height of stored material, whichever is greater. The fence will obstruct the view into the staging area on all sides including along any right of way line, if directed by the County.
- Hours of operation at the staging area shall be no greater than work hours approved for the project Work and directing traffic (ingress and egress) points away from residential properties.
- 5) In the event the County determines the Contractor's staging area activities have become disruptive to adjoining properties, the Contractor shall immediately take necessary steps to eliminate the disruption. The County may revise requirements specified herein based on specific project circumstances and information submitted by the Contractor in the site plan.
- 6) In addition to the site and storage plan required above, the Contractor shall obtain the required County Temporary Use Permit for proposed staging and storage areas not on County owned property or rights of ways.
- 7) In the event a proposed staging and storage area, which abuts a residential property, has been utilized under an approved County Temporary Use Permit at any time within the last thirty-six (36) month period, such property shall not be considered for use prior to expiration of such period.

No line item is to be added to the Bid Form for staging area allowance.

ADD the following to the General Conditions Section 5.5 MOBILIZATION:

B. Project Sign(s):

- 1) General: The Contractor shall erect one (1) sign conforming to the current Specifications as shown on the following page. The Contractor is to follow Florida State Statute 556, Underground Facility Damage Prevention and Safety Act procedures, as required. The Contractor shall include the funding sources which will be provided by the Project Manager. Relationship of lettering size will be similar to that depicted on the sign template. The background shall be white.

Seasons are defined as:

Winter = December, January, February
Summer = June, July, August

Spring = March, April, May
Fall = September, October, November



Sarasota County

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Name of Project Name of Project Name of Project

Project name
260pt/260
Flush left
Arial Narrow Bold

top color blue bar: 60" x 9"
top green band: 60" x .5"

Blue = pms 288c, cmyk: 100/67/0/23
Green = pms 355c, cmyk: 94/0/100/0

Overall size: 60" x 36"

Engineer: Engineer's Name Here

90pt/120
Flush left
Arial Bold

200pt
Flush left
Arial Bold

100pt
Flush left
Arial Bold

Blue bar
60" x 6"

Contractor: Contractor's Name Here

Construction Cost: \$0,000,000.00

Primary Funding Source(s): Funding Source Name, Funding Source Name,

Green bar
60" x .75

Construction from Season 20?? to Season 20??

A Sarasota County Commission Project

SUPPLEMENTAL GENERAL CONDITIONS

The sign shall be the property of the Contractor for the duration of the project and shall be maintained by the Contractor. The Contractor shall be responsible for the relocation of the signs during the progress of construction as directed by the County.

- 2) Project Sign Location: The project sign shall be placed:
 - a. At locations designated by the County
 - b. Within County Right-of-Way
 - c. To be highly visible
 - d. At a position that will not obstruct pedestrian or vehicular traffic
 - e. At a location where they will not be a roadside hazard.

- 3) Project Sign Construction:
 - a. The project sign shall be constructed of exterior-grade plywood sheeting. Posts shall be 4" x 4" square and 12 feet long-pressure treated lumber.
 - b. The sign face dimensions shall be five feet wide by three feet high by one-half inch thick.
 - c. All sign supports shall be installed in accordance with Florida Department of Transportation (FDOT) Standard Indexes, as applicable.
 - d. Upon completion of the contract, the Contractor shall remove and return the sign and supports and restore the site to the satisfaction of the County.

- 4) Project Sign Content:
 - a. Sign content shown on the attached sheet is for illustrative purposes only. The names of the members of the Boards of County Commissioners will be provided at the pre-construction conference. Relationship of lettering size will be similar to that depicted.

ADD the following to the General Conditions Section 5.10 AS-BUILT DOCUMENTS:

H. Utility Projects: The Contractor shall maintain, during the progress of the project, accurate records of the location, length and elevation of all new and existing pipelines and appurtenances. Information to be shown for utility mains shall include the location of all crosses, tees, wyes, bends, valves, curb stops, meter boxes, hydrants, stub-outs, blow-offs, air release valves, etc., by using a two (2) point swing measurement from permanent physical features that can readily be found on the drawing and in the field, in a table format.

The Contractor shall furnish "as-built" top of pipe elevations and finish grade for top of trench for all utility mains at maximum intervals of one hundred feet (100') and at all utility crossings, service connections, gravity and vacuum laterals, at all fittings and valves, and all changes in grade and pipe type. For directional drilled utility mains, the "as-built" top of pipe elevations shall be recorded every rod length change and plotted on the plan and profile drawing sheets. In addition, the Contractor shall reference all new utility mains by the distance to the right-of-way or property markers.

I. Utility Projects: All visible utility features shall be surveyed using conventional and/or GPS equipment at survey grade level and in accordance with Sarasota County Survey/GPS Standards. The recorded/blue booked GPS control monument, recorded benchmark elevation, and the vertical datum used shall be as noted on the Construction Plans. Coordinates shall be based on the State Plane, Florida West 1983.

SUPPLEMENTAL GENERAL CONDITIONS

ADD the following to the General Conditions Section 5.11 PERMIT, LICENSES, TAXES, AND LAWS AND REGULATIONS:

- D. Permit Fee Allowance: When applicable, this allowance will be established to cover the expenses of the permits and is supplemental to the bid, as indicated in the Bid Form. Permit fees will be paid at actual cost for the permit required and identified in the Contract Documents. The Contractor is advised that the total bid price shall include the amount of the allowance. Payment under this allowance shall be based on receipts of permit fees presented to the County. No payments shall be made for administrative or other costs of the Contractor.
- The allowance line item, when included in the bid form, can only be committed for the intended purchase and cannot in total or part thereof, be transferred to supplement the contingency or other line item costs, and any remainder will be retained by the County.

ADD the following to the General Conditions Section 5.17 EXISTING UNDERGROUND FACILITIES:

- H. Connections to Existing Mains: Where connections are required between new work and existing utility mains, the connection shall be made in a thorough and first-class manner, using proper and acceptable fittings to suit the actual conditions. Ductile iron mechanical joint sleeves shall be used for connection to existing utility mains. When a connection is made to an existing fitting in the line, the Contractor shall schedule his work so that excavation and locating the existing fittings can be completed prior to starting trench work on the line. Cut-ins into lines shall be done at a time approved by the County, following proper notification to and approval by the County's Utilities Operations and Maintenance staff. The Contractor shall not make any connections or service taps into existing utility mains until the work has been tested and accepted by the County.
- I. Utility Service Interruption: Interruptions to any utility service or operation shall be minimized. The Contractor shall submit plans and schedules to the County for approval by the proper authority before any shutdown or any interruption in service takes place. The Contractor shall provide a minimum five (5)-business day notice to Utility Operations and Maintenance (941-316-1071) to locate and exercise valves prior to the shutdown. County will complete a Water Shut Down Request to Utility Operations and Maintenance and shall include a utility map with all valves identified within the shutdown service area. After the plans and schedule for the utility service interruption shut-downs have been approved, the Contractor shall be responsible for posting shut-off notices to customers five (5) business days prior to shut down.
- The County shall be present at the time of the shutdown and assure the shut-down requirements are coordinated during the tie-in. All work is to be accomplished in accordance with Department of Health rules and policies. If commercial properties are affected, then the Contractor shall provide bottled water to the consumers/businesses that cannot boil water onsite.
- All costs in connection with the interruption of Utility Services shall be considered incidental and included under the Items Bid.

SUPPLEMENTAL GENERAL CONDITIONS

7.0 CONTRACTOR'S RIGHTS AND RESPONSIBILITIES

ADD the following New Sections to the General Conditions:

CHANGE "Material Safety Data Sheets" to "Safety Data Sheets" in Section 7.11.

7.16 FPL (Florida Power & Light) SERVICE:

- A. Where required in the Contract Documents, the Contractor shall provide all necessary coordination with FPL for power supply to the proposed Utility Facilities, including sewage lift stations, vacuum sewer pump stations, water pumping and storage facilities, water or sewer booster stations, and similar facilities. The Contractor shall incorporate FPL's schedule within the Construction/Progress Schedule. All costs associated with temporary and permanent power shall be borne by the Contractor, unless otherwise provided in the Contract Documents.
- B. The Contractor is responsible for all on-site improvements including poles, transformers, panels, conduit, power wiring, concrete mounting pads, and related equipment and materials necessary for a complete and fully operational system. The Contractor shall transfer service to the County upon the date of Substantial Completion of the Project, unless otherwise provided in the Contract Documents.

7.17 UTILITY SERVICES: Existing service locations as shown on the drawings are approximate. Upon completion of service relocation or replacement as called for on the drawings, the Contractor shall relocate or install the meter and/or reconnect the building service line as directed by the County. A Florida Licensed Plumber shall complete all plumbing work on the discharge side of the water meter.

11.0 CHANGES, DELAYS, AND TIME EXTENSIONS

ADD the following to the General Conditions Section 11.3.A CHANGE IN CONTRACT PRICE:

1. At any time the County may request a quotation from Contractor for a proposed change in the work. Within ten (10) days following the receipt of such a request, the Contractor shall prepare and submit a written and sufficiently detailed proposal for the estimated cost increase of the proposed change. The County shall review the proposal within five (5) days, and shall:
 - a) accept the proposal in total, or portions thereof;
 - b) negotiate the scope and cost of the proposal; or
 - c) reject the proposal in total.
2. The proposal shall include any request for a change in contract times resulting from the proposed change in the work. Any time extensions shall also be subject to negotiations.
3. Itemized estimates shall be in sufficient detail for County's review, including all material, labor, equipment, subcontracted work, and overhead costs and fees, and shall cover all work involved in the change, whether such work involves additions to, or deletions from the original Contract scope and price.

SUPPLEMENTAL GENERAL CONDITIONS

4. Notwithstanding the request for quotation, Contractor shall continue to carry on the work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will not be considered as basis for a time extension.

REPLACE General Conditions Section 11.5 B.3) DELAYS AND TIME EXTENSIONS with the following:

"Rain Delays: Reasonable extensions of time, as determined by the County, will be granted to the Contractor for time lost due to rainfall over and above the norm for the County, based on Sarasota County's historical rainfall averages. The information provided by the contractor will be based on the information available on the Sarasota Water Atlas website: <http://www.sarasota.wateratlas.usf.edu/rainfall>. The Contractor will use the Pixel choice in the "Geography of Interest" pull down menu and obtain the data that corresponds to the project location. If the Contractor can show that the rain caused the additional delays at the jobsite beyond the actual rain event(s), additional time extension may be granted.

13.0 PAYMENTS TO CONTRACTOR AND COMPLETION

ADD the following to the General Conditions Section 13.2 SUPPORTING DOCUMENTATION:

- E. Monthly Status Reports: With each payment application, the Contractor shall submit an updated monthly status report for review and approval by the County. The report shall contain specific construction progress over the past month; expected work to be accomplished over the coming month; and specify any potential problems that may interfere with the proposed work schedule. The County may withhold payment if the Contractor fails to submit an updated and approved monthly status report.

ADD the following to the General Conditions Section 13.9 SUBSTANTIAL COMPLETION

- J. The Work will be considered substantially complete when each of the following portions of the Work is completed to the satisfaction of the County:
 - 1) All components of the Work have been installed, tested, approved, and certified to be placed into operation.
 - 2) Final As-builts have been provided in accordance with the Contract Documents.
 - 3) All training and instructions have been provided to the designated County's representative(s) in accordance with the Contract Documents.
 - 4) Operation and Maintenance (O&M) Manuals submitted and accepted.
 - 5) 90% of all private property has been restored.
 - 6) 90% of all restoration in the right-of-way is completed.

SUPPLEMENTAL GENERAL CONDITIONS

ADD the following to the General Conditions Section 13.11 FINAL ACCEPTANCE:

- C. The Work will be considered complete when each of the following portions of the Work is completed to the satisfaction of the County:
- 1) All "punch list" work has been completed.
 - 2) All Close-Out Items have been completed and submitted to the County, including:
 - a. Final Clean-up.
 - b. Complete Demobilization.
 - c. 100% of all private property has been restored.
 - d. 100% of all restoration in the right-of-way is completed.
 - e. Contractor's Final Affidavit & Release of Lien (Contract Form Pages RL-1 and RL-2).
 - f. Releases of Liens.
 - g. Consent of Surety to Final Payment.
 - h. Private Owner(s) acceptance of restoration.
 - i. All Warrantees/Guarantees.
 - j. All other Close-Out Items required by the Contract Documents.

END OF SUPPLEMENTAL GENERAL CONDITIONS

SECTION 8

**SPECIAL
CONDITIONS**

SPECIAL CONDITIONS

Peace River Water Main Interconnect

These Special Conditions amend or supplement the General Conditions.

1. Responsibility of the Contractor:

The County has entered into a Consent Order (OGC No. 19-0255) with the Florida Department of Environmental Protection (FDEP) and a Stipulated Order with Suncoast Waterkeepers regarding the Bee Ridge Water Reclamation Facility under which the County will incur financial penalties for any unpermitted discharges. In performing work under this Contract, the Contractor shall immediately control, contain and stop any discharge of wastewater and promptly repair any damage to County facilities. The Contractor shall immediately notify the County project manager upon becoming aware of any such discharges. In the event the County is required to pay any penalties under these Orders, the Contractor shall reimburse the County upon demand those amounts attributable to the Contractor's actions.

Penalties that may be imposed under the Orders together are set forth in the table below:

<u>Amount per day per Discharge</u>	<u>Discharge Volume</u>
\$600.00	Up to 5,000 gallons
\$1,200.00	5,001 to 10,000 gallons
\$3,000.00	10,001 to 25,000 gallons
\$6,000.00	25,001 to 100,000 gallons
\$12,000.00	in excess of 100,000 gallons

SECTION 9

**TECHNICAL
SPECIFICATIONS**



Final Construction Technical Specifications

Peace River Interconnect and Potable Water Transmission Main Project

Prepared for:

Sarasota County

June 2020

Kimley»»Horn

**FINAL CONSTRUCTION TECHNICAL SPECIFICATIONS
FOR
PEACE RIVER INTERCONNECT AND POTABLE WATER TRANSMISSION MAIN
PROJECT (CIP NO. 88024)**

**Prepared for:
SARASOTA COUNTY**

**Prepared by:
KIMLEY-HORN AND ASSOCIATES, INC.
1777 Main Street, Suite 200
Sarasota, FL 34236**

Project No. 048048129

TECHNICAL SPECIFICATIONS

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SECTION 01005
GENERAL REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor performing the work covered by this contract shall be qualified by the County to perform the work shown and specified. The work covered by these specifications includes the furnishing of all labor, equipment, materials and performing all operations in connection with the installation of utility mains, pump station improvements, and all appurtenant work, in compliance with the drawings, specifications and Contract Documents. The Contractor shall perform all operations and incidentals necessary to complete the work in a turnkey condition.
- B. The Contractor shall utilize County contract manager software for all project submittals including Requests for Information (RFI), Pay Applications, Interim Field Change Agreements (IFCAs), and meeting minutes, etc. as stated in Section 01300 - Submittals.

1.02 SUMMARY OF WORK

- A. Refer to Section 01026 – Measurement and Payment.
- B. Work includes the installation of new potable water main, chemical injection and Instrumentation and Controls improvements at the County's Pump Station No. 5, and all the valves, fittings, restoration, and all incidentals and appurtenances required to complete the work shown and specified.

1.03 UTILITY

- A. The Contractor shall recognize that the primary function of this project is to install a new water transmission main to provide utility service to the residents of Sarasota County. The Contractor shall provide temporary utility service to any businesses or dwellings affected during the construction of this contract.

1.04 MATERIALS

- A. It is the Contractor's responsibility to inspect materials for damage or abnormalities. All materials shall be new. No used, remanufactured, damaged or rebuilt materials shall be used.

1.05 LOCATION

- A. Work covered under this project is located within Sarasota County.

1.06 SEQUENCE OF WORK

- A. The Contractor shall:
 - 1. Schedule work as set forth in the General Conditions and as described in Section 01310 – Construction Progress Schedule.
 - 2. Construct work in stages to accommodate the County's use of the premises during the construction period; coordinate the construction schedule and operations with the County's Representative.
 - 3. Construct the work in stages to provide for public convenience. Including, but not limited to, any single lane road closures to be complete outside of Sarasota County's

school season, June through August.

4. Not close off public use of facilities until completion of one stage of construction will provide alternative usage.
5. Construct the stages of the project as indicated on the drawings unless a single lane road closure or full road closure will affect Sarasota County's existing school's zones. These stages, as specified herein, are to be constructed outside of Sarasota County's school season.

1.07 SALVAGED EQUIPMENT AND MATERIALS

- A. Salvaged materials, equipment or supplies are the property of Sarasota County Utilities and shall be delivered to Sarasota County, Operations. Should the County choose **not** to accept these materials, they shall be removed from the project site as soon as practical. The Contractor shall dispose of surplus excavated materials in accordance with state and local laws in a legal manner at no additional cost to the County.

1.08 AS-BUILT DATA

- A. The Contractor shall maintain accurate records of the location, length, and elevation of all new and existing pipelines and appurtenances. A set of drawings will be provided for the Contractor to be kept at the job site for this purpose. Promptly after completion of any portion of the work provided, as paid for in this Contract, the Contractor shall deliver to the Engineer the drawings with accurate notations recorded thereon as necessary to revise the drawings for record purposes. As-built data shall be submitted with each pay application, said pay application shall not be accepted until as-built drawing is deemed up to date by the Engineer of Record and the County Project Manager. Information to be shown for utility mains shall include the location of all crosses, tees, wyes, bends, valves, curb stops, meter boxes, hydrants, stub-outs, blow-offs, air release valves, etc., by using a two (2) point swing measurement from permanent physical features that can readily be found on the drawing and in the field, in a table format in accordance with Sarasota County Survey and GPS standards. The Contractor shall furnish "as-built" top of pipe elevations and finish grade for top of trench for all utility mains at maximum intervals of one hundred (100) feet and at all utility crossings, at all fittings and valves, and at all changes in grade and pipe type. For directional drilled utility mains, the "as-built" top of pipe elevations shall be recorded every rod length change and plotted on the plan and profile drawings sheets. In addition, the Contractor shall reference all new utility mains by the distance to the right-of-way or property markers. The Contractor shall be held responsible for the accuracy of such data and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the Contractor.
- B. All visible utility features shall be surveyed using conventional and/or GPS equipment at survey grade level and in accordance with Sarasota County Survey/GPS Standards. The recorded/blue booked GPS control monument, recorded benchmark elevation, and the vertical datum used shall be noted on the as-built drawings. Coordinates shall be based on the State Plane, Florida West 1983.

1.09 LINE, VALVE, AND FIRE HYDRANT PLACEMENT

- A. The Contractor and the County's representative shall inspect the location of all lines, valves, and fire hydrants in the field at the time of construction, and adjustments shall be made as directed by the County's representative. It is the intent to have valves and hydrants located out of the ditch and curb lines.

1.10 CONNECTIONS TO EXISTING MAINS

- A. Where connections are required between new work and existing utility mains, the connection shall be made in a thorough and first-class manner using proper fittings to suit the actual conditions. Ductile iron mechanical joint sleeve shall be used for connection to existing utility mains. When a connection is made to an existing fitting in the line, the Contractor shall schedule the work so that excavating and locating the existing fittings can be completed prior to starting trench work on the line. Cut-ins into lines shall be done at a time approved by the County. The Contractor shall not make any connections or service taps into existing utility mains until their work has been tested and accepted by the County.

1.11 UTILITY SERVICE INTERRUPTIONS

- A. Interruptions to any utility service or operation shall be **minimized**. The Contractor shall submit plans and schedules to the Engineer for approval by the proper authority before any shutdown or any interruption in service takes place. The Contractor shall provide a minimum five (5)-business day notice to the Utility to locate and exercise valves prior to the shutdown. The County Inspector will complete a Water Shut Down Request to Utilities and shall include a utility map with all valves identified within the shutdown service area. After the plans and schedule for the utility service interruption shut-downs have been approved, the Contractor shall be responsible for posting shut-off notices to customers five (5) business days prior to shut down. The County Inspector shall be present at the time of the shutdown and assure the shutdown requirements are coordinated during the tie-in. All work to be done in accordance with Department of Health rules and policies. If commercial properties are affected, then the Contractor shall provide bottled water to the consumers/businesses that cannot boil water onsite. Cost shall be incidental to the cost of pipe.
- B. During all phases of the utility main construction and removal, interruptions to existing services shall be kept to a **minimum**. No interruptions shall take place without the approval of the County.

1.12 EXISTING UTILITY MAINS

- A. Elevations of existing utilities as shown on the drawings are approximate. The Contractor shall be responsible for verifying the location (horizontal and vertical) of any utilities that have been identified by Sunshine One locating service or shown on the construction drawings within the work area limits and the areas that may pose a potential conflict with any work. Soft digs/potholes or other exploratory methods to determine specific locations and elevations of existing utilities shall be performed by the Contractor where needed at no additional cost to the County. The Contractor shall field verify the line and grade of existing utilities. Based on the identified grade and alignment of the existing utilities, changes in the construction plans may be required. Discrepancies in alignment or grade shall be brought to the immediate attention of the County. In addition to verifying the grade when making tie-ins, the Contractor shall accurately verify the pipe outside diameter and material type of the existing pipe. The Contractor shall not proceed with tie-in until all information has been confirmed with the County. The Contractor shall verify all location information well in advance to avoid work delays.

1.13 UTILITY SYSTEM CODES

- A. All construction shall meet or exceed the requirements of the Sarasota County Unified Development Code (UDC) and the Sarasota County "Uniform Water, Wastewater, and Reclaimed Water Systems Code" (the Code), the latest revision, and these Specifications. In case there is a conflict between the Code and Specification, the most stringent requirement shall be met.

1.14 CONFLICT MANHOLE

- A. Conflict manholes are not permitted for water or sanitary sewer mains.

1.15 SERVICES

- A. Existing service locations as shown on the drawings are approximate. Upon completion of service relocation or replacement as called for on the drawings, the Contractor shall relocate or install the meter and/or reconnect the building service line as directed by the Engineer and Environmental Services, Utilities. A Florida Licensed Plumber shall complete all plumbing work on the discharge side of the meter.

1.16 MAINTENANCE OF TRAFFIC (MOT)

- A. Contractor shall be responsible to design and submit all maintenance of traffic (MOT) plans to the proper reviewing agencies. It will be the Contractor's responsibility to set up and maintain the MOT according to the state and/or local transportation agency regulations.
- B. All cost for setting up and maintaining the (MOT) will be included in the Contract per pipe installed. No special line item will be allowed for this task.

1.17 BY-PASS PIPING/PUMPING:

- A. The Contractor shall submit a by-pass plan to both the County and the Engineer for approval. After approval by the County, by-pass plans can be implemented with a one (1) week notice to the County. Unless otherwise provided for in the Bid Schedule, the cost for all by-pass piping/pumping shall be incidental to the contract, and the Contractor shall bear all costs associated with this task.

1.18 WORK WITHIN SARASOTA COUNTY RIGHTS-OF-WAY:

- A. The Contractor shall refer to the latest revised editions of Sarasota County Public Works and/or Florida Department of Transportation specifications and regulations for all work within private and public rights-of-way.
- B. The Contractor shall notify the County Project Manager five (5) days prior to starting construction to prepare a "Notice of Construction" letter. The Contractor shall deliver the letter to all residents and/or commercial businesses affected by the construction and along the pipe route five (5) days after receiving the letter from the County.
- C. Any public or private property, which is used or affected by a project, will be maintained and preserved from damage during the operation and restored to its original condition upon completion or cessation of work.
- D. The Utilities department shall not be responsible to reimburse the Contractor for work around unpermitted structures as described herein.

1.19 ROADWAY REPAIR

- A. The Contractor will be required to provide roadway restoration for both collector and local roads as shown in the construction plans.
- B. Collector roadway restoration shall consist of the contractor milling existing asphalt 3.5-inches in depth to the edge of the impacted travel lane, where roadway restoration is required.
- C. Roadway repair for the collector roadway shall be limited to 10" of optional base group 9, and 2" of SP-12.5 Structural Course. The remaining 1.5" of Type FC-12 Friction Course shall be provided by others. If restoration is required to extend into adjacent lanes, beyond areas identified in the plans, these areas shall be restored and resurfaced to existing roadway elevations and limited to a 1-1/2" elevation change from the impacted lane. Restoration shall be in accordance with Sarasota County Unified Land Development Code.
- D. Local Roadway repair shall be restored as shown in the construction plans

1.20 INSPECTION OF MATERIALS

- A. The Contractor, 24 hours prior to delivery, shall notify the County and Engineer to schedule an inspection of the materials.

1.21 PROJECT SIGN

- A. The Contractor shall erect one (1) sign conforming to the Supplemental General Conditions (SGC) Part 5.0, Progress and Control of the Work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION AND DESCRIPTION OF WORK

- A. The Work is located in Sarasota County, Florida at the locations shown on the Drawings.
- B. The Work to be performed under this Contract includes, but is not limited to, executing the Work described below and all related appurtenances. The Work shall be as follows:
 - 1. Maintenance of traffic.
 - 2. Erosion and sediment control.
 - 3. Installation of approximately 26,000 linear feet of 30-inch diameter DIP potable water transmission main by open cut method, including fittings, valves, and appurtenances.
 - 4. Installation of approximately 2,500 linear feet of 30-inch diameter DR-11 HDPE potable water transmission main by horizontal directional drill.
 - 5. Installation of approximately 1,100 linear feet of 30-inch diameter DR-9 HDPE potable water transmission main by horizontal directional drill.
 - 6. Installation of approximately 80 linear feet of 42-inch diameter steel casing pipe by jack and bore method.
 - 7. Installation of fire hydrants.
 - 8. Installation of two (2) altitude valves.
 - 9. Connection to existing 30-inch water transmission main.
 - 10. Installation of valves and appurtenances.
 - 11. Two (2) 16-inch diameter pipe penetrations through the side wall of an existing prestressed ground storage tank.
 - 12. Installation of above grade ductile iron booster pump station suction pipe.
 - 13. Installation of chemical feed piping.
 - 14. Installation of approximately 24,436 linear feet of conduit and pull wire, with associated hand holes, for future fiber optic cable installation.
 - 15. Instrumentation and Control improvements.
 - 16. Cleaning, disinfection, and testing of new potable water transmission main.
 - 17. Restoration of asphalt paving, concrete sidewalks, and driveways.
 - 18. Restoration of disturbed areas to match preconstruction condition.
 - 19. Mill and resurface of asphalt paving.

- C. The Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Specifications and as shown on the Contract Drawings.
- D. The Contractor shall perform the work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the County.
- E. The Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Documents or not.
- F. Contractor shall be required to coordinate with FDOT and FDOT's Contractors on the two (2) proposed roundabout projects (FPID 440686-1-52-01 and FPID 434504-1 (Permit No. 2018-A-194-048)) within the project limits.
- G. Contractor shall be required to utilize County contract management software for all submittals associated with the project submittals including, but not limited to, shop drawings, RFIs, pay apps, and meeting minutes.

1.02 CONTRACTING METHOD

- A. Construct all the Work under one prime contract.

1.03 WORK SEQUENCE

- A. The Contractor shall incorporate sequencing of the work into the Construction Schedule. The Contractor shall abide by the following work sequence:

1. Complete all Phase 1 construction including all Pre-Construction Activities, Horizontal Directional Drills (HDD) and Pump Station No. 5 Improvements. This work can be performed concurrently with Phase 2A. If the County has provided written authorization to allow construction of Phase 2B then that work can be done concurrently with Phase 1. Phase 1 shall include the following milestones.

Phase 1 - FDOT Milestone:

- i. The Contractor shall substantially complete, at a minimum, the installation of the pipeline that is currently within FDOT FPID No. 440686-1-52-01 (approximately STA 132+00 to STA 141+00), as shown in the Contract Drawings, within **90 calendar days** from the NTP. Substantial completion for this milestone will require an FDOH partial certification.

Phase 1 - School Season Milestone:

- ii. The Contractor shall complete the installation of the pipeline along Proctor Road from STA 88+00 to STA 132+00 (Proctor Road) and STA 196+00 to STA 204+00 (Hawkins Road) outside of school season (June – August). Installation shall include mobilization, demobilization, construction of the HDD, dewatering, excavation and backfilling, pressure testing and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents. Installation for this portion of the project shall not be deemed complete until the Contractor has received written authorization from the County.

2. Complete all Phase 2A construction, as shown in the Contract Documents. This work can be performed concurrently with the Phase 1 construction. If the County has provided written authorization to allow construction of Phase 2B, then Phase 2B work

can be performed, as shown in the Contract Documents concurrently. Installation shall include mobilization, demobilization, dewatering, excavation and backfilling, pressure testing and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents. Contractor shall provide at least **60 calendar days** advance notice to the County prior to connection of Phase 2A to the Peace River Manasota Regional Water Supply Authority Phase 3B pipeline. Connections to existing pipelines are not permissible until authorization is received from the County and other regulatory agencies.

3. Complete all Phase 2B construction. This work cannot be started until the County has provided written authorization to perform the work. If written authorization is not provided within **390 calendar days** from NTP, County may remove this phase of the project from the scope of work. Installation shall include mobilization, demobilization, dewatering, excavation and backfilling, pressure testing and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.
 4. All phases of the project (Phase 1, 2A and 2B (if included)) shall be substantially complete within **480 calendar days** from NTP, with the exception of the FDOT Phase 1 Milestone, and final completion shall be within **540 calendar days** from NTP. Prior to substantial completion and any connections to the PRMRWSA Phase 3B pipeline and the existing system, the Contractor shall chlorinate, flush and conduct bacteriological testing for the entire project.
- B. All work under this Contract shall be performed with a minimum of inconvenience to the users of the systems, facilities, and businesses and residences impacted by the work.
 - C. The Contractor shall, if necessary and feasible, construct the work in stages to accommodate the County's use of the premises during the construction period; coordinate the construction schedule and operations with the County's Representative.
 - D. The Contractor shall, where feasible, construct the Work in stages to provide for public convenience and not close off public use of any facility until completion of construction to provide alternative usage. This includes, but is not limited to, construction requiring single lane closures to occur outside Sarasota County's school season.

1.04 CONSTRUCTION AREAS

- A. Coordinate use of work site under direction of County's Representative.
- B. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- C. Move any stored products under the Contractor's control, which interfere with operations of the County or separate contractor.
- D. Obtain and pay for the use of additional storage of work areas needed for Contractor operations.

1.05 OWNER OCCUPANCY

- A. It is assumed that portions of the Work will be completed prior to completion of the entire Work. Upon completion of construction and testing of each individual facility, and at the sole discretion of the County, the Contractor will be issued a dated certificate of completion and acceptance for each individual facility. The County will assume ownership and begin

operation of the individual facility on that date and the guaranty period shall commence on that date. The County has the option of not accepting the entire work as a whole until Final Completion and Acceptance Certificate.

1.06 PARTIAL OWNER OCCUPANCY

- A. The Contractor shall schedule his operations for completion of portions of the Work, as designated, for the County's occupancy prior to substantial completion of the entire work.

1.07 WORK BY OWNER

- A. The County will perform the following in connection with the work:
 - 1. Operate all existing valves, gates, pumps, equipment, and appurtenances that will affect County's operation, unless otherwise specified or indicated.

1.08 EASEMENTS AND RIGHTS-OF-WAY

- A. Easements and rights-of-way will be provided by County in accordance with the General Conditions. Confine construction operations within County's property, public rights-of-way, easements obtained by County, and the limits shown. Use care in placing construction tools, equipment, excavated materials, and materials and equipment to be incorporated into the Work to avoid damaging property and interfering with traffic. Do not enter private property outside the construction limits without permission from the County.
- B. On County Rights-of-Way: The Contractor shall obtain Right-of-Way Use Permit from the County for all work performed within Sarasota County Rights-of-Way.
- C. On Private Property:
 - 1. General limits of easements and rights-of-way are shown on the Drawings.
 - 2. The Contractor shall, at no additional expense to the County, acquire any additional easements or rights-of-way that the Contractor deems necessary for performance of the work. The Contractor shall provide copies of executed agreements for additional easements or rights-of way to the County prior to use.
- D. Within Highway and Railroad Rights-of-Way: Permits will be obtained by County, other than work permits to be obtained by Contractor. All Work performed and all operations of Contractor within the limits of railroad and highway rights-of-way shall conform to requirements of railroad or highway owner and applicable work permits, or authority having jurisdiction over right-of-way.

1.09 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

- A. The Contractor shall notify owners of adjacent property and utilities when prosecution of the Work may affect their property, facilities, or use of property.
- B. When it is necessary to temporarily obstruct access to property, or when utility service connection will be interrupted, the Contractor must provide notices sufficiently in advance to enable affected persons to provide for their needs. Conform notices to Laws and Regulations and, whether delivered orally or in writing, include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.
- C. The Contractor shall notify utility owners and other concerned entities at least 72 hours prior to cutting or closing streets or other traffic areas or excavating near Underground Facilities or exposed utilities. Any street closures shall be coordinated with and approved

by the government agency having jurisdiction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01015
CONTROL OF WORK

PART 1 GENERAL

1.01 WORK PROGRESS

- A. The Contractor shall furnish personnel and equipment which will be efficient, appropriate, and adequately sized to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such personnel appears to the Engineer to be inefficient, inappropriate, or insufficient for securing the quality of work required for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the personnel and equipment and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of any obligation to secure the quality of the work and rate of progress required.

1.02 WORK LOCATIONS

- A. Work shall be located substantially as indicated on the drawings, but the County reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons.

1.03 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open trench, prohibiting stacking excavated material in the street and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.

1.04 DISTRIBUTION SYSTEMS AND SERVICES

- A. The Contractor shall avoid interruptions to water, electric, telephone, cable TV, sewer, gas, or other utility services and shall notify the County and the appropriate agency well in advance of any requirement for dewatering, isolating, or relocating a section of a utility, so that necessary arrangements may be made.
- B. If it appears that utility service will be interrupted for an extended period, the County may order the Contractor to provide temporary service lines at the Contractor's expense. Inconvenience of the users shall be kept to the minimum, consistent with existing conditions. The safety and integrity of the systems are of prime importance in scheduling work.

1.05 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to building utilities, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables and other similar facilities, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by the Contractor at his expense.
- B. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities (including existing water services, drain lines and sewers). Services to buildings shall be maintained and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit prices established in the Bid.
- D. If permanent relocation of a utility owned by the County is required, the County may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work as classified in the General Conditions. If relocation of a privately-owned utility is required, the County will notify the utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the County and utility and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies in writing at least 48 hours (excluding Saturdays, Sundays and legal holidays) before excavating near their utilities.

1.06 TEST PITS

- A. Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor immediately after the utility location and the surface shall be restored in a manner equal or better than the original condition. No separate payment will be made.

1.07 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition equal or better to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the County.
- B. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the best modern practice.
- C. Along the location of this work, all fences, walks, bushes, trees, shrubbery and other physical features shall be protected and restored in a thoroughly workmanlike manner unless otherwise shown on the drawings. Fences and other features removed by the

Contractor shall be replaced in the location indicated by the County as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regarded and sodded to equal or exceed original conditions.

- D. Trees close to the work which drawings do not specify to be removed, shall be boxed or otherwise protected against injury. The Contractor shall obtain written permission from the County prior to trimming, cutting, or removal of any trees. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting and painting according to approved methods, using only approved tools and materials.
- E. The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Bid, unless otherwise shown or specified.

1.08 WATER FOR CONSTRUCTION PURPOSES

- A. In locations where public water supply is available, the Contractor may purchase water for all construction purposes.
- B. The Contractor shall be responsible for paying for all water tap fees incurred for the purpose of obtaining a potable water service or temporary use meter.

1.09 MAINTENANCE OF FLOW

- A. The Contractor shall at his own cost, provide for the flow of sewers, drains and water courses interrupted during the progress of the work and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the County well in advance of the interruption of any flow.

1.10 CLEANUP

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operations and shall leave the entire site of the work in a neat and orderly condition.

1.11 COOPERATION WITHIN THIS CONTRACT

- A. All firms or person authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the County.

1.12 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.

- B. All structures shall be protected in a manner approved by the County. Should any surface or parts of the structures become heaved, cracked, or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor, at his own expense and to the satisfaction of the County. If, in the final inspection of the work, any defects, faults, or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the warranty period described in the Contract.
- C. The Contractor shall take all necessary precautions to prevent damage to any structure during and after construction and until such structure is accepted and taken over by the County.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01026

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The following explanation of the Measurement and Payment for the bid form items is made for information and guidance. The omission of reference to any item in this description shall not, however, alter the intent of the bid form or relieve the Contractor of the necessity of furnishing such as a part of the Contract at no additional cost to the County.

1.02 MEASUREMENT

- A. The quantities set forth in the bid form are approximate and are given to establish a uniform basis for the comparison of bids. The County reserves the right to increase, decrease, or eliminate the quantity of any class or portion of the Work during the progress of construction in accordance with the terms of the Contract Documents. The Bid Form shall serve as a basis of developing additive or deductive Change Orders.

1.03 PAYMENT

- A. Payment for each item listed below shall be made at the Contract unit price or lump sum price per item of work on the basis of the work actually performed, completed, tested, and accepted by the County. Such work includes but is not limited to the furnishing of all necessary labor, materials, appurtenances, equipment, transportation, clean up, restoration of disturbed areas, costs of insurance and bonding, and all other direct and indirect expenses to complete the construction, test to passing, and place the Work into operation, as described in the Contract Documents, and as directed by the County.
- B. Payment for each item includes compensation for cleanup and restoration. Cleanup and surface restoration will be considered as ten percent (10%) of each pay item, and complete payment of each item will not be made until cleanup and restoration have been completed, and all final closed out items are delivered to and approved by the County.

1.04 MEASUREMENT AND PAYMENT OF LUMP SUM ITEMS

- A. Measurement and Payment for Lump Sum bid items will be made based on the approved Schedule of Values submitted by the Contractor as required by the County. Monthly progress payments will be based on a percentage of the work completed as approved by the County.

1.05 PAY ITEMS

- A. Item No. 1 – Mobilization and Demobilization:
 - 1. Method of Measurement:
 - a. Lump Sum (LS): The Lump Sum price for Mobilization and Demobilization shall be full compensation for mobilization and demobilization activities required for all Work as shown and specified.
 - 2. Payment for this bid item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, premiums for required bonds and insurance; survey work; mobilization and demobilization of equipment, personnel,

materials, supplies, and incidentals to the Site; field office, temporary utilities and other facilities required for performance of the Work; and other operations performed, or costs incurred before the beginning of Work.

- a. The lump sum price for Mobilization and Demobilization shall not exceed five percent (5%) of the subtotal of all other bid items.
- b. Payment for Item No. 1.0 will be the first partial payment at 75% of the lump sum price for Mobilization and Demobilization and the balance will be payable in the final project close-out payment.

B. Item No. 2 and 3 – Water Main – Open Cut Installation:

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of water main furnished and installed by open cut method in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans, including the lengths of valves and fittings.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of roadway and driveway materials, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, over excavation for pipe bedding, support of existing utilities, pipe, joint restraint, fittings, services, sleeves, couplings, transition adaptors, polyethylene encasement on all ductile iron fittings, pipe installation, tracer wire, warning tape, water main markers, relocation of private stormwater systems, mailboxes and personal property incidental to the construction of the water main, flushing and cleaning, disinfection, testing, seeding and sodding, construction record photographs, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

C. Item No. 4 and 5 – Water Main – Horizontal Directional Drill Installation:

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the number of linear feet of pipe furnished and installed by directional drill as measured on the Drawings.
- b. No payment will be made for additional pipe length due to increased depth of horizontal drill.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for locating existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of roadway and driveway materials, excavation, backfilling, dewatering, shoring and bracing, compaction of backfill, butt welding of joints, fittings, transition adaptors, polyethylene encasement on all ductile iron fittings, HDPE pipe as specified in the Contract Drawings, directional drill of pipe including additional piping required for installation, proper disposal of drill fluids, tracer wire, flushing and cleaning,

disinfection, testing, restoration of all roadways, driveways or sidewalks impacted by the installation, required submittals, seeding and sodding, coordination with FDOT and DBi Services, LLC, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

D. Item No. 6 – Water Main – Jack and Bore Installation:

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the number of linear feet of pipe furnished and installed by jack and bore in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans.
- b. No payment will be made for additional pipe length due to increased length of Jack and Bore.

2. Payment for this item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, excavation, backfilling, dewatering, shoring and bracing, casing pipe, carrier pipe, casing pipe installation, carrier pipe installation, casing spacers, casing pipe end seals, post construction survey, record drawings, flushing and cleaning, disinfection, testing, tracer wire, restoration of all roadways, driveways or sidewalks impacted by the installation, seeding and sodding, and all incidentals and appurtenances required to complete the bore and jack installation as shown and specified in the Contract Documents.

E. Item No. 7 and 8 – Water Main – Above Grade Installation:

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the number of linear feet of water main furnished and installed above grade in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans, including the lengths of valves and fittings.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, protection of existing trees, erosion and sediment control, clearing and grubbing, shoring and bracing, support of existing utilities, abandonment of existing utilities as shown in Contract Documents, pipe, pipe supports, supporting concrete pads, flange gaskets, fittings, couplings, pipe installation, flushing and cleaning, disinfection, testing, pipe labeling or coatings as required, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

F. Item No. 9 and 10 –Water Main Relocation:

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of watermain relocation furnished and installed by open cut method in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans, including the lengths of valves and fittings.
 - b. No additional payment will be made for increased pipe length for relocation.
2. Payment for this item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of roadway and driveway materials, shutdown or access coordination with utility owner, residents, business owners, schools and churches, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, over excavation for pipe bedding, support of existing utilities, pipe, joint restraint, fittings, sleeves, couplings, transition adaptors, polyethylene encasement on all ductile iron fittings, pipe installation, connections to existing water main, double thrust collar as stated on the Contract Drawings, disposal and abandonment of existing water main, tracer wire, warning tape, flushing and cleaning, testing, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

G. Item No. 11 – Force Main Relocation

1. Method of Measurement:
 - a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of force main relocation furnished and installed by open cut method in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans, including the lengths of valves and fittings.
 - b. No additional payment will be made for increased pipe length for relocation.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of roadway and driveway materials, shutdown or access coordination with utility owner, residents, business owners, schools and churches, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, over excavation for pipe bedding, support of existing utilities, pipe, joint restraint, fittings, air release valves, sleeves, couplings, transition adaptors, polyethylene encasement on all ductile iron fittings, pipe installation, bypass pumping, connections to existing force main, disposal and abandonment of existing force main, tracer wire, warning tape, flushing and cleaning, testing, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

H. Item No. 12 and 13 – Private Utility Relocation

1. Method of Measurement:

- a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of privately-owned utilities to be relocated in accordance with the Contract Documents.
 - b. No additional payment will be made for additional impacts to private utility relocations.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, support of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of roadway and driveway materials, shutdown or access coordination with utility owner, residents, business owners, schools and churches , carrier pipe or conduit, communication cable, electric cable joint restraint, fittings, sleeves, couplings, transition adaptors, installation, connections to existing utilities, disposal and abandonment of existing utility, tracer wire, warning tape, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.
- I. Item No. 14 – Butterfly Valves:
 1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be the actual number of Butterfly Valves furnished and installed in accordance with the Contract Documents.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for excavation, bedding, backfilling, compaction, dewatering, shoring and bracing, valve, joint restraints, support, valve box, installation of all components, disinfection, testing, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.
- J. Item No. 15, 16, and 17 – Gate Valves:
 1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be the actual number of Gate Valves furnished and installed in accordance with the Contract Documents.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for excavation, bedding, backfilling, compaction, dewatering, shoring and bracing, valve, joint restraints, support, valve box and pad, valve marker, tracer wire and test station, installation of all components, disinfection, testing, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.
- K. Item No. 18 – Inspection Manhole:
 1. Method of Measurement:
 - b. Each (EA): The quantity to be paid shall be the actual number of inspection

manholes furnished and installed in accordance with the Contract Documents.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees excavation, bedding, backfilling, compaction, dewatering, shoring and bracing, manhole structure, threaded tap, tapping saddles, ball valves, 30-inch butterfly valve, installation of valve and all components, manhole lid, grout, grading, installation of all components, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

L. Item No. 19 – Air Release Valve Assemblies:

1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be the actual number of Air Release Valve Assemblies furnished and installed in accordance with the Contract Documents.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for excavation, bedding, backfilling, dewatering, compaction, shoring and bracing, air release valve, tapping saddle, pipe, ball valve, corporation stops, curb stop and valve box, polyethylene enclosure, enclosure bedding, guide post, tracer wire and test station box, installation of all components, supports, disinfection, testing, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

M. Item No. 20 – Fire Hydrant Assemblies:

1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be the actual number of Fire Hydrant Assemblies furnished and installed in accordance with the Contract Documents.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for excavation, bedding, backfilling, dewatering, compaction, shoring and bracing, hydrant assembly, pipe, fittings, gate valve, valve pad and marker, installation of all components, joint restraint, painting, reflective pavement marker, disinfection, flow testing, painting of bonnets per County requirements, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

N. Item No. 21 – Altitude Valves:

1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be the actual number of Altitude Valves furnished and installed in accordance with the Contract Documents.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment

shall include, but is not limited to, all costs for altitude valve, pressure gauges, pipe supports, sense line, installation of all components, disinfection, testing, commissioning, calibration, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

O. Item No. 22 – Connections to Existing 30" Water Main:

1. Method of Measurement:

a. Each (EA): The quantity to be paid shall be the actual number of Connections to Existing 30" Water Main completed in accordance with the Contract Documents.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, shutdown or access coordination with Peace River Manasota Regional Water Supply Authority (PRMRWSA), residents, business owners, schools and churches, excavation, bedding, backfilling, dewatering, compaction, shoring and bracing, fittings, sleeves, joint restraint, connection to existing 30" pipe, disinfection, flushing, testing, restoration, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

P. Item No. 23 – Holding of Florida Power and Light (FPL) Utility Poles:

1. Method of Measurement:

a. Each (EA): The quantity to be paid shall be the actual number of FPL Utility Poles that are required to be held during construction and in accordance with the Contract Documents.

b. No additional payment will be made for additional impacts related to holding of FPL utility poles.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs associated with holding of the FPL Utility Poles, including coordination and payments to FPL, maintenance of traffic, erosion and sediment control, coordination of any shut downs or permits required by FPL and the County and all incidentals and appurtenances required to satisfy the requirements of FPL and the County during construction of the water main as shown and specified in the Contract Documents.

Q. Item No. 24 and 25 – Water Storage Side Wall Tank Penetrations (CROM):

1. Method of Measurement:

a. Each (EA): The quantity to be paid shall be the actual number of Water Storage Tank Side Wall Penetrations completed in accordance with the Contract Documents.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for penetrating the side wall of the existing prestressed concrete water storage tank, altitude valve sense line penetrations, and all incidentals and appurtenances required to complete the installation as shown and

specified in the Contract Documents. **All tank penetration work will need to be completed by CROM Corporation.**

R. Item No. 26 – Chemical Injection Improvements:

1. Method of Measurement:

a. Lump Sum (LS): The quantity to be paid under this unit cost shall be on a lump sum basis for Chemical Injection Improvements in accordance with the Contract Documents.

2. Payment for this bid item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, chemical injection piping and Teflon tubing, fittings, couplings, adaptors, valves, injection ports, pipe supports and clamps, containment piping, labels, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required as shown and specified in the Contract Documents.

S. Item No. 27 – Instrumentation and Control Improvements:

1. Method of Measurement:

a. Lump Sum (LS): The quantity to be paid under this unit cost shall be on a lump sum basis for Instrumentation and Control Improvements in accordance with the Contract Documents.

2. Payment for this bid item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, instrumentation and control equipment, wire, cable, conduit, installation of all components, programming, commissioning, calibration, system integration, and all incidentals and appurtenances required as shown and specified in the Contract Documents.

T. Item No. 28 – Collector Road Milling Existing Asphalt Pavement (3-1/2" Depth):

1. Method of Measurement:

a. Square Yards (SY): The quantity to be paid shall be the actual number of square yards of existing asphalt removed within the limits shown and specified in the Contract Documents and as required per FDOT.

b. Milling existing asphalt pavement outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.

2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, disposal of material, removal of striping, removal of pavement markings, temporary signs, access coordination or temporary pavement requirements to maintain access to residents, business owners, schools and churches, and all incidentals and appurtenances required for complete the milling of the existing asphalt as shown and specified in the Contract Documents and as required per FDOT.

