CONTRACT DOCUMENTS

TECHNICAL SPECIFICATIONS

FOR

Utilities, Inc. of Florida – Sandalhaven
Sandalhaven Force Main Relocations

PROJECT # 140056003

May 2016

PROJECT OWNER:

Utilities, Inc. of Florida – Sandalhaven
Contact: Michael Wilson
200 Weathersfield Avenue
Altamonte Springs, FL 32714
(321) 972-0374

PREPARED BY:

Kimley-Horn and Associates
655 North Franklin Street, Suite 150
Tampa, Florida 33602
(813) 620-1460
CA# 00000696

_____
Wade W. Wood, P.E.
License No. 69051

Wade.Wood@Kimley-Horn.com
655 North Franklin Street, Suite 150
Tampa, Florida 33602
(813) 635-5545

BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

INFRASTRUCTURE ENGINEERING STANDARD SPECIFICATIONS

SECTION 00015

LIST OF DRAWINGS

SHEET NO.	LATEST DATE	DESCRIPTION
C-01	May 2016	COVER
C-02	May 2016	GENERAL NOTES
C-03 – C-09	May 2016	PLAN & PROFILE
C-10	May 2016	DETAILS

END OF SECTION

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SECTION 00100

INVITATION FOR BIDS

Utilities, Inc. of Florida – Sandalhaven (Utilities, Inc.) hereby requests **Sealed Bids** up to **2:00 PM** on June 30, 2016 for:

Sandalhaven Force Main Relocations

This project consists of: Force main relocations along Placida Road, all connections, adjustments, & testing.

Bids shall be delivered to Kimley-Horn and Associates, Inc. (Kimley-Horn): 655 North Franklin Street, Suite 150, Tampa, FL 33602 by the Bid date and time indicated above, titles "Sandalhaven Force Main Relocations".

Bids delivered after the date and time indicated above will not be opened or otherwise considered. Please note that facsimile, telegraph, email or bids not enclosed in a sealed envelope will not be opened or considered. Any uncertainty regarding the time a Bid is received will be resolved against the Bidder.

Each Bid shall be accompanied by a Bid Bond for 5% of the maximum Bid amount. Each BID shall be submitted in duplicate originals in one sealed envelope with the name and address of the Bidder and the bid date and time on the outside along with the following information: "BID FOR US-19 UTILITY RELOCATIONS"

All questions regarding the project should be directed in writing Kimley-Horn, Attention: (US-19 Utility Relocations), wade.wood@kimley-horn.com and Shelby.hughes@kimley-horn.com. Questions received less than seven (7) calendar days prior to bid opening will not be answered.

The owner reserves the right to accept or reject any or all bids in whole or in part with or without cause, to waive technicalities, or to accept the bid(s) which, in its judgment, best serves the interest of the Owner.

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SECTION 00200

INSTRUCTIONS TO BIDDER

PART 1 GENERAL

1.01 Bidding Documents

A. Bidding Documents include the Invitation for Bids, Instructions to Bidders, Bid Form, other sample bidding and contract forms, and the proposed Contract Documents, including any Addenda issued prior to receipt of bids.

B. Bidding Documents may be obtained in compliance with the Invitation for Bids. No partial sets of the Bidding Documents will be issued. Complete sets of Bidding Documents shall be used in preparing bids. Neither the Owner nor the Engineer will assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

1.02 Bidder Questions

Any Bidder who is in doubt as to the true meaning of any part of the Bidding Documents, or finds a discrepancy or omission therein, may submit to the Engineer a written request for an interpretation or correction. The person submitting the request shall be responsible for its delivery to the Engineer at least seven (7) days prior to the bid opening date. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections and changes.

1.03 Addenda

Addenda will be mailed or otherwise delivered to all plan holders who received a complete set of Bidding Documents from the Engineer. All Addenda issued during the time of bidding shall form a part of the Contract Documents, shall be covered in the Bid, and shall become a part of the Contract. Receipt of each Addendum shall be acknowledged in the Bid Form; failure to do so may subject the Bidder to disqualification. It shall be the Bidder's responsibility to ensure that they have received all Addenda prior to bid. The Owner or Engineer shall not be responsible for non-receipt or untimely receipt of Addenda due to acts of the delivering agency or any other source.

1.04 Examination of Documents and Inspection of Site

Before submitting a Bid, Bidders shall carefully examine the Bidding Documents and inspect the project site to fully inform themselves of all existing conditions and limitations. Each Bidder, by submitting his Bid, represents that he has so examined the Bidding Documents and inspected the site, that he understands the provisions of the Bidding Documents and that he has

familiarized himself with the local conditions under which the work is to be performed. Bidders will not be given extra payment or contract time for conditions, which could have been determined by such examinations.

1.05 Bidder's Interest in More Than One Bid

No person, firm, or corporation shall be allowed to make, file, or have an interest in more than one Bid for the same work, unless Alternates are called for. A person, firm, or corporation who has submitted a sub-bid to a Bidder or who has quoted prices on materials to a Bidder is not hereby disqualified from submitting a sub-bid or quoting prices to other Bidders, or from bidding as a prime contractor.

1.06 Certificates and Licenses

Bidders must be properly licensed to perform the Contract Work. Proper licensing shall be as defined by Florida Statutes.

1.07 Public Entity Crimes - Denial or Revocation of Right to Transact Business With a Public Entity

Per Florida Statutes (FS) 287.133(2)(a), a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in FS 287.017 for CATEGORY TWO ($25,000) for a period of 36 months from the date of being placed on the convicted vendor list.

1.08 Florida Trench Safety Act

Bidders must comply with the Florida Trench Safety Act (FS 553.60-553.64), by completing and submitting with the sealed bid the Trench Safety Statement Form, a copy of which is included as part of these Contract Documents.

1.09 Rejection of Bidders Under Litigation

The Owner reserves the right to reject the Bid of any Bidder who is behind, as determined by the Owner or Engineer, on the completion schedule for any existing contracts; who has failed to properly progress work on any construction contract with any governmental agency within the past five (5) years; who is currently under litigation with the Owner; who is in litigation with any governmental agency within the past five (5) years; who is involved in any dispute resolution procedure with any governmental agency within the past five (5) years; who has previously defaulted on a contract with any governmental agency within the past five (5) years; or who has previously failed to satisfy all requirements related to life safety including, but not limited to, the maintenance of traffic provisions on existing or previous agreements with any governmental agency within the past

five (5) years.

1.10 Form of Bid

A. Each Bid shall be submitted on the Bid Form included as one of the Bidding Documents. The Bidder is not permitted to make changes in the Bid Form provided. The Bidder shall fill in spaces on the Bid Form by typewriter or manually in ink. When a Bidder submits a Bid and fills in information, which is then changed, each change must be initialed by the person signing the Bid.

B. The Bidder must fill in all lump sum prices in the Schedule of Values. Where so indicated by the makeup of the Bid Form, amounts shall be expressed in both words and figures, and in case of discrepancy between the two, the amount in words shall govern.

C. No conditional Bids will be accepted. Alternate Bids will not be considered unless called for. Oral proposals or modifications will not be considered.

D. All submitted bid packages including alternate bid items become the property of the Owner.

1.11 Submission of Bids

A. Submit two duplicate originals of the Bid and all other documents required to be submitted with the Bid. Enclose in a single sealed opaque envelope, addressed to the party receiving the Bids. Label on the outside of the envelope the Project name, project number (if applicable), and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof.

B. Bids shall be delivered to the designated location prior to the time and date for receipt of Bids indicated in the Invitation for Bids or any extension thereof made by Addendum. Bids received after the time and date for receipt of Bids will be returned unopened to the person or firm submitting the Bid.

C. The Bidder shall assume full responsibility for timely delivery of his Bid to the designated location.

1.12 Modification and Withdrawal of Bids

A. Bids may not be modified after submittal; however, they may be withdrawn at any time prior to the Bid Opening time and date.

B. Withdrawal requests shall be made in writing and must be received by the Owner before the time and date stated or as addended for the Bid Opening. Properly withdrawn Bids will be returned unopened to the person or firm submitting the Bid.

C. A Bidder who withdraws his Bid may submit a new Bid in the same manner as specified under "Submission of Bids".

D. If a Contract is not awarded within 90 calendar days after opening of Bids, a Bidder may file a written request with the Owner for the return of his Bid.

1.13 Basis of Award

A. The Owner reserves the right to accept or reject any or all bids in whole or in part with or without cause, to waive technicalities, or to accept the bid(s) which, in its judgment, best serves the interest of the Owner.

B. Except in cases where the Owner exercises the right to reject all Bids, the Contract will be awarded by the Owner, as soon as practicable after Opening of Bids, to the responsive, responsible Bidder who has submitted the lower individual or combination Bid.

C. The lowest Bid will be determined by comparison of the "Lump Sum Price" stipulated on the Bid Form, plus any combination of Additive or Deductive Alternate Bid Items of the Owner's choosing. If the stated "Lump Sum Price" conflicts with the sum of the Total Prices on the Schedule of Values, then the sum of the Total Prices on the Schedule of Values prevails.

1.14 Responsiveness Requirements

A. All Bidders are required to be responsive. Failure to meet any of the responsiveness requirements set forth herein may result in the Bidder being judged non-responsive.

B. To be judged responsive, the Bidder shall submit the following fully executed forms:
   a. Bid Form completely filled out including the Bidder information; acknowledgement of receipt of all Addenda; the Bid Amount including Total Prices for all Items including all alternate items; and the bid properly signed and dated by the person or persons legally authorized to bind the Bidder to a Contract. A Bid by a corporation shall further give the State of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind Bidder. A bid submitted by a partnership shall be signed in the name of the firm by one or more of the partners.
   b. Bid Security complying with the requirements of the Bidding Documents. Include notarized power of attorney, if required.
   c. Trench Safety Statement - Section 00430

C. If the Invitation to Bids requires attendance at a mandatory Pre-Bid meeting, then Bids submitted from Bidders who do not attend the mandatory Pre-Bid meeting will be judged non-responsive; unless providentially hindered as to such required attendance due to provable circumstances beyond the control of the Bidder whereupon mandatory attendance may be waived at the sole discretion of the Owner.