U. Item No. 29 – Collector Road Superpave Asphaltic Concrete, Traffic C:

1. Method of Measurement:

- a. Tons (TN): The quantity to be paid shall be the actual tons of Superpave Asphaltic Concrete Pavement installed within the limits shown and specified in the Contract Documents and as required per FDOT.
 - b. Installation of superpave asphaltic concrete, Traffic C outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 - 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, compaction, striping, pavement markings, and all incidentals and appurtenances required for complete installation of the superpave asphaltic concrete pavement as shown and specified in the Contract Documents and as required by FDOT.
- V. Item No. 30 – Collector Road Optional Base, Base Group 9:
- 1. Method of Measurement:
 - a. Square Yards (SY): The quantity to be paid shall be the actual number of square yards of Optional Base, Base Group 9 installed within the limits shown and specified in the Contract Documents and as required by FDOT.
 - b. Installation of optional base, base group 09 outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 - 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, compaction and all incidentals and appurtenances required for complete installation of optional base, group 9 as shown and specified in the Contract Documents and as required per FDOT.
- W. Item No. 31 – Collector Road Type B Stabilization:
- 1. Method of Measurement:
 - a. Square Yards (SY): The quantity to be paid shall be the actual number of square yards of Type B Stabilization installed within the limits shown and specified in the Contract Documents and as required by FDOT.
 - b. Installation of Type B stabilization outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 - 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, compaction and all incidentals and appurtenances required for the complete installation of the Type B stabilization as shown and specified in the Contract Documents and as required by FDOT.
- X. Item No. 32 – Local Road Milling Existing Asphalt Pavement (1-1/2” Depth):
- 1. Method of Measurement:
 - a. Square Yards (SY): The quantity to be paid shall be the actual number of square

yards of existing asphalt removed within the limits shown and specified in the Contract Documents and as required by FDOT.

- b. Milling existing asphalt pavement outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, disposal of material, removal of striping, removal of pavement markings, temporary signs, access coordination or temporary pavement requirements to maintain access to residents, business owners, schools and churches, and all incidentals and appurtenances required for complete the milling of the existing asphalt as shown and specified in the Contract Documents and as required per FDOT.
- Y. Item No. 33 – Local Road Superpave Asphaltic Concrete, Traffic B:
 1. Method of Measurement:
 - a. Tons (TN): The quantity to be paid shall be the actual number of square yards of Superpave Asphaltic Concrete Pavement installed within the limits shown and specified in the Contract Documents and as required by FDOT.
 - b. Installation of superpave asphaltic concrete, Traffic B outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, compaction, striping, pavement markings, and all incidentals and appurtenances required for complete installation of asphaltic concrete pavement as shown and specified in the Contract Documents and as required by FDOT.
- Z. Item No. 34 – Local Road Optional Base, Base Group 6:
 1. Method of Measurement:
 - a. Square Yards (SY): The quantity to be paid shall be the actual number of square yards of Optional Base, Base Group 9 installed within the limits shown and specified in the Contract Documents and as required by FDOT.
 - b. Installation of optional base, base group 09 outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
 2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, compaction and all incidentals and appurtenances required for the complete installation of optional base, base group 9 as shown and specified in the Contract Documents and as required by FDOT.
- AA. Item No. 35 – Local Road Type B Stabilization:
 1. Method of Measurement:

- a. Square Yards (SY): The quantity to be paid shall be the actual number of square yards of Type B Stabilization installed within the limits shown and specified in the Contract Documents and as required per FDOT.
 - b. Installation of Type B stabilization outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, compaction and all incidentals and appurtenances required for the complete installation of Type B stabilization as shown and specified in the Contract Documents and as required by FDOT.

BB. Item No. 36 – Concrete Sidewalk Restoration:

1. Method of Measurement:
 - a. Square Yard (SY): The quantity to be paid shall be the actual number of square yards of Concrete Sidewalk Restoration completed within the limits shown and specified in the Contract Documents.
 - b. Restoration outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for protection of existing trees, maintenance of traffic, erosion and sediment control, excavation, backfill, compaction, saw cutting and disposal of existing sidewalk, installation of concrete sidewalk, ADA compliant detectible warning strips as required, expansion joints, contraction joints, construction joints, and all incidentals and appurtenances required for complete Concrete Sidewalk Restoration as shown and specified in the Contract Documents and as required by FDOT.

CC. Item No. 37 – Driveway Restoration:

1. Method of Measurement:
 - a. Square Yard (SY): The quantity to be paid shall be the actual number of square yards of Driveway Restoration completed within the limits shown and specified in the Contract Documents.
 - b. Restoration outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, excavation, backfill, compaction, saw cutting, removal and disposal of existing driveway surface, driveway restoration, compaction, installation and all incidentals and appurtenances required for complete Driveway Restoration as shown and specified in the Contract Documents.

DD. Item No. 38 – Concrete Curb and Gutter Restoration:

1. Method of Measurement:
 - a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of Concrete Curb and gutter Restoration completed in accordance with the Contract Documents.
 - b. Restoration outside of the limits shown and specified shall be performed by the Contractor at no additional cost to the County.
2. Payment for this item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, protection of existing trees, excavation, backfill, compaction, saw cutting of existing curb and gutter, removal and disposal of existing concrete curb and gutter, formwork, reinforcement, curb and gutter restoration, and all incidentals and appurtenances required for complete Concrete Curb and Gutter Restoration as shown and specified.

EE. Item No. 39 – Flush Curb (Pump Station No.5 Driveway):

1. Method of Measurement:
 - a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of Flush Curb completed in accordance with the Contract Documents.
2. Payment for this item shall be made at the unit price set forth in the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for maintenance of traffic, erosion and sediment control, protection of existing trees, formwork, reinforcement, grading, restoration, and all incidentals and appurtenances required for complete installation of flush curb as shown and specified.

FF. Item No. 40 – PVC Conduit:

1. Method of Measurement:
 - a. Linear Foot (LF): The quantity to be paid shall be the number of linear feet of PVC Conduit furnished and installed in accordance with the Contract Documents and as required per FDOT Specification 630.
 - b. Quantities measured under this item shall be for PVC Conduit and pull wire. Fiber optic cable and its installation is not included in this scope of work.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, support of existing utilities, conduit, pull wire, fittings, couplings, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents and as required per FDOT.

GG. Item No. 41 – Pull Boxes:

1. Method of Measurement:
 - a. Each (EA): The quantity to be paid shall be for each pull box furnished and installed in accordance with the Contract Documents.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, support of existing utilities, pull boxes, installation, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents and as required per FDOT.

HH. Item No. 42 – Water Main (Alternate A) – Open Cut Installation:

1. Method of Measurement:
 - a. Linear Foot (LF): The quantity to be paid shall be the actual number of linear feet of water main (Alternate A) furnished and installed by open cut method in accordance with the Contract Documents, measured to the nearest foot along the centerline of the pipe in the horizontal plane between the limits shown on the plans, including the lengths of valves and fittings.
2. Payment for this item shall be made at the unit price set forth on the Bid Form and shall constitute full compensation for Work specified in the Contract Documents. Payment shall include, but is not limited to, all costs for location of existing utilities, maintenance of traffic, erosion and sediment control, clearing and grubbing, protection of existing trees, removal and disposal of removal and disposal of roadway and driveway materials, excavation, bedding, backfilling, dewatering, shoring and bracing, compaction of backfill, over excavation for pipe bedding, support of existing utilities, pipe, joint restraint, fittings, sleeves, couplings, transition adaptors, polyethylene encasement on all ductile iron fittings, pipe installation, tracer wire, warning tape, water main markers, relocation of private stormwater systems, mailboxes and personal property incidental to the construction of the water main, flushing and cleaning, disinfection, testing, seeding and sodding, post construction survey, record drawings, and all incidentals and appurtenances required to complete the installation as shown and specified in the Contract Documents.

II. Permit Fee Allowance:

1. Permit Fee Allowance will be paid at actual cost for permits required, but not identified and priced in the Contract Documents. Payment for all permit fees will be in the amount as mutually agreed to by the County and Contractor and as indicated on a recorded proof of payment document.

JJ. Approved Construction Contingency Allowance – 5% of Subtotal Bid Price:

1. This item is a contingent construction cost calculated as 5% of the Bid Schedule Sub-Total. Payment for all work included under this bid item will be in the amount mutually agreed to by the County and Contractor as indicated on a properly authorized form prepared by the Engineer and signed and dated by the Contractor, Engineer, and County.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01050
FIELD ENGINEERING AND SURVEYING

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings, or from instructions by the Engineer.
- B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The work shall be accurately measured and fitted to tolerances as established by the best practices of the crafts and trades involved and shall be as required to fit all parts of the work carefully and neatly together.

1.02 SURVEY REFERENCE POINTS

- A. The Contractor shall hire a Florida Professional Land Surveyor (PLS) to identify the existing control points indicated on the Drawings as required.
- B. Existing major horizontal and vertical control points for the Project are those designated on Drawings. Additional control points may be established as approved by the Engineer.
- C. The Contractor shall:
 - 1. protect control points prior to starting work.
 - 2. preserve all permanent reference points during construction.
 - 3. make no changes or relocations unless directed by the Engineer.
 - 4. report to Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
 - 5. re-establish any control or reference points and/or property pins destroyed at his expense.
- D. The Contractor shall utilize the State Plane Coordinate System, Florida West Zone, NAD83 horizontal datum and NAVD88 vertical datum for all survey work.

1.03 LINES AND GRADES

- A. The Contractor's PLS shall lay out the axes of all structures and set permanent hubs marking these lines. The Contractor's PLS shall also set a bench mark or marks near the site of all structures to furnish the Contractor with the elevation.
- B. When waterlines, sewer force mains, and other such pressure pipelines are involved, the Contractor's PLS will stake the location of these lines on the Site. Bench marks are required for reference, these shall be established by the Contractor's PLS.
- C. The Contractor shall furnish a Florida Professional Licensed Land Surveyor with all materials, stakes, and grade boards that are required for all utility construction layout. In addition, the Contractor shall furnish any aides required by the Engineer in marking the

location of the various facilities on the ground, establishing bench levels, and determining as-built conditions after the work is completed. The Contractor's personnel engaged in the layout work described herein and the aides furnished to the Engineer shall be fully capable of performing the duties set out herein and shall be fully qualified chiefs and/or chairmen, as required.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01090
REFERENCE STANDARDS

PART 1 GENERAL

1.01 REQUIREMENTS

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes established stricter standards.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.

1.02 ABBREVIATIONS, NAMES AND ADDRESSES OR ORGANIZATIONS

- A. Obtain copies of reference standards direct from publication source, when needed for proper performance of work, or when required for submittal by Contract Documents.

AA	Aluminum Association 818 Connecticut Avenue, N.W. Washington, DC 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capital Street, N.W. Washington, DC 20001
ACI	American Concrete Institute Box 19150 Reford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16th Street NW Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 179I Tullie Circle, N.E. Atlanta, GA 30329

ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
AWS	American Welding Society 2501 N.W. 7th Street Miami, FL 33125
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FDEP	Florida Department of Environmental Protection 3900 Commonwealth Boulevard Tallahassee, Florida 32399
FDOT	Florida Department of Transportation Standards Specifications for Road and Bridge Construction Maps & Publication Sales - Mail Station 12 605 Suwannee Street Tallahassee, FL 32399-0450
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Building 197 Washington, DC 20407
MLSFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
MMA	Monorail Manufacturer's Association 1326 Freeport Road Pittsburgh, PA 15238
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601

NEMA National Electrical Manufacturer's Association
2101 L Street N.W.
Washington, DC 20037

OHSA Occupational Safety and Health Association
5807 Breckenridge Parkway, Suite A
Tampa, FL 33610-4249

PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 20076

PCI Prestressed Concrete Institute
20 North Wacker Drive
Chicago, IL 60606

SDI Steel Door Institute
712 Lakewood Center North
Cleveland, OH 44107

SMACNA Sheet Metal and Air Conditioning Contractor's National Association
8224 Old Court House Road
Vienna, VA 22180

SSPC Steel Structures Painting Council
402 24th Street, Suite 600
Pittsburgh, PA 15213

SWFWMD Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604-6899

UL Underwriter's Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Construction Management Engineer shall schedule and administer a preconstruction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work and shall be responsible for the following:
 - 1. Prepare agenda for meeting.
 - 2. Distribute written notice of each meeting.
 - 3. Make physical arrangements for meeting.
 - 4. Designate who is to bring the plans and specifications.
 - 5. Preside at meetings.
 - 6. Record the minutes; include all significant proceedings and decisions.
 - 7. Reproduce and distribute copies of minutes:
 - a. To all participants in the meeting.
 - b. To all parties affected by decisions made at the meeting.
- B. The Construction Management Engineer shall invite representatives of the Contractor, other utility companies, Department of Transportation, Public Works, Development Services, Subcontractors, Engineer, and suppliers qualified and authorized to act on behalf of the entity each represents shall attend the meetings as necessary.

1.02 PRE-CONSTRUCTION MEETING

- A. Schedule promptly after the date of execution of the Contract.
- B. Location: A central site located within Sarasota County, convenient for all parties.
- C. Attendance:
 - 1. Representative from Sarasota County Utilities
 - 2. Inspector(s)
 - 3. Construction Management Engineer (meeting organizer)
 - 4. Contractor's Superintendent
 - 5. Contractor's Project Manager
 - 6. Major Subcontractors
 - 7. Major Suppliers
 - 8. Applicable Utility Companies
 - 9. Safety Officer(s)
 - 10. Others as appropriate

D. Suggested Agenda:

1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected construction schedules.
 - c. Schedule of values.
 - d. Pipe laying schedule.
 - e. Schedule of submittals.
2. Critical Work Sequencing.
3. Major equipment deliveries and priorities
4. Project Coordination.
 - a. Designation of responsible personnel.
5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders/Interim Field Change Agreement (IFCA).
 - e. Request for Information (RFI).
 - f. Applications for Payment.
6. Adequacy of distribution of Contract Documents.
7. Procedures for maintaining record documents.
8. Use of premises:
 - a. Office, work, and storage areas.
 - b. County's requirements.
9. Construction facilities, controls, and construction aids.
10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.

1.03 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the work.
- C. Attendance:
 1. Representative from Sarasota County Utilities
 2. Contractor's Superintendent

3. Sarasota County Environmental Services, Utilities Representative.
4. Inspector(s).
5. Contractor and subcontractor as appropriate to the agenda.
6. Suppliers as appropriate to the agenda.
7. Engineer.
8. Other utility companies.

D. Suggested Agenda:

1. Review of work progress since previous meeting.
2. Field observation, problems, and conflicts.
3. Issues which impede construction schedule.
4. Review of delivery schedules.
5. Corrective measures and procedures to regain projected schedule.
6. Revisions to construction schedule.
7. Safety.
8. Coordination of schedules.
9. Review submittal schedules; expedite as required.
10. Maintenance of quality standards.
11. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on work under other contracts.
12. Other business.

1.04 FIELD MEETINGS

- A. The Contractor may call for meetings in the field to review requirements, conflicts, or to coordinate the progress of work. At any such meetings between the Contractor and any regulatory agency, utility, or other Contractor that may affect the design or progress of the project, the Contractor shall give 24 hour written notice of the meeting to all parties.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Submittals, as referenced under this section, shall include the general requirements of shop drawings, product data, samples, and miscellaneous work-related submittals. The individual submittal requirements for each unit of work will be more particularly defined in the section applicable to the work item.
 - 1. Unless otherwise noted, each item of submittal shall be submitted to the Engineer and County via County contract management software for review and acceptance prior to fabrication, delivery, or installation.
 - 2. County's acceptance will be for general conformance of the product with the design concept and Contract Documents.
- B. Submittals shall be transmitted using the internet-based project management system, County contract management software.
 - 1. When it is not feasible to make submittals electronically, as in the case of product samples, the conventional approach of using mail or hand delivery may be used.
 - 2. Upload files to County contract management software in Portable Document Format (PDF) as generated by Adobe. Scan documents or convert electronic files into PDF format before uploading files to County contract management software.
 - 3. Scan resolution shall be 300 dpi or greater to allow for character recognition.
 - 4. Perform Optical Character Recognition (OCR) capture on images so text can be searched, selected, and copied from generated PDF file.
 - 5. Provide bookmarks for contents of all submittals allowing navigation through Adobe PDF bookmark window.
- C. The submittal will not be accepted for review unless it is clear, legible, and contains complete information in compliance with the Contract Documents. Submittals that are not accepted will be returned to the Contractor, via County contract management software, with notations of requirements necessary for acceptance. The Contractor shall resubmit revised material once it has been amended to comply with review comments. When marked RESUBMIT, do not proceed with work covered by submittal (purchasing, fabrication, delivery or other activity); revise submittal or prepare a new submittal and resubmit without delay, in accordance with County's notations stating reasons for returning submittal; repeat if necessary to obtain an accepted action marking.
- D. If submittals show deviations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall clearly describe such deviations in the letter of transmittal. If the Contractor fails to describe such deviations, no relief from the responsibility of executing the work in accordance with the Contract Documents will be granted, even though such submittals were reviewed and accepted.
- E. "Or equal" submittals for review shall be in accordance with the General Conditions, Substitutions of Equipment and/or Material.

1.02 DEFINITIONS

- A. The work-related submittals of this section, in addition to the definitions of the General Conditions and elsewhere in the Contract Documents, are defined as follows:
1. Shop drawings include, but may not be limited to, custom-prepared data of all forms including drawings, diagrams, pipe laying schedule, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form applicable to other projects.
 2. Product data includes, but may not be limited to, standard printed information on materials, products, and systems not custom-prepared for this project, other than the designation of selections from available choices.
 3. Samples include, but may not be limited to, both fabricated and un-fabricated physical examples of materials, products and work; both as complete units and as smaller portions of units of work; either for limited visual inspection or, where indicated, for detailed testing and analysis.
 4. Mock-ups are a special form of samples, which are, because of size, usually constructed on the project site.

1.03 GENERAL SUBMITTAL REQUIREMENTS

A. Coordination and Sequencing:

1. The Contractor shall coordinate the preparation and processing of submittals with the performance of the work and in accordance with the submittals schedule prepared in accordance with the General Conditions, so that work will not be delayed by the submittal process. The Contractor shall coordinate and sequence different categories of submittals for the same work, and for interfacing units of work, so that one will not be delayed for coordination with another. The Contractor should not proceed with purchasing, fabrication, or delivery of work related to a submittal until submittal procedure has been successfully completed.
2. No extension of time will be allowed by the County due to the failure of the Contractor to properly coordinate and sequence submittals or for delays caused by the failure of the Contractor to make complete submittals.

B. Preparation of Submittals:

1. Provide permanent marking on each submittal to identify it by project, date, Contractor, subcontractor, submittal name, project specification reference section and sequential number of each submittal to distinguish it from other submittals. Contractor's approval marking shall be on each submittal. Package each submittal individually for uploading to County contract management software. Submittals which are received directly from sources other than the Contractor will not be reviewed.
2. Where manufacturer's data sheets, catalog pages, or drawings have several items shown or a selection of characteristics shown in chart and graphs, the Contractor shall clearly mark the information to indicate exactly what will be supplied.

1.04 SPECIFIC CATEGORY SUBMITTAL REQUIREMENTS

- A. General: Individual submittal requirements for each unit of work will be more particularly defined in the section applicable to the work item.

B. Shop Drawings:

1. Provide newly-prepared information, show dimensions and notes which are based on field measure, identify materials and products, indicate compliance with standards, and note any special coordination requirements.
2. Maintain one (1) set of accepted shop drawings at the Site. Only shop drawing copies with the appropriate markings by the Contractor and the County are to be used in connection with the Work.

C. Product Data:

1. Collect the required data into one submittal for each material, product, or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements, which have been checked, and special coordination requirements. Maintain one (1) set of product data for each submittal at the Site, available for reference by the County and other authorized representatives.
2. Installer's Copy: Do not proceed with the installation of materials, products, or systems until a copy of the applicable product data, approved by the County, is in the possession of the Installer.

D. Samples:

1. Provide units identical with the final condition of the proposed materials or products for the work. Include "range" samples (not less than three (3) units) where variations occur, and identify each unit of each set. Provide full set of optional samples where County's selection is required. Prepare samples to match the County's sample where so indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliances with standards.
2. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the County, who will not "test" them (except as otherwise indicated) for other requirements, which are therefore the exclusive responsibility of the Contractor.
3. Submittal: At Contractor's option, the Contractor may provide a preliminary submittal of a single set of samples for the County's review and "Action". Otherwise, the initial submittal is the final submittal unless it is returned with "Action" which requires re-submittal. Submit three (3) sets of samples in the final submittal; two (2) sets will be returned.
4. Quality Control Set: Maintain one (1) of the returned final sets of samples at the project site, in suitable condition and available for quality control comparisons by the County and by other authorized representatives.
5. Reusable Samples: Samples which are intended or permitted to be returned and actually incorporated in the work are so indicated in the individual work sections but must be in undamaged condition at the time of use.

E. Inspection and Test Reports:

1. Submittal is classified either as "shop drawings" or "product data", depending upon whether the report is uniquely prepared for the project or a standard publication of regular product or workmanship control testing at the point of production (respectively).

1.05 CONTRACTOR'S REVIEW

- A. Contractor's Review: Before transmitting submittals to the County and Engineer, review submittals to:
 - 1. assure proper coordination of the Work;
 - 2. determine that each submittal is in accordance with Contractor's desires;
 - 3. verify that submittal contains sufficient information for Engineer to determine compliance with the Contract Documents.
- B. Incomplete or inadequate submittals will be returned without review.

1.06 COUNTY'S ACTION

- A. The Contractor shall submit each submittal and upload it to County contract management software. The Engineer will review and resubmit through the County contract management software with the action required marked on it.
- B. The mark will be a self-explanatory action stamp, marked and executed to indicate whether submittal is accepted or returned for re-submittal.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01301
SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Within ten (10) days of the date of the Notice to Proceed, or at the Pre-Construction meeting, whichever occurs first, the Contractor shall prepare and submit to the County a preliminary Schedule of Values, which breaks down lump sum Bid Items into individual work components and assigns quantities and prices for each item making up the total lump sum.
- B. The Schedule of Values shall be submitted through the County's contract manager software per Section 01300 – Submittals.
- C. This cost schedule shall be prepared on a form acceptable to the County, and shall provide for an equitable allocation of costs for each work item required of each lump sum bid item. The cost breakdown shall include overhead and profit, and all direct and indirect costs associated with each work item. The sum of all the work item costs shall total the Lump Sum Bid for each major item appearing in the Bid Schedule.
- D. The approved Schedule of Values shall be used as a basis for County review and approval of the Contractor's applications for payment. The payment application shall indicate the percent complete of each work item listed in the approved Schedule of Values.
- E. This cost schedule shall be developed independently but simultaneously with the development of the Construction/Progress Schedule for each work item of each activity.

1.02 CONTENT AND APPROVAL PROCESS

- A. The Schedule of Values shall include the proposed quantities and values of each work item associated with the Lump Sum Item Bid.
- B. The County shall review the Contractor's preliminary Schedule of Values as submitted, and may require changes be made as to the form or substance of this cost schedule. The County will accept the Schedule of Values if the price schedule establishes a reasonable allocation of values for the work components, and adequately provides a basis for review and approval of progress payments made by the Contractor.
- C. Front end loading of the Schedule of Values, or individual work items therein, will not be permitted.
- D. This cost schedule review and any necessary revisions shall be completed within fifteen (15) days of the date of the original submittal. No payment applications will be approved by the County unless an approved Schedule of Values is in place.

1.03 REVISIONS/UPDATES TO THE SCHEDULE OF VALUES

- A. Following County acceptance of the Schedule of Values, this cost schedule cannot be revised without the express approval of the County. As the Construction/Progress Schedule may be adjusted from time to time, it is understood that it may be necessary to adjust the Schedule of Values to correlate to the revised progress schedule. In such instances the Contractor shall propose changes to the price schedule for review and acceptance by the County.
- B. During the Work, greater detail may be required of the cost schedule, and shall be provided by the Contractor, as directed by the County.

- C. Should omissions by the Contractor be discovered in the approved Schedule of Values during the Work, the County may agree to adjust the cost schedule. Additions of work items with equal decreases in values to other work items may be made by mutual agreement without any increase in the Lump Sum Price of the Bid Item or change in Contract Times.
- D. Approved Interim Field Change Agreements (IFCA) not involving a change in Total Contract Price shall be incorporated into the Schedule of Values as a single line item identified by the IFCA number and description.
- E. Approved Contract Amendments involving a change in Total Contract Price shall be incorporated into the Schedule of Values as a single line item identified by the Contract Amendment number or other identifier.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01310

CONSTRUCTION/PROGRESS SCHEDULE

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Within ten (10) days of the date of the Notice to Proceed, or at the Pre-Construction meeting, whichever occurs first, the Contractor shall prepare and submit to the County the estimated Construction/Progress Schedule, in calendar days, based on the work items schedules and sub-schedules of related activities essential to the progress of the Work.
- B. Contractor shall submit revised progress schedules on a monthly basis. No partial payments shall be approved by the County until there is an updated and approved construction progress schedule on file.
- C. The Contractor shall designate an authorized representative who shall be responsible for development and maintenance of the schedule and of progress and payment reports. This representative of the Contractor shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the commitments of the Construction/Progress Schedule.
- D. The project scheduling software shall be approved by the County.
- E. The progress schedule shall demonstrate complete fulfillment of the Contract Document requirements utilizing a Critical Path Method (CPM) to coordinate, plan, schedule, and perform the work (including the activities of Subcontractors and suppliers) within the Contract Times or authorized extensions.
- F. All project schedule submittals shall be transmitted through the County's contract manager software as specified in Section 01300 – Submittals.

1.02 FORM OF SCHEDULE

- A. Prepare schedules in the form of a horizontal bar chart.
 - 1. Provide a separate horizontal bar for each activity of each work item. Work items shall, at a minimum, correlate to the Schedule of Values work items. Activities shall further break down the work items into smaller components, as approved by the County.
 - 2. Horizontal time scale: In weeks, from start of construction, identify the first work day of each month. The schedule shall identify the day, month, and year of starting and finishing each activity.
 - 3. Scale and spacing: Scale to fit on sheet size provided and sufficient space provided for notations and future revisions.
 - 4. Minimum sheet size: 11" x 17". Maximum sheet size: 22" x 34".
- B. Format: Provide a chronological order of the start and finish of each work item and each activity under each work item.

1.03 CONTENT OF SCHEDULE

- A. Show the complete sequence of construction by activity including: Activity beginning and ending date; Activity duration; Early start date; Early finish date; Late start date; Late finish date; Float time for each activity, Total float time; and Predecessor and Successor

relationships. **NOTE: Float is not time for the exclusive use or benefit of either the County or the Contractor. Extensions of time for performance may be granted by the County only to the extent that equitable time adjustments for the activity or activities affected exceed the total float.**

- B. Show the dates for the beginning of and completion of each element of Construction in no more than a one-week increment scale, including but not limited to:
 - 1. Submittals schedule and review timeliness
 - 2. Mobilization
 - 3. Individual Work Items as defined by the Contract Documents
 - 4. Activities under each Work Item
 - 5. Equipment and materials delivery of long lead items
 - 6. Substantial Completion Milestone
 - 7. Final Completion Milestone
 - 8. Other Milestones as required by the Contract Documents
- C. Show projected percentage of completion for each item, as of the progress schedule revision date.
- D. Show projected dollar cash flow requirements for each month of construction, updated as of the date of regular payment application.
- E. The schedule shall clearly identify the project's critical path.

1.04 PROGRESS REVISIONS

- A. Indicate progress of each activity as of the date of the progress schedule revision, while maintaining the original approved (baseline) schedule. Show actual start and finish dates, and actual milestone dates on the progress schedule.
- B. Show changes occurring since the previous revision of progress schedule for:
 - 1. Major changes in scope.
 - 2. Activities modified since previous revision.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended and its effect.
 - 3. The effect of changes on schedules of other prime contractor(s) and others.

1.05 SUBMISSIONS

- A. Submit initial schedule through the County's contract manager software within ten (10) days of the date of the Notice to Proceed or at the Pre-Construction meeting, whichever occurs first.
 - 1. The County will review schedule and return it to the Contractor for revisions, if required.

- 2. The Contractor shall resubmit a revised schedule within seven (7) days after return of review copy, if required, through the County's contract manager software.
- B. Submit revised monthly progress schedules with each month's application for payment through the County's contract manager software. **A payment application will not be considered for payment unless it is accompanied by an updated and approved progress schedule.**

1.06 DISTRIBUTION

- A. Upload the approved schedule to the County's contract manager software and instruct recipients to report promptly, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01380
CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for photographic documentation during construction.

1.02 REQUIREMENTS

- A. The Contractor shall employ a competent photographer to take construction record photographs periodically during the course of the Work and upload on the County's contract manager software.
- B. Construction record photographs are required to be uploaded on the County's contract manager software with each pay application.
- C. Payment for this section shall be incidental to the cost of the pipe.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 TECHNIQUE

- A. The photography shall be a factual presentation of the condition and progress of the Work.
- B. The photography shall be of correct exposure and focus and:
 - 1. High resolution and sharpness
 - 2. Maximum depth of field
 - 3. Minimum distortion

END OF SECTION

SECTION 01390

COLOR DIGITAL VIDEO CONSTRUCTION RECORDS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Work under this Section consists of requirements for pre- and post-construction color digital video recordings and written video logs/index to be submitted by the Contractor to the County.
- B. The Contractor shall provide all equipment, accessories, materials, and labor to complete this work. The finished product shall be a digital video recording that is bright, sharp, clear, with accurate colors, and clear audio, free of all distortion and other imperfections, and suitable for playback on either a laptop or workstation computer.

1.02 SCOPE

- A. Prior to commencing the Work and following Final Completion of the Work, the Contractor shall provide a continuous color audio-video recording of the entire construction area of the Project and adjacent surrounding areas (construction zone of influence), to serve as a record of the pre- and post-construction site conditions.
- B. The Contractor shall submit two (2) copies of the pre-construction video to the County, prior to submittal of the initial Payment Application. The Contractor shall make available to the County one (1) well-maintained copy of the video, including written logs/indexing, and a viewer at the Jobsite.
- C. As a condition of Final Completion, the Contractor shall have a continuous color-video recording taken of the entire construction area of the Project to serve as a record of post construction conditions and shall submit two (2) copies to County, prior to the submittal of the final Payment Application.

1.03 APPROVAL

- A. No construction shall begin prior to review and approval of the pre-construction video of the construction area by the County. Recording shall not be made more than thirty (30) days prior to construction start.
- B. The County shall have the authority to reject all or any portion of video not conforming to specifications and order that it be re-done at no additional cost to the County. The Contractor shall re-schedule unacceptable coverage within seven (7) days after being notified. The County shall designate those areas, if any, to be omitted from or added to the audio-video coverage.
- C. Final payment will not be made without the review and approval of the post- construction video of the construction area by the County. Recording shall be made within thirty (30) days of the date of Substantial Completion.

1.04 PROFESSIONAL VIDEOGRAPHER

- A. The Contractor shall engage the services of a commercial videographer. The color audio-video recordings shall be prepared by a person or firm known to be skilled in the preparation of pre- and post-construction color audio-video documentation. Two (2) references for which the videographer has performed similar work in the last four years shall be provided to the County.

- B. The Contractor shall furnish the County with a list of equipment to be used for the video, i.e., suppliers (manufacturer's) name, model number, specifications and other pertinent information, to ensure that the minimum specifications stated below are met.

1.05 SUBMITTALS

- A. Professional Videographer: The Contractor shall submit a qualifications statement for the proposed Professional Videographer. The qualifications statement shall include, but is not limited to, two (2) references for which the videographer has performed similar work within the last four (4) years.
- B. The Contractor shall submit the following information for the proposed equipment:
 - 1. Type of equipment.
 - 2. Manufacturer and model numbers.
 - 3. Equipment specifications.
- C. The Contractor shall submit two (2) copies of the pre-construction video to the County, prior to submittal of the initial Payment Application and two (2) copies of the post-construction video to the County prior to Final Payment Application.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The video portion of the recording shall produce bright, sharp, and clear pictures with accurate colors and shall be free from distortion, tearing, rolls, and any other form of picture imperfection. All digital video recordings shall, by electronic means, display on the screen the time of day, the month, day, and year of the recording. This date and time information shall be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce the commentary of the camera operator with proper volume, clarity, and be free from distortion.

2.02 EQUIPMENT

- A. Digital Video Camcorder: The color digital video camera shall meet the following minimum specifications:
 - 1. Video Format – 1080i or 1080p high definition; AVCHD-MPEG-4.
 - 2. Video Output – EIA Standard NTSC type color – 1.0V 75 Ohms.
 - 3. Lens Type – 10X Motorized Optical Zoom or greater with electronic or optical image stabilization.
 - 4. Sensor – 1/4-inch or 1/3-inch CCD or CMOS with 2.0 megapixel or greater effective still-image resolution suitable for high resolution 8”X10” prints.
 - 5. Minimum Illumination Rate – 0 to 7lux.
 - 6. Media – DVD, mini DVD, Flash memory card (SDHC, Memory Stick Duo Pro). If video is recorded on a hard disk drive, it must be downloaded in digitized format in order to produce no loss in resolution.
 - 7. Exposure and Focus Control – Automatic, with manual option.
 - 8. Still Image Format – JPEG

9. Microphone – Built-In; Stereo

10. Operating System Support – MS Windows XP; Windows2007

PART 3 - EXECUTION

3.01 RECORDED INFORMATION -VIDEO

- A. The video recordings shall contain coverage of all surface features and conditions within the construction zone of influence and shall include but not be limited to: roadways, pavements, easements, detention ponds, wetland areas, ditches, culverts, headwalls, walls, railroad tracks, curbs, driveways, sidewalks, retaining walls, buildings and structures, mailboxes, signs, landscaping, trees, shrubbery, fences, and include the Contractor's proposed staging areas and hauling routes. Of particular concern shall be the existence of any faults, fractures, or defects of these features. Coverage shall be limited to one side of the site, street, easement, or right of way at one time. The video recording shall continuously display transparent digital information to include the date and time of recording. The date information shall contain the month, day, and year. The time information shall contain the hour, minutes, and seconds.

3.02 RECORDED INFORMATION -AUDIO

- A. Accompanying the video recording shall be a corresponding and simultaneously recorded audio recording. Each recording shall begin with the current date and project name, and be followed by the general location, i.e., viewing side and direction of progress. This live audio recording, exclusively containing the commentary of the camera operator or aide, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall be free of extraneous conversations.

3.03 VIDEO LOG/INDEXING

- A. Video Identification: All DVD recordings or other media used to transfer the digital video recording, shall be permanently labeled and shall be properly identified by video number, project name, and location.
- B. Video Index: The complete video record shall be accompanied by a written index listing the consecutive numbering of each video, and area of coverage contained on each video, organized for pre- and post-construction.
- C. Video Log: Each video shall be accompanied by a written log of its contents. The log shall describe the various segments of coverage contained on that video in terms of the names of the streets or easements, coverage beginning and end including corresponding unit counter numbers, directions of coverage, and date.

3.04 LIGHTING AND VISIBILITY

- A. Recording shall only be performed during times of good visibility. No recording shall be done during periods of precipitation, mist, or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the features being recorded in order to produce bright, sharp video recordings of those features. No taping shall be performed when more than 10% of the area is covered with debris or obstructions.

3.05 CONTINUITY OF COVERAGE

- A. The coverage shall consist of a single, continuous, unedited recording which begins at one end of a particular construction area and proceeds uninterrupted to the other end of the construction area. However, where coverage is required in areas not accessible by conventional wheeled vehicles and smooth transport of the recording system is not possible, such coverage shall consist of an organized, interrelated sequence of recordings at various positions along that proposed construction area (e.g., wooded easement area). Such coverage shall be obtained by walking or by a special conveyance.

3.06 COVERAGE RATES

- A. The average rate of travel during a particular segment of coverage (e.g., coverage of one side of a street) shall be indirectly proportional to the number, size, and value of the surface features being recorded within that area's construction zone of influence. The average rate of travel shall not exceed forty-four (44) feet per minute (approximately 1/2 m.p.h.).

3.07 CAMERA OPERATION

- A. Camera Height and Stability: If conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed ten (10) feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture. The camera may be hand held if the final product produces a steady picture.
- B. Camera Control: Camera pan, tilt, zoom-in, and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video playback. In addition, all other camera and recording system controls such as lens focus and aperture, video level, pedestal, chrome, white balance, and electrical focus shall be properly controlled or adjusted to maximize picture quality. The video shall be recorded in SP (Standard Play) mode.
- C. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. Visual displays of all visible building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the video viewer, highly visible flagged stakes shall be placed by the Contractor in such a fashion as to clearly indicate the proposed centerline or limits of construction.

3.08 COST OF VIDEO SERVICES

- A. The cost to complete the requirements under this section shall be included in the costs of pipeline installation. No separate payment will be made for this item of work.

END OF SECTION

SECTION 01400
GENERAL QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific quality control requirements for the work are indicated throughout the Contract Documents. In particular, quality control provisions for manufactured products are specified in individual work sections and in other related sections of Division 1 of these technical specifications; and are not repeated in this section. The requirements of this section are primarily related to the performance of the work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not necessarily limited to, inspection and testing and associated requirements. This section does not specify or modify the Engineer's duties relating to Contract quality review and observation.

1.02 QUALITY ASSURANCE

- A. General Workmanship Standards: Except as more definitively specified in other sections of Division 1 of these technical specifications, comply with the recognized workmanship quality standards within the industry as applicable to each unit of work, including ANSI standards where applicable. It is a requirement that each category of tradesman or installer performing the work be pre-qualified to the extent of being familiar with the applicable and recognized quality standards for the category of work and capable of workmanship complying with those standards.

1.03 SUBMITTALS

- A. Refer to Section 01300 - Submittals for the general submittal requirements applicable to inspection and test reports, project photographs, damage surveys, quality control samples, maintenance agreements, guaranties, warranties, and similar documentation of quality compliances as required. Refer to the applicable individual work sections of Division 2 and 3 of these technical specifications where applicable for specific certification and submittal requirements.

- 1. Copies and Distribution: All submittals shall be made through the County's contract manager software, where inspection and test reports and certifications are required by governing authorities, hard copies may be required, and, where required, shall be sent directly from inspection or testing agency to governing authority.

1.04 PRODUCT DELIVERY, STORAGE, HANDLING

- A. Materials, supplies, and equipment delivered to the Site shall be inspected for damage, unloaded, and stored with a minimum of handling. Delivered items shall not be stored directly on the ground. Handle, store, and protect materials and products, including fabricated components, by methods and means recommended by the manufacturer which will prevent damage, deterioration, and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation. Periodically exercise equipment stored in accordance with the manufacturer's recommendations.
- B. The Engineer or County will refuse to accept or sample for testing, materials, supplies, or equipment that have been improperly or unsuitably stored.

- C. Materials, supplies, or equipment found defective or unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage sites and replaced with new materials, supplies, or equipment by the Contractor at no additional cost to the County.

1.05 RESPONSIBILITY FOR INSPECTIONS AND TESTS

A. Contractor's Responsibility:

1. It will be the Contractor's responsibility to employ and pay for the services of certified independent testing laboratories. In addition, the Contractor shall pay for all retests required due to failure to meet specifications.
 - a. The certified independent testing laboratories qualifications, test procedures, forms and quality control program description shall be submitted to the Engineer for review and approval.
2. No failure of test agencies, whether engaged by the County or Contractor, to perform adequate inspections or tests or to properly analyze or report results, shall relieve the Contractor of responsibility for the fulfillment of the requirements of the Contract Documents. It is recognized that the required inspection and testing program is intended to assist the Contractor, County, Engineer, and governing authorities in the nominal determination of probable compliances with requirements for certain crucial elements of work. The program is not intended to limit the Contractor in his regular quality control program, as needed for general assurance of compliances.

B. Coordination with County's Agencies:

1. Afford access and reasonable time in the construction sequence for County's inspections and tests to be performed. Cooperate with agencies and provide incidental labor and services needed for the removal and delivery of test samples, and for inspections and taking measurements. Provide patching and restoration services where test samples have been removed.

C. Test Agency Responsibilities:

1. Test agencies, regardless of whether engaged by the County or Contractor, are not authorized to change or negate the requirements of the Contract Documents. Each agency shall coordinate its assigned work with the construction schedule as maintained by the Contractor, and shall perform its work promptly so as not to delay the work avoidably. Observations (by agencies) having a bearing on the work shall be reported to the Engineer, in the most expeditious way possible, and shall be recorded in writing by the agency. Agency personnel shall not interfere with or assume the duties of the Contractor.

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. All equipment and materials furnished under these specifications shall be new and unused.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Pre-Installation Conferences:

1. Well in advance of the installation of every major unit of work which requires coordination with other work, the Contractor shall meet at the project site with installers and representatives of manufacturers and fabricators who are involved in or affected by the unit of work, and in its coordination or integration with other work which has preceded or will follow. The Contractor shall advise Engineer of scheduled meeting dates. At each meeting, review the progress of other work and preparations for the particular work under consideration including, but not limited to, the requirements of the Contract Documents, options, related change orders, purchases, deliveries, shop drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety, inspection and testing requirements, required performance results, recording requirements, and protection. The Engineer will record the significant discussions of each conference and the agreements and disagreements, along with the final plan of action. The Engineer will distribute record of meeting promptly to everyone concerned.
2. The Contractor shall not proceed with the work if the associated pre-installation conference cannot be concluded successfully. The Contractor shall instigate actions to resolve impediments to the performance of the work, and reconvene the conference at the earliest date feasible, but no longer than five (5) calendar days.

B. Installer's Inspection of Conditions:

1. The Contractor shall require the installer of each major unit of work to inspect the substrate to receive the work, and the conditions under which the work will be performed, and to report (in writing to the Contractor) unsatisfactory conditions. The Contractor shall not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.02 INSTALLATION QUALITY CONTROL

A. Manufacturer's Instructions:

1. Where installations include manufactured products, the Contractor shall comply with the manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.

B. The Contractor shall inspect each item of materials or equipment immediately prior to installation, and reject damaged and/or defective items.

1. The Contractor shall provide attachment and connection devices and methods for securing work properly as it is installed, true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements. Provide uniform joint widths in exposed work, organized for best possible visual effect. Refer questionable visual effect choices to Engineer for final decision.
2. The Contractor shall recheck measurements and dimensions of the work, as an integral step of starting each installation. The Contractor shall install work during

conditions of temperature, humidity, exposure, forecasted weather, and status of project completion, which will ensure the best possible results for each unit of work, in coordination with the entire work. Isolate each unit of work from non-compatible work, as required to prevent deterioration.

3. The Contractor shall coordinate enclosure (closing-in) of work with required inspections and tests, so as to avoid the necessity of uncovering work for that purpose.

C. Mounting Heights:

1. Except as otherwise indicated, the Contractor shall mount individual units of work at the industry-recognized standard mounting heights, for the applications indicated. Refer questionable mounting height choices to the Engineer for final decision.

- D. Adjust, clean, lubricate, restore marred finishes, and protect newly installed work to ensure that it will remain without damage or deterioration during the remainder of the construction period.

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. Providing adequate facilities at every stage of performing the work is the Contractor's sole responsibility and is not limited by these requirements.
- B. Except as otherwise indicated, the Contractor may, at his option, provide standalone 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.
 - 1. Except as otherwise indicated, the costs of providing and using temporary utility service are included in the Contract Sum.
- C. The types of utility services required for general temporary use at the Site include the following (other specific services may be required for specific construction methods or operations):
 - 1. Water service (potable for certain uses).
 - 2. Portable sanitary facilities.
 - 3. Open drainage/run-off control facilities.
 - 4. Compressed air service.
 - 5. Electric power service.

1.02 QUALITY ASSURANCE

- A. Regulations:
 - 1. Comply with governing regulations and utility company regulations and recommendations for the construction of temporary utility services; including (but not necessarily limited to) code compliances, permits, inspections, testing, and health and safety compliances.
 - 2. Comply with pollution and environmental protection regulations for the use of water and other services, and for the discharge of wastes and stormwater drainage from the project site.
 - 3. Comply with "Environmental Impact" commitments made by the County in securing approval to proceed with the construction of the project.
- B. Standards:
 - 1. Comply with the "Manual of Accident Prevention in Construction" by AGC. Comply with NFPA Code 241 "Building Construction and Demolition Operations". The Contractor shall follow all applicable codes and ordinances that may govern.

1.03 STORAGE FACILITIES

A. Storage:

1. All materials, supplies, and equipment intended for use in the work shall be suitably stored by the Contractor to prevent damage from exposure, mixture with foreign substances, or vandalism or other cause. The Engineer will refuse to accept, or sample for testing, materials, supplies or equipment that have been improperly stored, as determined by the Engineer.
2. Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site. Delivered materials shall be stored in a manner as recommended by the manufacturer and acceptable to the Engineer before any payment will be made.

1.04 CONTRACTOR'S FIELD OFFICE

A. Contractor shall provide a Contractor's field office with the minimum facilities specified. Provide all required storage and work sheds.

B. Field Office and Furnishings:

1. As required by Contractor, but with sufficient room for project meetings.
2. Include conference table and chairs sufficient for 10 persons.
3. Telephone service.
4. Computer network.
5. Five (5) protective helmets for visitor's use.
6. Exterior identifying sign.
7. Other furnishings at Contractor's option.

C. Provide one set of all Contract Documents in the office for ready reference at all times by interested parties.

D. Storage and Work Sheds:

1. Provide storage and work sheds sized, furnished, and equipped to accommodate personnel, materials, and equipment involved, including temporary utility services.

E. Remove office and sheds upon Final Completion, unless otherwise approved by Engineer.

F. Contractor shall pay for all permits and fees that may be required.

1.05 OPERATIONS AND TERMINATIONS

A. Inspections:

1. Prior to placing temporary utility services into use, inspect and test each service and arrange for governing authorities' required inspection and tests, and obtain required certifications and permits for use thereof.

B. Supervision:

1. Enforce strict discipline in the use of utility services. Limit availability to essential uses, to minimize waste. Do not allow the installations to be abused or endangered.

C. Protection:

1. Prevent water-filled piping from freezing, by ground cover or insulation or by keeping drained, or by temporary heating. Maintain distinct markers for underground lines and protect from damage during excavating operations.
2. The Contractor shall provide adequate signs, fences, barricades, flashing lights, flagmen and watchmen and take all necessary precautions for the protection of the work and the safety of the public. Traffic control warning signs and barricades shall be in strict accordance with the provisions of the Manual on Uniform Traffic Control Devices (MUTCD). All barricades and obstructions shall be protected at night by flashing signal lights, which shall be kept illuminated. Barricades shall be of substantial construction and suitable for night visibility. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist.
3. The Contractor shall at all times so conduct his work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property, in a manner satisfactory to the Engineer. No road or street shall be closed to the public, except with the permission of the Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times, unless approved by the Engineer and the appropriate fire protection agency is notified. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches.

D. Preservation:

1. Preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way 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, the Contractor, at no cost to the County, shall immediately restore it to its original condition.
 - a. In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the County may, after 48-hours notice to the Contractor, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary. The cost thereof will be deducted from any monies due or which may become due the Contractor under this Contract.
 - b. The Contractor shall be responsible for the protection of property in the vicinity of the project, and for the protection of equipment, supplies, materials, and work against any damage resulting from the elements such as flooding, rainstorm, wind damage, or other natural cause. The Contractor shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting from it.
 - c. The Contractor shall provide adequate drainage facilities, tie-downs, or other protection, throughout the Contract period, for the protection of Contractor's, the County's, and other properties from such damage.

2. The Contractor will be responsible to contact Florida Power and Light Company (FPL) to secure their facilities during construction, if such facilities interfere with the progress of the overall project. The Contractor shall include such services in the price of the installation of pipe and facilities throughout the project.

E. Termination and Removal:

1. At the time the need for a 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.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01505

MOBILIZATION

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Contractor shall mobilize as required for the proper performance and completion of the Work and in accordance with the Contract Documents.
- B. The Contractor shall not mobilize onto the Jobsite until a Notice to Proceed has been issued.
- C. Mobilization shall include the following items, as applicable:
 - 1. Moving onto the Jobsite tools, equipment, materials, and labor necessary to begin and continue the Work throughout the Project.
 - 2. Installing temporary facilities including construction power, wiring, and lighting.
 - 3. Establishing fire protection system.
 - 4. Developing construction water supply.
 - 5. Establishing field office.
 - 6. Providing on-site communication facilities, as required.
 - 7. Providing on-site sanitary and potable water facilities.
 - 8. Providing temporary storage facility, as required.
 - 9. Obtaining and posting required permits.
 - 10. Posting OSHA required notices and establishing Contractor's safety program.
- D. De-mobilization shall include the following:
 - 1. Removing as soon as practical, all plant, equipment, temporary facilities, and materials from the Jobsite at the end of the Project.
 - 2. Clean-up and restoration of all property disturbed by Contractor's operations to an as good or better condition existing prior to construction start.