1.15 Responsibility Requirements

A. All Bidders are required to be responsible. Failure to meet any of the responsibility requirements set forth herein may result in the Bidder being judged non-responsible. Bids from non-responsible bidders may be accepted or rejected at the discretion of the Owner.

B. To be judged responsible, the Bidder shall meet the following standards:

1. The Bidder shall be properly licensed and shall have a satisfactory record of integrity, judgment, and performance as a corporation (including its shareholders and officers), partnership, or as a sole proprietorship, including in particular, any prior performance upon contracts from the State and the Owner.
2. The Bidder shall have at least three (3) years of experience as a prime contractor.
3. The Bidder shall have performed as a prime contractor on at least three (3) projects of similar type and size as the proposed contract work.
4. The Bidder shall be able to comply with the required completion schedule for the project.
5. The Bidder shall have adequate financial resources to perform the work, and shall have an adequate financial management system and audit procedure which provides efficient and effective accountability and control of all property, funds, and assets. The Bidder shall be able to demonstrate this in accordance with the requirements of paragraph 1.17. A.3 below.
6. The Bidder shall conform with the civil rights, equal employment opportunity and labor law requirements of the Bid Documents.

1.16 Bidder Evaluation Submittal Requirements

A. Within 7 calendar days after being notified of being the apparent lowest, responsive Bidder, the Bidder shall submit the following information to the Owner or Engineer for evaluation to determine compliance with the responsibility requirements. The following information may also be required to be submitted by the second and third low bidders within 7 calendar days, if notified by the Owner or Engineer.

1. Provide a statement of the Bidder's organization, including resumes of key personnel, especially those personnel proposed for work on this Project.
2. Provide a summary of the Bidder's construction experience as a prime contractor. Provide a list of current and past construction projects of the Bidder, and include the following information:
   a. Name of Project
   b. Name of Owner
   c. Name of Party that executed construction contract with Bidder (if not Owner)
   d. Construction Contract Amount
   e. Date construction started and was completed
   f. Description of construction including major construction items and quantities

g. Name of references relating to the project. Provide contact's name, organization, address, phone no., and e-mail address.

3. Provide financial information in accordance with the following:
   a. For projects where the total base bid is $600,000.00 or less, provide a current Compilation Statement of the Bidder, prepared by a Certified Public Accountant (CPA).
   b. For projects where the total base bid is $600,000.01 up to $10,000,000.00, provide a current Percentage of Completion Review of the Bidder, prepared by a CPA.
   c. For projects where the total base bid is $10,000,000.01 or higher, provide a current audited financial statement of the Bidder, prepared by a CPA, including a certification that the financial status of the company has not materially changed since the audit.
   d. The financial information shall reflect the most current fiscal year, and in no case no more than 16 months old.
4. Provide a list of equipment and quantities currently owned or under lease to the Bidder and available for the work.
5. Provide a list of all sub-contractors to be utilized by the Bidder for the contract work.
6. Submit copies of all construction licenses.
7. As required by the Owner, submit fully executed copies of the following forms:

   a) Certification of Non-Segregated Facilities Form - Section 00450
   b) Disputes Disclosure Form - Section 00452
   c) Drug Free Workplace Form - Section 00454
   d) Unauthorized (Illegal) Alien Workers Affidavit - Section 00456
   e) E-Verify Compliance Form - Section 00458
   f) Americans with Disabilities Act Affidavit - Section 00460
   g) Financial Information Form - Section 00462

B. The Owner reserves the right to waive submittal of any or all of the above informational requirements of the Bidder.

1.17 Award of Contract

If the contract is to be awarded, the Owner or its agent will deliver to the successful low bidder a Notice of Award and Agreement form within ninety (90) days after the day of the bid opening. The successful low bidder shall sign and return the Agreement and required bonds and insurance within fourteen (14) days of receipt of the Notice of Award.

1.18 Bonds and Insurance

A. Upon award of the contract, the Bidder, simultaneously with the execution of the Agreement, shall furnish certificates of insurance, insurance certification, performance bond, and payment bond. The forms of the bonds and insurance certification, including bonding amounts and duration and insurance coverage required are included in the Bidding Documents.

B. The successful Bidder shall, before commencing the work, record said Payment

and Performance Bond in the public records of the County where the improvement is located in accordance with FS 255.05.

1.19 Waiver

Each Bidder agrees to waive any claims it has or may have against the Owner, Engineer, and their respective officers, employees, agents, designees, successors, legal representatives or assigns, arising out of or in connection with the administration, evaluation, recommendation, rejection or award of any bid.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

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SECTION 00410

BID FORM

PART 1 GENERAL

1.1 Description

The following Bid, for the (1) _____, is hereby made to (2) _____, hereafter called the Owner. This Bid is submitted by (3) _____

_____

_____

_____

_____

(1) Name of Project as shown in the Invitation for Bids
(2) Owner
(3) Name, address, and telephone number of Bidder

1.2 The Undersigned:

A. Acknowledges receipt of:

1. Project Manual and Drawings identified within the Project Manual.

2. Addenda: Number _____ Dated _____
   Number _____ Dated _____
   Number _____ Dated _____
   Number _____ Dated _____

B. Has examined the site and all Bidding Documents and understands that in submitting his Bid, he waives all right to plead any misunderstanding regarding the same.

C. Agrees:

1. To hold this Bid open for 90 calendar days after the bid opening date.

2. To accept the provisions of the Instructions to Bidders regarding disposition of Bid Security.

3. To enter into and execute a contract with the Owner, if awarded on the basis of this Bid, and to furnish a Performance Bond and a Labor and Material Payment Bond in accordance with the Instructions to Bidders.

4. To accomplish the work in accordance with the Contract Documents.

5. To begin work not later than 10 days after the issuance of a Notice to Proceed, unless otherwise provided, and substantially complete the work within 120 calendar days of the date of the Notice to Proceed.

6. To accept the provisions of the Agreement as to liquidated damages in the event of failure to complete the work on time.

1.3 Lump Sum Price

The undersigned will construct this project for the Base Bid Lump Sum Price of $_____ _____Dollars ($_____).

1.4 Schedule of Values

The Bidder hereby indicates the following total units and total prices which represent all materials, labor, equipment, transportation, performance of all operations relative to construction of the project, overhead, and costs of all kinds and profit to complete the work items in accordance with the Project Manual, plans, and permits. Work for which there is not a listed item below shall be considered incidental to the Contract and no additional compensation will be allowed.

ITEM	UNIT	QUANTITY	TOTAL PRICE
Mobilization (10%)	LS	1	
Maintenance of Traffic	LS	1	
Erosion and Sediment Control	LS	1	
Miscellaneous Work and Clean Up	LS	1	
6" PVC DR 18 (Direct Bury) Including Excavation, Restraints, Fittings, Dewatering	LF	1880	
4" PVC DR 18 (Direct Bury) Including Excavation, Restraints, Fittings, Dewatering	LF	415	
Furnish & Install 6” Plug Valve	EA	4	
Furnish & Install 4” Plug Valve	EA	1	
Force Main Connections	EA	11	
Valve Adjustments	EA	6	
Restoration	LS	1	
TOTAL LUMP SUM PRICE (BASE BID)			$

1.5 Miscellaneous Requirements and Affirmations

A. Proposals (Bids) must be on the Bid Form.

B. I have attached the following required fully executed forms to this Bid:

1. Bid Security complying with the requirements of the Bidding Documents.
2. Trench Safety Statement - Section 00430

1.6 RESPECTFULLY SUBMITTED, signed and sealed this_____day of _____ _____,_____.

_____
Contractor

_____
By (Signature) Date

_____
Printed Name and Title

_____
Business Address

_____ (CORPORATE SEAL)
City State Zip Code

_____
Telephone No. Facsimile No.

_____
E-Mail Address

ATTEST:

_____
By (Signature) Date

_____
Printed Name and Title

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SECTION 00430

TRENCH SAFETY FORM

Bidder acknowledges that included in the various items of the proposal contained on the Bid Form are costs for complying with the Florida Trench Safety Act (FS 553.60-553.64). The Bidder further identifies the cost of compliance with the applicable trench safety standards for the project as follows (Bidder to attach additional sheets as necessary to identify all costs):

	Trench Safety Measure (Description)	**Units of Measure (LF, SF, SY)**	**Unit Quantity**	**Unit Cost**	**Extended Cost**
A					
B					
C					
D					
E					
F					
TOTAL					$

The total cost shown herein is already included in the various items on the Bid Form and is not additional to the pricing shown on the Bid Form.

Bidder, by signature below, assures that the contractor performing trench excavating will comply with the applicable Trench Safety Standards.

Submitted, signed and sealed this_____day of_____,_____.

_____
Bidder

_____
Signature

_____
Printed Name and Title

ATTEST:

_____
Signature Date (SEAL)

END OF SECTION

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SECTION 00510

NOTICE OF AWARD FORM

To:

Project Name and Bid No.: _____

The OWNER has considered the BID submitted by you, dated_____for the above described WORK in response to the Invitation for Bids and Information for Bidders.

You are hereby notified that your BID has been accepted for BID items in the amount of $_____ _____.

You are required by the Instructions to Bidder to execute the Agreement and furnish the required CONTRACTOR's Performance Bond, Payment Bond, and certificates of insurance within fourteen (14) calendar days from the date of this Notice to you. If you fail to execute said Agreement and to furnish said Bonds and insurance within fourteen (14) calendar days from receipt of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this_____day of_____,_____.

OWNER: _____
(Name of OWNER)

_____
By (Signature)

_____
(Printed Name and Title)

ACCEPTANCE OF NOTICE

Receipt and acceptance of the above NOTICE OF AWARD is hereby acknowledged by _____ _____this_____day of_____,_____.

_____
By

_____
Printed Name and Title

END OF SECTION

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SECTION 00520

AGREEMENT FORM

PART 1 GENERAL

1.01 **THIS AGREEMENT**, made this_____day of_____, ____ _____, by and between_____, hereinafter called the Owner, and_____, whose principal and local address is_____ _____, hereinafter called the Contractor.