1.02 PAYMENT FOR MOBILIZATION AND DEMOBILIZATION

- A. Unless otherwise provided for in the Bid Form, payment for this item of work shall be incidental to the other items bid under the Contract.
- B. Where a line item bid price for Mobilization and Demobilization is provided for in the Price Schedule of the Bid Form, payment will be in accordance with Section 01026 – Measurement and Payment.
 - 1. The costs of bonds, permits, insurance, overhead and profit, and all direct and indirect costs and expense associated with the individual work items incorporated in mobilization shall be included in the Lump Sum Bid Item.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01550
MAINTENANCE OF TRAFFIC

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The work of this Section consists of maintaining traffic within the project limits during the entire construction period, including any temporary suspensions of work, and includes all traffic control plans, facilities, devices, and operations as required for the safety and convenience of the public and to minimize public nuisance. The Contractor's work includes preparing a signed and sealed approved traffic control plans, construction, and maintenance of approved detour facilities, providing necessary facilities for access to residences and businesses along the project, furnishing, installing, and maintaining traffic control markings, signs, and safety devices, and any other special requirements for safe and expeditious movement of traffic in the project area and other impacted areas as specified herein.
- B. The Temporary Traffic Control Plan shown in the Contract Drawings has not been preapproved by Sarasota County and serves as a conceptual plan to complete the Work as shown in the Contract Documents.

1.02 STANDARD REQUIREMENTS FOR MAINTENANCE OF TRAFFIC

- A. The Maintenance of Traffic (MOT) plan shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD), and the Sarasota County Code for both pedestrian and vehicular traffic control at and around the work area. Regardless of the standards and specific traffic control plan used, it is the Contractor's responsibility to maintain the work zone in a safe condition and take precautions to protect the work and the safety of the public.

1.03 SUBMITTALS

- A. Traffic Control Plan – Prepare and submit a signed and sealed detailed work zone traffic control plan for County approval. The plan shall indicate a traffic control plan for each phase of the Contractor's activities.

1.04 SPECIFIC REQUIREMENTS

- A. The Contractor may not begin work until a traffic control plan is approved by the County and placed into operation.
- B. Traffic control plan modifications require the County's approval. Except in an emergency, no changes to the approved plan are allowed until written approval by the County is received by the Contractor.
- C. All roads will be kept open to two-way traffic during construction, except one-way roads and where otherwise approved in the MOT. Except in approved detoured areas, the Contractor will maintain one lane of traffic in each direction (each lane 10-foot wide minimum) at all times by using existing or constructing temporary pavement.
- D. Temporary pavement will consist of six-inch thick suitable base and one-inch thick asphalt concrete surface; cost is included in the cost of the pipe.
- E. Construction of major side streets can be phased similarly to maintain one lane of traffic in each direction (each lane 10-foot wide minimum) at all times by using existing or constructing temporary pavement.
- F. Cost of all barricades, temporary pavement marking, signing and any other items associated with the MOT are included in the cost of the pipe. The Contractor will erect and maintain all barricades, warning signs, and delineators.
- G. The Contractor shall remove any existing striping conflicting with MOT during construction

and provide adequate signing and/or striping. Advanced "road closed" warning signs shall be placed at side streets at the direction of the County.

- H. Paved temporary connections shall be provided at intersections as directed by the County.
- I. Alternate access will be provided to all residences and businesses whenever construction interferes with the existing means of access. The Contractor is not permitted to isolate residences or businesses.
- J. Major intersections shall have through movements maintained at all times during construction, except during short periods of time approved by the County.
- K. Traffic shall be maintained on paved, dust free surfaces at all times.
- L. The resetting of traffic signs on side streets and the resurfacing and/or pavement marking on detour roads and/or side streets before and after construction is completed shall be included in the cost of the pipe.
- M. The Contractor is responsible for establishing a work schedule so that any location under construction will not be left in a hazardous condition at the completion of any work period.
- N. When construction activities require flagmen for traffic control, the Contractor will employ the appropriate number of trained, competent flagmen, and will provide them with appropriate equipment in good condition.
- O. Temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, and garages will be provided and maintained in a safe condition by the Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01600

STORMWATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Prevention, control, and abatement of erosion and water pollution shall be the responsibility of the Contractor and produce end results as required by the rules of the applicable Federal, State and County regulatory agencies having jurisdiction.
- B. Prevention, control, and abatement of erosion and water pollution shall conform to the rules of the Department of Environmental Protection and other regulatory agencies having jurisdiction.
- C. The Contractor is required to present the schedule for construction of the project at the preconstruction conference as required. This schedule shall include a complete outline for the proposed construction of any and/or all of the pollution control and erosion abatement items. The Contractor is responsible for the implementation of the schedule after approval by the Engineer.
- D. The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Chapter 62-621, F.A.C. Contractor shall complete the necessary permit forms and pay the applicable fees for Notice of Intent and Notice of Termination, and comply with weekly inspection requirements as noted in the generic permit. The SWPPP shall be provided to the Engineer at the preconstruction conference. The SWPPP shall conform to the guidelines contained in The Environmental Protection Agency "Storm Water Management for Construction Activities - Developing Pollution Prevention Plans and Best Management Practices - Summary Guidance".

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall maintain the approved stormwater management plan at the Site. Any modification to the plan must be approved by the County. The plan shall incorporate best management practices in the use of erosion, sediment, and storm water control methods, be complete and in place prior to the start of construction as directed by the County.
- B. The Contractor shall not commence clearing, grubbing, grading, or other construction activities which may cause erosion until the plan is in place.
- C. The Contractor shall regularly inspect, maintain, and repair or replace damaged components of the stormwater management system, as required. The Contractor shall maintain the system until final acceptance.
- D. Once construction of the project has been completed and all disturbed areas stabilized, the Contractor shall remove all temporary erosion control facilities promptly.

END OF SECTION

SECTION 01666
TESTING PIPING SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. All work performed under this section shall conform to the Sarasota County "Uniform Water, Wastewater, and Reclaimed Water Systems Code", (Code), latest edition and the Sarasota County Unified Development Code (UDC), latest edition.
- B. The County will witness all tests and inspect each individual line and its appurtenances to determine whether the completed lines have met all test requirements, and are constructed true to line and grade as specified in the Contract Documents.
- C. All pipelines or sections of pipelines that are found to be installed improperly with respect to line or grade, joint deflection, broken or leaking sections of pipe, or are constructed in such a manner that they cannot be satisfactorily corrected otherwise, shall be removed and replaced at the Contractor's expense. All pipelines shall meet or exceed requirements of the Code.
- D. The Contractor shall provide and pay for all testing and equipment needed to complete all necessary tests required by the Code and listed in this section. Payment shall be included in the cost of the pipe.
- E. The Contractor shall prepare and submit a testing plan that includes, but may not be limited to, flushing procedures, identification of source water, disposal of water, cleaning procedures, and debris disposal.
- F. The Contractor shall pay for the construction water meter and the cost shall be incidental to the cost of the pipe.

1.02 TYPES OF PRESSURE TESTING

- A. Hydrostatic Pressure Testing:
 - 1. Water mains, including fire lines and hydrant branches, and associated appurtenances shall be hydrostatically tested in accordance with the Code.
- B. Low-Pressure Air Testing: Gravity sewers and sewer service laterals shall be low-pressure air tested in accordance with the Code.

1.03 DEFLECTION TESTS/T.V. INSPECTION/LAMPING

- A. Gravity sewers may require deflection tests, T.V. inspections, and/or lamping. The Contractor shall provide these services in accordance with the Code at the request of the County.

PART 2 - PRODUCTS

2.01 WATER, RECLAIMED WATER, AND FORCE MAINS

- A. The Contractor shall furnish a properly calibrated Type A oil filled gauge for measuring pressure during hydrostatic tests. The County shall approve the gauge to be used. The gauge will be marked at increments of not more than 2 psi. The Contractor will supply water, pumps, backflow preventers, personnel, and all appurtenances required for pressurizing and testing the utility lines.

2.02 GRAVITY SANITARY SEWERS

- A. Low Pressure Air Test: Sewer plugs, air compressor, air test gauges and controls, personnel, and all required accessories shall be supplied by the Contractor as approved by County.
- B. Deflection: Deflection tests shall be conducted with a ninety-five percent (95%) go/no-go mandrel, supplied by the Contractor.
- C. T.V. Inspection: The Contractor shall supply all equipment, materials, tools, and personnel to complete inspection, or obtain the services of an approved T.V. inspection company experienced in the T.V. inspection of sanitary sewers. The Contractor will supply the County with one complete copy of all video DVD's of the inspection.
- D. Lamping: When directed by the County, the Contractor shall supply all ladders, lamps, mirrors, personnel, and accessories to complete the lamping test.
- E. Contractor shall abide by all OSHA requirements relative to the piping system testing, including Confined Space Entry regulations.
- F. The Contractor shall provide all equipment, personnel, approved permit forms, and monitoring equipment to perform manhole or vault entries and inspections.

PART 3 - EXECUTION

3.01 WATER, RECLAIMED WATER, AND FORCE MAINS

- A. Prior to testing, all pipelines will be flushed and cleaned by the Contractor per Sarasota County Uniform Water, Wastewater, and Reclaimed Water Systems Code.
- B. Where practical, pipelines shall be tested between line valves or plugs in lengths of not more than 3,000 feet unless authorized by the County.
- C. Duration of test shall be not less than two (2) hours.
- D. Where leaks are visually evident, the joints shall be repaired such that no visible leakage remains, regardless of whether total leakage shown by the leakage test is within allowable limits.
- E. All pipes, fittings, and other materials found to be defective shall be removed and replaced.
- F. Lines which fail shall be repaired and retested as necessary until requirements are met. No additional payment will be provided for failed tests.
- G. Disinfection and bacteriological testing of all potable water mains shall conform to the County Code; the Contract Documents; and the American Water Works Association Standard AWWA C651-Standard for Disinfecting Water Mains.

3.02 GRAVITY SANITARY SEWERS

- A. Prior to testing, all pipelines shall be flushed and cleaned by the Contractor. The County will inspect the pipelines to ensure the lines are clean, clear, and free of all debris and dirt. The completed sewer lines, manholes, and wet wells shall be inspected and tested for leakage. The tests shall be conducted by the Contractor per the Code and as directed by the County. The Contractor shall furnish all materials, tools, equipment, and personnel required to conduct tests as specified.

- B. The County will then inspect the line from manhole to manhole by use of lights and mirrors, and/or TV inspection (supplied by Contractor) to determine that the completed lines are clean, and free of unacceptable “dips”, as defined by the Code.
- C. All lines or sections of lines that are found to be laid improperly with respect to line and grade (excessive deflections or “dips” as defined by the Code), or that are found to contain broken or leaking sections of pipe, or other unacceptable conditions defined in the Code, shall be removed and replaced by the Contractor at Contractor's expense.
- D. The County will determine which test or tests will be required for each section of sewer line.
 - 1. The exfiltration test will be made on each section of pipe between manholes after the pipeline has been installed and preferably prior to backfilling of joints. Tests shall be conducted by plugging the lower end of the section of the sewer to be tested and filling the sewer to a point approximately five feet above the invert at the upper end, observing for leakage at all joints and measuring the amount of leakage for the required interval of time. All observed leaks shall be corrected even though exfiltration is within allowable limits.
 - 2. The test for infiltration will be made by plugging the outlet pipe at the upstream manhole so that a weir measurement may be made at the downstream manhole of the sewer line. This infiltration test will not be conducted until the sewer line has been completed. The Contractor will be required to correct all conditions that cause excessive infiltration and may be required to remove and reinstall such sections of the line that may not be corrected otherwise. All observed leaks shall be corrected even though infiltration is within allowable limits.
 - 3. The low-pressure air testing will be conducted following the installation, plugging, backfilling, and compacting of all sewer service connections.
 - 4. All tees and ends of sewer services shall be plugged with flexible joint plugs or caps securely fastened to withstand the internal tests pressures. Such plugs or caps shall be readily removable, and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
 - 5. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches a minimum of 3.5 pounds per square inch gauge (psig). The pressure shall be increased based on the groundwater elevation above the pipe's spring-line, per the Code. Allow at least two minutes for temperature stabilization. Allowable leakage shall not exceed the Code requirements.
- E. Deflection: Deflection tests to be conducted with an appropriately sized go/no-go mandrel following the manufacturer's instructions and accomplished on a manhole-to-manhole basis, following complete flushing and cleaning of the line. Deflection test failures will be cause for replacement or relaying of failed sections.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Project Closeout is defined to include the general requirements near the end of the Contract Time in preparation for final acceptance, final payment, occupancy by the County, and similar actions evidencing completion of the Work.
- B. General requirements for Substantial and Final completion are included in the General Conditions; Specific requirements for individual work items are defined in applicable sections of Contract Documents.
- C. Contractor shall provide assistance during substantial and final completion walkthroughs.

1.02 PREREQUISITES FOR SUBSTANTIAL COMPLETION

- A. Prior to requesting County's inspection for Certification of Substantial Completion for the entire work or portions thereof, as required by the General Conditions, Contractor shall complete the following as applicable to the Project, listing all known exceptions in Contractor's request to the County:
 - 1. Provide responsible representative to participate in a walkthrough of the Site to prepare a final punch list of work remaining to be completed and submit to the County.
 - 2. Complete start-up testing and operations of all equipment and facilities to be transferred at Substantial Completion.
 - 3. Obtain in County's name the Certificate of Occupancy (C.O.); regulatory and permitting agency authorizations for permit close-outs; operating certificates, including Department of Health Certification to place the systems in service; equipment start-up reports, including inspection logs and certified test results; and all such similar releases enabling the County's full and unrestricted use of the Work and access to and use of services and utilities.
 - 4. Obtain Florida Department of Environmental Protection (FDEP) certifications and/or Sarasota County Department of Health certifications.
 - 5. Provide operations and maintenance manuals or the equipment to be transferred at Substantial Completion and arrange County staff training by Manufacturer's factory trained personnel on the operations and maintenance of the equipment and facilities being transferred.
 - 6. Prepare a list of recommendations for change-over items, including maintenance and security transfer responsibilities, and transmit keys to the County for the facilities to be occupied.
 - 7. Sign and submit Certificate of Substantial Completion on a form prescribed by, or acceptable to, the County.

1.03 PREREQUISITES FOR FINAL ACCEPTANCE

- A. Prior to requesting County's final inspection for certification of final acceptance and final payment as required by the General Conditions, Contractor shall complete the following as applicable to the Project. There shall be no exceptions to the items noted below:

1. Submit statement showing final accounting of the Contract Sum.
2. Provide responsible representative to participate in a walkthrough of the Site to confirm items on Substantial Completion Punch List have been addressed and properly resolved.
3. Submit final record documents, including as-built drawings, complete maintenance manuals, final project videos, and similar final record information applicable to the Project, as required by the Contract Documents.
4. Deliver tools, spare parts, extra stocks of materials, and similar physical items to County, as provided in the Contract Documents.
5. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of the time of Substantial Completion or when County took possession of and responsibility for corresponding elements of the work.
6. Complete all training of and instruction to the County's Operations and Maintenance staff by Manufacturer's factory trained personnel.
7. Remove all temporary facilities from the Jobsite, including formwork, falsework, mock-ups, and similar elements.
8. Touch-up and otherwise repair and restore marred exposed finishes.
9. Complete final clean-up. Submit certified warranties and guaranties, including special guaranties called for in the individual items of work sections, extended bonds, maintenance agreements, final certifications and similar documents.
10. Submit final payment request, including "Contractor's Final Affidavit & Release of Lien" form.
11. Submit certified copy of County's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the County.
12. Sign and submit the "Final Completion and Acceptance Certificate" on a form prescribed by, or acceptable to, the County.
13. Submit all Certified Warranties as specified.

1.04 RECORD DOCUMENT SUBMITTALS

- A. General requirements for record documents are defined in the General Conditions and specific requirements for record documents are indicated in individual work item sections of the Contract Documents.
- B. As-Built Drawings:
 1. The Contractor shall maintain at the Site one (1) set of Construction Plans to serve as "As-Built" drawing for eventual final delivery to the County, as defined in the General Conditions.
 2. The Contractor shall mark whichever drawing(s) is most capable of showing the as-built condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at the corresponding location on the Construction Plans.

3. The Contractor shall note changes to the Work related to IFCA and Contract Amendments, where applicable on the As-Built Drawings.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURE

A. General Operating/Maintenance Instructions:

1. The Contractor shall arrange for a Manufacturer's factory trained technician to provide start-up services of the equipment and systems. The technician shall meet with the County's personnel at the project site at an agreed upon date and time to provide instructions needed for proper operation and maintenance of the overall system, and each of its components. The Contractor shall prepare and provide the County with the required copies of the Operations and Maintenance manuals, including record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures for the equipment and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. The Contractor shall provide applicable guaranties, warranties, maintenance agreement, extended bonds, and similar continuing commitments.

B. Documentation:

1. Submit to the County electronic copies in Portable Document Format (PDF) of all Operation and Maintenance Manuals by Division, start-up logs, mechanical schematics and Certified Warranties.
2. The only exception to the above is for Certified Warranties where hard copies are the only authorized version.

3.02 FINAL CLEANING

A. Removal of Temporary Facilities:

1. Except as otherwise indicated on the Construction Plans or required by the County, the Contractor shall remove all temporary protection devices, including formwork and false-work, and other temporary facilities which are no longer required.

B. Clean-Up Compliance:

1. The Contractor shall comply with safety standards and governing regulations for cleaning operations. Remove waste materials from the Site and dispose of in a lawful manner.
2. The Contractor shall not burn waste materials at the Site or bury debris or excess materials on the County's property or discharge volatile or other harmful or dangerous materials into drainage systems.

END OF SECTION

SECTION 01730

OPERATION AND MAINTENANCE MANUALS

PART 1 – GENERAL

1.01 SUMMARY

- A. The following section includes a description of the administration of the submittal process and content requirements for Operation and Maintenance (O&M) Manuals.

1.02 DEFINITIONS

- A. Equipment O&M Manuals shall contain the technical information required for proper installation, operation and maintenance of process, electrical and mechanical equipment and systems.
- B. Building Materials and Finishes O&M Manuals shall Contain the information required for proper installation and maintenance of building materials and finishes.

1.03 DESCRIPTION OF REQUIREMENTS

- A. Contractor shall submit a list of all the O&M Manuals required by the Contract as identified in the Technical Specification Sections. These may be referred to as "Operation and Maintenance Data" submittals.
- B. Draft and Final versions of the O&M Manuals shall be submitted as electronic copies in PDF and uploaded to the County's contract manager software. Contractor shall provide electronic copies of approved Final O&M Manuals on CD-ROMs or flashdrive.
 - 1. All Draft O&M Manuals shall be received by no later than 50 percent project completion. Drafts shall include placeholders or fly sheet pages where information is not final or is missing.
 - 2. All Final O&M Manuals shall be obtained at least 30 days prior to equipment start-up.
- C. Contractor shall issue addenda to approved Final O&M Manuals which include equipment data that requires collection after start-up, equipment field testing data, and equipment start-up reports.

1.04 SUBMITTALS

- A. Identify each equipment item in a manner consistent with names and identification numbers used in the Contract Documents, not Manufacturers' catalog numbers.
- B. Number each submittal with the Specification Section number followed by a series numbers beginning with "-01" and increasing sequentially with each additional transmittal, followed by "-OM" (for example: 11130-01-OM).
- C. Operation and Maintenance Manual Format:
 - 1. Provide manual in Adobe Acrobat Portable Document Format (PDF), latest version.
 - 2. Create one (1) PDF file for each equipment Operation and Maintenance Manual.
 - 3. Do not password protect or lock the PDF document.
 - 4. Scanned images of paper documents are not acceptable. Create the Operation and Maintenance Manual PDF file from the original source document.

5. Manuals in PDF format shall be uploaded to the County's contract manager software.

D. Equipment Operation and Maintenance Manual Content:

1. Provide a cover page as the first page of each manual with the following information:
 - a. Manufacturer(s) Name and Contact Information.
 - b. Vendor's Name and Contact Information.
 - c. Date (month, year).
 - d. Project Owner and Project Name.
 - e. Specification Section.
 - f. Project Equipment Tag Numbers.
 - g. Model Numbers.
 - h. Engineer's Name.
 - i. Contractor's Name.
2. Provide the following detailed information, as applicable:
 - a. Use equipment tag numbers from the Contract Documents to identify equipment and system components.
 - b. Equipment function, normal and limiting operating characteristics.
 - c. Instructions for assembly, disassembly, installation, alignment, adjustment, and inspection.
 - d. Operating instructions for start-up, normal operation, control, shutdown, and emergency conditions.
 - e. Lubrication and maintenance instructions.
 - f. Troubleshooting guide.
 - g. Specific products and component parts and data applicable to the installation for the Project; delete or cross out information that does not specifically apply to the Project.
 - h. Parts lists:
 - 1) A parts list and identification number of each component part of the equipment.
 - 2) Exploded view or plan and section views of the equipment with a detailed parts callout matching the parts list.
 - 3) A list of recommended spare parts.
 - 4) A list of any special storage precautions which may be required for all spare parts.
 - i. General arrangement, cross-section, and assembly drawings.
 - j. Electrical diagrams, including elementary diagrams, wiring diagrams,

connection diagrams, and interconnection diagrams.

- k. Test data and performance curves.
- l. As-constructed fabrication or layout drawings and wiring diagrams.
- m. Copy of the equipment manufacturer's warranty meeting the requirements of the Contract.
- n. Copy of the Manufacturer's Field Services report for each piece of equipment where a Manufacturer's representative is present on site at the time of start-up.
- o. Copy of any service contracts provided for the specific piece of equipment as part of the Contract.

E. Building Materials and Finishes Operation and Maintenance Manual Content:

- 1. Provide a cover page as the first page of each manual with the following information:
 - a. Manufacturer(s) Name and Contact Information.
 - b. Vendor's Name and Contact Information.
 - c. Date (month, year).
 - d. Project Owner and Project Name.
 - e. Specification Section.
 - f. Model Numbers.
 - g. Engineer's Name.
 - h. Contractor's Name.
- 2. Provide the following detailed information, as applicable:
 - a. Building products, applied materials and finishes including product data, with catalog number, size, composition and color and texture designations.
 - b. Provide information for ordering custom manufactured products.
 - c. Include product MSDS for each approved product and any precautionary application and storage guidelines.
 - d. Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.
 - e. For moisture protection and weather exposed products, include product data listing, applicable reference standards, chemical composition, and details of installation.
 - f. Provide recommendations for inspections, maintenance and repair.

1.05 ENGINEER'S REVIEW ACTION

A. Draft Electronic (PDF) Submittals:

- 1. Engineer will review and indicate one of the following review actions:

- a. A - ACCEPTABLE
 - b. B - FURNISH AS NOTED
 - c. C - REVISE AND RESUBMIT
 - d. D - REJECTED
2. Submittals marked as Acceptable or Furnish As Noted will be retained; however, the transmittal form will be returned with a request for the final paper and electronic documents to be submitted.
 3. Copies of submittals marked as Revise and Resubmit or Rejected will be returned with the transmittal form marked to indicate deficient areas.
 4. Contractor shall resubmit until draft O&M Manuals until the draft is approved by the County and Engineer.

B. Final Paper Copy Submittals:

1. Engineer will review and indicate one (1) of the following review actions:
 - a. A - ACCEPTABLE
 - b. D - REJECTED
2. Submittals marked as Acceptable will be retained with the transmittal form returned as noted.
3. Submittals marked as Rejected will be returned with the transmittal form marked to indicate deficient areas.
4. Contractor shall resubmit until draft O&M Manuals until the final copy is approved by the County and Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01740
WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Engineer for review and transmittal.
- F. All warrantees and bonds shall meet the requirements from General Conditions and Supplemental Conditions Section 15.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Number of original signed copies required: Two each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service maintenance contract.
 - 6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
 - 7. Contractor, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8-1/2" inch x 11" inch punched sheets for standard 3-ring binder. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List the following:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.04 TIME OF SUBMITTALS

- A. Make submittals within ten days after date of substantial completion and prior to final request for payment.

- B. For items of work, where acceptance is delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.05 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, service and maintenance contracts as specified in respective sections of Specifications.
- B. Approval by the County of all documents required under this section is a pre-requisite to requesting a final inspection and final payment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02064

MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required to modify, alter, and/or convert existing structures as shown or specified and as required for the installation of piping, mechanical equipment, and appurtenances. Existing piping and equipment shall be removed and dismantled as necessary for the performance of facility alterations in accordance with the requirements herein specified.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall cut, repair, reuse, excavate, demolish or otherwise remove parts of the existing structures or appurtenances, as indicated on the Contract Drawings, herein specified, or necessary to permit completion of the work under this Contract. The Contractor shall dispose of surplus materials resulting from the above work in an approved manner. The work shall include all necessary cutting and bending of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.
- B. The Contractor shall dismantle and remove all existing equipment, piping, and other appurtenances required for the completion of the work. Where called for or required, the contractor shall cut existing pipelines for the purpose of making connections thereto. Anchor bolts for equipment and structural steel removed shall be cut off one inch below the concrete surface. Surface shall be finished as specified in the Contract Documents.
- C. At the time that a new connection is made to an existing pipeline, additional new piping, extending to and including a new valve, shall be installed. Pipe anchorage, if required as part of the installation, shall also be installed as directed by the County.
- D. No existing structure, equipment, or appurtenance shall be shifted, cut, removed, or otherwise altered except with the express approval of and to the extent approved by the County.
- E. When removing materials or portions of existing utility pipelines and/or structures or when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, and not to damage the structures or contents by falling or flying debris. Unless otherwise permitted, line drilling will be required in cutting existing concrete.
- F. Materials and equipment removed in the course of making alterations and additions shall remain the property of the County, except that items not salvageable, as determined by the County, shall become the property of the Contractor to be disposed of off Site by the Contractor.
- G. All alterations to existing utility pipes and structures shall be done at such time and in such manner as to comply with the approved time schedule.
- H. All workmanship and new materials involved in constructing the alterations shall conform to the Contract Documents.
- I. All cutting of existing concrete or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective section of these Specifications covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the County.

- J. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
- K. Non-shrink grout shall be used for setting wall castings, sleeves, doweling anchors into existing concrete and elsewhere as shown.
- L. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, the Contractor shall use flanges, or provide Dresser Couplings, as required.
- M. The Contractor shall provide flumes, hoses, piping and other related items to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of water or other liquids, all as required in the performance of the work under this Contract.
- N. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

3.02 CONNECTING TO EXISTING PIPING AND EQUIPMENT

- A. The Contractor shall verify exact location, material, alignment, joint, etc. of existing piping and equipment prior to making the connections shown. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection. A Sarasota County representative must be present for all tie-ins for a visual inspection.

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of site clearing shall be limited to clearing those trees and brush necessary to provide access to the Site. All trees which will not interfere with construction shall be protected from damage as required by the County. The Contractor shall not remove any tree without written permission from the County. Cost to protect trees, shrubs, etc. is incidental to the project cost. All Protection and Removal of trees shall be in accordance with County ordinances.
- B. Site clearing work includes, but is not limited to, the following:
 - 1. Protection of existing trees.
 - 2. Removal of trees and other vegetation.
 - 3. Removal of Muck.
 - 4. Removal of Asphalt.
 - 5. Removal of Curb and Gutter.
 - 6. Removal of Culvert Pipes.
 - 7. Removal of General Pipes.
 - 8. Other types of obstructions (direct or indirect) with the construction of the project. This does not limit to only conflicts shown on the plans.

1.02 JOB CONDITIONS – CONTRACTOR RESPONSIBILITY

- A. Protection of Existing Improvements:
 - 1. Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
 - 2. Protect improvements on adjoining properties and on the County's property.
 - 3. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.
- B. Protection of Existing Trees and Vegetation:
 - 1. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip lines, excess foot or vehicular traffic, or parking of vehicles within drip line.
 - 2. Provide temporary guards to protect trees and vegetation to remain.
 - 3. Water trees and other vegetation to remain within the limits of the Contract work as required to maintain their health during the course of construction operations.
 - 4. Provide protection for roots over 2-inch diameter cut during construction operations. Coat the cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SITE CLEARING

A. General:

1. The Contractor shall remove vegetation, improvements, or obstructions interfering with installation of new construction.
2. The Contractor shall carefully and cleanly cut roots and branches of trees indicated to remain, where such roots and branches obstruct new construction.

B. Removal of Improvements:

1. The Contractor shall remove above-grade and below-grade improvements necessary to permit construction, and other work as indicated.

3.02 DISPOSAL OF WASTE MATERIALS

A. Burning on County's Property: Burning is not permitted on the County's property.

B. Removal from County's Property: The Contractor shall dispose of unsuitable materials and excess soil to an appropriate disposal site(s) in accordance with all applicable County, local, and state permits and regulations.

END OF SECTION

SECTION 02222

TRENCHING, COMPACTING, AND BACKFILLING

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 herein.

1.02 DEFINITIONS

- A. Excavation: 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.
- B. Cavity: Formed by the removal of earth and rock.
- C. 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
- D. 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 that is used to remove earth overburden without the use of explosives, rock rippers, rock hammers, or jack hammers.
- E. Undercutting: Excavation of rock and unsuitable earth below the bottom of a foundation, structure, pipe, or conduit to be constructed or installed.
- F. Subgrade: Undisturbed bottom of an excavation.
- G. Bedding: Earth placed in trench to support pipe and conduit.
- H. Backfill and Fill: Earth placed around structures from the bottom of an excavation to finished grade, or to the sub base of pavement. Earth placed in a trench from the top of bedding to finished grade, or to sub base of pavement.
- I. Structural Compact Fill: Required to establish the finished grade should consist of clean cohesion less fill comprising the SP to SP-SM unified soil classification or ASSHTO A-3 Classification. Each lift, which should not exceed 12 inches, should be uniformly compacted to not less than 98% of the modified proctor maximum density.
- J. Topsoil: Earth containing sufficient organic materials to support the growth of grass.

1.03 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg Rammer and a 457-mm Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
6. ASTM D6031/D6031M - Standard Test Method for Logging In Situ Moisture Content and Density of Soil and Rock by the Nuclear Method in Horizontal, Slanted, and Vertical Access Tubes.
7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

1.04 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings:

1. Excavation Protection Plan:

- a. Prior to starting excavation operations, submit written plan to demonstrate compliance with OSHA 29 CFR Part 1926.650.
- b. Describe sheeting, shoring, and bracing materials and installation, as required, to protect excavations and adjacent structures and property.
- c. Submit signed and sealed Shop Drawings with design calculations and assumptions to support plan.
- d. Plan shall include proposed dewatering system(s).

C. Product Data: Submit manufacturer information for geotextile fabric, indicating fabric and construction.

D. Samples: Submit, in airtight containers, one 10-lb. sample of each type of fill to testing laboratory.

E. Materials Source: Submit name of imported materials suppliers.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statement:

1. Submit qualifications for licensed professional.

1.05 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 County and Engineer of such conditions before they are disturbed.

1.06 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation and landfill work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Service: The Contractor shall 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 County. The cost of tests revealing unsatisfactory results will be deducted from monies due to 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 Bedding: Pipe bedding material for Type A-2 trenches shall be No. 57 crushed stone with gradation as noted in Table 1 of Section 901 of the FDOT Standard Specifications.
- C. 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.
- D. 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

- E. 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
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

- F. 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 utilities that have to be removed or relocated are encountered within the areas of operations, the Contractor shall notify the County 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 provide said written consent to the County.
- 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. Drainage ways 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.
- C. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends or cuts to branches over 2" diameter shall be treated with an asphalt base pruning paint. Backfill with earth over exposed roots as soon as possible.

3.03 STRIPPING AND STOCKPILING TOPSOIL

- A. Strip topsoil and vegetation from the areas to be excavated. Clean topsoil may be stockpiled for reuse; the Contractor shall coordinate with the County for location of excavated stockpiled materials.
- B. The Contractor shall obtain all necessary permits and approvals required for all stockpiled materials.

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. Undercutting shall not be permitted, except when ordered by the County in writing.
- B. The Contractor shall keep pipe laying operation as close to the excavation operation as possible during the prosecution of the work. The County reserves the right to stop the excavation at any time when it is the excavation is opened too far in advance of the pipe laying.
- C. Pipe trenches shall be excavated to a depth that will insure a minimum cover, as shown on the plans, of cover for all types of pipe, except service laterals. Depth of trenches shall be such as to allow installation of pipelines at the grades or elevations shown.
- D. Trenches shall be only of sufficient width to provide a free working space on each side of the pipe. To prevent excess pressure on the pipe, the maximum width of trench at the top of the pipe and at the bottom of the trench shall not be greater than 2' more than the greatest exterior diameter of the pipe. If this maximum width is exceeded, it shall be the Contractor's responsibility to provide, at no additional cost to the County, such additional bedding or select backfill materials as the County may require. The excavation below the spring line shall be made to conform as near as possible to the shape of the lower third of the pipe. To protect the pipelines from unusual stresses, all work shall be done in open trenches. Excavation shall be made for bells of all pipes and of sufficient depth to permit access to the joint for construction and inspections. In no case will the bells be used to support the body of the pipe.
- E. 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. Trenches shall be of such extra width, when required, to permit the placement of supports, sheeting, bracing, and appurtenances. If this extra width is needed, it shall be the Contractor's responsibility to provide, at no additional cost to the County,
- F. In order to avoid existing utilities, at times it may be necessary for the pipe to be laid deeper than the minimum cover specified in the preceding paragraph. At such time the Contractor will not be allowed extra compensation for additional excavation involved.
- G. In case excavation has been made deeper than necessary, a layer of concrete, fine gravel or other material satisfactory to the County shall be placed, at no extra cost, to secure a firm foundation for the lower third of each pipe. Where possible, excavated material shall be placed so as not to interfere with public travel. Bridging shall be provided to afford necessary access to public or private premises. Bridging shall be considered as part of the excavation operation and shall be supplied at no additional cost to the County.
- H. For inlets, manholes, valve pits and similar structures, remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, and the County may order, in writing, such changes in dimensions or elevations of footings as may be deemed

necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12" in the clear between their outer surfaces and the embankment or timber that may be used to protect them. Backfill of earth under structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the Contractor.

1. After excavation for a structure is completed, the Contractor shall notify the County to that effect. No concrete or reinforcing steel shall be placed until the County has approved the depth of the excavation and the character of the foundation material.
-
- H. 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 any time during operations, shall be removed or made safe before excavating is begun.
 - I. 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.
 - J. 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.
 - K. Flatten the excavation sides when an excavation has water conditions, silty materials, loose boulders, and areas where erosion and slide planes appear.
 - L. 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.
 - M. 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.
 - N. 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.
 - O. 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.

3.04 DRAINAGE

- A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the County in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level as described by the most current noise ordinance.
- B. Discharge of water shall be in conformance with Section 02520, Part 3.07 of these technical specifications. The Contractor will not be allowed to discharge water into private property without consent to the Contractor from the property owner(s) or owner(s) association.

- C. The Contractor is responsible for following all environmental requirements. The Contractor shall be financially responsible for any nuisance created due to discharge of water from his drainage system.

3.06 DEWATERING

- A. All installations shall be within a dry area, unless otherwise approved by the County. Dewatering systems shall be utilized in accordance with good standard practices and must be efficient enough to lower the ground water level in advance of the excavation and maintain it continuously to keep the trench bottom and sides firm and dry. Sewer systems shall not be used as a drainage system for ground water.
- B. The Contractor shall have on site or available for immediate use at all times, dewatering equipment adequate to handle the ground water present. When well points are used, sufficient header pipe and points shall be provided to maintain a dry and workable excavation. All well points shall be installed with a shell or sand filter around the head of the point. If ground water is present, well points shall be installed prior to any installation, at no additional cost to the County.
- C. Keep excavations free from water until foundations, structures, and piping are completed and will safely withstand forces generated by water. Provide sufficient dewatering equipment and make proper arrangements for the disposal of water from dewatering operation. Dewatering shall not damage property, create nuisances, or interfere with other work. Do not use sanitary sewers for the disposal of water from dewatering operations.
- D. Upon removal of well points, holes shall be filled with clean suitable material and compacted. No additional compensation shall be given for this task.
- E. Water pumped or drained from the site shall be handled in accordance with local, state, and federal rules and regulations. The Contractor shall be responsible for acquiring all permits required to discharge the water and shall prevent discharge of turbid water from the Site.

3.06 SHEETING

- A. The Contractor has the option of sheeting excavations. 1) The Contractor shall provide all trench and structural bracing, sheeting or shoring as necessary to construct and protect the excavation, existing utilities, structures and private property of all types and as required for the safety of the employees.
- 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. Sheeting and shoring plans shall be provided as required by local, state, and federal regulations and ordinances. Sheeting and shoring plans shall be signed and sealed by the Contractors Engineer who designed the system.
- D. 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.
- E. 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.

- F. 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.
- G. If the stability of adjoining buildings or walls is endangered by excavations, provide shoring, bracing, or under pinning as necessary to ensure the safety of adjoining buildings or walls. Such shoring, bracing or under pinning shall be inspected daily or more often, as conditions warrant, by a competent Contractor's representative and the protection effectively maintained.
- H. 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.
- I. 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.
- J. Sheeting shall be removed or cut off by the Contractor during backfilling operations as directed by the County. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces

3.07 ROCK REMOVAL

- A. Where encountered in the trench bed, 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 of the pipe bell. All undercut trench excavation shall be backfilled with earth and tamped with materials as specified in the following paragraphs under unstable subgrade
- B. 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.
- C. Blasting of rock or other hard to remove materials will not be permitted on this project.
- D. All cost for rock removal is incidental to the cost of the pipe installation.

3.08 SUBGRADES

- A. Do not construct foundations, footings, slabs, or piping on loose soil, mud, or other unstable or unsuitable soil. In the event that unsuitable material is encountered at or below the excavation depth specified or shown on the drawings, the unsuitable material shall be removed and replaced with suitable material. Methods and materials used for replacement shall be one of the following.
 - 1) Suitable earth or sand, compacted in the trench at no additional cost to the County.
 - 2) Gravel or crushed limerock, compacted in the trench at no additional cost to the County.
 - 3) Existing materials, stabilized after removal and then replaced and compacted in the trench at no additional cost to the County.
 - 4) The County shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe structure to be supported, and the availability and character of stabilizing materials.

- 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.

3.09 FOUNDATION SOILS REMOVAL AND COMPACTION

- A. Any fill required to achieve finished grade in structural areas or used as structural compact fill shall be inorganic, non-plastic granular soil containing less than 10% material passing a No. 200 sieve. Fill shall be placed in level lifts not to exceed 12-inches loose thickness and compacted to a minimum of 98% of the modified Proctor maximum dry density as determined by ASTM Specification D-1557. In-place density tests will be performed on each lift to verify that the specified degree of compacting has been achieved.

- A. After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, forms shall be removed, Remove debris and other unstable or unsuitable materials from excavations before backfilling is started.
- B. Backfill excavations in areas to be paved: Place Special Backfill in 6-inch lifts. Compaction shall be by hand tamping or approved mechanical tamping devices, or in larger excavations by approved rollers.
- C. Backfill shall be placed and compacted evenly against the exposed surface to prevent undue stress on any surface. Density tests shall be taken as follows: within three (3) feet of centerline of the structure, every lift not to exceed twelve (12) inches and shall achieve at least 98% of the maximum density as determined by AASHTO, Method T-180. Density test shall be done at every lift and shall include a test at the spring line of the pipeline.
- C. Backfill excavations not requiring Special Backfill : Material for backfilling shall consist of the excavation, borrow sand or other approved materials, and shall be free of trash, lumber or other debris. Backfill shall be placed in horizontal layers not in excess of 9-inches in thickness and have a moisture content such that a density may be obtained to prevent excessive settlement or shrinkage. 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. Compaction shall be by hand tamping or approved mechanical tamping devices
- D. 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 County.
- E. 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
- F. 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.
- G. 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.

3.11 BACKFILLING PIPING TRENCHES

- A. Do not backfill trenches and excavations until all utilities have been inspected by the County's representative and until all underground utilities and piping systems are installed

in accordance with the requirements of the Contract Documents. Trenches shall be backfilled as soon as possible after the pipe is laid unless other protection for the pipeline is provided. The Contractor shall leave the earth over the trenches or other excavations in a neat and uniform condition acceptable to the County.

- 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. Clean earth, sand, crushed limerock or other material approved by the County shall be used as backfill material. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) in a manner that will eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in layers to a level at least 1-foot above the top of the pipe. Each layer shall be compacted to a maximum thickness of 6-inches.
- E. In paved areas, the remainder of the backfill shall be deposited and then compacted by mechanical tampers. Mechanical tamping of lifts in unpaved areas shall be to a maximum thickness of 12-inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in lifts and compacted by hand or mechanical tampers to a maximum thickness of 6- inches
- E. In areas to be paved and unpaved areas, density tests for determination of the specified compaction shall be made daily by a testing laboratory, notwithstanding the length of pipe installed. Density tests shall be spaced a minimum of one daily and/or every 300 feet of trench cut per lift and shall include a test at the spring line of the pipe. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling and compaction is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the Contractor to restore the surface to the original grade wherever settlement occurs.
- G. In paved areas, the remainder of the backfill shall be deposited and then compacted by mechanical tampers. Mechanical tamping of lifts in unpaved areas shall be to a maximum thickness of 12-inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in lifts and compacted by hand or mechanical tampers to a maximum thickness of 6- inches
- H. 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.
- I. 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 County. Backfill excavations in areas to be paved with Special Backfill. Place Special Backfill in 6-inch lifts. Compact each lift of backfill to not less than 100% of the maximum dry density as determined in accordance with AASHTO T99, 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.
- H. Backfill trenches not requiring Special Backfill with Suitable Material: 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. Compact each lift of backfill to not less than 100% of the maximum dry density as determined in accordance with AASHTO T99, Method A. .

3.12 ROADWAY REPLACEMENT

- A. Asphalt pavement shall be removed by saw cutting on a straight line with edges as vertical as possible. Concrete pavement or asphalt surfaced concrete shall be removed by cutting with a concrete saw in as straight a line and vertically as possible. Materials to replace State Highway paving shall conform to the specifications required by the Florida Department of Transportation. Other asphalt pavement replacement shall conform to the requirements of the construction drawings and any other applicable Sarasota County Public Works standards for the replacement of pavement.
- B. The Contractor shall have tests made daily by a certified independent testing laboratory, approved by the County, to verify roadway compaction results. Tests will be made daily, spaced a minimum of one in every 300 feet of trench cut. A minimum of one (1) test shall be taken per lift in situations less than 300' of pipe run. All density tests shall be taken at each twelve-inch (12") lift to finish grade and will include a test at the spring line of the pipe.
- C. Where asphalt or built-up asphalt pavement is replaced by concrete, the concrete shall have a minimum of 6-inches in thickness and be reinforced with 6 by 6 No. 10 gauge welded wire fabric. Concrete for paving shall be 3,000 psi design strength. Where the pavement replacement is of like material, it shall be replaced in thickness equal to or better than that existing at the time of removal. (The same shall apply for concrete driveway replacement).
- D. Unless the base is sealed or other temporary paving is applied over areas to be repaved, pavement shall be replaced not later than 3-weeks after completion of backfill.
- E. Construction of a base course composed of shell shall be as specified in Section 250 of the FDOT Standard Specifications.

3.13 SIDEWALK, CURB AND GUTTER REMOVAL AND REPLACEMENT

- A. Sidewalk, curb and gutter removal and replacement required in the construction of this work shall be done by the Contractor. Reasonable care shall be exercised in removing sidewalk and curb and gutter, and the Contractor shall legally dispose of this material as directed by the County on a weekly basis. Brick, concrete or built-up asphalt sidewalk replacement and curb and gutter replacement shall be replaced with like material in a manner and condition equal to or better than that existing at the time of removal.
- B. Materials and methods of replacing State Highway sidewalks or curbs shall conform to the Florida Department of Transportation specifications.

3.14 RESTORATION OF SURFACE IMPROVEMENTS

- A. Roadways, including shoulders, alleys and driveways of shell, limerock, stabilized soil or gravel, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other surface improvements on public or private property which have been damaged or removed in excavating, shall be restored to conditions equal to or better than conditions existing prior to beginning work. Restoration of shoulders shall consist of two (2) feet of sodding adjacent to roadway, remainder seeding and mulch or stabilizing with limerock as selected by the County and as shown on the construction drawings. The cost of doing this work shall be included in the cost of the various applicable items.
- B. Materials for unpaved roadways, road shoulders, alleys, or driveways, shall be compacted as determined by AASHTO, Method T-180. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no

separate payment will be made, unless a separate bid item is provided. Density test shall be completed every lift (12") to finish grade. Also, a test shall be done at the spring line of the pipe.

3.13 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.
- C. Lumber, earth clods, rocks and other undesirable materials shall be removed from the site.

3.14 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.

3.15 STORAGE AND REMOVAL OF EXCAVATED MATERIAL

- A. Suitable excavated material required for filling and backfilling operations may be stockpiled near the jobsite. Such portions of the excavated materials (as needed and as suitable) shall be used for backfilling and grading above the completed work to the elevations as shown on the drawings or as directed
- B. Remove unsuitable materials from the job site as unsuitable materials are excavated in a neat manner. Remove surplus suitable materials from the job site as directed by the County.
- C. Excavated material in excess of the quantity required for this purpose shall be disposed of by the Contractor in accordance with local, state, and federal laws by the Contractor in a legal manner at no additional cost to the County.

3.16 DUST CONTROL

- A. The Contractor shall take all steps possible to prevent and reduce dust arising from the construction activity. The Contractor shall have adequate water trucks on the site at all times and water, as necessary, the areas where dust may arise. He shall cooperate fully with the County's Representative and water immediately when instructed to do so.

3.17 TESTS

- A. The Contractor shall furnish facilities for making all density tests and make such as may be necessary due to test operations. All density tests on backfill restorations or base replacement shall be made by a certified commercial testing laboratory employed by the Contractor and at such locations as may be recommended by the County. If the densities as determined by the specified tests fall below the required minimums, the Contractor shall pay for all retests.

1. Density shall be at least 100% of the maximum density as determined by AASHTO, method T-180 for road crossing, shoulders, and driveways.
2. Density shall be at least 95% of the maximum density as determined by AASHTO, method T-180, for all unpaved areas. Tests shall be taken daily and/or at every 300' of piping installed or trench cut per lift.
3. Two (2) sets of density tests shall be taken per road crossing.
4. The Contractor shall submit two (2) copies of certified test results to the County on a weekly basis.
5. Density test shall be taken within seven (7) days after the installation.

END OF SECTION

SECTION 02300

HORIZONTAL DIRECTIONAL DRILLING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall provide all necessary tools, materials and equipment to successfully complete the installation of directionally drilled piping as specified herein and shown on the drawings. The Contractor shall be responsible for the selection of all tooling including steering and guidance systems, the final constructed product, and for furnishing the qualified labor and supervision necessary for this method of construction.
- B. The Contractor shall furnish all items necessary to perform the horizontal directional drilling operation and construct the pipe to the lines and grade shown on the drawings.
- C. Boring must use techniques of creating or directing a borehole along a predetermined path to a specified target location. This must involve use of mechanical and hydraulic deviation equipment to change the boring course and must use instrumentation to monitor the location and orientation of the boring head assembly along a predetermined course.
- D. Drilling must be accomplished with fluid-assisted mechanical cutting. Boring fluids shall be a mixture of bentonite and water or polymers and additives. Bentonite sealants and water will be used to lubricate and seal the mini-tunnel. It is mandatory that minimum pressures and flow rates required to successfully complete the boring operation be used during drilling operation, as not to fracture the sub-grade material around and/or above the bore.
- E. The mobile drilling system shall utilize small diameter fluid jets to fracture and mechanical cutters to cut and excavate the soil as the head advances forward.
- F. Steering shall be accomplished by the installation of an offset section of drill stem that causes the cutterhead to turn eccentrically about its centerline when it is rotating. When steering adjustments are required, the cutterhead offset section is rotated toward the desired direction of travel and the drill stem is advanced forward without rotation.