1.02 **The Owner and Contractor Agree as follows:**

A. Contract Documents

The Contract Documents include the Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid, Notice to Proceed, the Bonds, the General Conditions, the Supplementary Conditions, the Specifications listed in the Index to the Project Manual, any technical specifications as incorporated by the Project Manual; the Drawings as listed in the Project Manual, all Written Amendments, Change Orders, Work Change Directives, Field Orders, and Engineer's written interpretations and clarifications issued on or after the Effective Date of this Agreement. These form the Contract and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

B. Scope of Work

The Contractor shall perform all work required by the Contract Documents for the construction of the_____.

C. Contract Time

The Contractor shall begin work after the issuance of a written Notice to Proceed from Owner and shall substantially complete the work within the Contract Time identified in Paragraphs 1.02.C.5 of the Bid Form, which is_____calendar days. The work shall be finally complete, ready for Final Payment in accordance with the General Conditions, within 30 calendar days from the actual date of substantial completion.

D. Liquidated Damages

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in Paragraph C above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal

arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof,

OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER $1,000.00 for each calendar day that expires after the time specified in Paragraph C for substantial completion until the work is substantially complete. It is agreed that if this Work is not Finally completed in accordance with the Contract Documents, the CONTRACTOR shall pay the OWNER as liquidated damages for delay, and not as penalty, one-fourth (¼) of the rate set forth above.

E. Contract Price

Lump Sum Contract

The Owner will pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change Order, the Total Contract Price of _____ Dollars ($ _____). Payments will be made to the Contractor based on the Lump Sum Bid amount, the Schedule of Values included as a part of his Bid, which shall be as fully a part of the Contract as if attached or repeated herein, and subject to completion of the work, in accordance with the Contract Documents.

F. Payments

The Owner will make payments as provided in the General Conditions and Supplementary Conditions.

G. Retainage

The value of each application for payment shall be equal to the total value of the Work performed to date, less an amount retained, and less payments previously made and amounts withheld in accordance with the General Conditions and Supplementary Conditions. Retainage for this project is 10%, to be held by Owner as collateral security to ensure completion of Work. The Owner is not obligated to reduce retainage at any time during the Contract, but may choose to do so at its discretion once the Work is at least 75% complete.

H. Engineer

The Project has been designed by Kimley-Horn and Associate, Inc., referred to in the documents as the Engineer, whose authority during the progress of construction is defined in the General Conditions and Supplementary Conditions.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

CONTRACTOR:

_____
Name of Firm

_____
By (Signature) (SEAL)

_____
Printed Name and Title

ATTEST:

_____
By (Signature)

_____
Printed Name and Title

OWNER:

_____
Name of Owner

_____
By (Signature) (SEAL)

_____
Printed Name and Title

ATTEST:

_____
By (Signature)

_____
Printed Name and Title

END OF SECTION

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SECTION 00530

NOTICE TO PROCEED FORM

To:

Notice to Proceed Date: _____

Project Name: _____

Bid No.: _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____ _____. This Notice authorizes the CONTRACTOR to commence construction on the above date and, in accordance with the Agreement, all work shall be substantially complete within _____ calendar days of the date of this Notice to Proceed. Therefore, the date of substantial completion is _____. The date of Final completion is _____.

ISSUED BY: _____
(Name of OWNER)

_____
By (Signature)

_____
(Printed Name and Title)

ACCEPTANCE OF NOTICE

Receipt and acceptance of the above NOTICE TO PROCEED is hereby acknowledged by _____ _____ this _____ day of _____, _____.

_____
By

_____
Printed Name and Title

END OF SECTION

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SECTION 00605

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR) (Phone No. of CONTRACTOR)

a_____, hereinafter called
(Corporation, Partnership or Individual)

CONTRACTOR,

and _____
(Name of SURETY)

_____
(Address of SURETY) (Phone No. of SURETY)

hereinafter called SURETY, are held and firmly bound unto:

_____, the OWNER, whose address is _____
_____. in the full and just Sum of _____ DOLLARS ($) in lawful money of the United States, for the payment of which sum well and truly to be made, we, the CONTRACTOR and SURETY, bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. The sum shall not be less than one hundred percent (100%) of the Contract Price.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR entered into a certain Agreement (including all associated contract documents relating thereto and as the Agreement may be amended from time-to-time) with the OWNER, dated the_____day of _____,_____a copy of which may be hereto attached, but, in any event, is maintained in the records of the OWNER, said Agreement being hereby made a part hereof by this reference thereto as if fully set forth herein verbatim, said Agreement being entered generally for the construction of:

_____
(Name of Project) (Contract No.)

The Project is briefly described as:

_____

The Project is located (address or general location as shown below):

_____

This Bond is being entered into to, at a minimum, satisfy the requirements of Section 255.05, *Florida Statutes*, and to satisfy the terms and conditions the Agreement.

The SURETY shall be bound by any and all alternative dispute resolution awards and settlements to the same extent as CONTRACTOR is bound.

NOW, THEREFORE, the condition of this obligation is such that if CONTRACTOR:

1. Promptly and faithfully performs all of its duties and responsibilities as well as all of the covenants, terms, conditions, and agreements of said Agreement in its totality, in the time and manner prescribed in the Agreement to the satisfaction of the OWNER, and

2. Pays OWNER all such sums as will be sufficient to satisfy all losses, damages, delay damages (liquidated or actual), expenses, costs and attorneys' fees (including, but not limited to, costs and attorney's fees on appeal that OWNER sustains resulting directly or indirectly from any breach or default by CONTRACTOR under the Agreement), and

3. Satisfies all claims and demands incurred under the Agreement, and fully indemnifies and holds harmless the OWNER from all costs and damages which it may suffer by reason or failure to do so, then this Bond is able to be voided upon demand of the SURETY; otherwise it shall remain in full force and effect.

The coverage of this Bond is co-equal with each and every obligation of the CONTRACTOR under the Agreement.

In the event that the CONTRACTOR fails to perform any of the terms, covenants or conditions of the Agreement before this Bond is released by the OWNER, the SURETY shall remain liable to the OWNER for all such loss or damage.

The SURETY shall also indemnify and hold the OWNER harmless from any and all loss, damage, cost and expenses enumerated herein with respect to the CONTRACTOR, resulting directly or indirectly from the SURETY's failure to fulfill its obligations hereunder. This subsection shall survive the termination or cancellation of this Bond.

The SURETY stipulates and agrees that its obligation under this Bond is to perform the CONTRACTOR's work under the Agreement. The following shall not be considered performance under any circumstance or in any context: (i) SURETY's financing of the CONTRACTOR under the Bond to keep CONTRACTOR from defaulting under the Agreement, or (ii) SURETY's offers to OWNER to buy back the Bond. SURETY's election to do nothing under the Bond shall be construed as a material breach of the Bond and bad faith by the SURETY. The SURETY agrees that its obligation under the Bond is to: (i) fully take over performance of the CONTRACTOR's work under the Agreement in a plenary manner and be

the completing surety even if performance of the CONTRACTOR's work exceeds the CONTRACTOR's contract price under the Agreement, or (ii) re-bid and re-let the CONTRACTOR's work to a completing contractor with SURETY remaining liable for the completing contractor's performance of the CONTRACTOR's work and furnishing adequate and full funds to complete the work in the required plenary manner. The SURETY acknowledges that its cost of completion upon default by the CONTRACTOR may exceed the contract price set forth in the Agreement. In any event, the CONTRACTOR l's Contract Time is of the essence and applicable delay damages are not waived by OWNER.

The SURETY, for value received, hereby stipulates and agrees that its obligations hereunder shall be direct and immediate and not conditional or contingent upon OWNER's pursuit of its remedies against CONTRACTOR, shall remain in full force and effect notwithstanding (i) amendments or modifications to the Agreement entered into by OWNER and CONTRACTOR without the SURETY's knowledge or consent (ii) waivers of compliance with or nay default under the Agreement granted by OWNER to CONTRACTOR without the SURETY's knowledge or consent, or (iii) the discharge of CONTRACTOR from its obligations under the Agreement as a result of any proceeding initiated under the bankruptcy laws of the United States of America, as the same may be amended, or any similar State or Federal law, or any limitation of the liability or CONTRACTOR or its estate as a result of any such proceeding.

Any changes in or under the Agreement and compliance or noncompliance with any formalities connected with the Agreement or the changes therein shall not affect SURETY's obligations under this Bond and SURETY hereby waives notice of any such changes. Further, CONTRACTOR and SURETY acknowledge that the Sum of this Bond shall increase or decrease in accordance with change orders (unilateral and bilateral) or other modifications to the Agreement. The CONTRACTOR may have obligations to the SURETY, but the failure of the CONTRACTOR to perform, comply with or accomplish any such obligation, in whole or part, shall not, in any way or to any extent, limit or interfere with the rights and benefits of the OWNER under this Bond.

This Bond and any other bond, or similar document, and the covered amounts of each, are separate and distinct from each other and the OWNER shall be entitled to the totality of rights and benefits from all such documents.

This Bond is intended to comply, at a minimum, with the requirements of Section 255.05, *Florida Statutes*, as amended, and additionally, to provide common law rights more expansive than as required by statute; provided, however, that the OWNER shall be entitled to all such common law rights notwithstanding the language used herein. The SURETY agrees that this Bond shall be construed as a common law bond when such construction will benefit the OWNER. The undersigned signatories represent to the OWNER that they are authorized, permitted and empowered to execute this document and bind the entity or person for which they are executing this document and recognize that the OWNER is relying, to its detriment, upon the signature set forth below and the representations, promises, covenants, guarantees and assurances made herein.

IN WITNESS WHEREOF, this instrument is executed this the_____day of _____ _____,_____.

ATTEST: **CONTRACTOR** Signatory Authority

CONTRACTOR Attesting Authority	CONTRACTOR Signatory Authority
Typed Name	Typed Name and Title
(CORPORATE SEAL)	Address
(Witness to CONTRACTOR)	City, State, Zip
Typed Name	Telephone No. Facsimile No.
ATTEST:	**SURETY**
(SURETY) Secretary	SURETY
Typed Name	Telephone No. Facsimile No.
(CORPORATE SEAL)	
Witness as to SURETY	By: _____ Attorney-in-Fact
Typed Name	Typed Name
Witness as to SURETY	Address
Typed Name	City, State, Zip
	Telephone No. Facsimile No.

NOTE: Date of the Bond must not be prior to date of Agreement. If CONTRACTOR is a joint venture, all venturers shall execute the Bond. If CONTRACTOR is partnership, all partners shall execute the Bond. The SURETY's obligations run as to all such parties.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida, unless otherwise specifically approved in writing by OWNER.

ATTACH a certified Power-of-Attorney appointing individual Attorney-in-Fact for execution of Bond on behalf of SURETY.

END OF SECTION

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SECTION 00610

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR) (Phone No. of CONTRACTOR)

a_____, hereinafter called
(Corporation, Partnership or Individual)

CONTRACTOR

, and _____
(Name of SURETY)

_____
(Address of SURETY) (Phone No. of SURETY)

hereinafter called Surety, are held and firmly bound unto:

_____, the OWNER, whose address is _____
_____. in the full and just Sum of _____ DOLLARS ($) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. The sum shall not be less than one hundred percent (100%) of the Contract Price.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR entered into a certain Agreement (including all associated contract documents relating thereto and as the Agreement may be amended from time-to-time) with the OWNER, dated the_____day of _____,_____a copy of which may be hereto attached, but, in any event, is maintained in the records of the OWNER, said Agreement being hereby made a part hereof by this reference thereto as if fully set forth herein verbatim, said Agreement being entered generally for the construction of:

_____
(Name of Project) (Contract No.)

The Project is briefly described as:

_____

The Project is located (address or general location as shown below):

_____

The SURETY shall be bound by any and all alternative dispute resolution awards and settlements to the same extent as CONTRACTOR is bound.

NOW, THEREFORE, the condition of this obligation is such that if CONTRACTOR shall promptly make payments to all claimants as defined in Sections 255.05 and 713.01, *Florida Statutes*, supplying CONTRACTOR with labor, materials, or supplies, used directly or indirectly by CONTRACTOR in the prosecution of the Work provided for in the Agreement, then this obligation shall be void; otherwise, it shall remain in full force and effect subject, however, to the following conditions:

1. This Bond is furnished for the purpose of complying with the requirements of Section 255.05, *Florida Statutes*, as amended as well as for other intents and purposes for the benefit of the OWNER.

2. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Sections 713.23 and 713.18, *Florida Statutes*.

3. Therefore, a claimant, except a laborer, who is not in privity with the CONTRACTOR shall, before commencing to furnish labor, materials, or supplies for the prosecution of the work, or not later than 45 days after commencing to furnish labor, materials, or supplies for the prosecution of the work, furnish the CONTRACTOR with a notice that he or she intends to look to this Bond for protection. A claimant who is not in privity with the CONTRACTOR and who has not received payment for his or her labor, materials, or supplies shall deliver to the CONTRACTOR and to the SURETY written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment. The notice of nonpayment may be served at any time during the progress of the work or thereafter but not before 45 days after the first furnishing of labor, services, or materials, and not later than 90 days after the final furnishing of the labor, services, or materials by the claimant or, with respect to rental equipment, not later than 90 days after the date that the rental equipment was last on the job site available for use. Claimant shall deliver to the CONTRACTOR and to the SURETY written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment. No action for the labor, materials or supplies may be instituted against the CONTRACTOR or the SURETY on the bond after one year from the performance of the labor or completion of the delivery of the materials or supplies.

4. The SURETY, for value received, hereby stipulates and agrees that its obligations hereunder shall be direct and immediate and not conditional or contingent upon OWNER's pursuit of its remedies against CONTRACTOR, shall remain in full force and effect notwithstanding (i) amendments or modifications to the Agreement entered into by OWNER and CONTRACTOR without the

SURETY's knowledge or consent (ii) waivers of compliance with or nay default under the Agreement granted by OWNER to CONTRACTOR without the SURETY's knowledge or consent, or (iii) the discharge of CONTRACTOR from its obligations under the Agreement as a result of any proceeding initiated under the bankruptcy laws of the United States of America, as the same may be amended, or any similar State or Federal law, or any limitation of the liability or CONTRACTOR or its estate as a result of any such proceeding.

5. Any changes in or under the Agreement and compliance or noncompliance with any formalities connected with the Agreement or the changes therein shall not affect SURETY's obligations under this Bond and SURETY hereby waives notice of any such changes. Further, CONTRACTOR and SURETY acknowledge that the Sum of this Bond shall increase or decrease in accordance with change orders (unilateral and bilateral) or other modifications to the Agreement. The CONTRACTOR may have obligations to the SURETY, but the failure of the CONTRACTOR to perform, comply with or accomplish any such obligation, in whole or part, shall not, in any way or to any extent, limit or interfere with the rights and benefits of the OWNER under this Bond.

6. This Bond and any other bond, or similar document, and the covered amounts of each, are separate and distinct from each other and the OWNER shall be entitled to the totality of rights and benefits from all such documents.

IN WITNESS WHEREOF, this instrument is executed this the_____day of _____ _____,_____.

ATTEST:	**CONTRACTOR** Signatory Authority
_____	_____
CONTRACTOR Attesting Authority	CONTRACTOR Signatory Authority
_____	_____
Typed Name	Typed Name and Title
	_____
(CORPORATE SEAL)	Address
_____	_____
(Witness to CONTRACTOR)	City, State, Zip
_____	_____
Typed Name	Telephone No. Facsimile No.
ATTEST:	**SURETY**
_____	_____
(SURETY) Secretary	SURETY

Typed Name	Telephone No. Facsimile
No. (CORPORATE SEAL)	
	By:
Witness as to SURETY	Attorney-in-Fact
Typed Name	Typed Name
Witness as to SURETY	Address
Typed Name	City, State, Zip
	Telephone No. Facsimile No.

NOTE: Date of the Bond must not be prior to date of Agreement. If CONTRACTOR is a joint venture, all venturers shall execute the Bond. If CONTRACTOR is partnership, all partners shall execute the Bond. The SURETY's obligations run as to all such parties.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida, unless otherwise specifically approved in writing by OWNER.

ATTACH a certified Power-of-Attorney appointing individual Attorney-in-Fact for execution of Bond on behalf of SURETY.

END OF SECTION

SECTION 00615

MATERIAL AND WORKMANSHIP BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WE_____, hereinafter referred to as "Contractor" and _____, hereinafter referred to as "Surety" are held and firmly bound unto_____, hereinafter referred to as the OWNER in the sum of ten percent (10%) of the Contract Price as adjusted under the Contract Documents. The Final Contract Price is $_____, therefore Contractor and Surety are held and firmly bound unto OWNER the sum of_____ Dollars ($_____) for the payment of which we bind ourselves, heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has constructed certain improvements, including _____ _____and other appurtenances in that certain Project known as _____ _____, and

WHEREAS, the aforesaid improvements were made pursuant to an Agreement dated _____,_____and filed with the Purchasing Office of OWNER; and

WHEREAS, the Contractor warrants and guarantees to the OWNER that all work, labor, materials, equipment and services furnished and performed has been done in a good and workmanlike manner and is of the highest quality, free from defects; and

WHEREAS, Contractor is obligated to protect the OWNER against any defects resulting from faulty Materials or Workmanship of said improvements and to maintain said improvements for a period of two (2) years from the date of Final Completion under the Contract Documents, which is_____.

NOW THEREFORE, the conditions of this obligation is such that if Contractor shall promptly and faithfully protect the OWNER against any Defects resulting from faulty Materials and Workmanship of the aforesaid improvements and maintain said improvements for a period of two (2) years from the date of Final completion, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

The OWNER shall notify the Contractor in writing of any Defect for which the Contractor is responsible and shall specify in said notice a reasonable period of time within which Contractor shall have to correct said Defect.

The Surety unconditionally covenants and agrees that if the Contractor fails to perform, within the time specified, the Surety, upon thirty (30) days written notice from OWNER, or its authorized agent or officer, of the failure to perform will correct such Defect or Defects and pay the cost thereof, including, but not limited to engineering, legal and contingent costs. Should the Surety fail or refuse to correct said Defects, the OWNER, in view of the public interest, health, safety, welfare and factors involved, shall have the right to resort to any and all legal remedies

against the Contractor and Surety and either, both at law and in equity, including specifically, specific performance to which the Contractor and Surety unconditionally agree.

The Contractor and Surety further jointly and severally agree that the OWNER at its option, shall have the right to correct said Defects resulting from faulty Materials or Workmanship, or, pursuant to public advertisement and receipt of Bids, cause to be corrected any Defects or said Defects in case the Contractor shall fail or refuse to do so, and in the event the OWNER should exercise and give effect to such right, the Contractor and the Surety shall jointly and severally hereunder reimburse the OWNER the total cost thereof, including, but not limited to, engineering, legal and contingent costs, together with any damages either direct or consequent which may be sustained on account of the failure of the Contractor to correct said defects.

IN WITNESS WHEREOF, this instrument is executed this the_____day of _____ _____,_____.

CONTRACTOR Signatory Authority

ATTEST:

Contractor Signatory Authority

Secretary (Contractor)

By (Signature)

Typed Name

Typed Name and Title

(CORPORATE SEAL)

Address

City, State, Zip

(Witness to Contractor)

Telephone No. Facsimile No.

Typed Name

ATTEST:

(Surety) Secretary

Surety

Typed Name

Telephone No. Facsimile No.

(CORPORATE SEAL)

Witness as to Surety

By: _____
Attorney-in-Fact

Typed Name	Typed Name
Witness as to Surety	Address
Typed Name	City, State, Zip
	Telephone No. Facsimile No.

NOTE: Date of the Bond must not be prior to date of Agreement. If CONTRACTOR is a joint venture, all venturers shall execute the Bond. If CONTRACTOR is Partnership, all partners shall execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida, unless otherwise specifically approved in writing by OWNER.

ATTACH a certified Power-of-Attorney appointing individual Attorney-in-Fact for execution of Performance Bond on behalf of Surety.

END OF SECTION

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SECTION 00617

CONSENT OF SURETY TO FINAL PAYMENT

WE,_____, having heretofore executed Performance and Payment Bonds No._____for the Project known as _____ _____, in the amount of $_____* hereby agree that _____ _____, hereinafter referred to as OWNER may make full payment of the final estimate, including the retained percentage, to the CONTRACTOR, _____ _____. The Surety concurs that full payment to the CONTRACTOR is appropriate and the Surety expressly releases the OWNER from all liability to Surety resulting from full payment to CONTRACTOR. It is fully understood that the granting of the right to the OWNER to make payment of the final estimate to said CONTRACTOR and/or his assigns, shall in no way relieve this surety company of its obligations under its bond, as set forth in the specifications, contract and bond pertaining to the above project.