1.02 DESCRIPTION OF WORK

- A. The Contractor's bid shall include all horizontal directional drilling, installation of product pipe, furnishing labor, materials, services, equipment, incidentals, technical services, and all other related work necessary to complete the following:
 - 1. Field locate and protect all existing utilities.
 - 2. Submittals included in this specification and elsewhere in the Contract Documents.
 - 3. Coordination with FDOT, if drill location is within FDOT Right-of-Way. A DBI Work Request Form must be completed for interstate crossings.
 - 4. Preparation of site including excavation and backfill of access pits and slurry containment pits, removal of vegetation, earthwork, topsoil stripping, excavating, rock excavation, obstruction removal, and grading to obtain required finish contours and elevation.
 - 5. Drill a horizontal directionally drilled pilot bore and ream borehole as needed to required tolerances.

6. Contain all drilling mud and ensure no spillage enters any body of water over land or through hydro-fracture.
7. Monitor horizontal and vertical location of drill path, and ensure the constructed bores follow the design profile and remain within the project's right-of-way.
8. Water course monitoring and testing by Qualified Aquatic Specialist.
9. Installation of casing pipes and product pipes.
10. Testing of installed product pipe sections.
11. Restoration of all affected surfaces to their preconstruction conditions or as outlined in the contract documents.
12. Removal of all drilling fluids and spoils from the construction area and transporting them to an appropriate disposal site in accordance with all applicable County, local, and state permits and regulations.

1.03 REFERENCE STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. The following American Water Works Association (AWWA) standards form a part of this specification as referenced:
 1. AWWA C906 Polyethylene Pressure Pipe and Fittings, 4 In. Through 63 In. for Water Distribution and Transmission.
- C. The following American Society for Testing and Materials (ASTM) standards form a part of this specification as referenced:
 1. ASTM F714 Standard Specification for Polyethylene (PE)
 2. ASTM 03350 Plastic Pipe (SDR-PR) Based Outside Diameter. Standard Test Method for Polyethylene Pipe and Fitting Materials
 3. ASTM F1962, "Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of PE Pipe or Conduit Under Obstacles, Including River Crossings,"
- D. American Petroleum Institute (API), RP 13B-1, Recommended Practice for Field Testing Water-Based Drilling Fluids.
- E. American Society of Civil Engineers (ASCE), Manual of Practice 108, "Pipeline Design for Installation by Directional Drilling."
- F. American Association of State Highway and Transportation Officials (AASHTO).
- G. Occupational Safety and Health Administration (OSHA) requirements.

1.04 DEFINITIONS

- A. Contractor's Construction Drawings: Shall be defined as drawings by which the Contractor proposes to construct the referenced item. The submission of these drawings shall be required for the sole purpose of providing sufficient detail to verify that the Contractor's work in progress is in accordance with the intent of the design.

- B. Frac-out: Release of drilling fluid to ground surface, waterways, or utilities as a result of drilling fluid pressure in excess of that pressure required to fracture or permeate the ground.
- C. Horizontal Directional Drilling: A trenchless, steerable installation method of using drilling machine to bore a small diameter pilot hole. Pilot hole is bored by either controlled fluid jetting or fluid assisted mechanical cutting or combinations thereof. Pilot hole is reamed, as necessary, to accommodate product pipe. Product pipe is pulled back into reamed hole by drilling machine. Installed product pipe is cleaned and prepared for testing and operation.
- D. Returns and Spoils: Drilling mud and cuttings collected at the entry and exit pits, as well as any fluid which escapes from the borehole to the surface, or spilled during mixing, handling or hauling operations.

1.05 SUBMITTALS

- A. The Engineer will base the review of submitted details and data on the requirements of the completed work, safety of the work in regards to the public, potential for damage to public or private utilities and other existing structures and facilities, and the potential for unnecessary delay in the execution of the work. Such review shall not be construed to relieve the Contractor in any way of his responsibilities under the contract or of the Contractor's responsibility for construction site safety. Contractor shall not commence work on any items requiring Contractor's construction drawings or other submittals until the drawings and submittals are reviewed and accepted by the Engineer and by the County.
- B. The drawings, cut sheets, and descriptions submitted as part of these requirements shall be sufficiently detailed to demonstrate to the Engineer whether the proposed materials and procedures will meet the requirements of this specification and design drawings.
- C. The Contractor shall submit the following items at least twenty-one (21) days before start of construction:
 - 1. List of subcontractors to be used including contact names, addresses, and telephone numbers.
 - 2. Detailed schedule of Work including:
 - a. Pipe product delivery and fabrication.
 - b. Pipe string connection and testing.
 - c. Drill mobilization and setup.
 - d. Pilot hole drilling/boring and reaming.
 - e. Pipe product pulling.
 - f. Final pipe inspection and testing.
 - g. Record drawing preparation.
 - h. Demobilization and restoration.
 - i. Disposal of excess drilling fluids and drill/bore cuttings.
 - 3. Working plans showing general arrangement of the following:
 - a. Work, storage, staging, and pipe stringing areas.

- b. Maintenance of traffic and site access during pipe jointing.
 - c. Noise reduction plan.
 - d. Laydown areas showing locations of drill entry and exit points.
 - e. Drilling fluids mixing/storage tanks
 - f. Slurry recycling plant.
 - g. Drilling equipment.
 - h. Pollution prevention measures.
 - i. Layout profile and supports for pits, conductor casings, and other excavations required to drill and install the pipe.
4. Detailed working plans and analyses including:
- a. Plan/profile along pipe drill path plotted at scale no smaller than that used in the design drawings.
 - b. Entry and exit locations and angles.
 - c. Bending radii, horizontal and vertical
 - d. Length of drives
 - e. Depth of cover
 - f. Clearance from existing piles, pipelines, encasements and structures.
 - g. Buoyancy control procedures.
 - h. Pipe stress analysis for the alignment described on the working plans above, indicating adequate factor of safety in accordance with manufacturer's recommendations and standards referenced herein.
 - i. Pipe collapse analysis to ensure pipe stability during construction.
5. Provide equipment specifications and manufacturer's operating manuals for the proposed drill rig, recycles, mud motor(s), and any other major equipment to be used during the drilling operations along with the Contractor's previous project experience (with references) with this equipment or equipment with similar size/capacity.
6. Reaming Head Description, Cutters and Size: Describe reaming procedure and method of monitoring drill fluid viscosity, density and pressure to prevent frac-out and excess ground movements. Submit proposed overcut (i.e., size of largest reamer).
7. Description and measurements of drill rod and drill head.
8. Description of how pilot hole drill will be steered and how position and inclination of bore head will be monitored; include type, operating range, and degree of accuracy of tracking equipment. This submittal shall include a plan for accurately locating drill path during drilling operations and measurement frequency and accuracy of proposed guidance system as stated by manufacturer.
9. Drilling Fluids:
- a. Complete list of all drilling fluids, additives, and mixtures to be used along with Material Safety Data Sheets and composition of drilling fluids and additives.

- b. Describe how drill fluid viscosity, density and pressure will be monitored.
 - c. Describe fluid seal at entry pit conductor casing, if used.
 - d. Planned density and viscosity ranges.
 - e. Describe how drill fluid viscosity, density and pressure will be monitored.
 - f. Target maximum drilling fluid pressure at bore station intervals of fifty feet or less.
 - g. Calculations showing a factor of safety of 1.5 or more against frac-out or heave.
10. Drilling Fluids Management Plan:
- a. Identify water source water for mixing drilling mud.
 - b. Method of slurry containment, including sketches and systems and fluid seal at entry pit conductor casing if used.
 - c. Method of cutting removal and recycling drilling fluid during hole boring and reaming.
 - d. Method of transporting drilling fluids and cuttings offsite, including anticipated total volume and type and frequency of truck traffic.
 - e. Identify an appropriate disposal site in accordance with all applicable County, local, and state permits and regulations for disposal of drilling mud and spoils.
 - f. Estimate anticipated daily volume to be held on-site overnight.
11. Product pipe assembly plans, including, welding/fusing equipment and procedures, lay down, pull guides, and rollers.
12. Pipe catalog information confirming pipe, fittings, joints, and other materials confirm to requirements of this section.
13. Drawings of connection details at ends of each directional drill.
14. Drilling Fluid Management and Contingency Release Plan describing means and methods for:
- a. Containment, collecting and disposal of drill fluid, spoils and returns during the project.
 - b. Equipment and materials, included site specific Drill Fluid Spill Kit, and procedures to contain and remove inadvertent drill fluid releases, including surface seepage, both on land and in a body of water.
 - c. Monitoring and testing procedures when drilling beneath a waterway.
 - d. Procedure for shutdown of drilling operations once a release has been detected at the surface.
 - e. Procedure for restarting the drilling operations once the release has been contained and both mitigation measures and future release containment at the release location have been established.
15. Contingency plan for the following potential situations:
- a. Loss of drilling fluid circulation.
 - b. Obstruction encountered during drilling or reaming.

- c. Broken drill pipe.
- d. Collapsed or buckled product pipe.
- e. HDD fails to advance or fails to respond to steering actions.
- f. Failure to maintain grade and when alignment derivations are more than allowable limits.
- g. Installation (pull back) forces reach 80 percent of the manufacturer's maximum allowable force.
- h. Ground settlement/heave exceeding allowable limits.

16. Fuel and Hydraulic Fluid Containment and Contingency Plan.

D. Informational Submittals:

1. Preconstruction and post construction surveys including photographs, videotapes, field notes, and sketches as specified herein. Submit within one week of development.
2. Pipe manufacturer's fused jointing and testing instructions. Submit prior to mobilization to the site.
3. Qualifications of all HDPE pipe fusion welders, including copies of the required factory certifications.
4. Field Surveys, as required: Plot survey results on drawing with scale no smaller than that used for Enlarged Plan and Profile Drawings in Contract Documents. Show proposed changes to alignment of profile.
 - a. Field survey information from end of each installation and datum for establishing location of installation.
 - b. Entry and exit locations.
5. Daily drilling log within 24 hours of daily completion, including predrilling field calibration, raw data record (i.e., head position, drilling fluid data, borehole pressure) and location of anomalies or frac-outs as described in Part 3 of this specification.
6. Record Drawings updated at each application for payment and finalized prior to contract closeout. These shall contain the following components:
 - a. Description of tools actually used on installation if they differ from what was contained in approved submittal.
 - b. Tool operators' records including predrilling field calibration, raw data record (head position, fluid data) and location of anomalies or frac-outs.
 - c. Interpretation analysis of raw data, plan and profile, and deviations to original installation plan.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Handle pipe during loading, transportation, and unloading so as to prevent injury to or abrasion of pipe.
 1. Pipe shall not be dropped from vehicles, nor allow pipe to roll down skids or slopes without proper restraining ropes.

2. Pipe and fittings shall be handled by wide belly band slings as recommended by pipe manufacturer to avoid damage to pipe. Bare chains shall not be used in contact with pipe
3. Inspect fabricated materials for damage. Replace materials found to be defective in manufacture or damaged in handling during and after delivery including the furnishing of material and labor required for the replacement of installed products found to be defective.

B. Storage:

1. Use suitable pads, strips, skids or blocks for each pipe during transportation and while awaiting installation.
2. Store and protect pipe at storage area designated on Drawings or other areas that might be approved by Engineer.

1.07 SEQUENCING AND SCHEDULING

- A. Coordinate sequence, required closings, and schedule with owners of roadway, walkway, or easement, or other public access.
- B. Contractor will be required to coordinate with FDOT and FDOT Contractors for any work associated with the future roundabout locations.
- C. Scheduling must consider school buses. No roadway closures or signal lane Maintenance of Traffic will be allowed during Sarasota County School season.

1.08 SAFETY AND COMPLIANCE

A. Safety Requirements:

1. Perform work in a manner to maximize safety and reduce exposure of men and equipment to hazardous and potentially hazardous conditions, in accordance with applicable safety standards, including OSHA standards.
2. Whenever there is an emergency or stoppage of work which is likely to endanger the excavation or adjacent structures, operate a full work force for 24 hours a day, including weekends and holidays, without intermission until the emergency or hazardous conditions no longer jeopardize the stability and safety of the work.
3. The work will be performed in conformance with authorities having jurisdiction and will conform to all applicable health and safety regulations.
4. The Contractor shall follow all safety measures recommended by the drill rig manufacturer.
5. The drill rig shall be equipped with a common grounding system to prevent electrical shock in the event of inadvertent strike of underground electrical cable. The grounding system shall be connected to all pieces of interconnecting machinery; namely, the drill, mud mixing system, drill power unit, drill rod trailer, operators booth, worker grounding mats, and any other interconnected equipment, to a common ground.
6. The drilling rig shall be equipped with an "electrical strike" audible and/or visual warning system that notifies the system operator of an electrical strike.

- B. Air Quality: Conduct directional drilling operations by methods and with equipment, which will positively control dust, fumes, vapors, gases or other atmospheric impurities in accordance with applicable safety requirements.
- C. The contractor shall abide by bylaws and regulations of the State, County, and/or Municipality in which the work is located.
- D. Obtain any and all other permits required for prosecution of the work.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Refer to Section 02618 – High-Density Polyethylene (HDPE) Pipe material.

2.02 HDD EQUIPMENT

- A. General:
 - 1. Sized to complete installation of proposed alignment with due consideration of ground conditions, down-hole tools, drilling fluid additives, drilling technologies, size of final product pipe, and length of bore.
- B. Features: The contractor shall be responsible for the directional drilling method and equipment.
- C. The drilling rig shall be sized to complete installation of proposed alignment with due consideration of ground conditions, down-hole tools, drilling fluid additives, drilling practices, size of final product pipe, and length of bore.
- D. The drilling rig shall have a system to monitor and record maximum pullback force during the pullback operation.
- E. The drilling rig shall have an anchorage system to anchor drilling machine to the ground to resist thrust and pull forces during operation.
- F. A swivel shall be used to connect pull section to drill steel to minimize torsional stress imposed on pulled pipe. Breakaways are to be used on all directional drills to avoid overstressing the pipe.
- G. Exceptions will be subjected to approval of the Engineer.
- H. Drill fluid system shall have filters in-line to prevent solids from being pumped into the drill pipe.
- I. Drill fluid system shall have connections between the pump and drill pipe that are relatively leak-free.

2.03 DRILLING FLUID MIXING TANK

- A. Volume of holding tank to supply at least 30 minutes of full pumping capacity.
- B. HDD equipment shall maintain a minimum pumping capacity to provide sufficient quantity of drilling fluids exceeding targeted flow volume for all phases of the operation.
- C. Provide in-line flow meter to determine drilling fluid discharge.
- D. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure adequate mixing.

E. Mixing system shall continually agitate the drilling fluid during drilling operations.

2.04 TRACKING SYSTEM

- A. The steering tool/guidance system shall have orientation sensors to monitor and record pitch, roll, and left/right deviation.
- B. Operating range and degree of accuracy of the proposed tracking system shall be adequate to meet project conditions. Tracking/steering equipment shall allow for continuous monitoring of the drill head along the entire proposed alignment. If a poor contact with the sonde is expected to occur at any section, this shall be communicated to the Engineer prior to commencement of construction.
- C. The tracking system shall be capable of providing horizontal and vertical steering data along the entire drill path for each crossing, for the depths shown on the Project Plans, plus an additional 10 feet.
- D. The tracking system shall be capable of locating the drill within eighteen (18) inches radius inscribed around the drill path and shall be set up and operated by field personnel trained and experienced with the system.
- E. The downhole annular and pipe drilling fluid pressures shall be measured and recorded throughout the pilot hole drilling. These records shall be maintained and provided daily to the Engineer.
- F. Contractor shall provide two 2-way radios to allow communication between crews. Radios shall be complete with built-in antennas, squelch and volume controls, and rechargeable battery packs. The Contractor shall not commence work until there is a working radio at each entry and exit location of an active drilling operation.

2.05 MUD MOTORS

- A. Mud/Slurry Motors, if used, shall be of adequate power to operate the required drilling devices.

2.06 PIPE ROLLERS

- A. Pipe rollers shall be of sufficient size to fully support the weight of the pipe while being butt-fused, pressure-tested, and/or during pullback operations.
- B. Swivel: Use to connect pull section to drill steel to minimize torsional stress imposed on pulled pipe.
- C. Grounding System shall meet the following requirements, as a minimum:
 - 1. Common grounding system to prevent electrical shock in the event of a high voltage underground cable strike.
 - 2. Connects interconnecting machinery including drill, mud mixing system, drill power unit, drill rod trailer, operator's booth, worker grounding mats, and other interconnected equipment to a common ground.

2.07 DRILLING FLUIDS

- A. Drilling fluids, muds, and chemical additives shall be nonhazardous materials composed and used in compliance with applicable, local, state, and Federal environmental regulations.

- B. Do not use oil-based drilling fluids or fluids containing additives that can contaminate soil or groundwater.
- C. Maximum unit weight of drilling fluid with cuttings is 9.5 pounds per gallon (ppg).

2.08 CARRIER PIPE

- A. For each pipe material, use only pipe from a single manufacturer.
- B. HDPE Pipe: As specified in Section 02618 - High-Density Polyethylene (HDPE) Pipe.

2.09 GROUT

- A. Grout for Abandonment:
 - 1. Consisting of a mixture of water and Portland cement, with mineral fillers or admixtures as necessary to achieve a non-shrink, non-bleed, flowable grout.
 - 2. Sand: Clean natural silica sand, graded such that 100-percent of the material passes the No. 20 sieve and not more than 20-percent passes the No. 200 sieve.
 - 3. Compressive Strength: 50 psi minimum at 28 days.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall be responsible for his means and methods of directional drilling construction and shall ensure the safety of the work, the Contractor's employees, the public, and adjacent property, whether public or private.
- B. Contractor should anticipate that portions of the drilled excavation will be below the groundwater table and/or the water surface of the Intracoastal Waterway.
- C. Notifications: Provide notification to the Engineer a minimum of 72 hours before mobilizing onto the site. Provide notification 48 hours in advance of casing installation and drilling. Provide notification 48 hours in advance of pressure and acceptance verification tests on the HDPE carrier pipe.
- D. Construct a perimeter control system for bentonite slurry, cuttings, and pit spoil, as well as storm water control barriers in accordance with Best Management Practices in the local area. The system shall provide positive containment for all drilling fluids and drainage from drill cuttings and prevent any of the drill fluid or drainage fluids or other drill fluid contaminated material from leaving the open pit areas.
- E. Spill and bentonite slurry management shall be in accordance with requirements stated in the project permits, and in the approved Drill Fluid Management and Contingency Release Plan.
- F. Notify the Engineer of circulation losses greater than 25% of downhole pump volumes and for all observable bentonite slurry releases at the earliest opportunity and include in the Daily Report.
- G. Contractor to be responsible for providing proper equipment to be used for lifting and placing the pipe.
- H. Pipe to be installed to the required alignment shown on the drawings.
- I. Every precaution shall be taken to prevent foreign material from entering the pipe. When

pipe installation is not in progress, the open ends of the pipe must be closed to the satisfaction of the Engineer.

- J. The leading edge of the pipe shall be examined for significant external damage after pull back. If the pipe is deemed by the Engineer to have suffered significant damage, the damaged pipe shall be cut off and additional pipe pulled through the hole prior to the relaxation period.
- K. Disposal of waste, slurry or volatile material into waterways, storm or sanitary sewers shall not be permitted.
- L. Pumping or draining water containing slurry, silt or bentonite in suspension into waterway, sewers or drainage systems is strictly prohibited.
- M. All waste material shall be removed and disposed by the Contractor at an appropriate disposal site in accordance with all applicable County, local, and state permits and regulations. Obtain required permits for waste disposal. Provide copies to the County. The work area shall be organized and clean by the end of each working day.
- N. Do not use pipe with physical damage such as cuts, gashes, nicks or abrasions which are deeper than 10 percent of wall thickness. Remove and dispose of damaged pipe from Site.
- O. Provide freshwater, free of hazardous or toxic substances, for drilling and grouting purposes.
- P. Provide Engineer free access to observe HDD operations and instrumentation at all times.
- Q. Install 6-foot high chain link safety fence around perimeter of open trenches and HDD pits during nonworking hours.
- R. Request and obtain written authorization prior to working overtime, nights, or weekends.
- S. Exercise care and caution during construction to ensure safety of nearby operations and residents, and to avoid damage to adjacent properties and other facilities.
- T. Site shall be free of trash and unsightly debris for duration of the Work.
- U. The Contractor shall be aware that the County may implement a monitoring program to monitor water quality of any drilled water course crossing.
- V. Where such effort is necessary, cost for groundwater control during the course of the drilling work shall be included in the unit contract price for the work.
- W. Dewatering required during the course of the project to lower water table, to remove standing water, surface drainage seepage, or to protect ongoing work against rising waters or floods shall be considered incidental to the work being performed.

3.02 PRECONSTRUCTION AND POSTCONSTRUCTION SURVEYS

- A. Preconstruction:
 - 1. After Contract is awarded and before starting the Work, examine and take photographs in color, and a color video recording in digital format, of existing structures, vegetation, pavements and other improvements which are within 100 feet of the alignment and which might be damaged by Contractor's operations.
 - 2. Examination shall be made jointly by Contractor, Owner, and property owner. Scope of examination and photographs taken shall include cracks in structures, evidence of

settlement, leakage, and similar conditions.

3. Install settlement markers on structures and facilities prior to beginning the Work.
4. Prepare records in triplicate of observations. Provide two copies of each photograph and one copy of digital video to the County within 30 days after Notice to Proceed.
5. The above records and photographs are intended for use as evidence in ascertaining the extent of any damage which may occur as a result of the Contractor's operations and are for the protection of the adjacent property owners, the Contractor, and the County. The records will provide a means of determining whether, and to what extent, damage may have occurred as a result of the Contractor's operations.

B. Post Construction:

1. After construction is completed, perform post construction survey using same parameters as specified for preconstruction survey.
2. Repair all damages resulting from the construction activities to the satisfaction of the County and without delay.

3.03 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. When the Plans require construction operations in close proximity to existing structures, the Contractor shall take all reasonable precautions to prevent damage to such structures. The requirements described herein apply to all types of structures (on or off the right-of-way) that may be adversely affected by construction operations due to boring, reaming, vibrations, ground loss, ground heave, dewatering, or other activities.
- B. When excavating for construction, the Contractor is responsible for evaluating the need for, design of, and providing any necessary precautionary features to protect adjacent structures from damage, including, but not limited to, selecting construction methods and procedures that will prevent damaging the adjacent subsurface structures and monitoring and controlling the vibrations from construction activities, including driving of casings and sheeting. When sheeting and shoring are not detailed in the Plans, employ a qualified Specialty Engineer licensed in the State of Florida to design the sheeting and shoring, and to sign and seal the plans and specification requirements. Send these designs to the Engineer for his record before beginning construction.
- C. Contractor shall be responsible for damage to piping or utilities shown on Drawings and/or field located prior to construction.
- D. Consult utility owner immediately when unidentified utilities are encountered during the Work.
- E. Cooperate with Engineer and utility companies in keeping respective services and facilities in operation.
- F. Do not interrupt existing utilities serving occupied facilities, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.
- G. Coordinate with Engineer and utility companies for service shut-off, if required.

3.04 PREPARATION

- A. Inspect locations where horizontal directional drilling operations will be conducted and pipe installed.

- B. Inspect existing storm sewer inlet and outlets prior to directional drilling operations.
- C. Locate positions of entry and exit pits, establish elevation and horizontal datum for bore head control, and lay out pipe assembly area. Entry and exit locations shall be surveyed by experienced survey personnel licensed in the State of Florida prior to start of directional drilling.
- D. Operations Within Pipe Staging Area:
 - 1. Conduct operations in a manner that minimized disturbance to public or private properties boarding staging area or where construction easements have been obtained by the County.
 - 2. Areas where drilling fluids are in use shall be bordered by appropriate silt fences and hay bales.
 - 3. Easement limits for exit point as well as pipe staging shall be bordered by ultraviolet stabilized polyethylene or polypropylene safety fence.
 - 4. Provide silt fences and hay bales where pipe staging areas border or are within 50-feet of river bank of the surface body of water.
- E. Layout and assemble pipe in manner that does not obstruct adjacent roads, nearby railroads, commercial access, or residential activities adjacent to construction easements. Elevate pipe over streets or railroads as necessary to avoid disruption to traffic.

3.05 EQUIPMENT

- A. Diesel, electrical, or air-powered equipment will be acceptable, subject to applicable federal and state regulations.
- B. Any method or equipment that the Contractor can demonstrate will produce the specified results will be considered.
- C. Provide adequate secondary containment for any and all drilling fluids mixing and storage tanks.
- D. All equipment shall meet the noise requirements set forth in Sarasota County. The latest ordinance can be found at www.municode.com
- E. The Contractor shall provide additional sound buffering around equipment in order to meet County ordinances at no additional cost to the County.

3.06 CONTROL OF THE DRILL LINE AND GRADE

- A. Construction Control.
 - 1. The Contractor shall establish and be fully responsible for the accuracy of his own control for the construction of the entire project, including structures, drill line and grade.
 - 2. The Contractor shall maintain daily records of alignment and grade and shall submit an electronic and hard copy of these records to the Engineer. However, the Contractor remains fully responsible for the accuracy of his work and the correction of it, as required.

3. The Contractor shall check his control for the bore alignment against an above ground undisturbed reference at least once for each rod length of bore constructed, or more often as needed or directed by the Engineer. Contractor shall furnish a "Directional Bore Log" for each bore completed inclusive of horizontal and vertical location information.

3.07 DRILLING PILOT HOLE

- A. Drill operators shall wear electrical shock protection equipment and operate from common grounded mats as required.
- B. Install conductor casing, if used, and drill pilot hole from entrance point to exit point following vertical and horizontal alignment shown on Drawings. Loss of control due to interference from known structures and utilities will be corrected at no cost to the County.
- C. Control drilling fluid viscosity, density, and pressure to prevent frac-outs.
- D. Monitor ground movements as specified in Section 02453 - Geotechnical Instrumentation and Monitoring.
- E. As pilot hole is advanced, plot actual horizontal and vertical alignment of pilot hole at intervals not exceeding thirty feet.
 1. Provide Engineer with position or inclination of pilot bore upon request and at completion of installation.
 2. Contractor shall assume liability for loss or damage to down-hole equipment.
- F. Alignment Requirements:
 1. Entry point location shall be within plus/minus 3 feet of the location shown on the drawings.
 2. Pilot hole exit point shall be within ten feet horizontally of exit point location shown, unless such tolerance places product pipe outside of ROW or easement in which case ROW/Easements take priority.
 3. Pilot hole shall be within three feet of horizontal alignment shown on Drawings, but always within the approved project right-of-way.
 4. Where a utility exists, pilot hole shall be closer to horizontal alignment shown on Drawings, to avoid damaging existing utilities and to satisfy permit or utility owner's requirements.
 5. Minimum separation distance is defined as the shortest distance between the outer most edge of the reamer and the outer most edge of an existing utility or another underground structure.
 6. Pilot hole shall be no shallower than vertical alignment shown on Drawings.
 7. No intermediate high points that might trap air in pipe.
 8. If directional drill pipeline alignment differs from Drawings such that additional pipe or different fittings are necessary to join the excavated pipe, notify Engineer and the County so additional pipe or different fittings can be reviewed by the County (at their option) on a timely basis without delaying construction.

9. Contractor will not receive compensation for longer or deeper pipeline profile or other deviation from Drawings.

G. Acceptance:

1. If pilot hole alignment fails to conform to specified requirements, properly abandon the pilot hole and drill a new pilot hole with alignment meeting specified requirements.
2. If hole is lost or damaged during performance of the Work, loss and damage shall be borne by Contractor.
3. If hole is not carried to Contract length or to within exit point tolerance, withdraw partially or fully and drill a modified or new crossing. Requirement to drill a substitute crossing shall be recurring until hole is acceptable and at no additional cost to the County.
4. The County reserves right to hire independent inspector to verify location of installed pipeline and to recover the cost of the inspection from Contractor if inspection reveals pipeline does not meet specified requirements.

3.08 PREREAMING, REAMING PILOT HOLE, AND PULLING PIPE

- A. Prereaming operations shall be conducted at discretion of the Contractor. Provisions of this Specification relating to simultaneous reaming and pulling back operations shall also pertain to prereaming operations.
- B. Obtain Engineer's approval to proceed before enlarging pilot hole and pulling pipe into position.
- C. While pulling pipe, monitor pulling force and handle pipe in manner that does not overstress pipe. Limit radius of curvature along length of pipe during installation to minimum radius of 600 feet.
- D. Use swivel to connect pipe pull section to reaming assembly to minimize torsional stress imposed on section. If pipe buckles or is otherwise damaged, remove damaged section and replace it with new pipe.
- E. Protect exterior of pipe from damage. Support pull section as it proceeds during pull back so that it moves freely and pipe is not damaged.
- F. Monitor drill fluid viscosity, density and pressure to prevent frac-outs.
- G. Maintain full control of pipe string at all times. Maintain neutral pipe buoyancy during pull back by filling pipe with water as needed. Do not use any buoyancy control measures that have not been submitted to the Engineer and returned as "No Exceptions Taken".
- H. After pullback, pipe may take several hours or days to recover from axial strain. When pulled from reamed bore hole, pull pull-nose out a distance longer than the design length to avoid having pull-nose retract back below bore hole exit level. Do not make connections until stretch recovery and thermal contraction cycles are complete, and no less than 24 hours.
- I. Pull pipe so that minimum of 20 feet of pipe is exposed at both ends of bore.
- J. Open ends of installed pipeline string shall be closed or plugged with metal or plastic cover to prevent water or soil from entering pipeline during nonworking hours or as otherwise required.

K. Notify Engineer if pullback pressures exceed maximum allowable value.

3.09 DRILLING FLUIDS

A. Testing:

1. Sample and test drilling fluid pH, chloride, salinity, Marsh viscosity, mud density and gel strength per API 13A and API RP 13B-1 during pilot bore to verify conformance with design.
2. During pullback, sample drilling fluids and measure pH and Marsh viscosity at least twice per working shift.
3. Record results on daily drilling logs.
4. Test other mud design parameters if evidence of significant variation exists or if drilling contingency actions are required.

B. Measure drilling fluid pressure, flow rate of recirculation fluids, and flow rate of added fresh fluids.

C. Field verify estimated drilling fluid losses by recording the observed drilling fluid return to the entry pit while continuing to temporarily pump planned mud at planned maximum pump rate, or by other reasonable means,

D. Frac-outs:

1. Avoid impact to existing utilities, structures, facilities, waterways and wetlands in the Project area during drilling operation.
2. If drilling fluid starts leaking to surface, other than at entry and exit points, or if fluid loss results in surface movement, cease drilling until fluid loss volumes can be brought under control.
3. In such event, notify Engineer immediately.
4. Clean up locations where drilling fluids surface.
5. Pay particular attention to potential of inadvertent frac-outs washing out along existing utility crossings and provide preventive measures.

E. Recirculation:

1. Maximize recirculation of drilling fluid surface returns.
2. Design and construct facilities to recirculate fluids.
3. Remove temporary recirculation line if used.
4. Provide solids control and fluids cleaning equipment of a configuration and capacity that will process surface returns and produce drilling fluid suitable for reuse.

F. Density Calculations:

1. Drilling fluid density shall be measured a minimum of once each working hour when drilling fluid is pumped into hole.
2. Record density calculations in daily drilling log.

3.10 HANDLING AND DISPOSAL OF DRILLING MUD AND CUTTINGS

- A. Dispose of drilling fluids and drill cuttings in approved offsite location in accordance with local, state and Federal laws and regulations at no additional cost to the County.
- B. Do not use additives that would prevent nonhazardous disposal of drilling mud.
- C. Make adequate provisions for handling and containing muddy water, drilling mud, and cuttings during drilling operations. Do not discharge these contaminants into waterways.
- D. Construct mud pits at entry and exit points in manner that completely contains mud and prevents its escape.
- E. When onsite provisions for storing muddy water, drilling mud, or cuttings onsite are exceeded, haul contaminants away to a licensed land fill or an appropriate disposal site in accordance with all applicable County, local, and state permits and regulations.
- F. Conduct directional drilling operation in such manner that drilling mud is not forced through bay sub-bottom or adjacent areas.

3.11 JOINING PIPE SECTIONS

- A. End Fittings:
 - 1. Fabricate and install mitered fittings at ends of pipe for attachment of adjacent sections of pipe.
 - 2. Fitting angles shall correspond to field conditions and shall be as approved by Engineer.
- B. Join pipe to one another, to firings, and to flange connections by means of thermal butt fusion. Pipe, fittings, and flanged connections shall be same type, grade, and class of polyethylene compound.
- C. Butt Fusion Joining:
 - 1. Perform in accordance with pipe manufacturer's recommendations.
 - 2. All HDPE welders shall be factory certified. Proof of certification shall be submitted to the County prior to field welding of pipes.
- D. Special Precaution at Flanges
 - 1. Support pipe connected at flange to flange connections to heavy fittings, manholes, and rigid structures in such a manner that no subsequent relative movement between polyethylene pipe at flanged joint and rigid structure is possible.
 - 2. Inside edge of flange in contact with HDPE flange to be beveled and not in contact with the weld bead.

3.12 OBSTRUCTIONS AND PIPE ABANDONMENT

- A. Obstruction. When condition or unknown obstruction is encountered which precludes further drilling, Contractor may elect to discontinue drilling, sidetrack to avoid obstacle, or drill in a substitute location upon written acceptance from Engineer and the County.
- B. Abandonment:
 - 1. Abandon boreholes installed or partially installed that fail to meet requirements of these Specifications at Contractor's expense.

2. Drill/bore new borehole along alignment approved by Engineer and install new product pipe.
3. Grout abandoned boreholes and product pipes as follows:
 - a. Inject until borehole or product pipe is flushed of drilling fluid and return flow at collar of boring or product pipe shows undiluted grout.
- C. Plug boring or product pipe to maintain grout in boring or product pipe until grout has set.
- D. Inject additional grout as necessary to fill voids left as a result of shrinkage or bleeding of grout.

3.13 FIELD QUALITY CONTROL

- A. Daily Drilling Logs: Record at a minimum the following on an hourly basis and at every noticeable change in materials throughout each drill pass, back ream pass, and pipe installation pass.
 1. Drilling fluid batch quantities and mix proportions.
 2. Drilling fluid flow rate, both fresh and recirculated fluids.
 3. Drilling fluid pressure, including maximum and average values.
 4. Drilling of fluid density calculations.
 5. Drill thrust.
 6. Drill pullback force, including maximum and average values.
 7. Head torque and rate of rotation.
 8. Spoil material quantities.
 9. Description of spoil material and drilling conditions.
 10. Locator/tracking system data including position, roll and tilt angles, depth, temperature of data transmitter and remaining battery life.
 11. Drill bit location at least every 30 feet along drill path.
 12. Observations of drilling conditions and periodic field tests.
- B. Provide field survey and datum for establishing location of installation at end of each installation.
- C. Hydrostatic Testing
 1. The Contractor must supply all testing equipment and personal to perform hydrostatic tests on the installed product pipe to demonstrate that the pipe is installed in accordance with the Specifications.
 2. The Contractor must advise the Engineer 24-hours in advance of filling the line for testing.
 3. Testing procedures as per Section 01666 - Testing Piping System

3.14 MANUFACTURER'S SERVICES

- A. Provide manufacturer's representative at Site for installation assistance and to certify butt fusion joints are acceptable.

3.15 SURFACE RESTORATION

- A. Promptly replace damaged pavement. Restore pavement around entry and exit pits as soon as the Work specified is completed.
- B. At completion of construction, restore work areas to preconstruction condition including, but not be limited to, damaged gravel surfaces, grassed areas or lawns, fences and gates, damaged trees and plantings.

3.16 CLOSEOUT ACTIVITIES

- A. Within 48 hours of completion of the work, remove all rubbish and debris from the job site. Remove all construction equipment, leaving the area involved in a neat condition acceptable to the Engineer. Disposal of any material onsite is strictly prohibited.
- B. Immediately clean "blow holes" or "breakouts" of drilling fluid to the surface and return the surface area to its original condition.
- C. Repair environmental damage occurring from pipeline installation operations.
- D. Remove frac-out material from storm sewers.
- E. Submit one electronic copy and two hard copies of the record drawings to the Engineer within five days after completing the pull back. Clearly tie the record drawings to the project's survey control. Maintain and submit upon completion all work logs of guided directional drill operations. All work logs shall be signed.

3.17 FINAL INSPECTION FOR ACCEPTANCE OF HDD

- A. Final inspection of the work shall include a visual inspection of each section of pipe. The pipe shall be within the tolerances specified herein and in the drawings for both, line and grade, shall show no leaks, shall be free of cracks or ovality greater than two percent (2%), and contain no deposits of sand, dirt or other materials. All finished work shall be neat in appearance and of high quality work.

END OF SECTION

SECTION 02301
JACKING AND BORING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Work of this section includes all labor, machinery, construction equipment and appliances required to perform all Jacking and Boring of pipeline casings and installation of pipe therein.
 - 1) The overall work scope shall include, but not be limited to, Jacking and Boring pits and equipment, sheeting, steel casing pipe, skids, end seals, coatings, miscellaneous appurtenances to complete the entire Work as shown on the Drawings, and restoration. Jacking and Boring operations shall be performed within the right-of-way/easements shown on the Drawings.
- B. The equipment used in Jacking and Boring casings shall be of adequate commercial size and satisfactory working condition for safe operation, and may be subject to approval by the Engineer and County. Such approval, however, shall not relieve the Contractor of the responsibility for meeting the criteria set forth herein. Only workmen experienced in Jacking and Boring operations shall be used in performing the Work.
- C. Provide all structures, safety equipment, and professional services required to provide for the health and safety of the general public and of personnel involved in pipe Jacking and Boring work in accordance with the requirements of the regulatory agencies having jurisdiction.
- D. Take all measures necessary to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, drains, sewers, utilities, trees, structures, and appurtenances from damage due to pipe Jacking and Boring work. Responsibility and payment for correction of such damage shall be the sole responsibility of the Contractor.

1.02 REFERENCE DOCUMENTS AND STANDARDS

- A. Sarasota County Utilities Uniform Water, Wastewater and Reclaimed Water Systems Code, latest edition.
- B. Sarasota County unified Development Code, latest edition.
- C. American Society for Testing and Materials (ASTM).
- D. American Water Works Associations (AWWA).
- E. American Association of State Highway and Transportation Officials:
 - 1. AASHTO HB-17 - Standard Specifications for Highway Bridges.
 - 2. AASHTO M133 - Standard Specification for Preservatives and Pressure Treatment Processes for Timber.
 - 3. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- F. American Railway Engineering and Maintenance-of-Way Association:
 - 1. AREMA - Manual for Railway Engineering.
- G. American Welding Society:

1. AWS D1.1/.

H. ASTM International:

1. ASTM A36/A.
2. ASTM A53/.
3. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
4. ASTM A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use.
5. ASTM A1011/.
6. ASTM C33/.
7. ASTM C150/.
8. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
9. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
10. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³).
11. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
12. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

I. National Utility Contractors Association:

1. NUCA - Guide to Pipe Jacking and Microtunneling Design.

1.03 SUBMITTALS

A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals. The following items are required as a minimum:

1. Manufacturer's certification on all pipe materials and coatings.
2. Site plan of jacking and receiving pits.
3. Section 01300 - Submittals: Requirements for submittals.
4. Product Data: Submit manufacturer information regarding casing pipe or tunnel liner plate, showing sizes, shapes, methods of attachment, connection details, and details of grout holes.
5. Shop Drawings:
 - a. Indicate details of casing, jacking head, sheeting, and other falsework for trenches and pits, and associated support, field sketches, and other details to complete Work.
 - b. Indicate relationship of proposed installation to natural features over installation, angle of installation, right-of-way lines, and general layout of built facilities.

- c. Indicate cross-section(s) from field survey, showing installation in relation to actual profile of ground.
 - d. Submit description of proposed construction plan, dewatering plan, and plan to establish and maintain vertical and horizontal alignments.
 - e. If requested by the Engineer for reasons of casing misalignment, the Contractor shall resubmit to the Engineer for approval, shop drawings of the installation, showing measures that will be taken to maintain the carrier pipe on line and grade. Carrier pipe shall not be installed until this submittal is approved.
6. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 7. Welder Certificates: Certify welders and welding procedures employed on Work, verifying AWS qualification within previous 12 months.
 8. Include separate Paragraphs for additional certifications.
 9. Include following Paragraph when Contractor is responsible for designing products or assemblies. List affected products when Section specifies more than one product.
 10. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for tunnel liner.
 11. Submit occupancy permit for agency having jurisdiction for installations along and under public thoroughways and lands.
 12. Submit emergency response procedures to handle situations when conduit is compromised and jeopardizes safety or integrity of installation.
 13. Include following Paragraph when requesting written verification of check for voids and joint integrity.
 14. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
 15. Qualifications Statements
 - b. Submit qualifications for installer and licensed professional.
 - c. Welders: Qualify procedures and personnel according to AWS D1.1/D1.1M.

1.04 CLOSEOUT SUBMITTALS

- A. Section 01700 - Project Closeout: Requirements for submittals.
- B. Project Record Documents: Record actual locations of casing or tunnel liner, carrier pipe, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.05 QUALITY ASSURANCE

- A. Obtain occupancy permit when boring, jacking, or tunneling under or within rights-of-way of highways and railroads.
- B. Perform Work according to State of Florida Department of Transportation, and Sarasota County standards, as applicable.

1.06 QUALIFICATIONS

- A. Installer: Company specializing in performing Work of this Section with minimum five (5) years of documented experience.
- B. Welders: American Welding Society certified within previous twelve (12) months for employed weld types.
- C. Licensed Professional: Professional engineer experienced in design of specified Work and licensed in State of Florida.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Handling: Support casing and carrier pipes with nylon slings during handling.
- C. Storage:
 - 1. Store products according to manufacturer instructions.
 - 2. Use wooden shipping braces between layers of stacked pipe.
 - 3. Stack piping lengths no more than three layers high.
 - 4. Store field joint materials in original shipping containers.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide temporary end caps and closures on piping and fittings and maintain in place until installation.
 - 3. Protect piping from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.
 - 4. Provide additional protection according to manufacturer instructions.

1.08 AMBIENT CONDITIONS

- A. Section 01500 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Storage Temperature: Maintain 60 to 85 degrees F.

1.09 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.01 CASING AND JACKING PIPE

- A. Steel Casing Pipe:

1. Comply with ASTM A53/A53M or AWWA C202 for mill pipe and ASTM A139 or AWWA C201 for fabricated pipe.
 2. Minimum Yield Strength: 35,000 psi.
 3. Diameter and thickness: As shown on the Drawings.
 4. Welded Joints:
 - a. Comply with AWS D1.1/D1.1M.
 - b. Full circumference.
 5. Where required, casing vent pipe shall be 2-inch Schedule 80 galvanized steel pipe conforming to ASTM Specification A120-73, with galvanized malleable iron screwed fittings conforming to ANSI B16.3.
- B. Performance and Design Criteria:
1. Casing Pipe: Leakproof.
 2. Loading:
 - a. Highways:
 - 1) Earth cover.
 - 2) H-20 live loading, according to AASHTO HB-17.
 - 3) Impact loading according to AASHTO HB-17 plus 50 percent.
 - b. Railways:
 - 1) Earth cover.
 - 2) Comply with AREMA - Manual for Railway Engineering.
 - 3) Impact loading according to AREMA guidelines plus 50 percent.
 3. Bracing, Backstops, and Jacks: Of sufficient rating for continuous jacking without stopping except to add pipe sections, and to minimize tendency of ground material to freeze around casing pipe.

2.02 CARRIER PIPE

- A. Water System Piping: As specified in Section 02616 – Polyvinyl Chloride (PVC) Pipe.

2.03 MATERIALS

- A. Soil Backfill for trench approaches and pits to finish grade shall be in accordance with Section 125 of FDOT Standard Specifications for Road and Bridge Construction.
- B. After installation of the carrier pipe, the ends of the casing pipe shall be sealed up with a minimum of six inches (6") thickness of concrete and concrete pre-cast bricks. Concrete can be mixed on site using Portland cement and sand mixture or grout mixture.
- C. Pressure-Grout Mix: One-part portland cement and six parts mortar sand, mixed with water to consistency applicable for pressure grouting.
 1. Mortar Sand: Comply with ASTM C33.
 2. Portland Cement:

- a. Comply with ASTM C150.
- b. Type: I.

2.04 ACCESSORIES

A. Casing Spacers:

1. Casing spacers shall be bolt on style with a two (2) piece shell made of polymer or glass reinforced plastic or Type 304 stainless steel of a minimum 14-gauge thickness.
 2. Each shell section shall have bolt flanges and/or a hinged side, bolt flange shall be formed with ribs for added strength. Connecting side shall have a minimum of three (3) 5/16" 304 stainless steel bolts.
 3. The shell shall be lined with ribbed PVC with a retaining section that overlaps the edge of the shell and prevents slippage. Bearing surfaces (runners) shall be made from UHMW Polymer or glass reinforced plastic and attached to support structures (risers) at appropriate position to properly support the carrier within the casing and to ease installation.
 4. Runners shall be attached mechanically by 304 stainless steel threaded fasteners that are inserted through the riser section and TIG welded for strength.
 5. Risers shall be made of 304 stainless steel of a minimum 10-gauge. Risers shall be TIG welded to the shell.
 6. All metal surfaces shall be fully chemically passivated.
 7. Manufacturers:
 - a. Cascade Waterworks Manufacturing, CCS,
 - b. Pipeline Seal & Insulator, CC8G-2,
 - c. Raci Casing Spacers,
 - d. The BWM Company, SS-8,
 - e. CCI Pipeline Systems, CSS-8, CSS-12,
 - f. or equal.
- B. Where carrier pipe other than ductile iron is to be connected to the installation, proper adaptors shall be installed as shown and specified.
- C. Where required, casings for crossing shall be provided with a 2-inch diameter vent pipe at one end extending not less than four feet above ground surface and above maximum elevation of high water. Place vent pipe in valve box when feasible, in lieu of aboveground. Top of vent pipe shall be turned down 180° with elbow fittings and properly screened.
- D. Steel Strapping: Comply with ASTM A36/A36M.
- E. Casing Pipe Coating: Bituminous.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Section 01700 - Project Closeout: Requirements for installation examination.
- B. Verify that connection sizes, locations, and invert elevations are as indicated on Drawings.

3.02 PREPARATION

- A. Section 01700 – Project Closeout: Requirements for installation preparation.
- B. Identify required lines, levels, contours, and datum locations.
- C. Existing Utilities:
 - 1. Contractor shall contact Sunshine 811 for location of existing utilities at 811 or 1-800-432-4770 a minimum of 48 hours prior beginning Work.
 - 2. Coordinate with utility companies to support or relocate existing utilities in conflict with the Work.
- D. Establish elevations of casing as shown on the Drawings.
- E. Maintain access to existing facilities and other active installations requiring access.

3.03 INSTALLATION

- A. Dewatering:
 - 1. As specified in Section 125 of FDOT Standard Specifications for Road and Bridge Construction.
 - 2. Intercept and divert surface drainage precipitation and ground water away from excavation through use of dikes, curb walls, ditches, pipes, sumps, or other methods.
 - 3. Develop substantially dry subgrade for subsequent operations.
 - 4. Comply with requirements of local and state authorities for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.
- B. Pits or Approach Trenches:
 - 1. Excavate approach trenches or pits as Site conditions require.
 - 2. Ensure that casing entrance faces as near perpendicular in alignment as conditions permit.
 - 3. Establish vertical entrance face at least 1 foot above top of casing.
- C. Casing Pipe:
 - 1. Boring:
 - a. Push pipe into ground with boring auger rotating within pipe to remove soil.
 - b. Do not advance cutting head ahead of casing pipe, except for distance necessary to permit cutting teeth to maintain clearance for pipe.
 - c. Arrange machine bore and cutting head to be removable from within pipe.
 - d. Arrange face of cutting head to provide barrier to free flow of soft material.
 - e. If unstable soil is encountered during boring, retract cutting head into casing to permit balance between pushing pressure and ratio of pipe advancement to quantity of soil.
 - f. Grout to fill voids if voids develop greater than OD of pipe by approximately 1 inch.
 - g. If boring is obstructed, relocate jack or tunnel as directed by Engineer.