** = Dollar Value of Issued Performance and Payment Bonds*

IN WITNESS WHEREOF, the_____has caused this instrument to be executed on its behalf by its _____ _____and its duly authorized attorney in fact, and its corporate seal to be hereunto affixed, all on this_____day of_____,_____.

_____ _____

Surety Attorney-in-Fact

(Power of Attorney must be attached if executed by Attorney in Fact)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this_____day of _____ _____,_____by_____of ____ _____(corporation), on behalf of the corporation, who is personally known to me or has produced_____(Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this_____day of_____, _____

_____

(Signature)

_____

(Print name) Notary Public in and for the County and State Aforementioned

My Commission Expires: _____

END OF SECTION

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SECTION 00620

INSURANCE CERTIFICATION

Name of Project: _____

Owner: _____
_____
_____
_____

Engineer:

Kimley-Horn and Associates, Inc.
655 North Franklin St. Suite 150
Tampa, Florida 33602
Ph. 813-620-1460

THIS IS TO CERTIFY that the numbered policies identified by the attached Certificates of Insurance have been issued by the below stated company in conformance with the limits and requirements as set forth in the General Conditions and Supplementary Conditions.

The insurance company hereby waives its rights of subrogation against the additional insured.

_____
Named Insured

_____
Insurance Company

_____
Address City State Zip

By: _____ Signature of Authorized Representative

_____
Printed or Typed Name of Authorized Representative (Attach Acknowledgment)

(Make additional copies of this form if more than one insurance company provides contract required insurance).

END OF SECTION

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SECTION 00625

APPLICATION FOR PAYMENT

Project Name: _____

Bid No.: _____

Contractor: _____

Payment Request No.: _____

Period Ending Date: _____

STATEMENT OF WORK

1.	Original Contract Price	
2.	Net Change Order	
3.	Current Contract Price	
4.	Total Completed and Stored to Date	
5.	Amount Retained	
6.	Total Earned Less Retainage (Line 4 Minus Line 5)	
7.	Previous Payments Approved	
8.	Amount Due This Payment (Line 6 Minus Line 7)	
9.	Balance to Finish, Less Retainage (Line 3 Minus Line 4)	

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor hereby swears under penalty of perjury that (1) all previous progress payments received from the Owner on account of Work performed under the Agreement referred to above have been applied by the Contractor to discharge in full all obligations of the Contractor incurred in connection with Work covered by prior Application for Payment under said Agreement, being Applications for Payment numbered 1 through _____ inclusive; and, (2) all Work, materials and equipment incorporated in said Project or otherwise listed in or covered by this Application for Payment are free and clear of all liens, claims, security interests and encumbrances; (3) all previous progress payments have been applied by the Contractor to pay in full (less retainage) all amounts owed to its Subcontractors, Suppliers, Materialmen and Equipment Suppliers; and (4) all items and amounts shown for payment and all information provided on the Subcontractor and Supplier Listing which is included in this Application for Payment are true and correct; and (5) all Work has been completed in full accordance with the terms and conditions of the Agreement between the Owner and Contractor dated_____and the Work is not defective.

CONTRACTOR:_____ (SEAL)

_____ _____

By (Signature of Authorized Representative) Date

_____

Printed Name and Title

COUNTY OF _____
STATE OF FLORIDA

Before me on this_____day of_____,_____, appeared _____ _____, who is personally known to me, or has produced _____as identification and who did (did not) take an oath who, being duly sworn did depose and say that he/she is the _____ of the Contractor above-mentioned; that he/she executed the above Application for Payment and statement on behalf of said Contractor; and that all of the statements contained therein are true, correct and complete.

_____
(Notary Public in and for the County and State Aforementioned)

SEAL My commission expires: _____

SUBCONTRACTOR AND SUPPLIER LISTING

The following is a list of Subcontractors and Suppliers who have performed Work or provided Materials, Supplies, or Equipment during time period represented by this Application and the dollar amount of the work applied for (add to the table as necessary to provide a complete list).

NAME	**ADDRESS**	**AMOUNT**

PAYMENT OF THE AMOUNT REQUESTED ABOVE IS RECOMMENDED FOR APPROVAL:

By	Date
By	Date

REQUIRED ATTACHMENTS

Monthly Application For Payment:

1. Updated Project Schedule
2. Contractor's Partial Release of Lien
3. All applicable Subcontractor/ Supplier Waivers of Lien (Partial)

Final Application For Payment (Submitted With or Prior to the Final Application for Payment):

1. Contractor's Release of Lien (Final and Complete)
2. All applicable Subcontractor/Supplier Waivers of Lien (Final and Complete)
3. Consent of Surety to Final Payment
4. Completed Material and Workmanship Bond
5. Certificate of Final Completion
6. Manufacturer operation and maintenance instructions
7. Manufacturers' guarantees, warranties, bonds, and letters of coverage extending beyond the time limitations of the Contractor's guarantee
8. All required Record Drawings
9. All required directional bore logs
10. Stormwater NPDES Notice of Termination (If Required)

END OF SECTION

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SECTION 00626

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Name: _____

Bid No.: _____

Owner: _____

Contractor: _____

Agreement Date: _____

This Certificate of Substantial Completion applies to all work under the Contract Documents or the following specified parts thereof if construction is phased by contract: _____

_____

ISSUED TO:

Contractor:

_____

The work to which this Certificate applies has been inspected by authorized representatives of Contractor, Engineer, and Owner and that Work is hereby declared to be substantially completed in accordance with the Contract Documents on:

_____

Date of Substantial Completion

A list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of Contractor to complete and warrant all the Work in accordance with the Contact Documents. All items on the list shall be completed or corrected by Contractor within ____ days of the above date of Substantial Completion.

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligations to complete the Work in accordance with the Contract Documents.

Executed by Engineer on _____
Date

Engineer: Kimley-Horn and Associates, Inc.

By: _____
(Signature)

_____
(Printed Name and Title)

Executed by Owner on _____
Date

Owner: _____

By: _____
(Signature)

_____
(Printed Name and Title)

Contractor accepts this Certificate of Substantial Completion on _____
Date

Contractor: _____

By: _____
(Signature)

_____
(Printed Name and Title)

END OF SECTION

SECTION 00627

CERTIFICATE OF FINAL COMPLETION

Project Name: _____

Bid No.: _____

Owner: _____

Contractor: _____

Agreement Date: _____

This Certificate of Final Completion applies to all work under the Contract Documents or the following specified parts thereof if construction is phased by contract: _____

_____

ISSUED TO:

Contractor:

_____

The work to which this Certificate applies has been inspected by authorized representatives of Contractor, Engineer, and Owner and that Work is hereby declared to be finally complete in accordance with the Contract Documents on:

_____
Date of Final Completion

This Certificate constitutes an acceptance of Work except any and all latent defects, warranty work, maintenance, and other post Final Completion obligations of the Contractor under the Contract Documents.

Executed by Engineer on _____
Date

Engineer: _____

By: _____
(Signature)

_____
(Printed Name and Title)

Contractor accepts this Certificate of Final Completion on _____
Date

Contractor: _____

By: _____
(Signature)

_____
(Printed Name and Title)

Accepted by Owner on _____
Date

Owner: _____

By: _____
(Signature)

_____
(Printed Name and Title)

END OF SECTION

SECTION 00640

CONTRACTOR'S PARTIAL RELEASE OF LIEN FORM

KNOW ALL MEN BY THESE PRESENTS**,** that the undersigned, 1)_____, in consideration of the sum of 2)_____, and other valuable considerations and benefits to the undersigned accruing, do hereby waive, release and quit claim all liens, lien rights, claims or demands of every kind whatsoever which the undersigned now has, or may hereafter have, against that certain real estate and the improvements thereof, situated in _____ County, State of_____, and described as 3)_____, , whose OWNER is_____, on account of work and labor performed, and/or materials furnished in, to, or about the construction of any building or buildings situated thereon, or in improving said property above described, or any part thereof.

1) CONTRACTOR
2) Amount of Work Completed through Previous Application for Payment
3) Name of Project identified in Instructions to Bidders

It being the understanding of the undersigned that this is a Partial Waiver and Release of Lien which the undersigned has against the premises described herein, only to the extent of the payments specified and only for labor, services, or materials furnished or work done up until 4)_____. This waiver and release does not cover any retention or labor, services, or materials furnished after the date specified. The undersigned warrants that no assignment of said liens or claims, nor the right to perfect a lien against said real estate, by virtue of the accrual of said payment, has or will be made, and that the undersigned has the right to execute this Partial Waiver and Release, and that all laborers employed by the undersigned, and all bills for materials and supplies furnished by others to the undersigned in connection with the construction of improvements upon the aforesaid premises, to the extent of the payment herein referred to, have been fully paid.

4) Date of Previous Application for Payment

IN WITNESS WHEREOF, I/we have executed this instrument under seal this_____day of _____,_____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this_____day of _____ _____,_____by_____of ____ _____(corporation), on behalf of the corporation, who is

personally known to me or has produced _____(Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this_____day of_____, _____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State

Aforementioned My Commission Expires: _____

END OF SECTION

SECTION 00645

CONTRACTOR'S RELEASE OF LIEN (FINAL AND COMPLETE)

Before me, the undersigned authority in said County and State, appeared _____ _____, who, being first duly sworn, deposes and says that he is _____ _____of _____ _____, a company and/or corporation authorized to do business under the laws of the State of _____, and is the CONTRACTOR on the Project known as _____ _____, located in_____County, State of_____, under an Agreement with the OWNER, _____ _____, the date of said Agreement which is _____ _____.

Let it be known that the said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said contract has been complied with in every particular by said contractor and that all parts of the work have been approved by the Owner's Engineers; that there are no bills remaining unpaid for labor, material, or otherwise, in connection with said contract and work, and that there are no suits pending against the undersigned as contractor or anyone in connection with the work done and materials furnished or otherwise under said contract. Deponent further says that the final estimate which has been submitted to the Owner simultaneously with the making of this affidavit constitutes all claims and demands against the Owner on account of said contract or otherwise, and the acceptance of the sum specified in said final estimate will operate as a full and final release and discharge of the Owner from any further claims, demands or compensation by contractor under the above contract. Deponent further agrees that all guarantees under this contract shall and be in full force from the date of this release as spelled out in the Contract Documents.

IN WITNESS WHEREOF, I/we have executed this instrument under seal this_____day of _____,_____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this_____day of _____ _____,_____by_____of _____ _____(corporation), on behalf of the corporation, who is personally known to me or has produced_____(Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this_____day of_____,
_____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State

Aforementioned My Commission Expires: _____

END OF SECTION

SECTION 00646

PARTIAL RELEASE OF LIEN FORM (SUBCONTRACTOR / SUPPLIER)

KNOW ALL MEN BY THESE PRESENTS**,** that the undersigned, 1)_____, in consideration of the sum of $_____, and other valuable considerations and benefits to the undersigned accruing, do hereby waive, release and quit claim all liens, lien rights, claims or demands of every kind whatsoever which the undersigned now has, or may hereafter have, against that certain real estate and the improvements on the Project known as 2)_____, located in_____County, State of _____, whose OWNER is_____. The work performed / materials supplied for the Project was furnished to the CONTRACTOR,_____.

1) Subcontractor / Supplier
2) Name of Project identified in the Agreement between Owner and Contractor

It being the understanding of the undersigned that this is a Partial Waiver and Release of Lien which the undersigned has against the premises described herein, for labor, services, or materials furnished or work done up until 3)_____. This waiver and release does not cover any retention or labor, services, or materials furnished after the date specified. The undersigned warrants that no assignment of said liens or claims, nor the right to perfect a lien against said real estate, by virtue of the accrual of said payment, has or will be made, and that the undersigned has the right to execute this Partial Waiver and Release, and that all laborers employed by the undersigned, and all bills for materials and supplies furnished by others to the undersigned in connection with the construction of improvements upon the aforesaid premises, to the extent of the payment herein referred to, have been fully paid.

3) Date of Previous Application for Payment

IN WITNESS WHEREOF, I/we have executed this instrument under seal this_____day of _____,_____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this_____day of _____ _____,_____by_____of ____ _____(corporation), on behalf of the corporation, who is personally known to me or has produced_____(Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this_____day of_____,
_____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State

Aforementioned My Commission Expires: _____

END OF SECTION

SECTION 00647

SUBCONTRACTOR / SUPPLIER'S RELEASE OF LIEN (FINAL AND COMPLETE)

Before me, the undersigned authority in said County and State, appeared _____ _____, who, being first duly sworn, deposes and says that he is_____of_____, a company and/or corporation authorized to do business under the laws of the State of _____ _____, and is a subcontractor/supplier/vendor on the Project known as _____ _____, located in_____County, State of _____ _____, whose OWNER is_____. The work performed / materials supplied for the Project was furnished to the CONTRACTOR,_____.

Said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said contract has been complied with in every particular by said subcontractor / supplier and that all parts of the work have been approved by the Owner's Engineers; that there are no bills remaining unpaid for labor, material, or otherwise, in connection with said contract and work, and that there are no suits pending against the undersigned as subcontractor / supplier or anyone in connection with the work done and materials furnished or otherwise under said contract. Deponent further says that the final estimate which has been submitted to the Owner simultaneously with the making of this affidavit constitutes all claims and demands against the Owner on account of said contract or otherwise, and the acceptance of the sum specified in said final estimate will operate as a full and final release and discharge of the Owner from any further claims, demands or compensation by contractor under the above contract.

IN WITNESS WHEREOF, I/we have executed this instrument under seal this_____day of _____,_____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this_____day of _____ _____,_____by_____of _____ _____(corporation), on behalf of the corporation, who is personally known to me or has produced_____(Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this_____day of_____,
_____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State

Aforementioned My Commission Expires: _____

END OF SECTION

SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the “Standard General Conditions of the Construction Contract”, prepared by Engineers Joint Contract Documents Committee (EJCDC), Copyright © 2002. All provisions of the General Conditions, which are not so amended or supplemented in these Supplementary Conditions remain in full force and effect.

SC-1.01.A.9 *Defined Terms*

Delete the definition “Change Order” in its entirety and replace it with the following:

9. Change Order - A document recommended by Engineer which is signed by Contractor and Owner and authorizes 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 Agreement, and which represents a full accord and satisfaction of all costs of whatever nature, direct or indirect, arising from or related to the addition, deletion, or revision, including, without limitation, its impact on unchanged base contract work.

SC-1.01.A.37 *Defined Terms*

Delete the definition “Resident Project Representative” in its entirety and replace it with the following:

37. Resident Project Representative - The authorized representative of the Owner or Engineer who is assigned to the site or any part thereof.

SC-1.02.G *Terminology*

Add the following terminology clarification to Paragraph 1.02 of the General Conditions:

G. The word "Plans" when used in the Contract Documents shall have the same meaning and be used interchangeably with the word "Drawings".

SC-1.02.H *Terminology*

Add the following terminology clarification to Paragraph 1.02 of the General Conditions:

H. The words "Subcontractor" and "Supplier" are sometimes used interchangeably in the Contract Documents and when used shall mean

either Subcontractor or Supplier as defined herein or both Subcontractor and Supplier as defined herein.

SC-2.02.A *Copies of Documents*

In the first sentence of Paragraph 2.02.A of the General Conditions, delete the word "ten" (10) and add the word "five" (5) copies.

SC-2.03.A *Commencement of Contract Times: Notice to Proceed*

Delete Paragraph 2.03.A of the General Conditions in its entirety and replace it with the following:

A. At the Owner's discretion, a Notice to Proceed may be given at any time within thirty days after the effective date of the Agreement. The Contract Time will commence at the time specified in such notice provided that the Notice to Proceed may not specify a time of commencement later than sixty days after the effective date of the Agreement.

SC-2.07.A.1 *Initial Acceptance of Schedules*

Add the following to the end of Paragraph 2.07.A.1 of the General Conditions:

Under no circumstances whatsoever shall Contractor be entitled to compensation based upon a right to finish early prior to the Contract Time.

SC-3.01.D *Contract Documents, Intent*

Add the following to Paragraph 3.01 of the General Conditions:

D. The various contract documents shall be given precedence, in case of conflict, error or discrepancy, as follows: Change Order, Agreement, approved Schedule of Values, addenda, Supplementary Conditions, General Conditions, the Project Manual, FDOT Specifications, Contract Drawings, and Contractor's Bid. An addendum issued prior to bid, may modify any of the contract documents in existence at that time. The addendum takes precedence over the previous issue of the contract document being modified. In case of conflict between the Contract Documents, the Contract Document first listed shall have priority over any Contract Document later in the list.

SC-3.03.A.1 *Before Starting Construction*

Add the following sentence to the end of Paragraph 3.03.A.1 of the General Conditions:

By commencing work, the Contractor shall be deemed to have accepted the condition of the site as being in suitable, satisfactory and acceptable condition to perform its work on the Project.

SC-3.06.B *Electronic Data*

Change the acceptance period for detecting and correcting data in paragraph 3.06.B of the General Conditions from 60 days to 30 days.

SC-3.06.D *Electronic Data*

Add the following to Paragraph 3.06 of the General Conditions:

D. Transfer of electronic data to a third party by the receiving party is prohibited.

SC-4.02.A-B *Subsurface and Physical Conditions*

Relating to Paragraphs 4.02.A.1, 4.02.A.2, 4.02.B, 4.02.B.1, 4.02.B.2, and 4.02.B.3 of the General Conditions:

Section 00320, "Site Investigation Data", of the Project Manual identifies the reports and drawings referred to in Paragraphs 4.02.A.1, 4.02.A.2, 4.02.B, 4.02.B.1, 4.02.B.2, and 4.02.B.3 of the General Conditions. If Section 00320 does not identify specific reports or drawings, then the Engineer may have relied only on local county USDA/SCS soils surveys or other information that is not site specific. Contractor reliance on soil surveys is subject to the same limitations as defined in SC-4.02.B.4.

SC-4.02.B.4 *Subsurface and Physical Conditions*

Add the following to Paragraph 4.02.B of the General Conditions:

4. The Contractor acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered, including all exploratory work done on behalf of the Owner on the site or any contiguous site, as well as from information presented by the Drawings and Specifications made a part of this Contract, or any other information made available to him prior to receipt of Bids. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the Owner.

SC-4.03.A.4 *Differing Subsurface or Physical Conditions*

Delete Paragraph 4.03.A.4 of the General Conditions in its entirety and replace it with the following:

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, within seven (7) days after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so. Written notice is a precondition to Contractor's rights under Paragraph 4.03.C.

SC-4.05.B *Reference Points*

Add the following to Paragraph 4.05 of the General Conditions:

B. The Owner and Engineer reserve the right to periodically check certain layout and grades of the work of the Contractor; however, they are not obligated to do so. The Contractor shall not rely on any such measurements made by the Owner or Engineer. The Contractor is solely responsible to layout and construct to the required grades all work in accordance with the Contract Documents, and any layout and grade work not in conformance with these Documents shall be classified as "Defective Work".

SC-4.06.J *Hazardous Environmental Conditions at Site*

Add the following to Paragraph 4.06 of the General Conditions:

J. The Contractor shall be responsible for the legal disposal of any asbestos, PCB's, petroleum, hazardous waste or radioactive material brought to the site by the Contractor, Sub-Contractors, Suppliers, or anyone else for whom the Contractor is responsible.

SC-5.03.A *Certificates of Insurance*

The additional insured are as identified in Section 00620, "Insurance Certification".

SC-5.04.C.1-3 *Contractor's Liability Insurance*

Add the following to Paragraph 5.04 of the General Conditions:

C. The insurance limits indicated below and otherwise referenced are minimum limits acceptable to the Owner. Such policies shall be endorsed

to provide primary and non-contributory coverage to the all of the additional insureds in relation to any and all other liability insurance. All policies are to be provide a Waiver of Subrogation endorsement in favor of all of the additional insureds. The limits of liability for the Contractor provided insurance shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation
   a. State: Statutory
   b. Applicable Federal: Statutory
   c. Employer's Liability Coverage B: $250,000 each accident for bodily injury by accident; $250,000 each employee for bodily injury by disease; $500,000 policy limit for bodily injury by disease.