2. Jacking:
 - a. Construct adequate thrust wall normal to proposed line of thrust.
 - b. Impart thrust load to pipe through suitable thrust ring sufficiently rigid to ensure uniform distribution of thrust load on full pipe circumference.
 3. Drilling and Jacking:
 - a. Use oil-field-type rock roller bit or plate bit made up of individual roller cutter units solidly welded to pipe.
 - b. Turned and push pipe for its entire length by drilling machine to give bit necessary cutting action.
 - c. Inject high-density slurry (oil field drilling mud) to head as cutter lubricant.
 - d. Inject slurry at rear of cutter units to prevent jetting action ahead of pipe.
 4. Mining and Jacking: Use manual hand-mining excavation from within casing pipe as casing is advanced with jacks, allowing minimum ground standup time ahead of casing pipe.
- D. Pressure Grouting: Pressure-grout annular space between casing pipe and surrounding earth.
- E. Carrier Pipe:
1. Clean, inspect, and handle pipe as specified.
 2. Placement:
 - a. Place carrier pipe as specified.
 - b. Prevent damage to pipe joints as carrier pipe is placed in casing.
 3. Supports:
 - a. Support pipeline within casing such that no external loads are transmitted to carrier pipe.
 - b. Attach supports to barrel of carrier pipe; do not rest carrier pipe on bells.
 4. Grout ends of casing to seal.

3.05 TOLERANCES

- A. If casing is not bored within 5% of the elevation or grade shown, the casing shall be abandoned by filling with concrete. The bore and jack shall then be relocated and re-bored at a new location determined by the Engineer, whose decision shall be final. All abandonment of failed bores and re-bores shall be performed at the expense of the Contractor.
- B. Excavation: Do not overcut excavation by more than 1 inch greater than OD of casing pipe.
- C. Pipe Bells: Minimum 1/2-inch clearance to casing.

3.06 FIELD QUALITY CONTROL

- A. Section 01700 – Project Closeout: Requirements for testing, adjusting, and balancing.
- B. Compaction Testing:

1. Shall be in accordance with Section 02200 – Trenching, Backfilling, and Compaction.
2. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

3.07 CLEANING

- A. Section 01700 – Project Closeout: Requirements for cleaning.
- B. Remove temporary facilities for casing installation and jacking operations as specified in Section 01500 - Temporary Facilities and Controls.

3.08 PROTECTION

- A. Section 01700 – Project Closeout: Requirements for protecting finished Work.
- B. Protect plant life, lawns, and other features of final landscaping.
- C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

END OF SECTION

SECTION 02400
SEEDING AND SODDING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials and equipment necessary to satisfactorily return all construction areas to their original conditions or better.
- B. Work shall include furnishing and placing seed or sod, mulching, fertilizing, planting, watering and maintenance until acceptance by County.

1.02 RELATED WORK NOT INCLUDED

- A. Excavation, filling, and grading required to establish elevation shown on the Drawings are included under other sections of these Specifications.

1.03 QUALITY ASSURANCE

- A. It is the intent of this Specification that the Contractor is obliged to deliver a satisfactory stand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, fertilizing, watering, and seeding or sodding at no additional cost to the County until a satisfactory stand is obtained. For purposes of grassing, a satisfactory stand of grass is herein defined as a full lawn cover over areas to be sodded or seeded, with grass free of weeds, alive and growing, leaving no bare spots larger than 3/4 square yard within a radius of 8 feet.
- B. All previously grassed areas where pipelines are laid shall be sodded. All sodding and grassing shall be installed in accordance with these Specifications or as directed by the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fertilizer: The fertilizer shall be of the slow-release type meeting the following minimum requirements: 12 percent nitrogen, 8 percent phosphorus, 8 percent potassium; 40 percent other available materials derived from organic sources. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container. Fertilizer shall be uniform in composition, dry and free flowing delivered to sites in original unopened containers bearing manufacturer's statement or guarantee.
- B. Seeding/Grassing: The Contractor shall grass all unpaved areas disturbed during construction which do not require sod. All grassing shall be completed in conformance with FDOT Specifications, Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications, except that no additional payment will be made for mulching, fertilizing and/or watering.
- C. Sodding: Sod shall be provided for all previously grassed areas or at locations as directed by the Engineer in accordance with Florida Department of Transportation, Specifications Section 570 and 981. The Contractor shall match existing sod unless otherwise directed by the Engineer. Placement and watering requirements shall be in accordance with FDOT Specifications Section 570, except that no additional payment will be made for placement and/or watering.
- D. Topsoil: Topsoil stockpiled during excavation may be used as necessary. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the County. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants, and grassing specified herein.

- E. Water: It is the Contractor's responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements that may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. When the trench backfill has stabilized sufficiently, the Contractor shall commence work on lawns and grassed areas, including fine grading as necessary and as directed by the Engineer.
- B. Finish Grading: Areas to be seeded or sodded shall be finish graded, raked, and debris removed. Soft spots and uneven grades shall be eliminated. The Engineer shall approve the finish grade of all areas to be seeded or sodded prior to seed or sod application.
- C. Protection: Seeded and sodded areas shall be protected against traffic or other use by placing warning signs or erecting barricades as necessary. Any areas damaged prior to acceptance by the County shall be repaired by the Contractor as directed by the Engineer.

3.02 CLEANUP

- A. Soil or similar materials spilled onto paved areas shall be removed promptly, keeping those areas as clean as possible at all times. Upon completion of seeding and sodding operations, all excess soil, stones, and debris remaining shall be removed from the construction areas.

3.03 LANDSCAPE MAINTENANCE

- A. Any existing landscape items damaged or altered during construction by the Contractor shall be restored or replaced as directed by the Engineer.
- B. Maintain landscape work for a period of 90 days immediately following complete installation of work or until Owner accepts project. Watering, weeding, cultivating, restoration of grade, mowing and trimming, protection from insects and diseases, fertilizing and similar operations as needed to ensure normal growth and good health for live plant material shall be included at no additional cost to the Owner.

3.04 REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATORS

- A. Lawn areas planted under this Contract and all lawn areas damaged by the Contractor's operation shall be repaired at once by proper soil preparation, fertilizing and sodding, in accordance with these Specifications.

END OF SECTION

SECTION 02510
FLOWABLE FILL

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Work under this section provides the requirements for flowable fill used for trenches, for support for pipe structures, culverts, utility cuts, and other works where cavities exist or may be created as a result of the construction work; and where firm support is needed for pavements and structural elements. Flowable fill may also be used to fill abandoned water and sewer lines, abandoned fuel tanks, and where compacted fill is needed, as approved by the County.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. The materials used shall conform to the requirements specified in Division III of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (latest edition).

PART 3 – EXECUTION

3.01 MIX PROPORTIONS

- A. The Contractor shall be responsible for producing a flowable mixture using these guidelines and adjusting the mixture design as called for by circumstances or as may be directed by the County.
- B. Flowable fill material shall be proportioned to produce a 28-day compressive strength of approximately 50 - 150 psi.
- C. General mix quantities are as follows:

COMPONENTS	POUNDS PER CUBIC YARD
Cement	50 - 100 * (Typically ½ sack or 1 sack 45# or 90#)
Fly Ash or granulated blast furnace slag	1 - 600
Fine Sand	2750 (adjust as needed to yield one CY of flowable fill)
Water	500, maximum

** The percentage of cement may be increased above these limits only when early strength is required and future removal is very unlikely, and as approved by the County.*

- D. Weights for fine aggregate and water shall be adjusted according to cement content. The mix proportions shall be adjusted for removability, pumpability, and flowability. If required, strength test data shall be provided prior to batching.
- E. If required by the County, the fluidity will be measured by efflux time determined in accordance with ASTM C939 (Flow Cone Method), and shall be 30 seconds, ±5 seconds, as measured using a flow cone provided by the Contractor.

3.02 PRODUCTION AND PLACING

- A. Flowable fill shall be produced and delivered using concrete construction equipment. Placing flowable fill shall be by chute, pumping, or other methods approved by the County.

3.03 CONSTRUCTION REQUIREMENTS

- A. Flowable fill shall be placed to the designated fill line without vibration or other means of compaction. Placement shall be avoided during inclement weather; e.g., rain or ambient temperatures below 40°F. The Contractor shall take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement. Also, necessary means to confine the material within the designated space shall be provided by the Contractor.

3.04 ACCEPTANCE

- A. The strength desired is the maximum hardness that can be excavated at a later date using conventional excavating equipment. No curing protection is required. The fill shall be left undisturbed until material obtains sufficient strength. Sufficient strength is 35 psi penetration resistance as measured using a hand-held penetrometer. The penetrometer shall be provided by the Contractor. All flowable fill areas subjected to traffic loads must have a durable riding surface.

3.05 MEASUREMENT AND PAYMENT

- A. Where Flowable Fill is listed on the Price Schedule of the Bid Form, the item will be measured and paid per Section 01026 – Measurement and Payment. When no such item exists, this item of work will be considered incidental to the items listed in the Price Schedule of the Bid Form.
- B. Flowable fill may be used at the Contractor's option with County approval, or it may be ordered by the County under certain conditions to stabilize the soil.

END OF SECTION

SECTION 02610

FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall furnish and install fittings as shown on the drawings and as directed by the County.

1.02 RELATED SECTIONS

- A. Section 02614 – Ductile Iron Pipe
- B. Section 02616 – Polyvinyl Chloride (PVC) Pipe
- C. Section 02618 – High Density Polyethylene (HDPE) Pipe
- D. Section 02660 – Piping - General

1.03 REFERENCE STANDARDS

- A. American Society of Mechanical Engineers:
 - 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
- B. ASTM International:
 - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 - 3. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - 4. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- C. American Water Works Association:
 - 1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
 - 2. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
 - 3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - 4. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - 5. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
 - 6. AWWA C153 - Ductile-Iron Compact Fittings.
 - 7. AWWA C205 - Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. (100 mm) and Larger - Shop Applied.
 - 8. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
 - 9. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings.
 - 10. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
 - 11. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution.

D. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.04 QUALITY ASSURANCE

- A. The Contractor shall install fittings to meet the latest revision of the Sarasota County Utilities Uniform Water, Wastewater and Reclaimed Water Systems Code (Code).

1.05 SUBMITTALS

- A. Submit manufacturers' certificates of conformance indicating the materials meet the requirements of the Contract Documents.
- B. Shop Drawings: Submit manufacturer's drawings and data sheets for material to be supplied under this Section. Indicate sizes and types to be installed.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Upon delivery and before unloading, the Contractor must inspect the fittings for any damage which may have occurred in transit and note such damage on the delivery ticket.
- B. The means by which the fittings are unloaded, stored, and handled to minimize damage prior to and during installation are the decision and responsibility of the Contractor. The Contractor shall follow recommendations of the manufacturer.

PART 2 – PRODUCTS

2.01 BENDS, REDUCERS AND TEES

- A. Non-Pressure Pipe: All bends, reducers and tees required shall conform to the same standards as the pipe.
- B. Pressure Pipe: All bends, reducers and tees required shall conform to the following requirement:
1. Ductile Iron Fittings:
 - a. Shall be used for all pressure pipe.
 - b. Shall conform to the latest revision of AWWA C110 "Gray-Iron and Ductile-Iron Fittings, Three Inches Through Forty-Eight Inches for Water and Other Liquids".
 - c. Shall be mechanical joint ends with a pressure rating of 250 psi.
 - d. Compact fittings, three inches through sixty-four inches (3" - 64") will be acceptable. The compact fitting shall conform to the latest revision of AWWA C153 "Ductile Iron Compact Fitting, Three Inches Through Sixty- Four Inches for Water and Other Liquids".
 - e. All joints materials, including rubber gaskets, glands, tee-head bolts, and hex-head nuts shall conform to the latest revisions of AWWA C111, "Rubber- Gasket Joints for Ductile- Iron and Gray-Iron Pressure Pipe and Fittings".
 - f. Interior surfaces of fittings shall be cement mortar lined in accordance with AWWA C104. Cement shall be ASTM C150, Type II or V, low alkali, containing less than 0.60 percent alkalies.
 2. Solid sleeves and adapter fittings shall be long body pattern and conform to the latest revision of AWWA C110 Gray-Iron and Ductile-Iron fittings, three inches (3") through forty-eight inches (48") for water and other liquids.

2.02 JOINT RESTRAINT SYSTEM

- A. Restraint system for fittings shall be "MEGA LUG 1100 Series" Joint Restraint System as manufactured by EBAA Iron, Inc. or equal.

- B. Restraint system for fittings on PVC pipe shall be as specified in Section 02616 – Polyvinyl Chloride (PVC) Pipe.
- C. All fittings sixteen (16) inches in diameter and larger shall be restrained as shown on the plans.

2.03 SLEEVES

- A. Connection of existing utility mains to the new mains will be accomplished with a long pattern solid sleeve, as approved by the County. Repair clamps will not be allowed.

2.04 CORROSION PROTECTION

- A. All underground ductile iron pipe and fittings shall be enclosed in a high density, cross laminated polyethylene sheet or tube and each length joined with a two-inch (2") wide colored polyethylene adhesive tape. The sheet or tube shall be made from polyethylene resin meeting the requirements of ASTM D1248 and shall be Type III, Class B, Grade P-33 and four (4) mils thickness. The sheet or tube shall be as manufactured by Polytube Corporation, Birmingham, Alabama, or equal. The sheet or tube shall be in accordance with the provisions of ANSI, Standard A21.5 – AWWA C105. Installation methods shall be such as to minimize damage to the sheet or tube, but where required the adhesive tape should also be used to repair tears or punctures.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation of ductile iron (DIP) fittings shall be in accordance with the latest revision of AWWA C600, "Installation of Gray and Ductile Cast Iron Water Mains and Appurtenances" for ductile iron. For PVC fittings, installations shall be in accordance with manufacturer's recommendations.
- B. Joint restraint system shall be installed on all fittings sixteen (16) inches in diameter and larger in accordance with manufacturer's instructions so as to prevent joint separation under operating conditions.
- C. Reverse thrust blocks (RTB) shall be installed as directed by the County and shall be installed as indicated on the drawings and details. The Contractor shall install 3/4-inch stainless steel all-thread from the fitting to the thrust block.

END OF SECTION

SECTION 02614
DUCTILE IRON PIPE

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The extent of the ductile iron pipe (DIP) is shown on the drawings.
- B. Reference to industry standard specifications shall be construed to mean the latest edition or revision.

1.02 SUBMITTALS

- A. One original certified test report and two 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. The certification shall include all tests results required by AWWA.
- B. All submittals shall be in accordance with Specification 01300 – Submittals.
- C. Except as otherwise shown on the Drawings, either push- on, mechanical, restrained, or flanged joints shall be used. Prior to commencing work, jointing systems for pipe shall be submitted to the County for approval.
- D. All ductile iron pipe and fittings to be installed under this Contract shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Furnish in duplicate to the County sworn certificates of such tests and their results.
- E. Shop Drawings including layout drawings shall be submitted to the County for approval and shall include dimensioning, methods and locations of supports and all other pertinent technical specifications for all piping to be furnished. Layout Drawings shall be to scale, and shall clearly indicate the amount of pipe to be restrained from each fitting.
- F. The Contractor shall transmit from the Vendor to the County, the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

PART 2 - PRODUCTS

2.01 PIPE

- A. Upon delivery and before unloading, the Contractor must inspect the pipe for any damage incurred in transit and note such damage on the delivery ticket.
- B. For Aboveground Installation: Ductile iron pipe for the interior of structures and aboveground installation shall conform to ANSI A21.15, latest revision (AWWA C-115) and be flanged. Thickness class shall be Standard Thickness Class 53 for all sizes. Flanges shall conform to ANSI A21.15, and shall be ductile iron.
- C. For Underground Installation: Ductile iron pipe shall conform to ANSI A21.51 (AWWA C-151). The pipe shall have a wall thickness designed in compliance with ANSI A21.50/AWWA C-150, "American National Standard for Nominal Thicknesses for Pressure Classes of Ductile Iron Pipe" and shall be the minimum Pressure Class of 150 for water, reclaim, and sewer pipe, unless otherwise called for on the plans. Where ductile iron pipe is threaded for flanges, the thickness shall not be less than Standard Thickness Class 51.

2.02 PIPE JOINTS

- A. Generally, joints for ductile iron pipe shall be push-on type designed in accordance with ANSI A21.11 (AWWA C111). Joint lubrication shall be as furnished by the manufacturer.
- B. At certain locations, restrained joint pipe, fittings, specials, etc., shall be used as shown on the drawings. Restrained joints shall meet all applicable requirements of ANSI, Standard A21.11, latest revision and shall be Underwriters Laboratory (UL) listed and/or Factory

Mutual (FM) approved. All special joints shall be capable of withstanding dead-end axial thrusts and end separations resulting from an internal pressure of 250 psi with an adequate factor of safety, and shall remain watertight.

1. Restrained joints shall be Fast Grip Gaskets, Flex-Ring or Lok-Ring as manufactured by American Cast Iron Pipe Company, or TR Flex as manufactured by United States Pipe and Foundry Company.
2. Mechanical joint retainer glands may be used to restrain mechanical joint pipe and fittings to the plain end of ductile iron pipe and fittings. Restrainer glands shall be manufactured of ductile iron per ASTM A536. Restrainer glands shall be "MEGALUG" as manufactured by EBAA Iron Inc or Uni-Flange manufactured by Ford.
3. If required, and as approved by the Engineer, push-on bell and spigot ductile iron pipe may be restrained using "Tie anchor III" joint restrainers by Star National Products. These joint restrainers shall be used in conjunction with eyebolts, threaded rods, rod couplings, nuts and washers furnished by Star National Products as specified herein.

2.03 LINING

- A. The interior of ductile iron pipe and fittings shall have cement lining and bituminous seal coat in accordance with ANSI A21.4 (AWWA C104) for potable water and reclaim water. The lining thickness shall be standard thickness.
- B. For sewer and other piping, the liners shall be in accordance with this section.

2.04 EXTERIOR FINISH

- A. For aboveground installation, the exterior surfaces of interior and exposed pipe and fittings shall be painted in accordance with the provisions of Section 09905 - Paint and Protective Coating.
- B. For underground installation, pipe and fittings shall have the standard bituminous coat on the exterior, in accordance w/ANSI A21.5 (AWWA C151), and painted or otherwise identifiably marked as required by the Sarasota Uniform Water, Wastewater and Reclaimed Water Systems Code.

2.05 CORROSION PROTECTION

- A. All underground ductile iron pipe and fittings shall be enclosed in a 4 mil linear low density polyethylene sheet or tube and each length joined with a two inch (2") wide colored polyethylene adhesive tape, 10 mils thick. Slip the tube around the pipe, centering it to provide a 12-inch overlap on each of the pipe bell section. A full circumferential wrap of tape or plastic tie straps shall be made at two (2') foot intervals along the pipe to minimize the space between the polyethylene sheet and the pipe. The sheet or tube shall be made from polyethylene resin meeting the requirements of ASTM D1248 and shall be Type III, Class B, Grade P-33 and four (4) mils thickness. The sheet or tube shall be in accordance with the provisions of ANSI, Standard A21.5 - AWWA C105. Installation methods shall be such as to minimize damage to the sheet or tube but where required the adhesive tape should also be used to repair tears or punctures.
- B. Polyethylene sheets shall be the following colors for specific purpose:
 1. Potable Water - Blue
 2. Reclaim Water - Purple
 3. Gravity Sewer - Green
 4. Vacuum Sewer – White
- C. The Engineer shall determine the color of the polyethylene sheet for all other specific purposes.

PART 3 EXECUTION

3.01 HANDLING PIPE AND FITTINGS

- A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the County.
- B. All pipe and fittings shall be subjected to a careful inspection and hammer test just prior to being installed.
- C. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional expense to the County.

3.02 UNDERGROUND PIPE INSTALLATION

- A. Alignment and Grade: The pipelines shall be laid and maintained to lines and grades established by the Drawings and Specifications, with fittings, valves and hydrants at the required locations unless otherwise approved by the County. Valve- operating stems shall be oriented to allow proper operation. Hydrants shall be installed plumb.
- 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 the work and interfere so that an alteration of the Drawings is required, the County 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 County, to provide clearance as required by federal, state, or local regulations or as deemed necessary by the County to prevent future damage or contamination of either structure.
- C. Trench Construction:
 - 1. 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. Bedding shall be provided and compacted in accordance with the details shown on the Drawings.
 - 3. 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 slight depression may be provided to allow withdrawal of pipe slings or other lifting-tackle.
 - 4. 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 for pipe sizes 24-inches or smaller, and 9-inches for pipe 30- inches and larger. All excavated material will need to be disposed of at no additional cost to the County. 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 or subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation.
 - 5. 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 of 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 3-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. No additional costs will be paid by the County for the removal of the unstable material.
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, valves, and hydrants shall be lowered carefully into the trench by means of a derrick, ropes, or other suitable tools or equipment in such a manner as to prevent damage to pipeline material and protective coatings and linings. Under no circumstances shall pipeline materials be dropped off or dumped into the trench. The trench shall be dewatered prior to installation of the pipe.
- B. All pipe fittings, valves, hydrants, and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the County who may prescribe corrective repairs or reject the materials.
- C. All lumps, blisters, and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and be free from dirt, sand, grit, or any foreign material before the pipe is laid.
- D. 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.
- E. 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.
- F. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the County. 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.
- G. 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.
- H. Joint Assembly: Pipe joints shall be assembled in accordance with the Manufacturer's instructions and the requirements of ANSI/AWWA C600.
- I. 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 shown in AWWA C600, latest edition.
- J. Pipe Cutting: 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 or lining. Ductile cast iron may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw, milling wheel saw, or oxyacetylene torch. Cut ends and rough edges shall be ground smooth and for push-on joint connections, the cut end shall be beveled.

K. Thrust Restraint:

1. All pipe joints, plugs, caps, tees, and bends shall be suitably restrained by attaching steel tie rods or restrained joints as specified.
2. Thrust-restraint design pressure shall be equal to the test pressure of the line.
3. Restrained mechanical joints utilizing setscrew retainer glands or steel harness and tie rods shall be used in place of concrete. Steel tie rods or other components of dissimilar metal shall be protected against corrosion by hand application of a bituminous coating or by encasement of the entire assembly within a 4-mil thick, loose polyethylene casing in accordance with ANSI/AWWA C105/A21.5.

3.04 ABOVE GROUND PIPE INSTALLATION

- A. Install pipe in horizontal or vertical planes, parallel or perpendicular to building surfaces unless otherwise shown. Support pipe and fittings to prevent strain on joints, valves and equipment. Install flanged joints so that contact faces bear uniformly on the gasket. Tighten bolts with relatively uniform stress.

3.05 TESTING

- A. Hydrostatic pressure and leakage test shall conform to Section 4 of AWWA C600, with the exception that the Contractor shall furnish all gauges, meters, pressure pumps and other equipment needed to test the line.
- B. The pressure required for the field hydrostatic pressure test shall be 150 psi for potable water lines, reclaimed water lines, and sanitary sewer force mains. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure of 150 psi. Corporation cocks at least 3/4-inches in diameter, pipe riser and angle globe valves shall be provided at each pipe dead-end in order to bleed air from the line. Duration of pressure test shall be at least two hours.
- C. The leakage test may be conducted at the same time as the pressure test, and shall be of not less than two hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage as shown by test. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with. Defective materials, pipes, valves and accessories shall be removed and replaced. The pipe lines shall be tested in such sections as may be required. The line shall be filled with water and all air removed and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the Contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage. Retesting of failed leakage tests will be performed at no additional costs to the County.
- D. Water mains shall be tested for a maximum length of one thousand feet (1000-feet) and shall be used for leakage calculations regardless of the actual total length of pipe test.

- E. The amount of leakage which will be permitted shall be in accordance with AWWA C600 Standards for all pressure tests. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD\sqrt{P}}{133,200^*}$$

- L = Leakage in gallons per hour
S = Length of pipe tested in feet
D = Nominal diameter of pipe in inches
P = Average test pressure in psi

* Note: If 20-foot pipe lengths are used, factor to be 148,000

3.06 SURFACE PREPARATION AND PAINTING

- A. All piping and fittings exposed to view shall have their surfaces prepared and painted with a prime coat as defined in these Specifications. Surface preparation and shop priming is a part of the work of this Section. Stainless steel bolts and hardware shall not be painted.

END OF SECTION

SECTION 02616
POLYVINYL CHLORIDE (PVC) PIPE

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The extent of PVC pipe is shown on the drawings.
- B. Reference to standard specifications herein shall be construed as to be in reference to the latest revision or edition.

1.02 SUBMITTALS

- A. One original certified test report and two copies of all required test reports shall be submitted to the County with each shipment of pipe. Certification shall include all test results required by AWWA. The Contractor shall include the following data:
 - 1. Quick Burst Test, ASTM D1599
 - 2. Drop Impact Test, ASTM D2444
 - 3. Pipe Impact Test, CSA B137.3
 - 4. Physical and chemical properties of all pipe
 - 5. Maximum allowable deformation and penetration of the pipe wall
 - 6. Hydrostatic test reports
 - 7. Manufacturer's affidavit that the pipe furnished complies with all applicable provisions of these specifications and all applicable AWWA, CSA, ISO, and ASTM standards

1.03 DELIVERY AND STORAGE

- A. Upon delivery and before unloading, the Contractor must inspect the pipe for any damage occurred in transit and note such damage on the delivery ticket.
- B. In storing pipe, units shall be protected by dunnage in the same way they were protected while loaded on the truck. Pipe shall be stored flat to protect against bending. If pipe is to be stored outside longer than 7-days the pipe shall be covered with canvas or other opaque material to protect it from prolonged exposure to the sun.

PART 2 – PRODUCTS

2.01 PVC PIPE (4-INCHES AND LARGER)

- A. Uses of Pipe:
 - 1. WATER:
 - a. Unless otherwise shown on the plans, PVC water pipe 4" through 12" shall be DR-18, Class 150 and meet the requirements of AWWA C900 for PVC pipe in ductile iron pipe equivalent O.D., having elastomeric gasket bell ends and elastomeric seals.
 - b. Pipe shall be blue in color for water.
 - c. PVC water pipe 14" and greater shall conform to the requirements of AWWA standard C905, DR-18, with working pressure rating of 235 psig.
 - 2. SEWER:
 - a. Force main pipe from 4" up to 12" shall be DR-25, Class 100 and meet the requirements of AWWA C900 for PVC pipe in ductile iron pipe equivalent O.D. Pipe shall be furnished in standard 20' lengths.
 - b. Gravity sewer pipe shall be SDR-26, D-3034 ASTM.

- c. Pipe shall be green in color for sewer pipe.
- d. PVC sewer force main pipe 14" and greater shall conform to the requirements of AWWA standard C905, DR-18, with a working pressure rating of 235 psig.

3. RECLAIM:

- a. Unless otherwise shown on the plans, PVC reclaimed water pipe 4" through 12" shall be DR-18, Class 150 and meet the requirements of AWWA C900 for PVC pipe in ductile iron pipe equivalent O.D., having elastomeric gasket bell ends and elastomeric seals.
- b. PVC pipe 14" and greater shall conform to the requirements of AWWA standard C905, DR-18, with a working pressure rating of 235 psig.
- c. Pipe shall be purple in color for reclaimed water.

4. GENERAL:

- a. PVC pipe diameters of 4" to 12" shall conform to the requirements of AWWA standard C900, DR-14, with a working pressure rating of 200 psig as shown on the drawings and shall be color coded to meet County's standards.
- B. The joints for PVC pipe shall be rubber ring type consisting of integral, thickened, solid wall bells which maintain the same standard dimension ratio as the pipe barrel. Joint lubrication shall be as furnished by the manufacturer of the pipe and joints made in accordance with the manufacturer's instructions and recommendations. Joint restraints for PVC pipe shall be EBAA Series 2800 or equal. Restraints for PVC pipe to mechanical joint fittings shall be EBAA Series 2000PV or equal.
- C. Solid long pattern sleeves or adapter fittings shall be furnished and installed where plastic pipe is connected to pipes or fittings of other materials. When pipe material changes from one type to another, long pattern solid repair sleeves shall be used to transition.

2.02 PVC PIPE (SMALLER THAN 4-INCHES)

- A. PVC pipe two inches (2") and three inches (3") in diameter shall conform to the requirements of ASTM D2241, Class 1120 or 1220 (SDR 21) with a working pressure rating of two hundred (200) psig with integral bell gasketed joints. Pipe is to be manufactured to I.P.S. (steel) standard pipe equivalent outside diameters. Pipe shall be marked NSF-PW approved.
- B. Schedule 40 PVC, when requested and approved, may be used as an alternative to A. above for pipe diameters of two inches (2") and three inches (3"). Schedule 40 shall conform to the requirements of ASTM 1785. Pipe joints shall be solvent welded in accordance with ASTM D 2672 or ASTM D 2466 and D 2564. Pipe is to be manufactured to I.P.S. (steel) standard pipe equivalent outside diameters. Pipe shall be marked NSF-PW approved.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Excavation. Excavate trenches as specified in Section 02222 – Trenching, Compacting and Backfilling.
- B. 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 maintained to the lines and grades established by Drawings and Specifications, with fittings, valves hydrants at the required locations unless otherwise approved by the Engineer. Valve-operating stems shall be oriented to allow proper operation. Hydrants shall be installed plumb.
- 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 County 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 County, to provide clearance as required by the County to prevent future damage or contamination of either structure.
- C. Trench Construction. 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.
- D. PVC pipe shall be installed with pipe bedding and backfill as shown on the drawings.
- E. 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.
- F. 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.
- G. 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.
- H. 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.

- I. 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. The Contractor shall install all pipe in accordance with the recommendations of the pipe manufacturer and as specified herein.
- B. The Contractor shall take care in handling, storage and installation of pipe and fittings to prevent injury to the pipe or coatings. All pipe and fittings shall be examined before installation and pipe which is deemed to be defective by the County shall not be installed.
- C. The Contractor shall thoroughly clean and keep thoroughly clean, all pipe and fittings prior to during and after installation.
- D. The Contractor shall lay the pipe to the lines and grades shown on the Contract Drawings with bedding and backfill as shown on the Drawings or called out in the Contract Documents. Blocking under the pipe shall not be permitted except through casing sleeves.
- E. The Contractor shall keep the open ends of all pipe closed with a tightly fitting plug when installation is not in progress or the potential exists for dirt or debris to enter the pipe.
- F. The pipe or accessories shall not be dropped into the trench under any circumstances.
- G. The Contractor shall construct all water mains pursuant to the provisions of "Recommended Standards for Water Works", Part 8, incorporated by reference in Rule 17-555.330(3), F.A.C.
- H. 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.
- I. 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.
- J. 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.
- K. Joint Assembly. Pipe joints shall be assembled in accordance with the manufacturer's instructions.
- L. 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 75% of the amount recommended by the manufacturer.

- M. Pipe Cutting. 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.
- N. Burrs shall be removed from spigots and ends shall be smoothly beveled. Field cut ends shall be marked for proper depth of joint assembly.
- O. Locator Tape. Install all plastic pipe with a locator tape of the type specified.
- P. Electronic Marker. Install electronic markers of the type specified for all buried piping at 24-inches below grade.
- Q. Thrust Restraint. All plugs, caps, tees, and bends, unless otherwise specified, shall be provided with reaction backing, or restrained joints as specified.
- R. Thrust-restraint design pressure shall be equal to 1.5 times the design pressure of the line.

3.04 TESTING

- A. 48-hour notice is needed prior to testing. A letter stating the reasons testing should be scheduled ahead of other jobs must accompany all emergency testing requests.
- B. The County and Contractor must be present for all testing, except for testing tapping valves and sleeves.
- C. Testing shall be in accordance with Section 01666 - Testing Piping System.
- D. All digging on the job site in the right-of-way must be completed before any testing of water or sewer. Any digging or boring across water or sewer lines after they have been tested may result in a retest of the lines at the Engineer's request.
- E. If any revisions or changes are made after initial testing, lines will be re-tested at the Engineer's request.
- F. Disconnect water supply during test.
- G. All force mains will be tested from the valves in the valve vault at the lift station to the point of connection whether it be against a valve on another force main or into a manhole.
- H. All services to be above ground during test. The services should be the correct length so they will be one (1) foot inside right-of-way line.
- I. All fire hydrant gate valves to be open during test.
- J. All visible leaks are to be repaired, regardless of the amount of leakage.
- K. After the line passes the test, the pressure will be blown off from the opposite end of line from the gauge location. Fire hydrants, services and end-of-line blow offs will be opened to demonstrate they were on line during the test.
- L. At end of test, the test gauge must return to zero. The pressure gauge must read 0 psi to a maximum of 300 psi in 2 psi increments.

- M. The section of line being tested must be identified on the charge sheet. The length and size of pipe, the exact area being tested and the valves being tested against, must be identified. Use Station numbers if available.
- O. A copy of the charge sheet will be given to the County and the Contractor at the end of the test.

END OF SECTION

SECTION 02618

HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART I –GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The extent of the HDPE pipe installation is shown on the Drawings.
- B. Reference to standard specifications herein shall be construed as to be in reference to the latest revision or edition.

1.02 RELATED SECTIONS

- A. Section 01666 – Testing Piping System.
- B. Section 02660 – Piping-General

1.03 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
 - 2. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
 - 3. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
 - 4. ASTM F 714-05 Standard Specification for Polyethylene (PE) Pipe (SDR-PR) Based on Outside Diameter.
- B. American Water Works Association (AWWA):
 - 1. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.
 - 2. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission.

1.04 SUBMITTALS

- A. One original certified test report and two copies of all required test reports shall be submitted to the Engineer with each shipment of pipe. Certification shall also include all test results required by AWWA.
- B. The Contractor shall submit to the County, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all polyethylene pipe and fittings.
- C. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.
- D. The Contractor shall submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

1.05 DELIVERY AND STORAGE

- A. In storing pipe, units shall be protected by stacking and packing the pipe in the same way they were protected while loaded on the truck. Pipe shall be stored by stacking with proper supports to protect against bending. If pipe is to be outside longer than 15 days the pipe shall be covered with canvas or other opaque material to protect it from prolonged exposure to the sun.

PART 2 – PRODUCTS

2.01 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

- A. Polyethylene pipe 4" diameter and larger shall be high-density bimodal PE4710 polyethylene resin with a minimum cell classification of 445574 per ASTM D3350, Class 200, DR 11, meeting the requirements of AWWA C906. All pipe materials used in potable water systems shall comply with NSF Standard 61. Outside diameters of water, reclaimed water and pressure sewer HDPE pipes shall be ductile-iron pipe sizing system (DIPS). The pipe and fittings shall be DR-11 or DR-9 Performance Pipe, or equal, as shown on drawings and shall bear the approval seal of the National Sanitation Foundation (NSF).
- B. Joints: A continuous pipe shall be formed by butt fusing sections of pipe using manufacturer-approved equipment. The fused joints shall have equal or greater tensile and hydrostatic strength than the pipe.
- C. Fittings shall be MJ DIP meeting the requirements of Section 02610 - Fittings.
- D. Restrainers shall be used for transition from HDPE pipe to mechanical joint ductile iron fittings. Restrainers shall conform to the following:
 1. Restrainers shall provide wide, supportive contact around the full circumference of the pipe. Means of restraint shall be machined serrations on the inside surface of the restrainer. Loading of the restrainer shall be by a ductile iron follower that provides even circumferential loading over the entire restrainer. The design shall be such that restraint increases with increase in pipe pressure.
 2. Serrated restrainer shall be ASTM A-536-80 ductile iron with ductile iron follower. Bolts and nuts shall be corrosion resistant high strength alloy steel.
 3. Stiffeners for HDPE pipe shall be utilized in accordance with the manufacturer's recommendation and as approved by the County.

PART 3 – EXECUTION

3.01 GENERAL

A. PIPE & FITTINGS

1. Size as indicated on the plans. Install as shown in accordance with manufacturer's recommendations.

3.02 JOINING

A. BUTT FUSION

1. Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself.

B. MECHANICAL

1. Bolted joining may be used where the butt fusion method cannot be used. Flange joining will be accomplished by using a HDPE flange adapter with a ductile iron back-up ring. Mechanical joint joining will be accomplished using either a molded mechanical joint adapter or the combination of a Sur-Grip Restrainer and Pipe Stiffener as manufactured by JCM Industries, Inc. Either mechanical joint joining method will have a ductile iron mechanical joint gland.

C. OTHER

1. Socket fusion, hot gas fusion, threading, solvents, and epoxies may not be used to join HDPE pipe.

3.03 QUALITY AND WORKMANSHIP

- A. The pipe and/or fitting manufacturer's production facility shall be open for inspection by the owner or his designated agents with a reasonable advance notice. During inspection, the manufacturer shall demonstrate that it has facilities capable of manufacturing and testing the pipe and/or fittings to the standards required by this specification.
- B. All persons performing HDPE pipe fusion welding shall be factory certified for the specific welding equipment. Certification shall be submitted to the County prior to performing any pipe fusion welding.

3.04 PIPE PACKAGING, HANDLING & STORAGE

- A. The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project neatly, intact and without physical damage. The transportation carriers shall use appropriate methods and intermittent checks to insure the pipe is properly supported, stacked and restrained during transportation such that the pipe is not nicked, gouged, or physically damaged.
- B. Pipe shall be stored on clean, level ground to prevent undue scratching or gouging. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer's recommendations. The pipe shall be handled in such a manner that it is not pulled over sharp objects or cut by chokers or lifting equipment.
- C. Sections of pipe having been discovered with cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the heat fusion joining method.
- D. Fused segments of the pipe shall be handled so as to avoid damage to the pipe. Chains or cable type chokers must be avoided when lifting fused sections of pipe. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections.

3.05 INSULATED COPPER TRACER WIRE FOR HORIZONTAL DRILL

- A. A minimum 8 gauge insulated copper wire shall be installed along the entire length of HDPE pipe for all Horizontal Drills.

3.06 TESTING HDPE PIPE

- A. Follow the testing procedures in Section 01666 - Testing Piping Systems for testing of the pipe system and Section 02300 – Horizontal Directional Drilling, where applicable.

END OF SECTION

SECTION 02640
VALVES AND ACCESSORIES

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall furnish and install all gate valves, butterfly valves, plug valves, check valves, and other special valves and piping accessories as shown on the drawings and as specified herein.
- B. Valve input shaft shall be furnished with a two (2) inch square AWWA operating nut with an arrow cast on to show the direction of turning to close the valve.
- C. Extension shaft as manufactured by the valve manufacturer shall be provided to place the operating nut between six (6) inches and eighteen (18) inches below proposed grade along with stainless steel centering plate.
- D. Contractor shall install a brass disk within the valve pad according to standard detail.

1.02 SUBMITTALS

- A. The Contractor shall submit:
 - 1. Shop drawings or manufacturer's product data on all items in Part 2.
 - 2. One (1) original certified test report and two (2) copies of the test reports. Certification shall include all hydrostatic and leakage test results required by and in accordance with AWWA C504, Section 12.

1.03 REFERENCE STANDARDS

- A. American Society of Mechanical Engineers:
 - 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
- B. American Water Works Association:
 - 1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - 2. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
- C. NSF International:
 - 1. NSF 61 - Drinking Water System Components - Health Effects.
 - 2. NSF 372 - Drinking Water System Components - Lead Content.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All valve operators shall be designed as not to require over 80 pounds pull to meet the required torque to operate the valves.
- B. All manually operated shut-off or isolation valves above grade shall be furnished with handwheel or lever operators.
- C. All manually operated shut-off or isolation valves that are mounted over six (6) feet above finish floor elevations shall be furnished with chain wheel operators. Chain for chain wheel operators shall be galvanized or stainless steel.

- D. All manually operated shut-off or isolation valves below grade shall be furnished with AWWA 2" square actuating nuts and valve boxes. Valve boxes shall consist of cast iron base and adjustable top section with cover which shall be marked for the appropriate service, i.e. "WATER", "SEWER", "RECLAIM", ETC.
- E. Where called for on the drawings, electric valve actuators shall be provided. The electric actuators shall be powered by a high torque, reversible motor with integral thermal overload protection. The gear train shall be heat treated high alloy steel and shall be sized to withstand all imposed valve torque loads. The gear train shall be permanently lubricated. The actuator shall be furnished with a manual override capable of preventing electrical operation of the actuator when the override is engaged. The actuator, complete with integral positioner, shall be housed in a NEMA 4 enclosure and shall operate on 120 VAC, 1-phase, 60 Hz power supply.
- F. All valves shall open by turning to the left or counter-clockwise when viewed from the stem. The operating nut shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating and year of manufacture cast on the body. All valves shall be tested in accordance with applicable AWWA pressure testing procedures.

2.02 GATE VALVES

- A. Resilient seat gate valves shall be ductile iron bodied, bronze mounted, resilient rubber seated with wedge type disk. Valves shall be manufactured in accordance with AWWA C515.
- B. The valve body, bonnet, and gate disc shall be constructed of ductile iron conforming to the requirements stipulated in ASTM A-536 and be rated for a working pressure of 250 psi minimum.
- C. Buried valves shall be furnished with mechanical joint ends meeting ANSI/AWWA C111/A21.11
- D. Above grade valves shall be furnished with flanges, flat faced, and drilled in accordance with ANSI/AWWA C115/A21.15.
- E. All internal and external ferrous surfaces shall have a fusion bonded epoxy coating meeting AWWA C550 and NSF 61.
- F. All 12-inch diameter and larger resilient wedge gate valves shall be furnished with right angle, bevel gear operators suitable for the service intended unless otherwise shown or specified.
- G. Valves shall be furnished with thermoplastic gate guide inserts for ease of operation with low torque requirements.
- H. All valves shall be tested in accordance with AWWA C509.
- I. Manufacturers:
 - 1. American Flow Control,
 - 2. Mueller,
 - 3. McWane,
 - 4. U.S. Pipe and Foundry,

5. or equal.

2.03 BUTTERFLY VALVES

- A. Butterfly valves shall conform to AWWA C504. Laying length of all classes shall be Table 1 (AWWA C504), short body. Valves shall be rated at 150 psi working pressure. Valves shall be bubble tight at rated pressures and shall be satisfactory for applications involving valve operation after long periods of inactivity. Valves shall have mechanical joint ends for buried service and flanged joints in the vaults and above grade.
- B. Valve body shall be ductile iron per AWWA C-504 with integrally cast hubs for shaft bearing housing. All exterior bolts, nuts, studs, and washers, including mechanical joint bolting accessories, shall be stainless steel.
- C. The valve disc shall be of heat treated ductile iron, cast iron or alloy cast iron per ASTM A126, Class B, with a 316 SST edge. All materials shall meet AWWA C-504. The disc shall rotate 90 degrees from full open to tight shut position. The contractor shall verify clearance dimensions required for the valve disc to be compatible with the pipe.
- D. Valve shaft shall be of a solid one-piece design or stub shaft. Shaft, taper pins, lockwashers and nuts shall be Type 304 or 316 stainless steel. A shaft seal and bronze gland follower, studs and nuts shall be provided in the valve body. Shaft seals shall be in accordance with Section AWWA C-504 for Class 150B, of the O-ring or split "V" type, suitable for buried service.
- E. Valve seat shall be of molded natural or synthetic rubber, recess mounted, bonded to the valve body. All mechanical securing devices shall be stainless steel. Seats shall not be located on the disc.
- F. Valves shall be fitted with sleeve type bearings of self-lubricating corrosion resistant material.
- G. Valve operators shall be in accordance with AWWA C504 and for buried service shall be permanently lubricated with totally enclosed gearing and designed to operate indefinitely either buried or fully submerged. All operator components between the input and stop limit shall be designed to withstand, without damage, a pull of 200 pounds for handwheel or chain wheel operators and an input torque of 300-foot pounds for operating nuts. Operators shall be designed to require not over 150-foot pounds to meet the required operating torque. Operators shall be designed to hold the valve disc in any intermediate position between fully closed and fully open without creeping or fluttering.
- H. All valves shall receive a protective inside lining. The lining shall be a two-part thermosetting epoxy protective lining and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The lining shall be approved by both AWWA and NSF61. The lining shall be nontoxic and shall not impart taste to water. The lining must be formulated from materials deemed acceptable per the Food and Drug Administration Document Title 21 of the Federal Regulations on food additives, Section 121.2514 entitled, Resins and Polymeric Coatings.
- I. Manufacturers shall be valmatic or equal

2.04 CHECK VALVES

- A. Check valves shall be installed where shown on the drawings.
- B. Swing Check Valves:

1. Check valves three (3) inches and larger shall be horizontal swing check valves of the iron body bronze mounted, full opening type. Check valves shall be in accordance with AWWA C508 and equipped with outside levers and weights. Check valves smaller than three (3) inches shall be bronze, suitable for the service required.
 2. Swing check valves shall be used at all locations where a specific type of check valve is not specified or noted on the drawings.
 3. Manufacturers:
 - a. American Flow Control,
 - b. McWane, Mueller,
 - c. U.S. Pipe and Foundry,
 - d. or equal.
- C. Rubber Flapper Check Valves:
1. Check valves shall be rubber flapper swing check valves of long pattern design (not wafer). Check valves shall have a heavy ductile iron body. Cover, bolts, nuts, and washers shall be 304SS; flange gaskets shall be rubber. Flapper shall be Buna-N with an O-ring seating edge, an elastic spring, molded internally, and shall be reinforced with steel. The flapper shall be easily removed from the check valve without needing to remove the valve from the line. Check valves will have full pipe size flow area.
 2. Manufacturers:
 - a. APCO,
 - b. Val-Matic,
 - c. Crispin rubber flapper swing check valves,
 - d. or equal.

2.05 PLUG VALVES

- A. Plug valves shall be of the non-lubricated eccentric round port design. Valves shall be designed for a working pressure of 175 psi through twelve (12) inches and 150 psi for fourteen (14) inches and larger. Plug valves shall be Pratt, Milliken or equal.
- B. Plug valves up through twenty-four (24) inches shall have a round port. Plug valves thirty (30) inches and larger may have a rectangular port.
- C. The valve plug shall be constructed of cast iron ASTM A126, Class B, with Buna-N resilient seating surface to mate with the body seat.
- D. Plug valves shall be furnished with permanently lubricated grit excluder seals shall be provided to isolate the bearings.
- E. Plug valve shaft seals shall be the self-adjusting type. All packing shall be replaceable without removing the valve bonnet.
- F. Each valve shall be given a test against the seat at the full rated working pressure and a hydrostatic shell test at twice the rated working pressure. Certified copies of individual tests shall be submitted when requested. Certified copies of proof-of- design tests shall be submitted upon request.

- G. Manual valves shall have a worm gear type actuator with handwheels, two (2) inch square nuts, chainwheels attached. Worm gear type actuators shall be furnished on all six (6) inches or larger valves where the maximum unseating pressure is 25 psig or more.
- H. All valves shall receive a protective inside lining. The lining shall be a two-part thermosetting epoxy protective coating Amerlock 400 or equal and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings.

2.06 REDUCED PRESSURE DEVICE

- A. Reduced pressure devices shall be furnished and installed according to the latest revision to the Sarasota County Cross Connection Control Ordinance.

2.07 FLANGED COUPLING ADAPTERS

- A. Flanged coupling adapters shall be used for joining plain end pipe to flanged valves, pumps, and fittings located as shown on the drawings and/or as required. The adapters shall be equipped with anchor studs designed to withstand the end thrust of the piping. Harnessing shall be provided on sizes above twelve (12) inches.
 - 1. The flanged adapters shall be fabricated steel, Rockwell International Type 913, Baker Type 602, Dresser Type 128 or equal.

2.08 WATER AIR RELEASE VALVES

- A. Air release valves shall be two (2) inches in size, and meet NSF 61 and/or AWWA C512. Water air release valves shall be manufactured by A.R.I. Model D-040 reinforced nylon body combination air valve, or equal. All valves must be ISO-9000 certified and NSF 61 Compliant.
- B. Valves shall be rated at 200 psi, and factory tested at 300 psi. Test results shall be supplied to Utilities upon request.
- C. Valve Construction:
 - 1. The combination air valve shall be designed to allow large quantities of air to escape out the orifice when the water line is being charged and close water- tight when liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice to prevent a vacuum from forming in the water line. The minimum size discharge nozzle shall be one and one half (1-1/2) inch diameter. Inlet connection shall be male or female 2" NPT.
 - 2. The ARI or equal valve shall consist of a 316 Stainless Steel body and base. The seal plug assembly shall be attached to the body of the air release valve by a reinforced nylon clamping stem that slides in preformed grooves of the body. The body/base assembly shall be capable of being unscrewed for easy maintenance.
 - 3. Materials:

A.R.I. or equal

Body Base	316 Stainless Steel
Float	Foamed Polypropylene
Seat	EPDM
Hardware	SAE 316 Stainless Steel

Coating/Color None/Blue Outlet

4. Connection to the waterline shall be constructed as indicated on the Sarasota County Standard Detail entitled "Automatic Air Release Valve", Water Dwg. No. 3.
5. Above Ground Enclosure:
 - a. All air release valves shall be enclosed in a 16" Wide x 13" Deep x 32" High above ground enclosure. Enclosures shall consist of high quality, UV resistant molded high impact resistant polyethylene poly-plastic construction with stainless steel hardware and galvanized steel mounting stakes. All enclosures shall be dark blue in color for potable water and shall be equipped with a Pin Allen lock and key.
 - b. The word "WATER" shall be embossed on the enclosure, visible at roadside. A Pin Allen key shall be provided with each installation. Enclosures shall be supplied by Water Plus Corporation, Model# 131632, or equal. Color: DARK BLUE.