2. Commercial General Liability (ISO Form CG 00 01)
   a. Bodily Injury (including completed operations and products liability:
      1) $2,000,000 Each Occurrence
      2) $2,000,000 Annual Aggregate
      b. Property Damage:
      1) $2,000,000 Each Occurrence
      2) $2,000,000 Annual Aggregate, or
      3) a combined single limit of $2,000,000
   c. Property Damage liability insurance will provide Explosion, Collapse and Underground coverage where applicable.
   d. Personal Injury, with employment exclusion deleted: $2,000,000 Annual Aggregate

3. Comprehensive Automobile Liability:
      a. Bodily Injury:
      1) $2,000,000 Each Person
      2) $2,000,000 Each Occurrence
      b. Property Damage:
      1) $2,000,000 Each Occurrence, or
      2) a combined single limit of $2,000,000.

SC-5.05.A *Owner's Liability Insurance*

Delete paragraph 5.05.A of the General Conditions in its entirety.

SC-5.06.A *Property Insurance*

Delete paragraph 5.06.A of the General Conditions and replace it with the following (subparagraphs A.1 through A.7 shall remain):

A. Unless otherwise provided in these Supplementary Conditions, Contractor shall purchase and maintain property insurance upon the

Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by law). This insurance shall include the interests of Owner, Contractor and Subcontractors in the Work, shall insure against perils of fire and extended coverage, shall include 'all risk' insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in these Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including fees and charges of engineers, architects, attorneys and other professionals). If not covered under the 'all risk' insurance or otherwise provided in these Supplementary Conditions, Contractor shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by Contractor in accordance with Paragraphs 5.6 and 5.7 shall contain a provision that the coverage afforded will not be canceled or materially changed until at least thirty days' prior written notice has been given to the Owner. The Contractor shall maintain such policies of insurance continuously from the date specified in the Notice to Proceed until the Initiation of Operation. This insurance shall:

SC-5.06.B *Property Insurance*

Delete Paragraph 5.06.B of the General Conditions in its entirety and replace it with the following:

B. Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as required which will include the interests of Owner, Contractor, subcontractors, Engineer, and Engineer's consultants in the Work, all of whom shall be listed as insured or additional insured parties.

SC-5.06.C *Property Insurance*

Delete Paragraph 5.06.C of the General Conditions in its entirety and replace it with the following:

C. The form of policy for the property insurance provided by the Contractor shall be completed value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributable thereto.

SC-5.06.E *Property Insurance*

Delete Paragraph 5.06.E of the General Conditions in its entirety.

SC-6.02.B *Labor; Working Hours*

Add the following new sentence to the end of Paragraph 6.02.B of the General Conditions:

Regular Working Hours are defined as 7:00 a.m. to 4:00 p.m., Monday through Friday. Work requiring inspection by the Owner or Utility is to be scheduled for 9:00 a.m. to 4:00 p.m., Monday through Thursday and 9:00 a.m. to 12:00 noon on Fridays upon a minimum of forty-eight (48) hours advance notice for inspections.

SC-6.02.C *Labor; Working Hours*

Add the following to Paragraph 6.02 of the General Conditions:

C. Requests to work during other than normal working hours must be submitted to the Engineer at least 48 hours in advance of the period proposed for such overtime work and shall set forth the proposed schedule for overtime work to give Engineer ample time to arrange for his personnel to be at the site of the work.

SC-6.03.A.1 *Services, Materials and Equipment*

Add the following to Paragraph 6.03.A of the General Conditions:

1. All water for testing, flushing, and construction shall be furnished by the Contractor. It may be available by connecting to the Owner's (or Utility's) water system at a point approved by the Owner and Utility. The Owner (or Utility) shall charge the Contractor for water used in performing the above functions in accordance with the Owner's (or Utility's) established rate schedule. There shall be installed in each and every connection to the Owner's (or Utility's) potable water supply a reduced pressure zone backflow preventer meeting the requirements of AWWA C511. Contractor shall be required to meter all water used.

SC-6.03.D *Services, Materials and Equipment*

Add the following to Paragraph 6.03 of the General Conditions:

D. Provisions of the Contract Documents relating to all materials and equipment and how they are to be applied, installed, connected, erected, used, cleaned, and conditioned does not assign the Engineer, or any of the Engineer’s consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or Performance of Work or any duty or responsibility contrary to the provisions of Paragraph 9.09.

SC-6.04.A.3 *Progress Schedule*

Add the following to Paragraph 6.04.A of the General Conditions:

3. The Contractor is required to promptly take appropriate action to recover schedule whenever A) the Engineer anticipates significant slippage beyond the Contract Time, and orders schedule recovery in writing; or B) any Contractor progress schedule activity is shown as slipping, due to acts or omissions within the control of the Contractor, by 15 (fifteen) or more days beyond the Contract Time. Under no circumstances whatsoever is Contractor entitled to inefficiencies arising from or related to overtime, second shift, or premium work. Contractor is solely responsible for costs incurred to recover schedule delays resulting from Contractor's acts or omissions.

SC-6.05.A.2.d.5) *Substitutes and "Or Equals"*

Add the following to Paragraph 6.05.A.2.d of the General Conditions:

5) The application will also contain an itemized estimate of all delays or schedule impacts that will result directly or indirectly from reviews, acceptance and provision of such substitute. In reviewing such substitutes, the Engineer shall consult with Owner and attach items of particular importance to operation, maintenance, repair and part stocking and placement considerations including standardization with similar materials or equipment, existing or planned, within Owner's existing system or facilities.

SC-6.05.B *Substitutes and "Or Equals"*

Add the following to the end of Paragraph 6.05.B of the General Conditions:

Contractor's application for use of substitute materials, equipment, or specific means, methods, technique, or procedure of construction, including reasonable time for Engineer and his Consultant to review the substitution and redesign, if required, shall not be considered as an acceptable basis for Contractor not meeting the substantial completion date, nor as a basis for a time extension of the Contract Time.

SC-6.06.B *Concerning Subcontractors, Suppliers and Others*

Relating to Paragraph 6.06.B of the General Conditions, the Contractor shall note the following:

Subcontractors, Suppliers, or other persons or organizations (including those who are to furnish the principal items of materials and equipment for the project) are to be identified for evaluation after bid opening, submitted in accordance with the Instructions To Bidder.

SC-6.07.B *Patent Fees and Royalties*

Add the following to the end Paragraph 6.07.B of the General Conditions:

The Contractor shall defend all such claims in connection with any alleged infringement of such rights.

SC-6.08.B *Permits*

Add the following to Paragraph 6.08 of the General Conditions:

B. Owner shall obtain and pay for construction permits for the project as identified in the Bidding Documents. All such Owner furnished permits and approvals are either contained in the Bidding Documents or are available for inspection upon request. A copy will be furnished to the successful Bidder after the effective date of the Agreement upon his request, and Contractor will follow all conditions and provisions of these permits, applications, regulations and approvals as a part of this project work as much as if they were wholly repeated herein. It is the Contractor's responsibility to apply to the local jurisdiction for any other required permits.

SC-6.11.A.4 *Limitation on Use of Site and Other Areas*

Add the following to Paragraph 6.11.A of the General Conditions:

4. Where the Contractor hauls Materials or Equipment to the Project over roads and bridges on the state park road system, state highway system, county road system, or city street system and such use causes damage, he shall immediately, at his expense, repair such road or bridge to as good a condition as before the hauling began.

SC-6.12.A *Record Documents*

Delete the last sentence of Paragraph 6.12.A of the General Conditions, and replace it with:

Upon completion of the Work, Contractor shall provide all such Samples to Owner, and copies of all such record documents and Shop Drawings shall be delivered to Engineer for Owner to the extent not previously provided.

SC-6.13.D *Safety and Protection*

Delete Paragraph 6.13.D of the General Conditions in its entirety and replace it with the following:

D. The Contractor’s duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and the certificate of final completion has been executed by the Owner, Engineer, and Contractor.

SC-6.13.E *Safety and Protection*

Add the following to Paragraph 6.13 of the General Conditions:

E. The Contractor shall implement traffic control in accordance with Maintenance of Traffic Control notes and details on the plans, in the technical specifications, and in accordance with FDOT and MUTCD requirements. The Contractor shall maintain traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences and businesses along the project; the furnishing, installation and maintenance of traffic control and safety devices during construction; daily inspections of the traffic control devices (including nighttime inspections); replacement of all equipment and devices found not to be conforming with approved standards during the inspection; the control of dust, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term “Maintenance of Traffic” shall include all such facilities, devices, and their operation as are required for the safety and convenience of the public as well as for minimizing public nuisance. This work shall also consist of the removal of existing pavement markings necessary in order to implement traffic control, temporary signs, and the removal or relocation of existing signs in order to implement traffic control. This work shall include any adjustments necessary to the traffic control devices under emergency conditions.

SC-6.17.D.2 *Shop Drawings and Samples*

Add the following after the first sentence Paragraph 6.17.D.2 of the General Conditions:

Engineer's approval shall also not extend to verification of actual field conditions.

SC-6.19.A *Contractor’s General Warranty and Guarantee*

Delete Paragraph 6.19.A of the General Conditions in its entirety and replace it with the following:

A. The Contractor warrants and guarantees to the Owner and the Engineer that all work, labor, materials, equipment and services furnished and performed will be done in a good and workmanlike manner and will be of the highest quality, free from defects and in accordance with the Contract Documents. Each application for payment submitted by the Contractor to the Owner shall be deemed to constitute a confirmation, restatement, and reaffirmation by the Contractor of the foregoing warranty and guarantee, with respect to all work, labor materials, equipment and

services performed and furnished for the Project through the date of such application. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in Paragraph 13. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

SC-6.19.D *Contractor's General Warranty and Guarantee*

Add the following to Paragraph 6.19 of the General Conditions

D. Contractor warrants and guarantees all computer controlled components incorporated into the Work accurately process date and time data (including but not limited to, calculating, comparing, and sequencing) and leap year calculations. This includes the proper exchange of date and time data with other such components.