2.09 ALTITUDE VALVE

- A. The altitude valve shall automatically control the water surface elevation in the existing water storage tank. The valve shall allow flow into the tank to the adjustable maximum level, then close drip tight. Once the tank water elevation drops to an adjustable level below the maximum level, the altitude valve shall open to fill the tank.
- B. This valve shall be hydraulically operated and pilot controlled.
 1. The pilot control shall operate on the differential in forces between a spring load and the water level in the tank, with separate adjustments for high water and low water levels.
 2. When the force of the spring is overcome by the force of the upstream head, the pilot shall close the main valve.
 3. When the upstream head drops below the spring set level, the main valve shall open.
 4. The desired high water level shall be set by adjusting the spring force.
 5. The pilot system shall be non-throttling such that it remains fully open until the desired upstream shutoff head is achieved.
- C. Main Valve:
 1. The main valve shall be a hydraulically operated globe valve.
 2. Shall contain a resilient, synthetic rubber disc, having a rectangular cross-section, contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat insert.
 3. The diaphragm assembly containing a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. This diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure.
 4. The diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. Rolling diaphragm construction will not be allowed.
 5. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve or pilot controls.
 6. All necessary repairs shall be possible without removing valve from the line.

D. Tank Sense Line:

1. The tank sense line shall be included in the cost of the altitude valve and shall be installed as follows:
 - a. Upward angle of 2° towards tank
 - b. connected no further than 45-pipe diameter from tank
 - c. minimum of ½" diameter
 - d. The tank sense line shall consist of copper tubing and brass fittings.

E. Materials:

1. Valve Body: Ductile Iron.
2. Seat Ring: Type 316 Stainless Steel.
3. Disc Retainer: Type 316 Stainless Steel.
4. Stem: Type 316 Stainless Steel with B16 Brass nut.
5. All fasteners shall be Type 316 Stainless Steel.

F. Manufacturers shall be Ames or equal.:

G. Provide pressure gauges upstream and downstream of the valve.

2.10 FIRE HYDRANTS

- A. Fire hydrant assemblies shall conform to AWWA C-502.
- B. Fire hydrant shall contain two (2) 2 ½" hoses and one (1) 4 ½" steamer connection with National standard fire hose coupling screw threads, 5 ¼" valve opening, and 6" diameter mechanical joint inlet.
- C. Operating nut shall be 1 ½" pentagon and open counter clockwise.
- D. Stem shall be stainless steel.
- E. Fire hydrants shall be factory painted Red (Epoxy Primer, Polyurethane Finish Coat, Safety Red, CC13, ANSI Z53.1-1971).
- F. Inside of hydrant shoe shall be epoxy coated.
- G. Bonnet shall be bolted to upper barrel with bonnet bolt and nut.
- H. Hydrants shall have plugged drain holes and be complete with all accessories.
- I. Fire hydrant assemblies shall be NSF approved for potable water use and shall have a minimum pressure rating of 200 psi.
- J. Manufacturers:
 1. Mueller, Centurion 250,
 2. American Flow Control, B-84-B
 3. Kennedy Hydrant, K 8 1A
 4. Clow, Medallion F2545,
 5. or equal.

2.11 VALVE BOXES

- A. Valve boxes shall be the five and one quarter (5-1/4) inches standard cast iron two- piece, screw type valve box with drop cover marker "WATER." The marker shall denote type of service, i.e. WATER, SEWER, RAW, RECLAIM, etc. They shall be of sufficient height to

allow them to be raised an additional two (2) inches above the final elevation at each location that a valve is required on this project. PVC sleeves will not be allowed. Valve boxes shall be manufactured in the United States of America.

2.12 SLEEVES

- A. Sleeves shall be cast iron, and of the size and in the location shown on the drawings. Sleeves shall comply with Section 02610 - Fittings, of this document.

2.13 GAUGES

- A. Gauges shall be furnished for the discharge side of all pumps and downstream side of pressure sustaining valves. Gauges shall be bourdon tube types, with bronze movement, plexiglass covers and shall be four and one-half (4½) inches in diameter. Each gauge shall have a one-quarter (¼) inch NPT pumped liquid flushing connection with brass level handle blow-off pet cock. All surfaces exposed to the pumped liquid shall be of stainless steel. Gauges shall be calibrated in feet. All pump discharge gauges shall be equipped with electrical contacts for pump failure indication. The contacts shall be field adjustable and have a contact rating of one-quarter (¼) A 120 VAC. Gauges for sewage shall be oil filled and be constructed with a diaphragm to prevent contact between the wastewater and the gauge. All gauges must be pre-approved by the County before ordering.

PART 3 – EXECUTION

3.01 GENERAL:

- A. All valves and accessories shall be installed and tested in accordance with the manufacturer's recommendation and Section 02660 – Piping-General.

END OF SECTION

SECTION 02642

TAPPING SLEEVES AND TAPPING VALVES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall furnish and install tapping sleeves and tapping valves as shown on the drawings, as specified herein, and as directed by the County.

1.02 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 02616 - Polyvinyl Chloride (PVC) Pipe
- B. Section 01300 - Submittals

1.03 QUALITY ASSURANCE

- A. Install tapping sleeves and tapping valves in compliance with Sarasota County Utilities, manufacturer's recommendations and AWWA C-500.

1.04 SUBMITTALS

- A. Submit manufacturer's certificate of conformance.
- B. Shop Drawings: Submit manufacturer's drawings and data sheets for material to be supplied under this Section. Indicate sizes and types to be installed.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Upon delivery and before unloading, the Contractor must inspect the fittings for any damage occurring in transit and note such damage on the delivery ticket.
- B. The means by which the tapping sleeves and tapping valves are unloaded is the decision and responsibility of the Contractor, following the recommendations of the manufacturer.
- C. The Contractor shall follow manufacturer's recommendations for storage of tapping sleeves and tapping valves in order to minimize damage prior to installation.
- D. The Contractor shall adhere to the standard procedures of the manufacturer for handling the material.

PART 2 – PRODUCTS

2.01 TAPPING SLEEVES

- A. Tapping Sleeves for connection to existing mains for line sizes twenty-four (24) inches or less shall be split housing stainless steel with full 360-degree gasket, suitable for working pressures of 200 psi and shall be Mueller H-304 or equal. Sizes larger than twenty-four (24) inches shall be prefabricated steel, epoxy coated, with stainless steel bolts. Test ports shall be supplied on all sleeves. Size on size tapping sleeves shall be cast iron, mechanical joint, split housing, tapping sleeve, Mueller H-615, or equal. Provide shop drawing prior to purchasing the tapping sleeve.
- B. Tapping sleeves for connection to existing pipe shall be suitable for the appropriate type of pipe to be tapped. Contractor shall be responsible for uncovering and determining type, class and the exact O.D. of the pipe to be tapped prior to ordering material.
- C. Acceptable materials are as follows:
 - 1. Stainless steel tapping sleeves for tapping mains up to twenty-four (24) inches in diameter shall be fully passivated, split housing design with full 360-degree gasket. Stainless Steel Tapping Sleeves shall be furnished with:
 - a. Sleeve Shell – 304 Stainless Steel.
 - b. Lugs, Nuts, Bolts – 304 Stainless Steel drop in bolt style.

- c. Washers – 304 Stainless Steel.
 - d. Flange Gasket – Glued to flange face.
 - e. Flange – 304 Stainless Steel
 - f. Flange, Nuts, Bolts – 304 Stainless Steel
 - g. Seal Gasket – Full Circumference and full length.
 - h. Test Plug – 304 Stainless Steel, ¾ inch NPT.
2. Epoxy Coated Steel for tapping mains larger than twenty-four (24) inches in diameter shall be furnished with:
- a. Body - Heavy welded steel, full support body, not strapped.
 - b. Epoxy Coating - Epoxy resin, free of voids, lamination, or blisters, dry film thickness of 8-10 mil
 - c. Bolts and Nuts - 304 Stainless Steel.
 - d. Flange - Steel flat face with gasket.
 - e. Flange Nuts and Bolts - 304 Stainless Steel.
 - f. Test Plug - 304 Stainless Steel, ¾ inch NPT.
 - g. Seal Gasket - Water service Buna N.
3. Mechanical joint tapping sleeves for size on size taps shall be furnished with:
- a. Body - Cast Iron (Mueller H-615 or equal).
 - b. Flange - Shall be flat faced with gasket.
 - c. Flange Bolts and Nuts - 304 Stainless Steel.
 - d. Body Bolts, Nuts, and Gasket - Shall be furnished by sleeve manufacturer.

2.02 TAPPING VALVES

- A. All tapping valves shall conform with the latest revision of AWWA C500 "AWWA Standards for Gate Valves for Ordinary Water Works Service". The tapping valve shall be flanged inlet with centering lip, Class 125, ANSI B16.1 with mechanical joint outlet. Valve shall be resilient seat type by Mueller or equal.
- B. All tapping valves shall be pressures of 200 psi. Valves shall be of standard 200 psi manufacture and of the highest quality both as to materials and workmanship.
- C. All tapping valves shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified hereinafter and shall be compatible with the tapping sleeve used.
- D. All tapping valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working water pressure cast on the body of the valve.
- E. Gate valves shall be provided with a 2" square operating nut and shall be opened by turning to the left (counter-clockwise).

2.03 VALVE BOXES

- A. Valve boxes shall be the 5-1/4" standard cast iron two-piece, screw type valve box with drop cover marker "WATER" and "SEWER" for all sewer valves. The marker shall denote type of service, i.e. WATER, SEWER, RAW, RECLAIM, REJECT, etc. They shall be of sufficient height to allow them to be raised an additional 2" above the final elevation at each location that a gate valve is required on this Project. PVC sleeves will not be allowed.

Valve boxes shall be manufactured in the United States.

PART 3 – EXECUTION

3.01 DESCRIPTION

- A. All sleeves and valves shall be installed in accordance with the Standard Detail Drawings and in accordance with AWWA C600, "Installation of Gray and Ductile Cast-Iron Water Mains and Appurtenances".

3.02 WET TAPS

- A. Wet taps on existing water mains shall be performed by an approved Contractor in the presence of a County Inspector. The Contractor shall pay any required fees for each wet tap required. It is the Contractor's responsibility to install and test the tapping sleeve and tapping valve. The Contractor shall excavate a trench of sufficient size for tapping machine and work. Refer to the Sarasota County Uniform Water, Wastewater, and Reclaimed Water System Code for additional requirements.

3.03 TAPPING VALVE AND SLEEVE TEST

- A. The assembly shall be tested at 150 psi for 30 minutes with zero loss in the presence of a County Inspector. The valve shall have a cap installed and shall be open during the test. After 30 minutes, the valve shall be closed and the valve seat shall be checked for leaks. Caution - do not pour thrust block before assembly has been tested and accepted by the Engineer.

3.04 CONCRETE CRADLE SUPPORT

- A. Concrete cradle support shall be installed under all tapping sleeves in accordance with tapping sleeve and valve details. Concrete cradle support shall be installed 24 hours prior to tapping.

3.05 VALVE BOXES

- A. Valve boxes shall be accurately centered over valve operating nut, and backfilled, thoroughly tamping around them. Valve box bases shall not rest on the valves but shall be supported by crushed stone fill. They shall be set vertically and properly adjusted so that the tops of boxes will be at grade in any paving, walk or road surface, and two to three inches above ground in grass plots, fields, woods or other open terrain. A 24"x24"x6" concrete pad shall be poured around the valve box at finished grade, as per the standard detail drawing.

END OF SECTION

SECTION 02660

PIPING - GENERAL

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The work covered by this section and related sections consists of providing all labor, equipment, material and supplies and performing all operations required to install the various piping, valves, accessories, and fire hydrant assemblies for water mains, water main relocations and force main relocations as specified, as shown on the drawings, and as directed by the Sarasota County Uniform Water, Wastewater, and Reclaimed Water Systems Code (hereinafter referred to as 'the Code').

1.02 REFERENCE SPECIFICATIONS

- A. Section 02222 - Trenching, Compacting, and Backfilling
- B. Section 02610 - Fittings
- C. Section 02614 – Ductile Iron Pipe
- D. Section 02616 - Polyvinyl Chloride (PVC) Pipe
- E. Section 02618 - High Density Polyethylene (HDPE) Pipe
- F. Section 02640 - Valves and Accessories.

1.03 SUBMITTALS

- A. Shop drawings or catalog cuts shall be submitted for all piping, valves, boxes, and restrained joints.
- B. Submittals for the various types of pipe and fittings are specified in the individual sections.
- C. Record documents shall be submitted in accordance with the requirements of Section 01700 - Project Closeout. The type of pipe used shall also be noted on the drawings.
- D. Pipe elevations shall be submitted as specified under "Installation" in this Section.
- E. The manufacturer shall furnish written proof that the pipe, fittings, and lining furnished under the Contract or Agreement comply with all applicable provisions of the ANSI and/or AWWA Standards.
- F. The Contractor shall submit results and reports of all tests required by the Code.

1.04 JOB CONDITIONS

- A. Interruptions to utility service shall be minimized. The Contractor shall submit plans and schedules to the County for approval before any shutdown or any interruption in service takes place.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSPECTION

- A. All pipes shall be subject to inspection at the factory by the County. The Contractor shall provide a production schedule in sufficient time so plans can be made for in- plant inspection of the pipe or fittings during production, should it be required.

- B. The Contractor shall inspect materials thoroughly upon arrival. Remove damaged or rejected materials from site.
- C. Special markings shall be plainly marked on the applicable pipe indicating the weight, proper location of the pipe or fitting in the line by reference to layout drawings and schedules, class of pipe, casting period, manufacturer's mark and year pipe was produced.

3.02 TESTS

- A. All tests shall be made in the presence of the County. The Contractor shall notify the County in sufficient time when tests are being conducted to allow for travel time to the manufacturer's plant, should it be required.

3.03 INSTALLATION OF ABOVE GROUND PIPING

- A. Piping shall be installed as shown on the drawings. Flanged joints shall be made up tight, care being taken to prevent undue strain upon pump nozzles, valves, and other pieces of equipment. Where stainless steel bolts are used, an anti-seize compound (manufactured by Never-Seez Compound with Teflon, by Bostik, or equal) shall be applied on the bolt threads to prevent corrosion and galling of threads for easy disassembly.
- B. Unions and Flanges:
 - 1. Unions and flanges are not, in every case, shown on the drawings but are to be provided where necessary and adjacent to all equipment installed or provided for under this Contract. Ground joint unions shall be provided on pipe sizes up to and including 2 inches. Flanged unions shall be used on all pipes larger than 2 inches. Use malleable iron on steel piping, black or galvanized as specified for piping. Unions on copper piping shall be brass.

3.04 INSTALLATION OF UNDERGROUND PIPING

- A. Excavation, trenching, and backfilling for the installation of underground piping system shall be as specified in Section 02200 - Earthwork. Pipe shall be laid in a level trench. Irregularities shall be smoothed out or filled in with sand and tamped. Holes shall be scooped out where the bells occur leaving the entire barrel of the pipe bearing on the pipe bed.
- B. Install a 3-inch wide metallic location tape (appropriately color coded for type of pipeline) 18 inch below finished grade along with a #12 continuous copper tracer wire (appropriately color coded) immediately above the installed pipeline. The location tape shall state "CAUTION, BURIED POTABLE MAIN BELOW" for water, "CAUTION, BURIED FORCE MAIN BELOW" for force main, and "CAUTION, BURIED GRAVITY MAIN BELOW" for sewer, and "CAUTION, BURIED RELCAIMED WATER MAIN BELOW" for reclaimed water.
- C. Laying of the pipe shall be commenced immediately after the excavation is started, and every means must be used to keep pipe laying closely behind the trenching. The County may stop trenching when the trench is open too far in advance of the pipe laying operation. The Contractor shall not leave more than 40 linear feet of trench open at any time. Pipe may be laid in the best manner adapted to securing speed and good results. It shall, however, be in accordance with the manufacturer's instructions and recommendations. Damaged or unsound pipe or fittings will be removed and replaced by the Contractor at no additional cost to the County. Before joining of the pipe, all lumps, blisters, excess coating material or oil shall be removed from the bell and spigot ends of the pipe. Pipelines shall

be restrained to prevent movement of lines under pressure. For ductile iron and PVC pipe, restrained joints shall be installed at all bends, tees, crosses, wyes, plugs, and reducers. The number of feet of pipe with restrained joints necessary for each size pipe shall be as shown on the drawings.

- D. Where there is no adequate natural foundation upon which to construct a pipe bed, the pipe shall be constructed on a prepared stabilized subgrade or rock bedding of Class I materials as defined in ASTM D2321. Unsuitable subgrade materials shall be replaced or stabilized as described in Section 02200 - Earthwork. Where dewatering is required, Class I materials shall be used as described in ASTM D2321. For pipe 24" or larger a foundation of granular material (57 stone) shall be placed under and around all ductile iron fittings and valves.
- E. Pipe and fittings shall be strung out for one day's construction along the route of construction with the spigots pointing in the direction of the flow. Pipe shall be placed where it will cause least interference with traffic. Pipe shall be handled by mechanical equipment. Before the pipe is lowered into the trench, it shall be swabbed or brushed out to ensure that no dirt or foreign material enters the finished line. Trench waters shall be kept out of the pipe and the pipe kept closed by means of a test plug whenever work is not in progress. The Contractor shall provide the means for dewatering the trench and the cost thereof shall be included in the price for installing the pipe.
- F. Deflections from a straight line or grade made necessary by vertical curves or horizontal curves or offsets shall not exceed 75% of the manufacturer's recommendations. If the specified or required alignment requires deflection in excess of 75% of those recommended, the Contractor shall either provide special bends as approved by the County.
- G. All joints shall be watertight and any leaks or defects discovered shall be immediately repaired to the satisfaction of the County. Any pipe which has been disturbed after being laid shall be taken up, the joints cleaned, and the pipes properly reinstalled. Any superfluous material inside the pipe shall be flushed or removed by means of an approved follower or scraper after joints are made. Installation of fittings and pipe joints shall be in strict accordance with the manufacturer's recommendations.
- H. Where pipelines are stubbed out, the stub-outs shall be restrained to the main line fittings.
- I. For the protection of exposed reinforcing of any all-thread restraint methods, the Contractor shall furnish and apply two coats of Koppers Bitumastic No. 505 protective coating or equal.
- J. Before backfilling, the Contractor shall obtain elevations on the top of the pipe barrel at 100-foot intervals along the pipeline and fittings and at any change in grade. These elevations shall be submitted to the County.
- K. Plastic pipe shall be installed in strict accordance with the provisions of ASTM D2321 - 74, including those provisions in respect to compaction of bedding and haunching material. Class IV or Class V materials as defined in ASTM D2321 shall not be used for bedding, haunching or initial backfill.

3.05 CONNECTIONS TO EXISTING MAINS

- A. Where connections are required between new work and existing utility mains, the connection shall be made in a thorough and first-class manner, using proper fittings and specials where necessary to suit the actual conditions. Use ductile iron mechanical joint

sleeve for connections to existing utility mains. In case a connection is made to an existing fitting in the line, the Contractor shall schedule his work so that digging and locating the existing fittings can be completed prior to starting trench work on the line. Cut-ins to lines shall be done at a time approved by the County and proper authority. The Contractor shall not make any connections or service taps into existing utility mains until their work has been tested and accepted by the County.

3.06 TESTING PIPING SYSTEM

- A. Piping systems shall be tested in accordance with Section 01666 – Testing Piping System.

3.07 FLUSHING

- A. After the mains have been laid and pressure tested, each run of pipe shall be thoroughly flushed to remove all debris and foreign matter from the lines. Flushing will be done by opening fire hydrants or blow-offs along the pipe line. Where fire hydrants or blow-offs are not available or are of insufficient capacity to permit adequate flushing, the pipe line shall be opened and flumes or piping shall be provided by the Contractor to waste the water to the nearest approved disposal point. Sufficient flushing water shall be introduced into the mains to produce a scouring velocity of not less than 3.5 feet per second to re-suspend the solids, and this rate of flow shall be continued until the discharge is clear and no evidence of silt or foreign matter is visible.
- B. If the Contractor cannot obtain the flushing velocity or as approved by the County, a poly-pig swab may be used to clean the pipeline. The Contractor shall submit pigging plan to the County for review. The plan shall include type of pig material, water flow rate, discharge points, poly-pig detector and retrieval options. Pigs shall be manufactured by Knapp Polly Pig, Houston, Texas or equal.

3.08 ABANDONING WATER MAINS

- A. Water Mains Abandoned in Place: The Contractor shall cut the water main as required to make connections or install plugs. That portion of the pipe to be abandoned and left in place shall be plugged at locations where the pipe was cut or punctured. Plugging shall be accomplished by grouting the end or punctured area to the satisfaction of the Engineer.
- B. Water Mains Abandoned in Place with Grout Fill: The Contractor shall cut the water main as required, install plugs, and fill the pipe with grout as shown on the Drawings.
- C. Water mains to be abandoned and removed shall be cut or disconnected as required. Pipe, valves, and fittings shall be completely removed and the Contractor shall dispose of removed materials at an appropriate disposal site in accordance with all applicable County, local, and state permits and regulations. Excavation, backfill, and restoration shall be as shown and specified in the Contract Documents.

END OF SECTION

SECTION 09905
PAINTING AND PROTECTIVE COATINGS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Provide all labor, materials, apparatus, scaffolding, and all appurtenant work in connection with painting and protective coatings, complete as indicated, specified, and required.
- B. Principal items include, but are not limited to:
 - 1. All exposed piping, conduits, tanks, equipment, and other metal surfaces, interior and exterior, except as hereinafter specifically excluded.
 - 2. All structural and miscellaneous steel
 - 3. Any tanks or equipment, on which factory applied finishes have been marred, abraded, scratched, nicked, or otherwise damaged.
 - 4. CMU surfaces and other architectural work as specified and shown on the drawings.
- C. The following surfaces, in general, shall not be field painted:
 - 1. Concrete surfaces subject to pedestrian or vehicular traffic, except as herein specified.
 - 2. Nonferrous metals and stainless steel unless otherwise noted or indicated. Galvanized steel shall not be considered as a nonferrous metal.
 - 3. Mechanical equipment and prefabricated roof and side panels, gutters and downspouts with factory finish as specified herein.
 - 4. Electrical and instrumentation equipment with approved factory finish or of stainless steel/nonferrous metal construction, unless otherwise specified.
 - 5. Aluminum grating.
 - 6. Drainage structures.
- D. The Contractor shall furnish to the Engineer, at no charge for use during this project, one dry film thickness gauge and one electrical flaw detection equipment systems.

1.02 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the generality of other requirements of these specifications, all cleaning, surface preparation, and coating shall conform to the applicable requirements of the referenced portions of the standards specified herein to the extent that the requirements therein specified are not in conflict with the provisions of this section.
- B. Unless otherwise specified, all work and materials for the preparation and coating of all metal surfaces shall conform to the applicable requirements specified in the Steel Structures Painting Manual, Volume 2, Systems and Specifications Revised, latest edition, published by the Steel Structures Painting Council.
- C. The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this section.
 - 1. White Metal Blast Cleaning (SSPC-SP5). Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning by wheel or nozzle (dry) using sand, grit, or shot. (For very corrosive atmosphere.)

2. Near-White Blast Cleaning (SSPC-SP10). Blast cleaning nearly to White Metal Cleanliness, until at least 95 percent of each element of surface area is free of all visible residues. (For high humidity, chemical atmosphere, marine or other corrosive environment.)
 3. Commercial Blast (SSPC-SP6). Blast cleaning until at least 67 percent of each element of surface area is free of all visible residues.
 4. Brush-Off Blast Cleaning (SSPC-SP7). Blast cleaning of all except tightly adhering residues of mill scale, rust and coatings, exposing numerous evenly distributed flecks of underlying metal.
 5. Solvent Cleaning (SSPC-SP1). Removal of oil, grease, dirt, soil, salts, and contaminants by cleaning with solvent, vapor, alkali, emulsion or steam.
- D. Quality Assurance. Evaluation of surface preparation for ferrous metals will be based upon NACE Standard TM-01-Visual Standard for Surface Preparation.

1.03 SUBMITTALS.

- A. Submittals shall be in accordance with the General Conditions, Section 01300 – Submittals, and the following.
- B. Samples.
 1. Prepare and submit for Engineer's approval six (6) copies of color samples on 8-1/2" x 11" size cards for each paint and protective coating system. Each sample card shall clearly show each coat of the finish system and shall be clearly marked with the manufacturer's name and product identification, and shall be submitted in sufficient time to allow for approval and, if necessary, resubmitted without causing any delay of the project.
- C. Coating Materials List.
 1. The Contractor shall provide six (6) copies of a paint and coatings materials list which indicates the manufacturer and paint number, keyed to the coating schedule herein, for approval by the Engineer prior to or at the time of submittal of samples required herein.
 2. The Contractor shall include with his submittal, his protective coating schedule for shop and field coatings of items to receive protection. The schedule shall conform to the specified requirements for surface preparation, priming, and coating for items covered, and shall follow the same requirements for similar work where such work has not been specifically called-out. No bare ferrous nonworking surfaces shall be omitted from the schedule. Particular care shall be taken to cover in sufficient detail the coating of mechanical joints and other mechanical devices, which shall conform to the recommended practice of the manufacturer of the joint or other mechanical devices.
 3. Submittal shall be within 60 calendar days of notice of award to permit Engineer's review and then Contractor's coordination with affected material and equipment suppliers to assure their use of approved shop coats of same manufacture as field coats and compatibility with field applied coats for respective coating systems.
 4. Coatings to be used on plastic and fiberglass materials shall be certified as acceptable by all plastic and fiberglass manufacturers whose products are to be coated. Certification copies shall be submitted to the Engineer. The Contractor shall be certified in writing by the painting and coating material manufacturers as qualified applicators of their products with copies of the certification submitted to the Engineer.

- D. Product Data Sheets. Contractor shall submit paint and coatings material manufacturers printed technical data sheets for products intended for use in each paint and coating system. Data sheets shall fully describe material as to its intended use, makeup, recommended surface preparation and application conditions, primers, material mixing and application (including recommended dry mil thickness recoat time), precautions, safety and maintenance cleaning directions.
- E. Material Safety Data Sheets. Material Safety Data Sheets (MSDS) shall accompany all paint submittals and shall be prominently displayed at the job site during all painting activities.

1.04 PROTECTION OF WORK

- A. The Contractor shall be responsible for any and all damage to his work or the work of others caused by Contractor's painting activities during the time his work is in progress.

1.05 EXTRA STOCK

- A. The Contractor shall deliver to the County one (1) gallon can of each type and color of finish paint and coating used on the project for every ten (10) gallons applied. As a minimum, one (1) gallon of each type and color of finish paint and coating used on the project shall be provided as extra stock. Extra stock paint shall be supplied in appropriate sealed containers and be clearly labeled as to paint type, formula, and color.

1.06 RIGHT OF REJECTION

- A. The Engineer shall have the right to reject all material or work that is unsatisfactory and require the replacement of either or both.

1.07 ONE MANUFACTURER

- A. To the maximum extent possible, all products shall be the products of one manufacturer unless a specific specialty coating system is specified. Without exception, all coatings for any service condition specified herein shall be by one manufacturer. Once a paint manufacturer has been selected by the Contractor and approved by the Engineer, the Contractor shall ensure that all equipment manufacturers primer their equipment with the same or a compatible primer.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Surfaces to receive paint and protective coating materials as herein specified in this section shall be coated in conformance with the applicable coating systems specified herein. All materials specified by name and/or manufacturer or approved for use under these specifications, shall be delivered unopened at the job site in their original containers and shall not be opened until inspected by the Engineer.
- B. Whenever a manufacturer's brand name is specified, it is intended to define the general type and quality of paint or coating desired. Other coatings or paints of equal quality may be used. Coating materials shall be products of Scott Paint Company System and TNESEC System, unless otherwise specified, or equal. All paint and coatings shall be produced and applied as herein called for or, if not specifically called for, it shall be applied in accordance with the manufacturer's printed recommendations as approved by Engineer. Coating materials shall meet Volatile Organic Compounds (VOC) requirements of not more than 3.5 lbs./gal. as applied after thinning.
- C. General.
 - 1. Paint and protective coating materials shall be sealed in containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer, all of which shall be plainly legible at the time of use. Pigmented paints shall be furnished in

containers not larger than five (5) gallons. Materials shall conform to the specifications shown herein and to the requirements hereinafter specified.

2. Products shall be standard of recognized manufacturer engaged in production of such materials for essentially identical or similar applications in the water and wastewater treatment industry.
- D. Compatibility. Only compatible materials shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to approval of the Engineer, a compatible barrier coat shall be applied between existing prime coat and subsequent field coats to ensure compatibility.
- E. Colors. All colors and shades of colors of all coats of paints and protective-coating material shall be as identified in the color schedule, attached architectural sketches or as modified by the County. Each coat shall be of a slightly different shade, as directed by the Engineer to facilitate inspection of surface coverage of each coat.

2.02 SERVICE CONDITION A

- A. Ferrous metals, other than stainless steel, within corrosive atmospheres, submerged or intermittently submerged in chemical mixtures or similar corrosive liquids shall be prepared and coated in accordance with the following requirements.
- B. Surface Preparation. All metal surfaces shall be field sandblasted in accordance with Steel Structures Painting Council Specification SSPC-SP10 (Near White Blast Cleaning). Weld surface, edges, and sharp corners shall be ground smoothly and all weld splatter removed per SSPC-SP3 "Power Tool" or SP2 "Hand Tool" Cleaning.
- C. Application. Application shall be in strict conformance with the manufacturer's published recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
- D. Except as otherwise noted, the prime coat shall have a minimum total dry film thickness of 3 mils and the two finish coats shall have a minimum total dry film thickness of 13 mils. If the finish coat is not applied within the manufacturer's recommended time period, an intermediate special surface conditioner shall be applied in advance of finish coats or a light brush blast. The total system shall have a minimum dry film thickness of 16 mils.

1. Scott System: Not Available

2. TNEMEC System: Shop Primer – Series 66-1211

Field Primer – Series 104

Finish Coats – Series 104

2.03 SERVICE CONDITION B

- A. Ferrous metals, other than stainless steel, subject to chemical attack, shall be prepared and coated in accordance with the following requirements. See Paragraph 2.09 for asphaltic/bituminous coated pipe.
- B. Surface Preparation. All surfaces shall be free of dirt, dust, grease, or other foreign matter before coating. Ferrous surfaces shall be cleaned in accordance with the Steel Structures Painting Council Specification SSPC-SP7 (Brush Off Blast Cleaning). Weld surface, edges and sharp corners shall be ground smooth and all weld splatter shall be removed per SSPC-SP3 or SP2.
- C. Application. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.

D. Except as specified below, the prime coat shall have a minimum thickness of 3 mils, intermediate coat shall have minimum thickness of 4 mils, and one or more finish coats minimum total dry film thickness of 8.0 mils.

1. Scott System:

- a. Primer: Scott #931 Encapsulon Surface Tolerant Epoxy Mastic Primer.
- b. Intermediate Coat: Scott #931 Encapsulon Surface Tolerant Epoxy Mastic Primer.
- c. Finish Coats: Bruning Silathane II 532 Line.

2. TNEMEC System:

- a. Primer – Series 66.
- b. Intermediate Coat – Series 66.
- c. Finish Coats – Series 73U.

2.04 SERVICE CONDITION C

A. Coating aluminum and galvanized metal surfaces, including frames, and checkered plate, subject to corrosive atmosphere and condensation shall be prepared and coated with the following requirements.

B. Surface Preparation. Clean non-ferrous surfaces in accordance with SSPC-SP1 (Solvent Cleaning).

C. Application. Application shall be in strict conformance with manufacturer's painted recommendations.

D. Conform with the following to provide a minimum total dry mil thickness of 5.5 mils:

1. Scott System:

- a. Primer: Scott #692 Aquaseal Latex Surface Conditioner White
- b. Finish Coats – Bruning Silathane II 532 Line

2. TNEMEC System:

- a. Primer – Series 66.
- b. Finish Coats – Series 66.

2.05 SERVICE CONDITION D

A. Coating exposed PVC pipe shall be prepared and coated in accordance with the following requirements.

B. Surface preparation. Clean surfaces with SSPC-SP1 solvent cleaner. Lightly sand all surfaces. Degrease prior to sanding.

C. Application. Application shall be in strict conformance with the manufacturer's printed recommendations.

D. Conform with the following to provide a minimum total dry mil thickness of 8 mils.

1. Scott System:

- a. Primer – Scott #692 Aquaseal Latex Surface Conditioner White
- b. Intermediate Coat – Bruning Silathane II 532 Line
- c. Finish Coat – Bruning Silathane II 532 Line

2. TNEMEC System:

- a. Primer – Series 66
- b. Intermediate Coat – Series 66
- c. Finish Coats – Series 73U

2.06 SERVICE CONDITION E

- A. Concrete, which is subject to submergence and intermittent submergence in water or groundwater, shall be prepared and coated in accordance with the following requirements.
- B. Surface Preparation. All surfaces shall be cleaned of all dirt, dust, oil, curing compounds, and other deleterious compounds. In general, the concrete shall be reasonably smooth and free of pockets and cavities. Horizontal surfaces shall be etched with a 15 to 20 percent solution of muriatic acid and thoroughly rinsed with clean water. Vertical walls shall be cleaned by brush blasting (NACE #4 or SSPC-SP7). All surfaces shall be completely dry before application of the coating.
- C. Application. Application shall be in strict conformance with the manufacturer's printed recommendations. All coats shall be applied within 24 hours of the previous coat.
- D. The prime coat shall have a minimum dry film thickness of 3 mils and two finish coats shall have a minimum total dry film thickness of 8 mils. The total system shall have a minimum dry film thickness of 11 mils.
 - 1. Scott System: Not Available
 - 2. TNEMEC System:
 - a. Primer – Series 66
 - b. Two Finish Coats – Series 66

2.07 ARCHITECTURAL PAINT FINISHES

- A. Manufacture. Unless otherwise noted, products listed below are the products of Scott coating system or TNEMEC system. Approved equivalent products will be acceptable.
- B. Concrete block walls in aggressive areas (Service Condition CBW).
 - 1. Surface Preparation: Surfaces shall be cured for 28 days, clean, dry and free from curing compounds, oil, grease, dirt, or chalk.
 - 2. Filler: Induron Polyfill Epoxy Block Filler.
 - 3. Prime Coat: One coat of Scott #931 Encapsulon Surface Tolerant Epoxy Mastic Primer applied at 6.0 mils dry film thickness.
 - 4. Finish Coats: Two coats of Bruning Silathane II 532 Line applied at 2.0 mils dry film thickness per coat.
- C. TNEMEC - Concrete block walls in aggressive areas (Service Condition CBW).
 - 1. Surface Preparation: Surfaces shall be cured for 28 days, clean, dry and free from curing compounds, oil, grease, dirt, or chalk.
 - 2. Filler: TNEMEC Series 54-660.
 - 3. Prime Coat: One coat of TNEMEC Series 66 applied at 3.0 mils dry film thickness.
 - 4. Finish Coats: Two coats of TNEMEC Series 66 applied at 4.0 mils dry film thickness per coat.
- D. Concrete Sealed (ECB) Huls Chem-trete PB at a rate of between 50 and 100 SF/gal. Application shall be sufficient to guarantee complete water repelling for five (5) years.

2.08 PATCH COAT FOR GALVANIZED SURFACES SERVICE CONDITION

- A. All galvanized surfaces, which are scratched, marred, or otherwise damaged shall be patched with Scott #692 Aquaseal Latex Surface Conditioner White.

2.09 PRIMER OVER BITUMINOUS COATING

- A. Scott System: Two coats, Scott #931 Encapsulon Surface Tolerant Epoxy Mastic Primer, or equal, at 6.0 mils DFT each. Allow bituminous coating to bleed through on first coat. Apply second coat. Third coat shall be Bruning Silathane II 532 Series applied to 2.0 mils dry film thickness.
- B. TNEMEC System: Two coats, TNEMEC Series 66, or equal, at 4.0 mils DFT each. Allow bituminous coating to bleed through on first coat. Apply second coat. Third coat shall be TNEMEC Series 73, 5 mils.

2.10 MISCELLANEOUS BURIED FERROUS METAL SURFACES

- A. Scott System – Not Available.
- B. TNEMEC System - All buried valves and other miscellaneous buried ferrous metal surfaces if not factory coated including all-thread restraining rods, after receiving SSPC-SP10 surface preparation and cleaning as previously specified, shall receive not less than two coats of polyamide epoxy coal-tar coating, and shall be TNEMEC Series 46H-413, or equal. No prime coat shall be applied under epoxy coal-tar.
- C. Coating thickness shall be from 16 to 20 mils dry-film thickness for the two coat system. Coated surfaces shall be dry before backfilling.

2.11 FIRE HYDRANTS

- A. Lower barrel shall be coated in accordance with 2.10 above.
- B. Upper barrel and all above grade piping:
 - 1. Scott System – Sarasota County Fire Hydrant Paint.
 - 2. TNEMEC System – Not Available.
 - 3. Fire hydrant shall be primed according to coating manufacturer recommendation.
- C. The prime coat shall have a minimum thickness of 4 mils, intermediate coat shall have minimum thickness of 4 mils, and finish coat shall have a minimum thickness of 8.0 mils.

PART 3 – EXECUTION

3.01 MANUFACTURER'S RECOMMENDATIONS

- A. Unless otherwise specified herein, the paint and coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protection of his coating materials; for preparation of surfaces for coating; and for all other procedures relative to coating shall be strictly observed. No substitutions or other deviations will be permitted without written permission of the Engineer.

3.02 DELIVERY AND STORAGE

- A. Materials shall be delivered in manufacturer's original, sealed containers, with labels and tags intact. Coating materials and equipment shall be stored in designated areas. Coating containers shall be opened only when required for use. Coatings shall be mixed only in designated areas and in the presence of the Engineer, unless otherwise directed. Coatings shall be thoroughly stirred or agitated to uniformly smooth consistency and prepared and handled in a manner to prevent deterioration and inclusion of foreign matter. Unless otherwise specified or approved, no materials shall be reduced, changed, or used except in accordance with the manufacturer's label or tag on container.

3.03 SAFETY REQUIREMENTS

- A. In accordance with the requirements of applicable OSHA Regulations for Construction, the Contractor shall provide and require the use of personal protective equipment for all persons working in or about the project site.
- B. Respirators shall be worn by all persons engaged in, and assisting in, spray painting. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices meeting the requirements of ANSI Z87.1 latest revisions, and approved OSHA Regulations for sand blasting operations and equipment including approved air-purifying, half-mask or mouthpiece respirator with appropriate filter.
- C. Ventilation. Where ventilation is used to control potential exposure to workers as set forth in Section 1910.94 of the OSHA Regulations for Construction, ventilation shall be adequate to reduce the concentration of the air contaminant to the degree that a hazard to the worker does not exist. Methods of ventilation shall meet the requirements set forth in ASNI-Z9.2, latest revision.
- D. Sound Levels. In accordance with Sections 1926.52 and 1926.101 of OSHA Regulations for Construction, whenever the occupational noise exposure exceeds maximum sound levels as set forth in Table D-2 ear protective devices shall be fitted and used, and a continuing, effective hearing conservation program shall be administered.
- E. Cloths and cotton waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each work day.

3.04 STORAGE, MIXING AND THINNING

- A. Paint and coating materials shall be protected from exposure to cold weather, and shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Materials of different manufacturers shall not be mixed together. Packaged materials shall be thinned immediately prior to application in accordance with the manufacturer's directions.

3.05 WORKMANSHIP

- A. Skilled craftsmen and experienced supervision shall be used on all work.
- B. All paint and coatings shall be applied to produce an even film of specified uniform thickness. Edges, corners, crevices, and joints shall receive special attention to ensure that they have been thoroughly cleaned and that they receive an adequate thickness of paint. The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat of paint would not increase the hiding. All coats shall be applied so as to produce a film of uniform thickness. Special attention shall be given to ensure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas, and installations shall be protected by the use of drop cloths or other approved precautionary measures.

3.06 PREPARATION FOR PAINTING AND PROTECTIVE COATING

- A. All surfaces to receive paint and protective coatings shall be cleaned as specified herein prior to application of coating materials. The Contractor shall examine all surfaces to be coated and shall correct all surface defects before application of any coating material. Beginning the work of this Section without reporting unsuitable conditions to the Engineer constitutes acceptance of conditions by the Contractor. Any required removal, repair, or replacement of this work caused by unsuitable conditions shall be done at no additional cost to the County. All marred or abraded spots on shop-primed and factory-finished surfaces shall receive touch-up restoration prior to any other coating application.
- B. Mildew shall be removed and neutralized by scrubbing affected areas thoroughly with a solution made by adding two (2) ounces of tri-sodium phosphate and eight (8) ounces of

sodium hypochlorite to one (1) gallon warm water. Use a scouring powder, if necessary, to remove mildew spores. Rinse with clean water and allow to dry thoroughly before painting.

3.07 ITEMS NOT TO BE COATED

- A. Hardware, anodized aluminum, stainless steel, switch and receptacle plates, escutcheons, hardware accessories, nameplate data tags, machined surfaces and similar items in contact with coated surfaces and not to be coated shall be removed or masked prior to surface preparation and painting operations. Following completion of coating of each piece, removed items shall be reinstalled. Workmen skilled in trades involved shall do such removal and installation.

3.08 SANDBLASTING

- A. All sandblasting shall be done in strict accordance with the referenced specifications of the Steel Structures Painting Council.
- B. When items are to be shop primed or shop primed and finish coated in the shop, surface preparation shall be as specified in this Section. The County or his representative shall have the right to witness, inspect, and reject any sandblasting done in the shop.
- C. When sandblasting is done in the field, care shall be taken to prevent damage to structures and equipment. Pumps, motors, and other equipment shall be shielded, covered, or otherwise protected to prevent the entrance of sand. No sandblasting may begin before the Engineer inspects and approves the protective measures.
- D. After sandblasting, dust and spent sand shall be removed from the surfaces by brushing or vacuum cleaning.

3.09 APPLICATION OF PROTECTIVE COATINGS

- A. Shop Coating. Fabricated metalwork and equipment, which requires coating shall be shop-primed with specified primer. Any such work delivered to the job site with any other shop coat shall either have this coating removed or shall be recoated with "universal-primer", and the specified coating applied in the field. Manufactured equipment with approved corrosion resistant factory finishes and galvanized finishes shall be exempt from this requirement.
- B. Application of Field Coatings.
 - 1. Except where in conflict with the manufacturer's printed instructions, or where otherwise specified herein, the Contractor may use brush, roller, air spray, or so-called airless spray application; however, any spray painting must first have a short nap. Brushing or other suitable means shall coat areas inaccessible to spray coating or rolling.
 - 2. The Contractor shall give special attention to the work to ensure that edges, corners, crevices, welds, bolts, and other areas, as determined by the Engineer, receive a film thickness at least equivalent to that of adjacent coated surfaces.
 - 3. Prime coat shall be applied to all clean surfaces within a four hour period of the cleaning, and prior to deterioration or oxidation of the surface, and in accordance with the manufacturer's recommendations. Drift from sandblasting procedures shall not be allowed to settle on freshly painted surfaces.
 - 4. All coatings shall be applied in dry and dust-free environment. No coating or paint shall be applied when the surrounding air temperature, measured in the shade, is below 40 degrees F. No coating or paint shall be applied to wet or damp surfaces and shall not be applied in rain, fog or mist, or when the relative humidity exceeds 90 percent. No coating or paint shall be applied when it is expected that the relative humidity will exceed 90 percent or that the air temperature will drop below 40 degrees F within 8 hours after the application of the coating or paint. Dew or

moisture condensation should be anticipated and if such conditions are prevalent, coating or painting shall be delayed to be certain that the surfaces are dry. The day's coating or painting shall be completed well in advance of the probable time of day when condensation will occur, in order to permit the film sufficient drying time prior to the formation of moisture.

5. Each coat shall be applied evenly, at the proper consistency, and free of brush marks, sags, runs, and other evidence of poor workmanship. Care shall be exercised to avoid lapping paint on glass or hardware. Coatings shall be sharply cut to lines. Finished coated surfaces shall be free from defects or blemishes. Protective coverings shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent paint from being splattered onto surfaces from which such paint cannot be removed satisfactorily. Surfaces from which paint cannot be removed satisfactorily shall be painted or repainted as required to produce a finish satisfactory to the Engineer. Whenever two (2) coats of a dark colored paint are specified, the first coat shall contain sufficient powdered aluminum to act as an indicator of proper coverage, or the two (2) coatings shall be of a contrasting color.
6. Touch-up of all surfaces shall be performed after installation.

C. Time of Coating.

1. Sufficient time shall be allowed to elapse between successive coats to permit satisfactory recoating, but, once commenced, the entire coating operation shall be completed without delay. No additional coating of any structure, equipment, or other items designated to be painted shall be undertaken without specified permission of the Engineer until the previous coating has been completed for the entire structure, piece of equipment, or other items.
2. Piping shall not be finish coated until it has been pressure tested and approved.

3.10 TESTING AND INSPECTION

- A. Inspection Devices. The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry-film thickness of coatings and paints. The Contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dry-film thickness gauge and certified instrumentation to test accuracy. Dry-film thickness gauges shall be made available for the Engineer's use at all times until final acceptance of application.
- B. The Contractor shall conduct film thickness measurements and electrical inspection of the coated surfaces with equipment furnished by him and shall recoat and repair as necessary for compliance with the Specifications.
- C. After repaired and recoated ferrous metals areas have cured, final inspection tests will be conducted by the Engineer with equipment provide by the Contractor. Coating thickness specified in mils on ferrous substrates will be measured with a nondestructive magnetic type dry-film thickness gauge such as the Elecometer, manufactured by Gardner Laboratories, Inc. Discontinuities, voids, and pinholes in the coatings will be determined with a nondestructive type electrical holiday detector. Epoxy coatings and other thin film coatings will be checked for discontinuities and voids with a low voltage detector of the wet-sponge type, such as Model M1 as manufactured by Tinker and Rasor. Use a non-sudsing type wetting agent, such as Kodak Photo-Flo, which shall be added to the water prior to wetting the sponge. A high voltage, low current, spark type detector such as Model EP, manufactured by Tinker and Rasor, will be used for electrical inspection of only coal tar enamel. Tape type coatings will be inspected for holidays using a device designed for use in detecting such flaws. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted. Film thickness discrepancies shall be measured

and verified with a micrometer or other approved measuring instrument with 5 readings taken every 100 square feet of painted surface. Coatings not in compliance with the Specifications will not be acceptable and shall be replaced and reinspected at Contractor's expense until the Specifications are met.

- D. On nonferrous surfaces, dry film thickness readings shall be taken at random locations with a Tooke Gauge at the rate of approximately five readings per 100 square feet of surface. Grooves cut into coatings shall be repaired by application of all coats of paint or coating film being tested. The average of all readings for a given area or surface shall be within require dry film thickness range and no individual reading shall be more than 20 percent below the recommended dry film thickness. Any areas that are found to be below standard shall be marked and recoated to obtain proper film thickness.

3.11 CLEAN-UP

- A. Upon completion of the work, staging, scaffolding, dropcloths, and containers shall be removed from the site or destroyed in an approved manner. Paint spots, oil, or stains upon adjacent surfaces shall be removed.
- B. The Contractor shall clean the site in accordance with Division 1 Specifications.

TABLE I - COATING SYSTEM SCHEDULE	
<u>Item</u>	<u>Service Condition</u>
All exposed ferrous and galvanized metal piping and equipment (interior and exterior)	B
All submerged, intermittently submerged or corrosive atmosphere installed ferrous metals (e.g. in tanks, wetwells).	A
Aluminum and nonferrous metals in corrosive atmosphere and exposed to condensation.	C
All exposed PVC pipe (interior and exterior).	D
Interior of manholes.	E
Guard posts (bollards)	B

TABLE II - COATING COLOR SCHEDULE		
	TNEMEC	SCOTT
Mechanical Equipment		
Interior/exterior equipment not submerged	To match process piping	SP-101
Interior/exterior equipment submerged	Black	
Diesel Fuel Lines	Yellow SC01	SP-106
Above Ground Piping		
Water Lines	Safety Blue SC06	SP108
Gravity Sewer Lines	Malachite Green PL19	SP-110
Vacuum Sewer Lines	Eggshell White 11WH(WH01)	
Reclaimed Water Lines	Pantone Purple (BEHR 522-L)	SP-112
Miscellaneous		
Fire hydrant Assembly	New Lime Yellow	SP-115
Electrical Equipment	Gray IN05	SP-118
Guard posts (Bollards)	Safety Yellow SC01	SP-106

Note: Under all circumstances, the Sarasota County Operators will decide finish coat shading to match the existing color scheme of the plant.

END OF SECTION

SECTION 13300
PROCESS INSTRUMENTATION AND CONTROL SYSTEM
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The overall system general requirements are given in this section. These requirements apply to each additional section of these specifications as noted herein and as specified in the associated sections.
- B. Work includes engineering, furnishing, installing, testing, documenting and placing in operation modifications to the Process Instrumentation and Control System (PICS) at the Sarasota County, Florida's (OWNER) Pump Station No. 5. Training of the OWNER's personnel is also included.
- C. The work includes replacement of an existing Allen Bradley SLC-5/05 Programmable Logic Controller (PLC) within the existing Process Control Panel (PCP) at the site. The replacement PLC shall be an Allen Bradley ControlLogix series installed within the existing PCP in place of the existing PLC back panel. The new PLC shall include programming modifications to provide improved mono-chloramine control at the site. Modifications to the OWNER's Supervisory Control and Data Acquisition (SCADA) system to incorporate the new control strategy shall also be provided as further specified in Section 13325.
- D. All work covered by this specification shall be performed by SYSTEM SUPPLIER. The SYSTEM SUPPLIER shall meet the requirements of 1.4, i.
- E. The SYSTEM SUPPLIER shall furnish all labor, materials, equipment, programming, services and incidentals required to install and place into operation the modified PICS as specified herein.
- F. The SYSTEM SUPPLIER shall provide all equipment, materials, programming, software, modifications to existing equipment, calibrations and services that are required to successfully interface and interconnect the PICS and any other control systems and associated equipment that are specified or designated in any drawings or provisions of these specifications for the purpose of providing a fully integrated and functional control system.
- G. The SYSTEM SUPPLIER may duplicate software logic code and database and graphics applications, as required, while still meeting the functional specifications. The ENGINEER may require modifications to the submitted graphics, reports and control logic without change to the contract price. All engineering development required by the SYSTEM SUPPLIER will be in accordance with the Conditions of this Contract.
- H. It is the intent of these Contract Documents that the SYSTEM SUPPLIER be retained by the CONTRACTOR to have overall responsibility for designing, furnishing, interfacing, adjusting, testing, documenting, and starting-up the various PICS equipment described in the Contract Documents. The specified intent is that the SYSTEM SUPPLIER will have overall responsibility for making sure the various systems, trades, suppliers, vendors, subcontractors, etc. come together as a complete coordinated system which will reliably perform the specified functions.
- I. Equipment found to be defective prior to system acceptance shall be replaced and installed at no additional cost to the OWNER.
- J. In the bid price, the SYSTEM SUPPLIER shall provide for obtaining the services of authorized field personnel from the manufacturers of specialty instruments and from the suppliers of application software packages as necessary. Should these personnel be

required during installation, start-up and checkout of the respective portions of the PICS, such services shall be provided at no additional cost to the OWNER.

1.02 RELATED WORK

- A. Specification Section 13325 provides details of the required PICS modifications.

1.03 SUBMITTALS

- A. Furnish, as prescribed under the General Requirements, all required submittals covering the items included under this section and its associated sections of the work.
- B. Submit complete, neat, orderly, and indexed submittal packages. Handwritten diagrams are not acceptable and all documentation submittals shall be made using CADD generated utilities.
- C. Partial submittals or submittals that do not contain sufficient information for complete review or are unclear will not be reviewed and will be returned by the Engineer as not approved.
- D. All submitted component data sheets shall be marked to specifically identify the model/part numbers to be furnished.
- E. Provide all shop drawing submittals on thumb drive in PDF format.
- F. Test Procedures: Submit the procedures proposed to be followed during all required testing. Procedures shall include test descriptions, forms, and check lists to be used to control and document the required tests.
- G. Test Reports: Upon completion of each required test, document the test by submitting a copy of the signed off test procedures to the Engineer.

1.04 QUALITY CONTROL

- A. Base bids for the SYSTEM SUPPLIER shall be as listed in the Contract Proposal. SYSTEM SUPPLIERS seeking ENGINEER approval shall have extensive experience in systems of similar size and complexity. Panel fabrication shop shall be a UL listed panel shop. Acceptance of alternates shall be made based on price, location of the fabrication shop, accessibility of personnel, PLC programming knowledge, and OWNER confidence. The SYSTEM SUPPLIER shall be subcontracted by and paid by the CONTRACTOR.
- B. The SYSTEM SUPPLIER shall meet all of the requirements of these specifications, and, unless specifically stated otherwise, no prior acceptance of any subsystem, equipment, or materials has been made.
- C. All equipment furnished by the SYSTEM SUPPLIER shall be of the latest and most recent design and shall have overall accuracy as guaranteed by the manufacturer.
- D. Materials and equipment used shall be U.L. approved wherever such approved equipment and materials are available.
- E. Component equipment shall be as supplied by one of the manufacturers named in the individual specification sections or approved equal. The design of the PICS is based on the first-named manufacturer's equipment if there is a difference.
- F. To facilitate the OWNER's operation and maintenance, products shall be of the same major manufacturer, with panel mounted devices of the same type and model as far as possible.
- G. In order to insure the interchangeability of parts, the maintenance of quality, the ease of interfacing between the various subsystems, and the establishment of minimums with regard to ranges and accuracy, strict compliance with the above requirements shall be maintained.

- H. The SYSTEM SUPPLIER shall designate a single point of contact for interface with the ENGINEER on this project. The ENGINEER reserves the sole right to approve or reject this point of contact.
- I. The SYSTEM SUPPLIER's selected project personnel shall meet the following requirements:
 - 1. Project engineer shall have at least 10 years' experience in installing similar systems and shall have a minimum of secondary education in the field of electronics or similar technical discipline.
 - 2. Project technician assisting the project engineer for field element calibration and check out shall have at least five years experience in installing similar systems.
 - 3. Key staff resumes shall be submitted for ENGINEER's approval with the Project Plan as further detailed under submittals.
- J. Service Facility: The SYSTEM SUPPLIER shall have an established service facility from which qualified technical service personnel and parts may be dispatched upon call. Such a service facility shall be no more than six (6) hours travel time from the jobsite.
- K. The SYSTEM SUPPLIER shall provide experienced personnel on-site to coordinate and/or perform installation, termination, and adjustment; on-site testing; OWNER training; and startup assistance for the PICS.
- L. The SYSTEM SUPPLIER shall provide, on-site, an experienced project engineer to supervise and coordinate all of the on-site PICS activities. An experienced technician may be provided to assist the project engineer in field element installation, field calibration, and checkout tests. The SYSTEM SUPPLIER's project engineer shall be on-site during the period required to effect all of the critical on-site activities related to the PICS, particularly the software debugging, PICS training, and witnessed testing activities.

1.05 STANDARDS

- A. The design, testing, assembly, and methods of installation of the wiring materials, electrical equipment and accessories proposed under this Contract shall conform to the National Electrical Code and to applicable state and local requirements. UL listing and labeling shall be adhered to under this Contract.
- B. Any equipment that does not have a UL, FM CSA, or other approved testing laboratory label shall be furnished with a notarized letter signed by the supplier stating that the equipment furnished has been manufactured in accordance with the National Electric Code and OSHA requirements.
- C. Any additional work needed resulting from any deviation from codes or local requirements shall be at no additional cost to the OWNER.
- D. International Society of Automation (ISA) and National Electrical Manufacturers Association (NEMA) standards shall be used where applicable in the design of the PICS.
- E. All equipment used on this project to test and calibrate the installed equipment shall be in calibration at the time of use. Calibration shall be traceable to National Institute of Standards (NIS - formally NBS) calibration standards.
- F. For the purposes of uniformity and conformance to industry standard, provide analog signal transmission modes of electronic 4-20 ma DC. No other signal characteristics are acceptable.
- G. Discrete signals are two-state logic signals. Use 120V ac sources on all discrete signals unless otherwise noted or shown.
- H. Provide appropriately sized electrical transient protection devices for all electrical elements of the system as further defined in the individual specification sections. For

field mounted devices, provide protector enclosures to the electrical Subcontractor for mounting and installation.

1.06 WARRANTY AND GUARANTEES

- A. In accordance with Division 1, the SYSTEM SUPPLIER shall furnish to the OWNER a written one year guarantee commencing with final acceptance, that all equipment and parts thereof, material and/or workmanship for the field elements, instruments, and control panels are of top quality and free from defects.
- B. The SYSTEM SUPPLIER shall guarantee all equipment whether or not of his own manufacture.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PAYMENTS

- A. General: All work provided under this Section and its associated Sections for the PICS shall be paid for in accordance with the approved payment Schedule of Values submitted by the CONTRACTOR. The approved Schedule of Values will be the basis for partial payment for work provided for the PICS.
- B. Partial Payment for Work Completed: The breakdown in the Schedule of Values allows for the partial payment of work completed for the PICS. Before partial payment is considered for approval, each specific activity must be completed.
- C. Substantial Completion: Substantial Completion for the project is as defined in the General Conditions. However, the following requirements must be fulfilled before consideration will be given for Substantial Completion of the PICS:
 - 1. All PICS submittals have been completed.
 - 2. The PICS has successfully completed the Demonstration Tests.
 - 3. The required Owner training has been implemented.
 - 4. All spares, expendables, and test equipment have been received by OWNER.
- D. Final Acceptance: PICS final acceptance is defined as the date when the ENGINEER issues a written notice of final acceptance. For this Section, the following must have been completed before consideration will be given to the issuance of notice of final acceptance:
 - 1. All punch-list items have been checked off.
 - 2. Revisions to the PICS O&M Manuals have been made (that may have resulted from the Demonstration Tests).
- E. Partial Payment Limits: The partial payments for work provided for the PICS shall satisfy the following limiting maximum criteria (percentages of the lump sum pay item for the PICS):
 - 1. Submittals (not including O&M Manuals)15%
 - 2. Training5%
 - 3. O&M Manuals.....5%
 - 4. Demonstration Tests10%

3.02 INSTALLATION

- A. Material and Equipment Installation: Follow manufacturers' installation instructions explicitly, unless otherwise indicated. Wherever any conflict arises between manufacturers' instruction and these Contract Documents, follow ENGINEER's decision,

at no additional cost. Keep copy of manufacturers' instructions on the jobsite available for review at all times.

- B. Install materials and equipment in a workmanlike manner utilizing craftsmen skilled in the particular trade. Provide work which has a neat and finished appearance. Coordinate I&C work with the OWNER and work of other trades to avoid conflicts, errors, delays, and unnecessary interference with operation of the existing plant during construction.

3.03 OPERATIONAL READINESS TEST (ORT)

- A. Prior to startup and demonstration testing, certify that the entire installed PICS (inspected, tested and documented) is ready for operation. These inspections and tests shall include Loop/Component inspections and tests. The SYSTEM SUPPLIER shall fully debug problems in the system as a whole. Final approval of control software will not be based on written descriptions of software functions alone, but on actual performance in the field.
- B. Check the entire PICS for proper installation, calibration and adjustment on a loop-by-loop and component-by-component basis to ensure that it is in conformance with related submittals and the PICS Specifications.
- C. The Loop/Component Inspections and Tests shall be implemented using approved forms and checklists. These shall be developed by the SYSTEM SUPPLIER and submitted for approval.
- D. Maintain the Loop Status Reports and Component Calibration Sheets at the jobsite and make them available to the ENGINEER at any time.
- E. Witnessing: These inspections and tests do not require witnessing. However, the ENGINEER will review the Loop Status Sheets and Component Calibration Sheets and spot-check their entries periodically and upon completion of the Operational Check-out Tests. Correct any deficiencies found.
- F. Final Documentation: The completed reports and sheets shall be assembled in one document and submitted together with a completed Manufacturer's Check-Out Certification.

3.04 FIELD ACCEPTANCE TEST (FAT)

- A. Once the PICS has passed the ORT, the SYSTEM SUPPLIER shall perform a witnessed Field Acceptance Test (FAT) on the complete PICS. The FAT shall demonstrate that the PICS is operating and in compliance with the Contract requirements. Each specified function shall be demonstrated on a paragraph-by-paragraph, and site-by-site basis.
- B. Prior to the FAT, the entire installed PICS shall be certified in writing by the CONTRACTOR that it is ready for operation.
- C. The system shall operate for a continuous 100 hours without failure before this test will be considered successful.
- D. The FAT shall cover the entire PICS, including control functions, alarms, and status monitoring.

END OF SECTION

SECTION 13325
PROCESS INSTRUMENTATION AND CONTROL SYSTEM
MODIFICATIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Specification Section covers work related to the required modifications to the Process Instrumentation and Control System (PICS).
- B. PICS modifications, as specified herein, shall be furnished by the same SYSTEM SUPPLIER furnishing services and equipment as outlined in 13300.
- C. The modifications shall comprise the following:
 - 1. Replacement of the existing Allen Bradley SLC/5-05 based PLC back panel with an Allen Bradley ControlLogix based PLC back panel.
 - 2. Replacement of the existing front-panel mounted Allen Bradley PanelView 400 Operator Interface Unit with an Allen Bradley PanelView Plus 7 model.
 - 3. Converting the existing PLC and OIT programming for use in the new hardware.
 - 4. Modifications to the station mode and chemical feed control strategies.
 - 5. Provision of limit switches to allow valve position monitoring.
 - 6. Upgrade of the HMI screens to reflect the control changes and new equipment.

1.02 RELATED WORK

- A. Specification Section 13300 defines work associated with the overall PICS.

1.03 SUBMITTALS

- A. Provide the following submittals specific to the work defined herein:
- B. A PLC hardware shop drawing package that includes the following:
 - 1. Block Diagram: A detailed system block diagram showing all major components. Identify components by model number. Show interconnecting cables diagrammatically (by type and size).
 - 2. Bill of Materials: A list of all components, including all software. Group components by type and include component model number and part number, component description, quantity supplied, and reference to component catalog information.
 - 3. Descriptive Information: Catalog information, descriptive literature, performance specifications, internal wiring diagrams, power and grounding requirements, power consumption, and heat dissipation of all elements. Clearly mark all options and features proposed for this project.
 - 4. Installation Details. Equipment installation drawings showing external dimensions, enclosure material and spacing, mounting connections, and installation requirements.
- C. Provide an OIT graphics submittal. This shall include copies of all proposed converted graphics. The converted graphics shall indicate components and indications using descriptive tags rather than PLC register designations and include a complete listing of PLC registers with associated descriptive tags.
- D. Provide an application programming design package that illustrates each individual control strategy using a program flow chart or written description. The descriptions shall also include details of all formulae to be used (e.g. chemical feed, flow paced, etc.). This

submittal shall be Approved or Approved As Noted prior to any PLC programming Work. Simply repeating the descriptions provided herein shall not be acceptable.

- E. Provide a final documentation package that includes:
 - 1. Licenses in the Owner's name for PLC programming software.
 - 2. Final copies of all programming files on USB flash drive.
 - 3. A complete printout of all "Annotated" PLC program logic.

PART 2 - PRODUCTS

2.01 FIELD INSTRUMENTS.

- A. Provide two new total chlorine analyzers. The analyzers shall be HACH model CLT10 and no equal.
- B. Each analyzer shall be furnished with surge protection on the incoming a.c. power supply and on the 4-20 mA output signal. Edco SLAC or approved equal.
- C. All necessary piping and valves shall be furnished as necessary to fulfill the manufacturer's recommended installation.

2.02 PLC REPLACEMENT

- A. The existing PLC is a Allen Bradley SLC/500 based system comprising two chassis as follows:
 - 1. Main Chassis. This is a 10-slot chassis containing a power supply and the following modules:
 - a. A SLC 5/05 CPU
 - b. Five (5) sixteen point 120 VAC discrete input modules.
 - c. Two (2) sixteen point 240 VAC relay output modules.
 - d. Two (2) empty slots.
 - 2. Expansion Chassis. This is a 7-slot chassis containing a power supply and the following modules:
 - a. Four (4) four channel 4-20 mA analog input modules.
 - b. Three (3) for-channel 4-20 mA analog output modules.
- B. In addition to the PLC replacement, the existing Operator Interface Unit, front-mounted on the PCP shall be replaced with a new OIU, the PCP being modified as necessary to accommodate it.
- C. The replacement PLC shall utilize Allen Bradley ControlLogix modules/components selected from those defined in paragraph 2.03 below.
- D. To ensure minimum downtime during replacement, the existing back panel within the PCP shall be replaced with a new, fully-wired and tested back panel.
- E. The SYSTEM SUPPLIER shall utilize the following software to assist in the conversion/migration process:
 - 1. RS Logix 500 Version 8.0 or later.
 - 2. Studio 5000 Logix Designer Version 21 or later with RS Logix Migrator Tool Version 3.0 or later.
 - 3. Integrated Architecture Builder Version 3.0 or later.

4. Refer to Rockwell Automation Publication 1756-RM085D-EN-P for further details.
- F. The existing PLC application program shall be converted and installed on the new CPU then modified in accordance with the software revisions defined in paragraph 2.03 herein.

2.03 PROGRAMMABLE LOGIC CONTROLLER

- A. Control and data acquisition associated with site equipment shall be performed by a Programmable Logic Controller (PLC). The PLC modules shall be Allen Bradley ControlLogix series, no equal, installed within a back-panel mounted chassis in the Process Control Panel. Modules shall be selected from the following list:
 1. CPU Module. The CPU module shall meet the following requirements:
 - a. Integral USB port for programming.
 - b. 16 MB of user memory.
 - c. Provide Allen Bradley 1756--L74.
 2. Power Supply Module. Provide 120/220 VAC power supply in each chassis. Allen Bradley 1756-PA72 or 1756-PA75.
 3. Communications Module. Provide a dual copper port Ethernet/IP bridge. Allen Bradley 1756-EN2TR.
 4. Process interface modules. All I/O 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. 14 AWG wire. All terminals shall be provided with unique identification in accordance with approved loop interconnection diagrams. Furnish input/output modules sufficient to accommodate the inputs/outputs shown on the Process and Instrumentation Diagrams contained in the Contract Drawings plus an additional 15% spares of each type. The spares shall be supplied fully wired such that it is only necessary to add field wiring and update the PLC database in order to activate them. All modules shall be equipped with field removable terminal blocks. The requirements for each type of module are:
 - a. Discrete Input Module. Provide sixteen individually isolated 120 VAC inputs. Allen Bradley 1756-IA16I.
 - b. Discrete Output Module. Provide sixteen individually isolated contact outputs. Allen Bradley 1756-OW16I.
 - c. Analog Input Module. Provide eight individually isolated 4-20 mA inputs with HART capability. Allen Bradley 1756-IF8IH.
 - d. Analog Output Module. Provide eight individually isolated 4-20 mA outputs with HART compatibility. Allen Bradley 1756-OF8IH.
 - e. All I/O modules shall be provided with manufacturer supplied terminal blocks and cables to interconnect with field termination points.
- B. Operator Interface Terminal. (OIT). The OIT shall be front panel mounted and meet the following requirements:
 1. 15 inch, full color touch screen graphical display.

2. Power Requirement: 120 VAC.
 3. Ethernet and RS-232 communications ports.
 4. Windows CE operating system.
 5. FactoryTalk View Machine Edition Station application software.
 6. Provide Allen Bradley Panelview Plus 7 model.
- C. PLC Software. The latest revision of the programming software shall be installed as of substantial completion. Provide Rockwell Automation RSLogix 5000 Full Edition. Catalog No. 9342-RLD600ENE.

2.04 STATION CONTROL MODE PROGRAMMING MODIFICATIONS

- A. Refer to the PID for valve references described herein.
- B. Existing Station Control Mode. The existing strategy allows the station to be placed into one of four independent operating modes:
1. BYPASS – In this mode, motorized valves GV-01 and BFV-02 are closed and the station is completely bypassed. All pumping and chemical injection is disabled.
 2. FILL - In this mode, valves GV-01 and BFV-02 are closed and the GST can fill via the altitude valve, AV-01, whenever the GST level falls sufficiently. All pumping is disabled but pre-chemical injection is enabled.
 3. BOOST – In this mode, valve GV-01 is open and valve BFV-02 is closed. Pumping is operational to boost distribution pressure between the west fill line and the outgoing distribution line. Post-chemical injection is enabled.
 4. HIGH SERVICE – In this mode, valve GV-01 is closed and valve BFV-02 is opened. Pumping is operational and feeds distribution from the GST. Post-chemical injection is enabled.
- C. Modified Station Control Mode. With the addition of the new, second fill line, station mode can be expanded to provide more flexible operating modes. The new modes of operation shall be as follows:
1. MODE 1, INTERCONNECT FILL AND PUMPING. This will be the normal operating mode for the station. The tank fills from the interconnect line while pumping to distribution from the tank.
 2. MODE 2, INTERCONNECT BOOST, TANK BYPASS. In this mode, BFV-02 is closed and manual valve GV-04 opened to allow pumps to draw suction directly from the interconnect line.
 3. MODE 3, WEST FILL AND PUMPING. In this mode, manual valve GV-03 is closed, isolating the east and west distribution systems. Manual valve GV-01 is opened allowing the tank to fill from the west distribution while pumping to the east distribution.
 4. MODE 4, WEST BOOST, TANK BYPASS. In this mode, manual valve GV-03 is closed, isolating the east and west distribution systems. Manual valves GV-01 and GV-02 are opened and BFV-02 is closed to allow pumps to pump to east distribution directly from west distribution.
 5. MODE 5, WEST FILL, NO PUMPING. In this mode, manual valve GV-01 is opened and BFV-02 is closed. Pumping is disabled and the tank is filled from the existing distribution system.

2.05 CHEMICAL FEED CONTROL MODIFICATIONS

- A. Existing Chemical Feed. The existing chemical feed strategies are to be removed. In the revised operation, pre-chemical feed will be completely manual at the pumps and will only be used when tank maintenance is performed. The revised post-chemical feed control strategies are defined below.
- B. Wherever in the following descriptions an operator function is mentioned it is intended to mean such action is achieved via the OIT or SCADA graphic screens.
- C. Post-Chlorine Pump Control. Provide an operator controllable IN SERVICE/OUT OF SERVICE select switch for each pump. Establish a LEAD/LAG/STANDBY sequence for the pumps that can be manually overridden by the operator. Omit any pump set to OUT OF SERVICE from the sequence. Automatically rotate the sequence every time high service pumping stops.
- D. Post-Chlorine Feed Control. Provide an operator controllable HAND/OFF/AUTO select switch for feed control. Proceed as follows:
 1. While the switch is in HAND, run the LEAD pump at an operator adjustable speed whenever a high service pump is running. If the LEAD pump fails to start or fails while running, automatically call for the LAG pump.
 2. While the switch is in OFF, prevent any pump from starting.
 3. While the switch is in AUTO, run the LEAD pump whenever a high service pump is running adjusting its speed as defined below. If the LEAD pump fails to start or fails while running, automatically call for the LAG pump.
- E. Post-Chlorine Pump Automatic Speed Control. Whenever a pump is running and the feed is set to AUTO, proceed as follows:
 1. Provide the following operator adjustable parameters:
 - a. ASH – maximum operating value for Effluent Total Chlorine Residual level.
 - b. ASL – minimum operating value for Effluent Total Chlorine Residual level.
 - c. K – ratio of plant effluent flow for pacing in parts per million.
 - d. AUTO/MANUAL select switch for speed trim adjustment mode.
 - e. T – trim value for speed adjustment based on Final Total Chlorine Residual level. This value shall be restricted to between 0.8 and 1.2, initially set at 1.0.
 - f. P – percentage of effective chemical in the feed solution.
 2. Run the LEAD pump at a speed given by the following formula:

$$\text{Speed}\% = (K \times T \times F \times 100) / (24 \times P \times Q)$$

Where Q = maximum feed capacity of the pump in g.p.h.
and F = effluent flow in m.g.d.
 3. If the Trim mode is set to AUTO, proceed as follows:
 - a. Monitor the Effluent Total Chlorine Residual level periodically using an operator adjustable period.
 - b. If the Effluent Total Chlorine Residual level is at or above ASH, reduce the value of T by an operator adjustable percentage (without exceeding the 0.8 to 1.2 restriction).

- c. If the Effluent Total Chlorine Residual level is at or below ASL, increase the value of T by an operator adjustable percentage (without exceeding the 0.8 to 1.2 restriction).
- F. Post-Ammonia Pump Control. Provide an operator controllable IN SERVICE/OUT OF SERVICE select switch for each pump. Establish a LEAD/LAG/STANDBY sequence for the pumps that can be manually overridden by the operator. Omit any pump set to OUT OF SERVICE from the sequence. Automatically rotate the sequence every time high service pumping stops.
- G. Post-Ammonia Feed Control. Provide an operator controllable HAND/OFF/AUTO select switch for feed control. Proceed as follows:
 - 1. While the switch is in HAND, run the LEAD pump at an operator adjustable speed whenever a high service pump is running. If the LEAD pump fails to start or fails while running, automatically call for the LAG pump.
 - 2. While the switch is in OFF, prevent any pump from starting.
 - 3. While the switch is in AUTO, run the LEAD pump whenever a high service pump is running adjusting its speed as defined below. If the LEAD pump fails to start or fails while running, automatically call for the LAG pump.
- H. Post-Ammonia Pump Automatic Speed Control. Whenever a pump is running and the feed is set to AUTO, proceed as follows:
 - 1. Provide the following operator adjustable parameters:
 - a. ASH – maximum operating value for Effluent Total Chlorine Residual level.
 - b. ASL – minimum operating value for Effluent Total Chlorine Residual level.
 - c. K – multiplier of post-chlorine dosage for pacing.
 - d. P – percentage of effective chemical in the feed solution.
 - 2. Run the LEAD pump at a speed given by the following formula:

$\text{Speed\%} = (K \times D \times T \times F \times 100) / (24 \times P \times Q)$

Where D = current chlorine dosage (see chlorine speed control above),

Q = maximum feed capacity of the pump in g.p.h.

and F = effluent flow in m.g.d.

2.06 GRAPHICS MODIFICATIONS

- A. Convert the existing OIT graphics and install on the new OIT.
- B. Provide new OIT graphic screens for the post-chlorine and post-ammonia feed systems. The screens shall include the following:
 - 1. Current total chlorine level upstream of chemical injection.
 - 2. Current effluent total chlorine level.
 - 3. Current storage tank level in fill color and text.
 - 4. Current status of each pump (i.e. running, stopped, failed) in color.
 - 5. Current IN SERVICE/OUT OF SERVICE and LEAD/LAG/STANDBY assignment in text.

6. Current values of all control strategy setpoints. Provide a mechanism for adjustment of these values via the graphic.
- C. Modify the OIT graphics to add the new fill line and add descriptive names (including current station mode).
- D. Incorporate all new I/O and new or modified OIT graphics into the SCADA system so as to provide the same level of operator interface functions as those provided by the OIT.

2.07 SPARES

- A. Provide one spare PLC module of each one in the rack, including power supply and CPU modules.

PART 3 - EXECUTION

3.01 TRAINING

- A. Hardware Maintenance: Provide a minimum of two half-days of on-site training for up to six of the OWNER's personnel per session which shall include:
 1. Training in standard hardware maintenance for the equipment provided.
 2. Specific training for the actual hardware configuration to provide a detailed understanding of how the equipment and components are arranged, connected, and set up.
 3. Test, adjustment, and calibration procedures.
 4. Troubleshooting and diagnosis.
 5. Component removal and replacement.
 6. Periodic maintenance.
 7. Operation and use of PLC software.
- B. On-site training shall be provided at times determined by OWNER.

END OF SECTION

SECTION 15001

PIPING, VALVES, AND APPURTENANCES FOR CHEMICAL FEED SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Scope:

1. Contractor shall furnish all labor, tools, materials, equipment and incidentals required to supply, install, test and place in satisfactory operation all piping, valves and appurtenances as shown on the Drawings and specified herein.
2. It is the intention of the Drawings and Specifications to provide complete and workable piping systems. Miscellaneous fittings and appurtenances required for proper completion of the Work shall be considered as having been included under this Section.

B. General:

1. All piping, fittings, valves and appurtenances shall be new, clean and in accordance with material specifications. In no case will used or damaged material be acceptable.
2. Provisions shall be made to permit bleeding air at high points. All piping shall be of the sizes and materials shown on the Drawings or specified herein.

1.02 QUALITY ASSURANCE

A. Manufacturer Qualifications: Piping and valves shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service. All valves and piping of the same type shall each be the product of one manufacturer.

B. Source Quality Control: All pipe, specials and valves shall have the working pressure stenciled thereon. Pipe that has been designed for abnormal load conditions or thrust restraint shall have special markings thereon which can be readily identified.

C. Reference Standards: Comply with applicable provisions and recommendations of the following:

1. Standards of American Water Works Association, AWWA.
2. Standards of American Society for Testing and Materials, ASTM.
3. Standards of American National Standards Institute, ANSI.
4. Standards of American Iron and Steel Institute, AISI.

D. Manufacturer's Field Services and Reports:

1. Retain factory trained manufacturer's representative with demonstrated ability and experience in the installation and operation of ball valves, duckbill valves, and miscellaneous valves to perform the services listed below:
2. Supervise the installation.
3. Test, calibrate and adjust all components for optimum performance.
4. Assist in initial start-up and field testing.
5. Inspect the completed installation and prepare an inspection and performance test report.

6. Instruct County personnel in the operation and user maintenance of all components.
7. Supervise the correction of any defective or faulty Work before and after acceptance by County – certify in written report.

1.03 SUBMITTALS

A. Shop Drawings: Shop Drawing submittals shall include the following:

1. Illustrations, specifications and engineering data including: dimensions, materials, size, and weight for all piping, valves, and appurtenances including containment piping, pipe supports, pipe restraints, coatings, etc.
2. Manufacturer's instructions and recommendations for installation of each type of pipe joint, valve and special items.

1.04 PRODUCTION DELIVERY, STORAGE, AND HANDLING

A. Delivery, Storage and Handling of Materials: All materials shall be delivered to the site, stored, and handled in accordance with the manufacturer's instructions. Contractor shall inspect shipments for damage and content well in advance of the date scheduled for incorporation in the Work.

B. Prior to Shipment:

1. Each piece of pipe and each fitting shall be plainly marked at the manufacturer with schedule number and pressure class. All piping shall be readily identifiable.

C. To establish minimum criteria for proper installation and handling, measures to be taken by the Contractor shall include the following:

1. All piping and valves shall be thoroughly cleaned of sand, scale, rust or other foreign substances. Open ends of piping and valves shall be suitably closed to prevent the entrance of foreign matter after cleaning and during shipment and storage.

D. Handle all pipe, fittings and accessories carefully with approved handling devices. Do not drop or roll pipe off trucks. Do not otherwise drop, roll, or skid pipe. Materials that are cracked, chipped, gouged, dented or otherwise damaged will not be approved for installation.

E. Store pipe and fittings on heavy wood blocking or platforms. Do not store pipe in contact with ground.

1.05 JOB CONDITIONS

A. Protection:

1. Take all measures to ensure that all materials are protected from damage.

B. Work Affecting Existing Piping

1. Location of Existing Piping:

- a. Locations of existing piping shown should be considered approximate.
- b. Determine exact location of existing piping to which connections are required, or which may be affected by the Work.

2. Work on Existing Piping:

- a. Cut pipes as shown or required with machines specifically designed for this work.

- b. Install temporary plugs to keep out all mud, dirt, water and debris.
- c. Provide all necessary adapters, fittings, taps, outlets, pipe and appurtenances required.
- d. Verify dimensions of all existing piping to which connections are required and provide all necessary adapters, specials and section pieces required to make the connections.
- e. The County does not guarantee watertight closing of existing utility system isolation valves. Contractor shall provide, at no additional expense to the County, all temporary caps, plugs, dewatering, pumping and other measures required to ensure proper installation of new piping.

PART 2 – PRODUCTS

2.01 MATERIALS - CHEMICAL FEED SYSTEMS

A. Valves and Appurtenances:

1. Ball Valves (for sodium hypochlorite and ammonia sulfate):
 - a. Size and extent: 4-inches and smaller.
 - b. Connections: End entry, double union design, solvent-weld socket ends.
 - c. Material: ASTM D1784, Class 12454-B (Type 1, Grade 1) polyvinyl chloride body, ball, and stem. PTFE seat, Viton or FKM O-rings.
 - d. Construction: Ball must contain an adequate vent to the pressure port opposite of the downstream sealing port. Valve must be manufactured with vent at factory.
 - e. Rated: 150 psi at 105° F.
 - f. Manufacturer:
 - i) Asahi/America Type 21.
2. Pressure Gages:
 - a. Range: 0 to 100 psi and as noted on returned shop drawings.
 - b. Dial Size: 2-1/2 inches except where smaller dials are specified.
 - c. Case: Phenolic turret case for surface mounting Stainless.
 - d. Bourbon Tube Body Material: Stainless steel or bronze PVC.
 - e. Connection: Brass, 1/2-inch NPT-Bottom.
 - f. Accuracy: +02.5 percent of span.
 - g. Accessories: Provide 2-inch needle valve and diaphragm for pressure snubbing isolation with each gage.
 - h. Product and Manufacturer:
 - 1) Tuff Guard, Series TG-25T or Ametek, U.S. Gage Division, Fig. 1980.
 - 2) Or equal.
 - i. Diaphragm seal housing shall be of Type 316 stainless steel, the diaphragm of Teflon or Kel-F modified PTFE, and the filling liquid of glycerin or silicone oil. Seal

shall have a 1/2-inch diameter process connection, cleanout ring, and flush connection. Factory mount a stainless steel cartridge snubber between the gage and diaphragm seal.

B. Supports and Fasteners for Chemical Piping Systems:

1. All pipe supports and fasteners shall be glass fiber-reinforced plastic with a flame spread rating of 25, in accordance with ASTM E 84.
2. Materials shall be manufactured by either the pultrusion or extrusion process.
3. All pipe supports shall have a surface veil over 100 percent of the surface which, along with a filler system, shall protect against degradation from ultra-violet light.
4. All fasteners shall be manufactured from long glass fiber-reinforced polyurethane to ensure strength and corrosion resistance.
5. All-thread rods shall be made from vinylester resin.
6. Manufacturers: Provide products of one of the following:
 - a. Unistrut Company.
 - b. Or equal.

C. Flexible Tubing: Unless otherwise shown or specified, flexible tubing shall be as follows:

1. Manufacturers: Provide products of one of the following:
 - a. Kuriyama "Kuri-Tech Clearbraid K3130 Series BF Heavy Wall PVC Food and Beverage Hose".
 - b. Ryan-Herco "Herco-Braid Heavy Duty Food Grade Clear PVC Tubing".
 - c. Or equal.
2. Material: Material shall be PVC with nylon braid reinforcement embedded in the wall of the tubing and conform to NSF 61. Unless otherwise shown or specified, PVC tubing shall be:
 - a. Food grade.
 - b. Color: Clear.
 - c. Temperature Rating: 150 degrees F.
 - d. Maximum Working Pressure Rating:
 - 1) 200 psi for 3/4 inch dia.
 - 2) 150 psi for 1 inch dia.
 - 3) 100 psi for 1-1/4 to 1-1/2 inch dia.
 - 4) 75 psi for 2 inch dia.
3. Fittings: Join tubing to pipe with single-barb male adapter fitting and a stainless steel hose clamp. Join tubing sections by single or multi-barb thermoplastic couplings with titanium hose clamps.

D. PTFE Tubing:

1. PTFE tubing shall include smooth tube PTFE inner core with a braided stainless steel (Type 304) outer reinforcement layer.
2. Fittings for PTFE tubing shall be constructed of Type 316L stainless steel.

E. Miscellaneous Items:

1. PVC Pipe Supports:

- a. Provide fiberglass/plastic supports for chemical pipes as follows:

- 1) Pipe 2-inch and larger shall be supported at 6 foot maximum spacing. Pipe smaller than 2-inch shall be supported at 4 foot maximum spacing.
- 2) Pipes adjacent to or on walls shall be supported from molded fiberglass or polypropylene clamp halves complete with cover plate, hex bolts and base weld plate attached to wall with expansion anchors.

- 3) Manufacturer:

- i. Unistrut.
- ii. Or equal.

2. Flanged Joints:

- a. Assemble flanged joints using 1/8-inch ring-type gaskets for raised face flanges. Use full face gaskets for flat face flanges unless otherwise approved. Gaskets shall be suitable for the chemical service intended in accordance with the manufacturer's ratings and instructions. Gaskets shall be properly centered.
- b. Bolts shall be tightened in a sequence that will ensure equal distribution of bolt loads.
- c. The length of bolts shall be uniform, and they shall not project beyond the nut more than 1/4 - inch or fall short of the nut when fully taken up. The ends of bolts shall be machine cut so as to be neatly rounded. Washers shall be used.
- d. Bolt threads and gasket faces for flanged joints shall be lubricated prior to assembly.
- e. Alternately tighten bolts 180 degrees apart to compress the gasket evenly.
- f. All bolts and hardware shall be 316L SS.

3. Unions shall be installed for easy disassembly of pipes and where shown on Drawings.

4. Expansion Joints:

- a. General: Expansion joints shall be three convolutions type.
- b. Extent: For bulk tanks as shown on drawings.
- c. Material: Shall be PTSE (Sodium Hypochlorite).
- d. Flanges: Shall be ductile iron construction. Flanges shall be full faced with 150 lb. ANSI standard drilling. Retainer rings shall be stainless steel.
- e. Product and Manufacturer: Expansion joints shall be Proco Series 443 or equal.

- f. Alternative: instead of expansion joints, flexible connections approved by the selected tank manufacturer for the tank size, material, pressure range, and chemical service may be used.
- 5. Pipeline Identification: All exposed piping shall be identified by Brady B-500 vinyl cloth self-sticking arrows and markers. Equivalent products by Seton Name Plate Corporation or equal are acceptable.
 - a. Markers shall be of wording of "Sodium Hypochlorite Transfer Line and Ammonia Sulfate Transfer Line.
 - b. Install markers and arrows at following locations:
 - 1) At intervals not exceeding 25 feet along continuous runs of pipe.
 - 2) Wherever pipes pass through walls, floor or panels.
 - 3) At each valve or equipment connection.
 - 4) At each branch where it connects to a main line.
 - c. Lettering shall be:
 - 1) 2-1/4 inches high for pipes 3 inches diameter and larger. 1-1/8 inches high for pipes less than 3 inches diameter.
 - d. Flow arrows shall be:
 - 1) 2-1/4 inches by 6 inches for pipes 3 inches diameter and larger.
 - 2) 1-1/8 inches by 3 inches for pipes less than 3 inches diameter.

PART 3 – EXECUTION

3.01 INSPECTION

- A. The Contractor shall inspect chemical valves and appurtenances to ensure that they are free of defects in material and workmanship. The compatibility of pipe, fittings, and coatings shall be verified.

3.02 INSTALLATION

- A. Chemical valves and appurtenances shall be installed in complete accordance with the manufacturer's instructions and recommendations.

END OF SECTION

SECTION 15006
PIPE SUPPORTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. General

1. Furnish all labor, materials, tools, equipment and services for all pipe support and anchor systems, in accordance with the provisions of the Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. The layout of pipe supports is the responsibility of the Contractor, and must take into consideration pipe material, joint type, location, and other requirements of these specifications.

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American National Standards Institute (ANSI)
2. American Society of Mechanical Engineers (ASME)
3. American Society for Testing and Materials (ASTM)
4. ASTM A575 Merchant Quality Hot-Rolled Carbon Steel Bars
5. American Welding Society (AWS)
6. Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS) Valve and Fittings Industry (MSS)
7. MSS SP-58-67 Pipe Hangers and Supports – Materials and Design
8. MSS SP-69-66 Pipe Hangers and Supports - Selection and Application
9. National Bureau of Standards (NBS)
10. NBS Handbook H-28

1.03 SUBMITTALS

- A. All submittals shall be in accordance with Specification 01300 - Submittals.
- B. Submit itemized list of wall sleeves, anchors, support devices and all other items related to pipe support system.
- C. Submit scaled drawings showing guides, hangers, supports, anchors, structural members and appurtenances to describe the pipe support system.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All structural steel angles, rods, channels and special devices integral to pipe support systems shall be fabricated from ASTM-A-276 Type 316 stainless steel. Locate supports and accessories to support pipe system at concentrated loads and in accordance with minimum suggested by MSS SP-69-66.
- 2.02 PIPE SADDLES
- A. Provide ASTM-A-276 Type 316 Stainless Steel pipe support saddles for pipe supported from the floor, unless otherwise indicated on the drawings. Pipe saddles equal to B-Line Figure B3090, or equal.
 - B. Use Schedule 40 ASTM-A-276 Type 316 stainless steel support pipe risers and floor plate recommended by saddle manufacturer.
- 2.03 WALL BRACKETS
- A. Provide ASTM-A-276 Type 316 stainless steel wall bracket supports for pipe located near walls, including all horizontal pipe and all vertical pipe 8-feet or more above floor elevation or as indicated on the drawings. Provide wall brackets at all changes of direction and as shown on drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install supports capable of supporting the pipe for all service and testing conditions. Allow free expansion and contraction of the piping to prevent excessive stress resulting from service and testing conditions or from weight transferred from the piping or attached equipment.
- B. Install pipe support system in accordance with highest industry practices, and in full accordance with manufacturer's recommendations. Adjust supports and hangers to allow for proper pitch of pipes.
- C. Ensure design, materials of construction, and installation of pipe hangers, supports, guides, restraints, and anchors for chemical and waste piping are in accordance with ANSI B31.3, and MSS Standard SP-58 and SP-69, except where modified by this specification.
- D. Check all physical clearances between piping, support system, and structure. Provide for vertical adjustment after erection.
- E. Provide piping system exhibiting pulsation, vibration, swaying, or impact with suitable constraints to correct the condition. Movements from trap discharge, water hammer, and similar internal forces are included in this requirement. No system will be accepted until the adequacy and safety of the system is assured under all anticipated conditions of operation.
- F. Weld supports in accordance with the requirements of AWS Code D1.1 Structural Welding.
- G. Locate piping and pipe supports to not interfere with open accesses, walkways, platforms, and with maintenance or disassembly of equipment.
- H. After erection of piping systems, and prior to pipe testing and flushing, inspect for adequacy of clearance for piping and supports.
- I. Support pipes for lateral movement with clamps or brackets.

- J. Provide 20-gauge ASTM-A-276 Type 316 stainless steel pipe saddle for fiberglass and plastic support points to insure minimum contact width of 4 inches.

3.02 SUPPORT SPACING

- A. General: Locate pipe supports at maximum spacing scheduled unless indicated otherwise on the drawings. Provide at least one support for each length of pipe, at each change of direction and at each valve.

- B. Ductile iron support schedule:

<u>Pipe Size - Inches</u>	<u>Maximum Span - Feet</u>
1-1/2 and less	5.0
2 thru 4	10.0
5 thru 8	15.0
10 and greater	20.0

- C. Schedule 40 PVC Pipe, Temperature 100° or Less:

<u>Pipe Size - Inches</u>	<u>Maximum Span - Feet</u>
1	5.0
1.5	5.5
2	6.0
3	7.0
4	7.5
6	9.0
8	9.5
10	10.0
12	10.5
14	11.0

- D. Schedule 80 CPVC Pipe, Temperature 140° or Less:

<u>Pipe Size - Inches</u>	<u>Maximum Span - Feet</u>
1	5.0
1.5	5.5
2	6.0
3	7.0
4	7.5
6	8.0
8	9.0
10	9.5
12	10.5

3.03 WELDING

- A. Identify welding rods clearly identified meeting the requirements of ASTM and American Welding Society Standards.
- B. Integral attachments include welded-on ears, shoes, plates, and angle clips. Ensure material for integral attachments is of good weldable quality. Have preheating, welding, and post heat treating in accordance with Chapter V of ANSI B31.3.

3.04 PAINTING

- A. All Stainless Steel items shall not be painted. Painting for all other materials shall comply with Section 09905 – Painting and Protective Coatings.

END OF SECTION

SECTION 16050

ELECTRICAL - GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required for a complete electrical system for the Peace River Interconnect and Potable Water Transmission Main for Sarasota County, Florida, hereinafter specified and shown on the Drawings.
- B. The work, apparatus and materials which shall be furnished under these Specifications and accompanying Drawings shall include all items listed hereinafter and/or shown on the Drawings. 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, lighting, communication systems, instrumentation, wiring and control systems as indicated on the Drawings and/or as specified herein.
- C. The CONTRACTOR shall furnish and install the necessary cables, transformers, switchboards, protective devices, conductors, exterior electrical system, etc., to serve motor loads, lighting loads and miscellaneous electrical loads as indicated on the Drawings and/or as specified hereinafter.
- D. The work shall include complete testing of all equipment and wiring at the completion of the work and making any minor connection changes or adjustments necessary for the proper functioning of the system and equipment. All workmanship shall be of the highest quality; sub-standard work will be rejected.
- E. Make all field connections to process instrument panels and other control panels furnished under other Divisions of these Specifications.
- F. For process instrumentation furnish and install all conduit, wire and interconnections between primary elements, transmitters, local indicators and receivers.
- G. Each bidder or his authorized representatives shall, before preparing his proposal, visit all areas in which work under this division is to be performed and inspect carefully the present installation. The submission of the proposal by this bidder shall be considered evidence that he or his representative has visited the site and noted the locations and conditions under which the work will be performed and that he takes full responsibility for a complete knowledge of all factors governing his work.
- H. All power interruptions to existing equipment shall be at the Owner's convenience. Each interruption shall have prior approval.
- I. It is the intent of these Specifications that the electrical system shall be suitable in every way for the service required. 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.

1.02 SERVICE AND METERING

- A. Permanent electrical power is existing.

1.03 CODES, INSPECTION AND FEES

- A. All material and installation shall be in accordance with the latest edition of the National Electrical Code and all applicable national, local and state codes.
- B. Pay all fees required for permits and inspections including any charges associated with the service modifications.

1.04 TESTS

- A. Test all systems and repair or replace all defective work. Make all necessary adjustments to the systems and instruct the Owner's personnel in the proper operation of the systems.

1.05 CUTTING AND PATCHING

- A. All cutting and patching shall be done in a thoroughly workmanlike manner.

1.06 INTERPRETATION OF DRAWINGS

- A. The Drawings are not intended to show exact locations of conduit runs.
- B. All three-phase circuits shall be run in separate conduits unless otherwise shown on the Drawings.
- C. Unless otherwise approved by the Engineer conduit shown exposed shall be installed exposed; conduit shown concealed shall be installed concealed.
- D. Where circuits are shown as "home-runs" all necessary fittings and boxes shall be provided for a complete raceway installation.
- E. The CONTRACTOR shall harmonize the work of the different trades so that interferences between conduits, piping, equipment, architectural and structural work will be avoided. All necessary offsets shall be furnished so as to take up a minimum space and all such offsets, fittings, etc., required to accomplish this shall be furnished and installed by the CONTRACTOR without additional expense to the Owner. In case interference develops, the Owner's authorized representative is to decide which equipment, piping, etc., must be relocated, regardless which was installed first.
- F. Verify with the Engineer the exact locations and mounting heights of lighting fixtures, switches and receptacles prior to installation.
- G. The locations of equipment, fixtures, outlets, 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 electrical 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.
- H. Surface mounted panel boxes, junction boxes, conduit, etc., shall be supported by spacers to provide a clearance between wall and equipment.
- I. Circuit layouts shown are not intended to show the number of fittings, or other installation details. Furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting, and other electrical systems shown. Additional circuits shall be installed wherever needed to conform to the specific requirements of the equipment.
- J. The ratings of motors and other electrically operated devices together with the size shown for their branch circuit conductors and conduits are approximate only and are indicative of the probable power requirements insofar as they can be determined in advance of the purchase of equipment.
- K. All connections to equipment shall be made as shown, specified, and directed and in accordance with the Manufacturer's approved shop drawings, regardless of the number of conductors shown on the Electrical Drawings.

1.07 SIZE OF EQUIPMENT

- A. Investigate each space in the building where equipment must pass to reach its final location. If necessary, the Manufacturer shall be required to ship his material in sections, sized to permit passing through such restricted areas in the building.

- B. The equipment shall be kept upright at all times. When equipment has to be tilted for ease of passage through restricted areas during transportation, the Manufacturer shall be required to brace the equipment suitably, to insure that the tilting does not impair the functional integrity of the equipment.

1.08 RECORD DRAWINGS

- A. As the work progresses, legibly record all field changes on a set of project Contract Drawings. When the project is completed, furnish a complete set of reproducible "As-built" drawings and electronic files (Autocad 2019) for the Project Record Documents. These documents shall be 24" x 36" in size.

1.09 COMPONENT INTERCONNECTIONS

- A. Component equipment furnished under this Specification will not be furnished as integrated systems. CONTRACTOR shall field install and wire completely all components.
- B. CONTRACTOR shall analyze all systems components and their shop drawings, identify all terminals and prepare drawings and wiring tables necessary for component interconnection. CONTRACTOR shall provide crimp on wire numbers on both ends of all control wiring installed between all panels furnished under this contract. These numbers shall directly relate to the interconnect wiring drawing furnished by the CONTRACTOR and be reflected in the As-built drawings submitted prior to final acceptance of the project.

1.10 SHOP DRAWINGS

- A. As specified under other sections shop drawings shall be submitted for approval of all materials, equipment, apparatus, and other items as required by the Engineer.
- B. Shop drawings shall be submitted for the following equipment:
 - 1. Conduit
 - 2. Wire and Cable
 - 3. Process Instrumentation Control SYSTEM (PICS) modifications
 - 4. Field Instruments
- C. The Manufacturer name and product designation and catalog data sheet shall be submitted for the following material:
 - 1. Conduit
 - 2. Wire
 - 3. Receptacles
 - 4. Boxes and fittings
- D. Prior to submittal by the CONTRACTOR, all shop drawings shall be checked for accuracy and contract requirements. Shop drawings shall bear the date checked and shall be accompanied by a statement that the shop drawings have been examined for conformity to Specifications and Drawings. This statement shall also list all discrepancies with the Specifications and Drawings. Shop drawings not so checked and noted shall be returned.
- E. The Engineer's check shall be only for conformance with the design concept of the project and compliance with the Specifications and Drawings. The responsibility of, or the necessity of, furnishing materials and workmanship required by the Specifications and Drawings which may not be indicated on the shop drawings is included under the work of this Section.

- F. The responsibility for all dimensions to be confirmed and correlated at the job site and for coordination of this work with the work of all other trades is also included under the work of this Section.
- G. No material shall be ordered or shop work started until the Engineer's approval of shop drawings has been given.

1.11 MANUFACTURER SERVICES

- A. Provide Manufacturer services for testing and start-up of the following equipment:
 - 1. Other items as required by appropriate specification sections.
- B. The Manufacturer of the above listed equipment shall provide experienced Field Service Engineer to accomplish the following tasks:
 - 1. The equipment shall be visually inspected upon completion of installation and prior to energization to assure that wiring is correct, interconnection complete and the installation is in compliance with the manufacturer's criteria. Documentation shall be reviewed to assure that all Drawings, operation and maintenance manuals, parts list and other data required to check out and sustain equipment operation is available on site. Documentation shall be red-lined to reflect any changes or modifications made during the installation so that the "As-built" equipment configuration will be correctly defined. Spare parts shall be inventoried to assure correct type and quantity. The Manufacturer shall provide written approval that equipment supplied is approved for energization.
 - 2. The Field Service Engineers shall provide engineering support during the energization and check out of each major equipment assembly. They shall perform any calibration or adjustment required for the equipment to meet the Manufacturer's performance specifications.
 - 3. Upon satisfactory completion of equipment test, they shall provide engineering support of system tests to be performed in accordance with Manufacturer's test specifications.
 - 4. One (1) 4-hour training sessions on operation, maintenance and trouble-shooting procedures shall be provided for the Owner's maintenance personnel. All training shall be conducted at a facility provided by the Owner. The maintenance and trouble-shooting sessions shall be conducted with record "As-built" electrical drawings sufficient for a class of eight personnel.
 - 5. A final report shall be written and submitted to the CONTRACTOR within fourteen days from completion of final system testing. The report shall document the inspection and test activity, define any open problems and recommend remedial action. The CONTRACTOR shall forward a copy of this report to the ENGINEER for approval.

1.12 DEMOLITION

- A. Remove all electrical work associated with equipment shown to be removed (TBR) except those portions indicated to remain or be reused. Remove all unused exposed conduit and wiring back to point of concealment. Remove unused wiring in concealed conduits back to source (or nearest point of usage). Electrical work to be removed corresponds to the associated mechanical equipment to be removed.
- B. Where electrical systems pass through the demolition areas to serve other portions of the premises, they shall remain or shall be suitably relocated and the system restored to normal operation. Coordinate outages in systems with the Owner. Where duration of proposed outage cannot be allowed by the Owner, provide temporary connections as required to maintain service.

- C. All removals and relocations of existing installations cannot be completely detailed on the Drawings. Survey the existing sites before submitting bid proposal.
- D. Continuous service is required on all circuits and outlets affected by these changes, except where the Owner will permit outage for a specific time. Obtain Owner's written consent before removing any circuit from continuous service.
- E. Where required to disconnect and/or remove any part of an existing circuit, reconnect that circuit to reestablish service in the remaining portion.
- F. Remove exposed conduits, wireways, outlet boxes, pull boxes and hangers made obsolete by the alternations, unless specifically designated to remain. Exposed conduits shall be removed back to point of concealment, where they shall be cut and threaded for a cap. A threaded cap shall then be installed. Conduits may be removed back to first coupling if within 3-inches of point of concealment. Cut back in traffic areas to the floor level and patch.
- G. Repair all walls to "Like new" condition and paint to match existing wall color.

1.13 DISPOSITION OF REMOVED MATERIALS AND EQUIPMENT

- A. In general, it is intended that all materials and equipment indicated to be removed and disposed of by the CONTRACTOR shall, upon removal, become the CONTRACTOR's property and shall be disposed of off the site by the CONTRACTOR, unless otherwise directed by the Owner.
- B. Reuse of wire will not be permitted. An exception is the reuse or relocation when wire is part of an existing lighting branch circuit and reuse or relocation is specifically designated and can be accomplished without removing and re-pulling the wire.
- C. All reusable and salvageable disconnect switches, starters, control devices, control panels and instruments, receptacles, light fixtures, etc. shall be sorted and returned to the Owner.
- D. All electrical equipment to be salvaged shall be removed and shall be moved by the CONTRACTOR to a location on the site for storage as directed by the Owner.

1.14 MATERIALS

- A. The materials used in all systems shall be new, unused and as hereinafter specified. All materials where not specified shall be of the very best of their respective kinds. Samples of materials or Manufacturer's specifications shall be submitted for approval as required by the Engineer.
- B. Materials and equipment used shall be Underwriters Laboratories, Inc. listed.
- C. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored out-of-doors. Electrical equipment shall be stored in dry permanent shelters. If any apparatus has been damaged, such damage shall be repaired by the CONTRACTOR at his own cost and expense. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through such special tests as directed by the Engineer, at the expense of the CONTRACTOR, or shall be replaced by the CONTRACTOR at his own expense.

1.15 OPERATION AND MAINTENANCE DATA

- A. Submit complete operations and maintenance data for all equipment furnished under this Division in accordance with Section 01730. The manuals shall be prepared specifically for this installation and shall include all required cuts, Drawings, equipment lists, descriptions, complete part lists, etc. that are required to instruct operating and maintenance personnel unfamiliar with such equipment.

1.16 WARRANTY

- A. Provide a warranty for all the electrical equipment in accordance with the requirements of other sections, but in no case less than one year from date of owner acceptance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 16110
RACEWAYS AND FITTINGS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install complete raceway systems as shown on the Drawings and as specified herein.

1.02 APPLICATIONS

- A. Except where otherwise shown on the Drawings, or hereinafter specified. The following describes the conduit requirements of the project:
1. All exposed raceways shall be in aluminum conduit.
 2. Underground power conductors shall be installed in schedule 80 PVC conduits.
- B. All conduit of a given type shall be the product of one manufacturer.
- C. Unless otherwise hereinafter specified or shown on the Drawings, all boxes installed shall be NEMA 4X 304 stainless steel. Exposed switch, outlet and control station boxes and fittings shall be cast iron or "Feraloy" by Crouse-Hinds in NEMA 1 areas.
- D. Concealed switch, outlet and control station boxes shall be pressed steel. Terminal boxes, junction boxes, pull boxes, etc., installed outdoors shall be NEMA 4X stainless steel. All boxes installed indoors shall be PVC construction. NEMA rating for the PVC boxes shall be as shown on the drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rigid Metal Conduit
1. Rigid aluminum conduit shall be 6063 alloy and shall be as manufactured by New Jersey Aluminum Corp., AFC Co., VAW of America, Inc., or approved equal.
- B. Rigid Nonmetallic Conduit
1. Rigid nonmetallic conduit shall be for use under the provisions of NEC Article 347.
 2. PVC conduit shall be rigid polyvinyl chloride Schedule 80 as manufactured by Carlon, An Indian Head Co., Kraloy Products Co., Inc., Highland Plastics Inc., or approved equal.
- C. Liquidtight Flexible Metal Conduit, Couplings and Fittings
1. Liquidtight flexible metal conduit shall be for use under the provisions of NEC Article 351A.
 2. Liquidtight flexible metal conduit shall be Sealtite, Type UA, manufactured by the Anaconda Metal Hose Div., Anaconda American Brass Co., American Flexible Conduit Co., Inc., Universal Metal Hose Co., or approved equal.
 3. Fittings used with liquidtight flexible metal conduit shall be of the screw-in type as manufactured by the Thomas and Betts Co., Crouse-Hinds Co., or approved equal.
- D. Flexible Couplings
1. Flexible couplings shall be as manufactured by the Crouse-Hinds Co., Appleton Electric Co., Killark Electric Manufacturing co., or approved equal.

E. Boxes and Fittings:

1. Steel elbows and couplings shall be hot-dipped galvanized. An extra 40 mil PVC protective coating shall be provided when used with PVC coated steel conduit. Joints shall be tapped.
2. Conduit hubs shall be as manufactured by Meyers Electric Products, Inc., Raco Div., Appleton Electric Co., or approved equal. Conduit hubs shall be provided for all outdoor conduit terminations.
3. Conduit wall seals shall be type WSK as manufactured by the O.Z. Electrical Mfg. Co., or approved equal.
4. Conduit wall seals for cored holes shall be type CSML as manufactured by the O.Z./Gedney Co., or approved equal.
5. Conduit wall and floor seals for sleeved openings shall be type CSMI as manufactured by the O.Z./Gedney Co., or approved equal.
6. Conduit sealing bushings shall be O.Z./Gedney Type CSB or approved equal.

F. Conduit Mounting Equipment:

1. In dry indoor areas, hangers, rods, backplates, beam clamps, channel, etc. shall be steel construction.
2. FRP channel, and stainless steel hardware shall be used in areas designated "WET," "CORROSIVE," or NEMA 4 on the Drawings. Fiberglass channel shall be resistant to the chemicals present in the area in which it is used.
3. Channel and mounting hardware installed outdoors shall be 304 stainless steel.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. No conduit smaller than 3/4-inch electrical trade size shall be used, nor shall any have more than four 90 degree bends in any one run. Pull boxes shall be provided as required or directed. Minimum size in floor slabs shall be 3/4-inch.
- B. No wire shall be pulled until the conduit system is complete in all details; in the case of concealed work, until all rough plastering or masonry has been completed; in the case of exposed work, until the conduit system has been completed in every detail.
- C. The ends of all conduits shall be tightly plugged to exclude dust and moisture while the buildings are under construction.
- D. Conduit supports shall be spaced at intervals as required to obtain rigid construction, but in no case more than as required by the NEC.
- E. Single conduits shall be supported by means of one-hole pipe clamps in combination with one-screw back plates, to raise conduits from the surface. Multiple runs of conduits shall be supported on trapeze type hangers with steel horizontal members and threaded hanger rods. The rods shall be not less than 3/8-inch diameter. Material type shall be as specified in Section 2.
- F. Conduit hangers shall be attached to structural steel by means of beam or channel clamps. Where attached to concrete surfaces, concrete inserts of the spot type shall be provided.
- G. All conduits on exposed work shall be run at right angles to and parallel with the surrounding walls and shall conform to the form of the ceiling. No diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduit shall be run perfectly straight and true. Conduits not installed in this fashion shall be replaced.

- H. No unbroken run shall exceed 300 feet in length. This length shall be reduced by 75 feet for each 90 degree elbow.
- I. Conduit terminating in pressed steel boxes shall have double locknuts and insulated bushings.
- J. Conduit terminating in gasketed enclosures shall be terminated with conduit hubs.
- K. Liquidtight flexible PVC conduit shall be used for all motor and transformer terminations and other equipment where vibration is present.
- L. Flexible couplings shall be used in hazardous locations for all motor and transformer terminations and other equipment where vibration is present.
- M. Conduit stub outs for future construction shall be provided with threaded PVC end caps at each end.
- N. All field cut threads on aluminum conduit shall be cleaned and painted with zinc-rich paint before installing.
- O. A 4-inch concrete conduit housekeeping pad shall be required for all exposed conduit stub-ups. This applies to ALL exposed conduits installed indoors or outdoors.

END OF SECTION

SECTION 16120
WIRES AND CABLES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish, install and test all wire, cable, and appurtenances as shown on the Drawings and as hereinafter specified.

1.02 SUBMITTALS

- A. Samples of proposed wire and cable shall be submitted for approval. Each sample shall have the size, type of insulation and voltage stenciled on the jacket.
- B. Approved samples will be sent to the project location for comparison by the Resident Engineer with the wire actually installed.
- C. Installed, unapproved wire shall be removed and replaced at no additional cost to the Owner.

1.03 APPLICATIONS

- A. Wire for all circuits shall be type THWN-2.
- B. Multi-conductor control cable shall be No. 14 AWG, 19 strand.
- C. Wire for process instrumentation or shielded control cable shall be No. 16 AWG, shielded and stranded. All shielded cables shall be installed with a #12 green ground.

1.04 MINIMUM SIZES

- A. Except for control and signal leads, no conductor smaller than No. 12 AWG shall be used.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All wires and cables shall be of annealed, 98 percent conductivity, soft drawn stranded copper conductors.

2.02 600 VOLT WIRE AND CABLE

- A. Type THWN shall be as manufactured by General Cable, Southwire Co., Collyer Insulated Wire Co., Rome Cable or approved equal.

2.03 INSTRUMENTATION AND CONTROL CABLE

- A. Process instrumentation wire shall be twisted pair, 600V, cross-linked polyethylene insulated, aluminum tape shielded, polyvinyl chloride jacketed, type "XLP" as manufactured by General Cable, American Insulated Wire Co., Eaton Corp. "Polyset," or approved equal. Multi-conductor cables shall be supplied with individually shielded twisted pairs.
- B. Multi-conductor control cable shall be stranded, 600V, cross-linked polyethylene insulated with PVC jacket, type "XLP" as manufactured by General Cable, American Insulated Wire Co., Eaton Corp. "Polyset," or approved equal.

2.04 TERMINATIONS AND SPLICES

- A. Power Conductors: Terminations shall be die type or set screw type pressure connectors as specified. Splices (where allowed) shall be die type compression connector and waterproof with heat shrink boot or epoxy filling.
- B. Control Conductors: Termination on saddle-type terminals shall be wired directly with a maximum of two conductors per termination. Termination on screw type terminals shall

be made with a maximum of two spade connectors. Splices (where allowed) shall be made with insulated compression type connectors. Heat shrink boots shall be utilized for all outdoor splices.

- C. Instrumentation Signal Conductors (including graphic panel, alarm, low and high level signals): Terminations permitted shall be typical of control conductors. Splices are allowed at instrumentation terminal boxes only.
- D. Except where otherwise approved by the Engineer no splices will be allowed in manholes, handholes or other below grade located boxes.
- E. Splices shall not be made in push button control stations, control devices (i.e., pressure switches, flow switches, etc.), conduit bodies, etc.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All conductors shall be carefully handled to avoid kinks or damage to insulation.
- B. Lubrications shall be used to facilitate wire pulling. Lubricants shall be U.L. listed for use with the insulation specified.
- C. Shielded instrumentation wire shall be installed from terminal to terminal with no splicing at any intermediate point.
- D. Shielded instrumentation wire shall be installed in rigid steel conduit and pull boxes that contain only shielded instrumentation wire. Instrumentation cables shall be separated from control cables in manholes.
- E. Shielding on instrumentation wire shall be grounded at one end only, as directed by supplier of the instrumentation equipment.
- F. Wire and cable connections to terminals and taps shall be made with compression connectors. Connections of insulated conductors shall be insulated and covered. All connections shall be made using materials and installation methods in accordance with instructions and recommendations of the manufacturer of the particular item of wire and cable. The conductivity of all completed connections shall be not less than that of the uncut conductor. The insulation resistance of all completed connections of insulated conductors shall be not less than that of the uncut conductor.
- G. All wire and cable shall be continuous and without splices between points of connection to equipment terminals, except a splice will be permitted by the Engineer if the length required between the points of connection exceeds the greatest standard shipping length available from the manufacturer specified or approved by the Engineer as the manufacturer of the particular item of wire and cable.
- H. Steel fish tapes and/or steel pulling cables shall not be used in PVC conduit runs.
- I. All control and instrumentation circuits and wiring shall be clearly and permanently numbered and labeled at each end so as to identify the location of the opposite end and the function of the circuit. Individual wires in a multi-wire circuit shall be identified with wire numbers. Labeling shall be in place prior to turnover of any equipment, system or sub-system to Owner.

3.02 TESTS

- A. All 600-volt wire insulation shall be tested with a meg-ohmmeter after installation. Tests shall be made at not less than 1,000 VDC. See 16050 for additional testing requirements.

END OF SECTION

SECTION 16450
GROUNDING SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install a complete grounding system in strict accordance with Article 250 of the National Electrical Code and as hereinafter specified and shown on the Drawings.

1.02 RELATED WORK

- A. Wire shall be as specified under Section 16120.
- B. Conduit shall be as specified under Section 16110.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Ground rods: Ground rods shall be copperclad steel 5/8-inch x 20 foot. Ground rods shall be Copperweld or be an approved equal product. Install ground grid at new electrical building as shown on the plans.

PART 3 - EXECUTION

3.01 GENERAL

- A. Lighting transformer neutrals shall be grounded to a grounding electrode and the service entrance ground.
- B. Grounding electrodes shall be driven as required. Where rock is encountered, grounding plates may be used in lieu of grounding rods.
- C. All equipment enclosures, motor and transformer frames, conduits systems, cable armor, exposed structural steel and similar items shall be grounded.
- D. Exposed connections shall be made by means of approved grounding clamps. Exposed connections between different metals shall be sealed with No-Oxide Paint Grade A or approved equal. All buried connections shall be made by welding process equal to Cadweld.
- E. For reasons of mechanical strength, grounding conductors extending from the plant grounding grid to the ground buses of control centers and unit substations shall be No. 3/0 AWG.
- F. The plant grounding grid conductors shall be embedded in backfill material around the structures.
- G. All underground conductors shall be laid slack and where exposed to mechanical injury shall be protected by pipes or other substantial guards. If guards are iron pipe or other magnetic material, conductors shall be electrically connected to both ends of the guard.
- H. The CONTRACTOR shall exercise care to insure good ground continuity, in particular between the conduit system and equipment frames and enclosures. Where necessary, jumper wires shall be installed.

END OF SECTION

SECTION 10

PERMITS



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
10117 PRINCESS PALM AVENUE, SUITE 120
TAMPA, FLORIDA 33610

March 04, 2019

Regulatory Division
West Branch
Tampa Section
SAJ-2012-01553(NW-PTR)

Ms. Lori Ann Carroll
Sarasota County Utilities
1001 Sarasota Center Boulevard
Sarasota, Florida 34240
Via Email: lcarroll@scgov.net

Dear Ms. Carroll:

The U.S. Army Corps of Engineers (Corps) assigned your application for a Department of the Army permit, which the Corps received on December 31, 2018, the file number SAJ-2018-01553. A review of the information and drawings provided indicates that the proposed work would include installation of a 30-inch water main from the terminus point of the Peace River Manasota Regional Water Supply Authority Phase 3B pipeline extending from Clark Road just east of Cow Pen Slough to Sarasota County's Pump Station 5 on Proctor Road. The activities subject to this permit are authorized pursuant to authorities under Section 404 of the Clean Water Act (33 U.S.C. § 1344). The project is located at Proctor Road, Hawkins Road, & Clark Road, Sarasota, Sarasota County, Florida.

Your project, as depicted on the approved drawings (Attachment A), is authorized by Nationwide Permit (NWP) Number 12. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017, specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is as follows:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on "Source Book"; and, then click on

“Nationwide Permits.” These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 12. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required\

The following special conditions are included with this verification:

1. Reporting Address: The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to the following address:

a. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Special Projects and Enforcement Branch, 10117 Princess Palm Avenue, Suite 120, Tampa, FL 33610-8302.

b. For electronic mail SAJ-RD-Enforcement@usace.army.mil (not to exceed 10 MB). The Permittee shall reference this permit number, SAJ-2012- 02106 (NWP- PTR), on all submittals.

2. Commencement Notification: Within 10 days from the date of initiating the work authorized by this permit/Within 10 days from the date of initiating the work authorized by this permit for each phase of the authorized project, the Permittee shall provide a written notification of the date of commencement of authorized work to the Corps.

3. Self-Certification: Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the “Self-Certification Statement of Compliance” form (Attachment B) and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the “Self-Certification Statement of Compliance” form. The description of any deviations on the “Self-Certification Statement of Compliance” form does not constitute approval of any deviations by the Corps.

4. Agency Changes/Approvals: Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a modification to this permit instrument is required prior to

initiation of those changes. It is the Permittee's responsibility to request a modification of this permit from the Tampa Permits Section. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

5. Assurance of Navigation and Maintenance: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

6. Posting of Permit: The Permittee shall have available and maintain for review a copy of this permit and approved plans at the construction site.

7. Cultural Resources/Historic Properties:

a. No structure or work shall adversely affect impact or disturb properties listed in the *National Register of Historic Places* (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

8. Erosion Control: Prior to the initiation of any work authorized by this permit, the Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the work area into waters of the United States. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized.

9. Eastern Indigo Snake Protection Measures and Inspection: Permittee shall comply with U.S. Fish and Wildlife Service's "Standard Protection Measures for the Eastern Indigo Snake" dated August 12, 2013, as provided (Attachment C) of this permit. All gopher tortoise burrows, active or inactive, shall be evacuated prior to site manipulation in the vicinity of the burrow. If excavating potentially occupied burrows, active or inactive, individuals must first obtain state

authorization via a Florida Fish and Wildlife Conservation Commission (FWC) Authorized Gopher Tortoise Agent permit. The excavation method selected shall minimize the potential for injury of an indigo snake. The Permittee shall follow the excavation guidance provided in the most current FWC Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Holes, cavities, and snake refugia other than gopher tortoise burrows shall be inspected each morning before planned site manipulation of a particular area, and if occupied by an indigo snake, no work shall commence until the snake has vacated the vicinity of the proposed work.

10. Frac-Out Contingency Plan: The Permittee shall comply with the frac-out contingency plan – “SECTION 02300 HORIZONTAL DIRECTIONAL DRILLING” (Attachment D).

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

Please be advised a Department of the Army permit will be required for regulated work in all areas which may be waters of the United States, as indicated in the Preliminary Jurisdictional Determination (PJD) (Attachment E). For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands, which would be affected in any way by the permitted activity on the site, as if they are jurisdictional waters of the United States.

Should you desire an official Corps determination that jurisdictional “waters of the United States,” or “navigable waters of the United States,” or both, are either present or absent on a particular site, the Corps will issue an approved JD when requested.

You are cautioned that work performed in areas which may be waters of the United States, as indicated in the preliminary JD, without a Department of the Army permit could subject you to enforcement action. Receipt of a permit from the Florida Department of Environmental Protection or the Water Management District does not obviate the requirement for obtaining a Department of the Army permit for such work prior to commencing work.

This preliminary JD has been conducted to identify the potential for Clean Water Act and/or Rivers and Harbors Act jurisdiction for the particular site identified in this request. This preliminary JD may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact me by telephone at 813-769-7072 or peter.t.romano@usace.army.mil.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to complete our automated Customer Service Survey at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Your input is appreciated – favorable or otherwise.

Sincerely,

ROMANO.PE
TER.THOMAS
.1387752583

Digitally signed by
ROMANO.PETER.THOMAS.13877
52583
DN: c=US, o=U.S. Government,
ou=DoD, ou=PKI, ou=USA,
cn=ROMANO.PETER.THOMAS.13
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Date: 2019.03.04 09:58:19 -05'00'

Peter Romano
Project Manager

Attachments:

A. Plans: "Peace River Interconnect and Potable Water Transmission Line, Sarasota County, Florida – 37 pages

B. Self Certification: 1 page

C. Eastern Indigo Snake – 3 pages

D. Frac Out Contingency Plan: 19 pages

E. Preliminary Jurisdictional Determination and Notification of Administrative Appeal Options and Process and Request for Appeal: 5 pages

Cc:

Ms. Dianne Rosensweig, M.P.H. - DRosensweig@esassoc.com

GENERAL CONDITIONS
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **March 18, 2022**.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-2018-01553(NW-PTR)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019 or electronic mail at saj-rd-enforcement@usace.army.mil.

(TRANSFEREE-SIGNATURE)

(SUBDIVISION)

(DATE)

(LOT)

(BLOCK)

(NAME-PRINTED)

(STREET ADDRESS)

(MAILING ADDRESS)

(CITY, STATE, ZIP CODE)

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: NWP-12
Application Number: SAJ-2018-01553

Permittee's Name & Address (please print or type): _____

Telephone Number: _____

Location of the Work: _____

Date Work Started: _____ Date Work Completed: _____

PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES _____ NO _____

TO SCHEDULE AN INSPECTION PLEASE CONTACT _____
AT _____

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks, dredging, etc.): _____

Acreage or Square Feet of Impacts to Waters of the United States: _____

Describe Mitigation completed (if applicable): _____

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

Signature of Permittee

Date

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or “approval” from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or “approval” from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11” x 17” or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. “Taking” of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. “Take” is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.
2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.
3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).
2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.
3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

**PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM
(RGL 16-01 Appendix 2)**

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: March 04, 2019

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Environmental Science Associates
6151 Lake Osprey Drive, Suite
347 Sarasota, FL 34240

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

CESAJ-RD-WT 2018-01553 - Sarasota County Peace River Interconnect
SAJ-2018-01553(CMW)

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The project is for the installation of a 30-inch water main from the terminus point of the Peace River Manasota Regional Water Supply Authority Phase 3B pipeline extending from Clark Road just east of Cow Pen Slough to Sarasota County's Pump Station 5 on Proctor Road located in Sarasota County, Florida. The project is located at Lat 27° 15' 37.72"/Long -82° 24' 19.41" in Sections 7, 8, 15, 16, 17 and 22/Township 37S/Range 19E.

In total, the project will have unavoidable, temporary impacts to 0.30 acres of USACE jurisdictional wetlands, and 0.07 acres of OWUS. Impacts to USACE jurisdictional wetlands will occur as the result of open trenching a linear line to install a regionally important water line, and then almost immediately backfilling the trench to existing wetland grade. Several of the wetlands within the project limits, particularly Cow Pen Slough at the eastern limits of the project, will be completely avoided through a jack-and-bore process under wetlands. Wetland soils that are trenched will be stockpiled outside of the unimpacted portions of the onsite wetlands, and then placed at the surface (and deeper depending on soil subsidence) to maintain the wetland soil chemistry within the temporary wetland impact limits.

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Florida County/parish/borough: Sarasota City: N/A
 Unincorporated Sarasota County
 Center coordinates of site (lat/long in degree decimal format):
 Lat. 27°15'46.37" N,
 Long. -82°24'33.98" W.
 Universal Transverse Mercator: Zone 17
 Name of nearest waterbody: Myakka River West Branch/Cow Pen Slough

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date: February 14, 2019
 Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e. wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e. Section 404 or Section 10/404)
See Attached			0.30 acres of Wetlands, and 0.07 acres of Non-Wetland Waters (See Table Attached)	Wetlands and Non-wetland Waters	404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification

requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) that the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as is practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: "CONSTRUCTION PLANS FOR PEACE RIVER INTERCONNECT AND POTABLE WATER TRANSMISSION MAIN," Sarasota County, Fl.

¹ Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

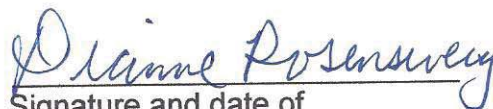
Dated 12/21/2018, no revisions, scale as noted, by Kimley Horn and Associates, Tampa, Fl.

- Data sheets prepared/submitted by or on behalf of the PJD requestor.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- Natural Resources Conservation Service Soil Survey. Citation: NRCS/SCS Sarasota County, 1987.
- National wetlands inventory map(s). Cite name: NWI online database.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): ESRI Aerial Imagery 2016.
or Other (Name & Date): Google Earth - March, 2018.
- Previous determination(s). File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

 03/04/2019

Signature and date of
Regulatory staff member
completing PJD

 3/4/19

Signature and date of
person requesting preliminary JD

Table 1. USACE Wetland and Other Waters of the U.S. Temporary Impact Summary.

Wetland/SW ID	Temporary Wetland/SW Impacts (sqft)	Temporary Wetland/SW Impacts (acre)	Impacted (Y/N)
OSW 3-LT Ranch	0	0.00	N
SW 1	0	0.00	N
SW 100	0	0.00	N
SW 101	0	0.00	N
SW 102	0	0.00	N
SW 103	0	0.00	N
SW 104	0	0.00	N
SW 105	231	0.01	Y
SW 106	0	0.00	N
SW 2	0	0.00	N
SW 500	314	0.00	N
SW 500A	0	0.00	N
SW 500B	0	0.00	N
SW 500C	0	0.00	N
SW 900	0	0.00	N
SW 901	0	0.00	N
SW 902	0	0.00	N
SW 903	0	0.00	N
SW 904	2,459	0.06	Y
Wetland 1	0	0.00	N
Wetland 100	0	0.00	N
Wetland 101	0	0.00	N
Wetland 102	192	0.00	Y
Wetland 103	0	0.00	N
Wetland 104	0	0.00	N
Wetland 39	0	0.00	N
Wetland 40	0	0.00	N
Wetland 46	7,067	0.16	Y
Wetland 47	0	0.00	N
Wetland 47-LT Ranch - USACE Isolated Non-Jurisdictional	0	0.00	N/A
Wetland 48	3,641	0.08	Y
Wetland 49	0	0.00	N
Wetland 50	2,594	0.06	Y
Total	16,497	0.37	

Notes:

All disturbed wetlands to be restored to existing grade.

No stockpile or equipment staging is permitted within a wetland.

All disturbed wetland soils will be stockpiled (not w/in undisturbed portions of onsite wetlands) and reused.

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: Sarasota County Utilities		File Number: SAJ-2018-01553	Date: March 04, 2018
Attached is:		See Section below	
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
	APPROVED JURISDICTIONAL DETERMINATION	D	
x	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** *If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.*
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** *If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.*
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** *You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.*
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Project Manager as noted in letter

If you only have questions regarding the appeal process you may also contact:

**Jason Steele
404-562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis
Governor

Vision: To be the Healthiest State in the Nation

January 25, 2019

ELECTRONIC CORRESPONDENCE

PERMITTEE:
Sarasota County Utilities
Attn: Stoney Pope
1001 Sarasota Center Boulevard
Sarasota, FL 34240

PWS ID NUMBER: 6581591
PERMIT NUMBER: 0124808-1062;
WC:1591-19-002
DATE OF ISSUE: 1/25/2019
EXPIRATION DATE: 1/24/2024
COUNTY: Sarasota
PROJECT: LT Ranch Roadway "A"
Peace River Utilities

Dear Mr. Pope:

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 submitted to Florida Department of Health, Sarasota County on 1/10/2019, on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT: 295-LF of 30-inch DR18 C905 PVC water main and 295-LF of 16-inch DR18 C905 PVC water main as part of LT Ranch Roadway "A" Peace River Utilities Interconnect project in Sarasota County, FL. Installed water mains permitted as "dry lines" for future Peace River interconnect.

IN ADDITION, THE PROPOSED CONSTRUCTION ALSO INCLUDES:

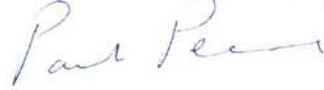
1. Installing 30-inch steel casing and 42-inch steel casing as carrier pipe.
2. Installing appurtenances as shown per permitted plans.

IN ACCORDANCE WITH: Plans prepared and certified by Sean Crowell, P.E., dated December 27, 2018.

LOCATION: Roadway "A" at Clark Road and Bee Ridge Extension.

Issued this 25th day of January, 2019.

STATE OF FLORIDA
DEPARTMENT OF HEALTH in SARASOTA COUNTY

A handwritten signature in blue ink that reads "Paul Penumudi". The signature is written in a cursive style with a large initial "P" and a distinct "Penumudi" following.

Paul B. Penumudi, P.E.

cc: Sean Crowell, P.E., 551 N. Cattleman Road, Suite 100, Sarasota, FL 34232
Michael Mehan, P.E., 1001 Sarasota Center Boulevard, Sarasota, FL 34240

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis
Governor

Scott A. Rivkees, M.D.
State Surgeon General

Vision: To be the **Healthiest State** in the Nation

August 15, 2019

ELECTRONIC CORRESPONDENCE**PERMITTEE:**

Sarasota County Utilities
Attn: Lori Ann Carroll
1001 Sarasota Center Blvd.
Sarasota, FL 34240

PWS ID NUMBER: 6581591
PERMIT NUMBER: 0124808-1087;
SP:1591-91-002
DATE OF ISSUE: 8/15/2019
EXPIRATION DATE: 8/14/2024
COUNTY: Sarasota
PROJECT: Peace River Interconnect and
Potable Water Transmission Main Project

Dear Ms. Carroll:

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 install potable water main shown on the application and certified drawings, plans, and other documents submitted to Florida Department of Health, Sarasota County on August 2, 2019 on file with the Department with intent to install 30-inch potable water main made a part hereof and specifically described as follows:

TO INSTALL: Approximately 28,000-LF of 30-inch water main beginning at the termination of Peace River Manasota Regional Water Supply Authority's (PRMRWSA) Regional Integrated Loop System Phase 3B Interconnect Project (Phase 3B).

IN ADDITION, PERMIT REQUIRES BACTERIOLOGICAL TESTING IN PROPOSED PLANNED PHASES:**Bacteriological Results**

Copies of satisfactory bacteriological analysis (a.k.a. Main Clearance), taken within sixty (60) days of completion of construction, from locations within the distribution system or water main extension to be cleared, in accordance with Rules [62-555.315\(6\)](#), [62-555.340](#), and [62-555.330](#), F.A.C. and American Water Works Association (AWWA) Standard C 651-92, as estimated follows:

For each phase:

- Connection(s) to an existing system – One
- At approximately 2,500- LF apart of proposed main
- Proposed internal phasing lines

Sarasota County Utilities
Attn: Lori Ann Carroll
Sarasota, FL 34290

PERMIT NUMBER: 0124808-1087;
DATE OF ISSUE: 8/15/2019
EXPIRATION DATE: 8/14/2024
PROJECT: Peace River Interconnect and
Potable Water Transmission Main Project

Each location shall be sampled on two consecutive days, with sample points and chlorine residual readings clearly indicated on the report. A sketch or description of all bacteriological sampling locations must also be provided.

IN ACCORDANCE WITH: Prepared and certified by Ashley M. Miele, P.E.; dated April 1, 2019.

LOCATION: The proposed 30-inch water main will continue northwest along Clark Road, west along Hawkins Road, north along Dove Avenue, and northwest along Proctor Road to the County's pump station No. 5. At the County's Pump Station No.5 the 30-inch water main will reduce to a 24-inch and discharge to the existing above ground storage tank. In addition, the existing 24-inch DIP pump suction line and associated chemical injection points are being replaced in kind for Peace River Interconnect and Potable Water Transmission Main Project in Sarasota County, FL.

Issued this 15th day of August, 2019.

STATE OF FLORIDA
DEPARTMENT OF HEALTH in SARASOTA COUNTY



Paul B. Penumudi, P.E.
Professional Engineer I

C: Kimley-Horn and Associates, Inc. Attn: Ashley M. Miele, P.E., 1777 Main Street, Sarasota, FL 34236
Michael M. Mehan, P.E., Sarasota County Utilities.

General and Specific Conditions for Specific Permit

DEP forms can be found at the Department [website](#)

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A. General Conditions

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. [F.A.C. Rule 62-555.533(1)]

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit 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 this 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, as required by Department rules. This provision includes the operation of backup or 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 (reasonable time may depend on the nature of the

concern being investigated), 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 understands 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 Sections 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 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:
 - i. the date, exact place, and time of sampling or measurements;
 - ii. the person responsible for performing the sampling or measurements;
 - iii. the dates analyses were performed;
 - iv. the person responsible for performing the analyses;
 - v. the analytical techniques or methods used;
 - vi. 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.

B. Regulatory Section

1. 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. 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. 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. 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 the 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 effect longer than five years. [F.A.C. Rule 62-555.536(4)]. {OPTIONAL}
5. 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. This permit satisfies Drinking Water permitting requirements only and does not authorize construction or operation of this facility 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. N/A
8. 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 gaskets materials shall be used in the contaminated area. The ductile pipe 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. 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 ERP Section, as applicable, Permittee shall provide a copy of the permit approval to the Department if water main installation involves activities on wetlands.
10. Suppliers of water shall notify the appropriate DEP District Office or ACHD and affected water customers by no later than the previous business day before initiating any planned permanent or temporary conversion from free chlorine to chloramines or vice versa for disinfection. [F.A.C. Rule 62-555.350(10)(c)]
11. 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. All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform with 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. 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 C651-653, as well as in accordance with Rule 62-555.340, F.A.C.
3. 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. When 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 Air and Waste Management Section managers prior to commencing any such activities at (239-344-5600). Please be aware that a notification is required to be submitted to the Department for a regulated project.
5. 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. 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. The new or altered above
8. 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.
9. N/A

D. Operational Requirements

- 1.. 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
2. 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 procedure, 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.
3. The permittee shall continue to submit a monthly operations report (MOR) dep Form 62-555.900 (3), to the Department no later than the tenth of each succeeding month.
4. The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.
5. The permittee or suppliers of water shall telephone the State Warning Point (SWP), 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. 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.
2. The water treatment plant shall maintain throughout the distribution system a minimum continuous and effective free chlorine residual of 0.2mg/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.

F. Clearance Requirements

1. The permittee must instruct the engineer of record to request system clearance from the Department within sixty (60) days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the test were completed more than 60 days before the Department received the results. [F.A.C. Rule 62-555.340(2)(c)]

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]

2. Prior to placing this project into service, Permittee shall submit, at a minimum, all of the following to the Department for evaluation and approval for operation, as provided in Rules 62-555.340 and 62-555.345, F.A.C.:
 - 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. two consecutive days of satisfactory bacteriological analytical results (see paragraph 3 below).
 - d. 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)]

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.

3. The 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 (in accordance with the instructions for Bacteriological Sampling locations shown below) and the untreated well water (two samples per day for 5 consecutive days collected at least six hours apart for each of the two wells) shall be submitted to the Department with the engineer's certification of construction completion. [Section 62-555.340 and 62-555.315 (6)(b), F.A.C.]
4. The permittee shall conduct initial monitoring in accordance with Rule 62-550.519(1)(b), F.A.C. Each quarterly sample shall be taken from the entry point to distribution system.



FLORIDA DEPARTMENT OF Environmental Protection

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Governor

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Lt. Governor

Noah Valenstein
Secretary

South District
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Permittee/Authorized Entity:

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Sarasota County Utilities Department
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001 - Peace River Interconnect and Potable Water Transmission Main

Environmental Resource Permit
State-owned Submerged Lands Authorization – Not Applicable

**U.S. Army Corps of Engineers Authorization – Separate Corps Authorization
Required**

Permit No.: 0372576-001-EI

Permit Issuance Date: May 20, 2019
Permit Construction Phase Expiration Date: May 20, 2024

Environmental Resource Permit

Permittee: Peace River Interconnect

Permit No: 0372576-001-EI

PROJECT LOCATION

The activities authorized by this permit are located within the right of way of Proctor, Dove and Hawkins Road and within utility easements along Clark Road, Sarasota, Florida 34241, in Sections 7,8,15,16,17 & 22, Township 37 South, Range 19 East, in Sarasota County.

PROJECT DESCRIPTION

The permittee is authorized to install a 30-inch water transmission main to connect the terminus point of the Peace River Manasota Regional Water Supply Authority (PRMRWSA) Phase 3B pipeline to Sarasota County Pump Station No. 5., which includes 3 subaqueous crossings and a total of 0.37 acres of temporary impacts to wetlands and other surface waters, Class III Waters. Authorized activities are depicted on the attached exhibits. No mitigation is required.

AUTHORIZATIONS

001 - Peace River Interconnect and Potable Water Transmission Main

Environmental Resource Permit

The Department has determined that the activity qualifies for an Environmental Resource Permit. Therefore, the Environmental Resource Permit is hereby granted, pursuant to Part IV of Chapter 373, Florida Statutes (F.S.), and Chapter 62-330, Florida Administrative Code (F.A.C.).

Sovereignty Submerged Lands Authorization

As staff to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the Department has determined the activity is not on submerged lands owned by the State of Florida. Therefore, your project is not subject to the requirements of Chapter 253, F.S. or Rule 18-21, F.A.C.

Federal Authorization

Your proposed activity as outlined on your application and attached drawings does not qualify for Federal authorization pursuant to the State Programmatic General Permit and a SEPARATE permit or authorization shall be required from the Corps. You must apply separately to the Corps using their *APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT*, ENG FORM 4345, or alternative as allowed by their regulations. More information on Corps permitting may be found online in the Jacksonville District Regulatory Division Source Book at:

<https://www.saj.usace.army.mil/Missions/Regulatory/Source-Book/>.

Authority for review - an agreement with the USACOE entitled "Coordination Agreement Between the U. S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection, or Duly Authorized Designee, State Programmatic General Permit", Section 10 of the Rivers and Harbor Act of 1899, and Section 404 of the Clean Water Act.

Coastal Zone Management

Issuance of this authorization also constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Zone Management Act.

Water Quality Certification

This permit also constitutes a water quality certification under Section 401 of the Clean Water Act, 33 U.S.C. 1341.

Other Authorizations

You are advised that authorizations or permits for this activity may be required by other federal, state, regional, or local entities including but not limited to local governments or municipalities. This permit does not relieve you from the requirements to obtain all other required permits or authorizations.

The activity described may be conducted only in accordance with the terms, conditions and attachments contained in this document. Issuance and granting of the permit and authorizations herein do not infer, nor guarantee, nor imply that future permits, authorizations, or modifications will be granted by the Department.

PERMIT CONDITIONS

The activities described must be conducted in accordance with:

- **The Specific Conditions**
- **The General Conditions**
- **The limits, conditions and locations of work shown in the attached drawings**
- **The term limits of this authorization**

You are advised to read and understand these conditions and drawings prior to beginning the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings herein. If you are using a contractor, the contractor also should read and understand these conditions and drawings prior to beginning any activity. Failure to comply with these conditions, including any mitigation requirements, shall be grounds for the Department to revoke the permit and authorization and to take appropriate enforcement action.

Operation of the facility is not authorized except when determined to be in conformance with all applicable rules and this permit, as described.

SPECIFIC CONDITIONS – ADMINISTRATIVE

1. All required submittals, such as certifications, monitoring reports, notifications, etc., shall be submitted to the Florida Department of Environmental Protection, South District Office, Submerged Lands and Environmental Resource Permitting, P.O. Box 2549, Fort Myers, FL 33902-2549 or via e-mail to FTMERP_Compliance@dep.state.fl.us . All submittals shall include the project name and indicated permit number when referring to this project.

Note: In the event of an emergency, the Permittee should contact the Department by calling (800)320-0519. During normal business hours, the permittee should call (239)344-5600.

SPECIFIC CONDITIONS - PRIOR TO ANY CONSTRUCTION

2. Wetland areas or water bodies, which are outside the specific limits of construction authorized by this permit, must be protected from erosion, siltation, scouring and dewatering. There shall be no discharge in violation of the water quality standards in Chapter 62-302, Florida Administrative Code. Turbidity/erosion controls shall be installed prior to clearing, excavation or placement of fill material, shall be maintained until construction is completed, disturbed areas are stabilized. [*Vol I, Section 11.1*]
3. The permittee shall, at least 48 hours prior to commencement of any directional drilling or jack-and-bore activities, submit to the agency the name, as registered with the Florida Department of State, and all-hours telephone contact information of all contractors responsible for drilling and for containment and cleanup in the event of a drilling fluid frac-out or spill.

SPECIFIC CONDITIONS – CONSTRUCTION ACTIVITIES

4. The permittee shall be responsible for ensuring erosion control devices/procedures are inspected and maintained daily during all phases of construction authorized by this permit until areas disturbed during construction are sufficiently stabilized to prevent erosion, siltation, and turbid discharges.
5. All areas disturbed by the construction activities shall be stabilized to control erosion and shall be completed no later than 72 hours of attaining final grade. Stabilization shall be accomplished by sod, seed or affirmative plantings to prevent erosion, siltation, and turbid run-off.
6. All work areas associated with directional drilling or jack-and-bore activities, including entrance and exit pits, drill rigs, tanks, pumps, drilling fluid mixing and settling pits, dewatering systems and staging areas for pipe, cables, and drill string, shall be located within uplands.
7. The use of drilling fluids shall not cause or contribute to a violation of state ground water quality criteria or standards, as defined in Chapter 62-520, F.A.C.
8. Contractor shall, at all times during directional drilling activities, maintain appropriate equipment and materials in a readily-accessible location and condition, to effectively contain and clean up a drilling fluid frac-out or spill.
9. The permittee or the permittee's contractor shall, at all times during directional drilling activities, ensure that appropriately-trained personnel monitor downhole equipment position, drilling fluid circulation and pressures, and actively monitor the entire utility line route for surface frac-out of drilling fluids.

10. Drilling activities shall be discontinued, and the drilling fluid or slurry shall be contained using appropriate methods as soon as possible, in the event of a drilling fluid frac-out or spill. Removal of drilling fluid or slurry from wetlands and other surface waters shall be initiated and completed in the most expeditious manner practicable. Removed drilling fluid shall be contained or disposed of in an appropriate upland location. Any frac-out or spill of drilling fluid into wetlands or other surface waters shall be reported to Agency staff within 24 hours following detection of the spill or frac-out.
11. For a trench with a top width greater than three feet in herbaceous wetlands, the upper layer of the soil horizon shall initially be scraped and segregated into a spoil bank that is separated from the spoil bank resulting from the excavation of the trench for the utility line. The upper layer of the soil horizon shall be replaced as the last step of restored grades to facilitate natural revegetation;

GENERAL CONDITIONS FOR INDIVIDUAL PERMITS

The following general conditions are binding on all individual permits issued under chapter 62-330, F.A.C., except where the conditions are not applicable to the authorized activity, or where the conditions must be modified to accommodate project-specific conditions.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," [October 1, 2013], which is incorporated by reference in paragraph 62-330.350(1)(d), F.A.C., indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
 - a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
 - b. For all other activities "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
 - c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.
7. If the final operation and maintenance entity is a third party:
 - a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
 - b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.
8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.
9. This permit does not:
 - a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
 - b. Convey to the permittee or create in the permittee any interest in real property;
 - c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

- d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:

- a. Immediately if any previously submitted information is discovered to be inaccurate; and
- b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, 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, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall 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. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

NOTICE OF RIGHTS

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 further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the application.

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 Rule 28-106.201, 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 email address, any facsimile number, and telephone number of the petitioner; 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 are or 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. 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 must be filed within 21 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 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication. 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.

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, before the applicable 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.

FLAWAC Review

The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when this order is filed with the Clerk of the Department.

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 Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, 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 of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Executed in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Jon M. Iglehart
District Director
South District Office

Attachments:

63 project drawings

'Post Issuance' forms: <https://floridadep.gov/water/submerged-lands-environmental-resources-coordination/content/forms-environmental-resource>

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document and all attachments, including all copies, were sent to the addressee and to the following listed persons:

U.S. Army Corps of Engineers, Tampa Office, tampareg@usace.army.mil
Sarasota County Property Appraiser, pa@sc-pa.com
Deirdre Lynch, Kimley-Horn Deirdre.lymch@kimley-horn.com

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated Department clerk, receipt of which is hereby acknowledged.



Clerk

May 20, 2019

Date

**PEACE RIVER WATER MAIN INTERCONNECT
BID # 202050MN
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