SC-6.21.B *Delegation of Professional Design Services*

Delete paragraph 6.21.B of the General Conditions in its entirety and replace it with the following:

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. As a minimum, the design shall comply with all federal, state, and local laws, regulations, ordinances, and codes. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

SC-6.21.C *Delegation of Professional Design Services*

Delete paragraph 6.21.C of the General Conditions in its entirety and replace it with the following:

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals.

SC-9.01.A *Owner's Representative*

Add the following to Paragraph 9.01.A of the General Conditions:

If they choose to do so, the Owner or the Engineer may provide a Resident Project Representative who will function as the Resident Project Representative during the construction period thereby giving the Owner additional representation during the construction phase in addition to the periodic visits and certain other designated limited services to be provided by the Engineer during construction.

SC-9.03.A *Project Representative*

Delete paragraph 9.03.A of the General Conditions in its entirety and replace it with the following:

A. If a Resident Project Representative is furnished by either the Owner or Engineer to assist Engineer in observing the performance of the Work, then the following Duties, Responsibilities, and Limitations of the authority of the Resident Project Representative and assistants are as shown herein:

1. The Resident Project Representative (RPR), assistants and other field staff will assist Engineer in observing performance of the work of Contractor. The RPR and assistants may be employees of the Engineer or they may be employees of the Owner, depending on assignment based on availability, timing and scheduling.

2. The RPR, his assistants or other field staff, are not planned nor budgeted to be present full time at all work sites at all times while Contractor is working. Therefore there will be Contractor work that will not be observed. However, through more extensive periodic visits and onsite observations of the work in progress than provided through the Administration of Construction Work and by field check of materials and equipment by the RPR and assistants, Engineer shall endeavor to provide further protection for Owner against defects and deficiencies in the work of Contractor; but, the furnishing of such services will not make Engineer responsible for or give Engineer control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for Contractor’s failure to perform the Work in accordance with the Contract Documents.

3. The duties and responsibilities of the RPR are limited to those of Engineer in Engineer's agreement with the Owner and in the construction Contract Documents, and are further limited and described as follows:

a. RPR is Engineer's representative at the site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions. RPR's

dealings in matters pertaining to the onsite work shall in general be with Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of and under the direction of Engineer.

b. SCHEDULES: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.

c. CONFERENCES AND MEETINGS: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project related meetings, and prepare and circulate copies of minutes thereof.

d. LIAISON:

1) Serve as Engineer's liaison with Contractor, working principally though Contractor's superintendent and assist in understanding the intent of the Contract Documents; and assist Engineer in serving as Owner's liaison with Contractor when Contractor’s operations affect Owner's on-site operations.

2) Assists in obtaining from Owner additional details or information, when required for proper execution of the Work.

e. SHOP DRAWINGS AND SAMPLES:

1) Record date of receipt of Shop Drawings and samples.

2) Receive samples that are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.

3) Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by Engineer.

f. REVIEW OF WORK, REJECTION OF DEFECTIVE WORK, INSPECTIONS AND TESTS:

1) Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

2) Report to Engineer whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for

observation, or requires special testing, inspection or approval.

3) Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to Engineer appropriate details relative to the test procedures and startups.

4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.

g. INTERPRETATION OF CONTRACT DOCUMENTS: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by the Engineer.

h. RECORDS:

1) Maintain at the job site or other suitable location orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

2) Prepare or obtain a diary or log book or marked up plans or sketches, photographs or videos, recording Contractor hours on the job site, weather conditions, data relative to questions of Change Orders or changed field conditions, changes in the Construction from the Contract Documents, list of job site visitors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures; and maintain records and send appropriate copies to Engineer.

3) Record names, addresses, and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.

i. REPORTS:

1) Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

2) Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.

3) Draft proposed Change Orders, obtaining backup material from Contractor and recommend to Engineer Change Orders, and Field Orders.

4) Report immediately to Engineer and Owner upon the occurrence of any accident.

j. PAYMENT REQUESTS: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requests to the schedule of values, work completed, and materials and equipment delivered at the site but not incorporated in the Work.

k. CERTIFICATES, MAINTENANCE AND OPERATION MANUALS: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.

l. COMPLETION:

1) Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

2) Conduct final inspection in the company of Engineer, Owner and Contractor and prepare a final list of items to be completed or corrected.

3) Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance.

4. Limitations of Authority

a. Resident Project Representative

1) Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Engineer.

2) Shall not exceed limitations of Engineer's authority as set forth in the Agreement or the Contract Documents.

3) Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.

4) Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

5) Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.

6) Shall not accept Shop Drawings or sample submittals from anyone other than Contractor.

7) Shall not authorize Owner to occupy the Project in whole or in part.

8) Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

SC-9.09.F-G *Limitations on Engineer's Authority and Responsibilities*

Add the following to Paragraph 9.09

F. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the Engineer as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the Engineer any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09.

G. Engineer's recommendation for any payment, including final payment, shall not mean that Engineer is responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident hereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of Contractor to perform or furnish work in accordance with the Contract Documents.

SC-10.03.A.4 *Execution of Change Orders*

Add the following to Paragraph 10.03.A of the General Conditions:

4. Change Orders shall constitute a full accord and satisfaction of all costs of whatever nature, direct or indirect, arising from or related to the change, including, without limitation, impact on unchanged base contract work.

SC-10.05.B *Claims and Disputes*

In Paragraph 10.05.B of the General Conditions, change the time frame in which the opposing party must submit its response to the Engineer regarding the claimant's request from 30 days to 14 days, unless the Engineer allows additional time.

SC-10.05.F *Claims*

Add the following to the end of Paragraph 10.05.F of the General Conditions:

"including, without limitation, written notice requirements."

SC-10.05.G *Claims*

Add the following to Paragraph 10.05 of the General Conditions:

G. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty days after the date on which Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty days' period shall result in Engineer's decision being final and binding upon Owner and Contractor. In no event may any such action be brought after the time at which instituting such proceedings would be otherwise barred by the applicable statute of limitations.

SC-11.01.A.4 *Cost of the Work*

Delete "attorneys" from the list of special consultants in Paragraph 11.01.A.4 of the General Conditions

SC-11.03.D *Unit Price Work*

Delete Paragraph 11.03.D, including subparagraphs 11.03.D.1, 11.03.D.2, and 11.03.D.3 of the General Conditions in their entirety and replace them with the following:

D. The Owner reserves the right to alter the Drawings, modify incidental work as may be necessary, and increase or decrease quantities of work to be performed to accord with such changes, including deduction or cancellation of any one or more of the Pay Items. Changes in the work shall not be considered as a waiver of any conditions of the Contract nor invalidate any provisions thereof. When changes result in changes in quantities of Work to be performed, the Contractor will accept payment according to Contract Unit Prices that appear in the original Contract. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. If the total cost of a particular item of Unit Price Work amounts to 10% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25% from the estimated quantity of such item indicated in the Proposal or Agreement; and

2. If there is no corresponding adjustment with respect to any other item of Work; and

3. If Contractor believes that it has incurred additional expense as a result thereof; or

4. If Owner believes that the quantity variation entitles it to an adjustment in the unit price, either Owner or Contractor may make a claim for an adjustment in the Contract Price in accordance with Article 12 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-12.02.C-E *Change of Contract Times*

Add the following to Paragraph 12.02 of the General Conditions:

C. The Contractor agrees that said work shall be prosecuted regularly, diligently and without interruption at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner that the time for the completion of the work described herein is a reasonable time for the completion of the same. If the Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree as a part consideration for the awarding of this contract to pay to the Owner the amount specified elsewhere in these documents, not as a penalty, but as liquidated damages for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the work.

D. It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for performance of any act whatsoever; and where under the contract an additional time allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner.

E. The submission of the Bid shall be an indication that the Contractor has considered normal local weather conditions (daily and monthly variations) for the previous ten years from the date of the Bid as compiled by a national, state, or regional weather station which is within 25 miles of the project location. Contractor should consider and include the impact of normal local weather conditions on construction scheduling and sequencing when preparing the Bid. No claim shall be allowed based upon the schedule impact of normal local weather conditions.

SC-12.03.B *Delays*

Add the following to the end of Paragraph 12.03.B of the General Conditions:

Contractor's entitlement to an equitable adjustment of its Contract Price hereunder shall be for its direct, jobsite costs only. In no event shall it be entitled to recovery of indirect, offsite, or home office costs allegedly arising from or related to delays under this Paragraph 12.03.B.

SC-12.03.C *Delays*

Add the following to the end of Paragraph 12.03.C of the General Conditions:

In no event shall Contractor be entitled to an adjustment in Contract Price for delays described in this Paragraph 12.03.C.

SC-12.03.F *Delays*

Add the following to Paragraph 12.03 of the General Conditions:

F. Neither Engineer or Owner are liable to Contractor or its surety, or any of Contractor's Subcontractors or Suppliers for damages caused by delays within the control of or reasonably anticipatable by Contractor or delays beyond control of Owner or Contractor such as fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner.

SC-13.03.B *Tests and Inspections*

Delete Paragraph 13.03.B, including subparagraphs 13.03.B.1, 13.03.B.2, and 13.03.B.3 of the General Conditions in their entirety and replace them with the following:

B. The Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except when otherwise specified by the Contract Documents.

SC-13.03.G *Tests and Inspections*

Add the following to Paragraph 13.03 of the General Conditions:

G. Neither observations by the Engineer nor inspections, tests, or approvals by others shall relieve the Contractor from the Contractor's obligations to perform the Work in accordance with the Contract Documents.

SC-13.04.C *Uncovering Work*

Delete the first parenthetical grouping in paragraph 13.04.C of the General Conditions that states, "(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)" and replace the deleted text with the following:

"(including but not limited to all fees and charges of engineers, architects and other non-legal professionals)"

SC-13.06.A *Correction or Removal of Defective Work*

Delete the first parenthetical grouping in paragraph 13.06.A of the General Conditions that states, "(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)" and replace the deleted text with the following:

"(including but not limited to all fees and charges of engineers, architects and other non-legal professionals)"

SC-13.08.A *Acceptance of Defective Work*

Delete the second parenthetical grouping in paragraph 13.08.A of the General Conditions that states, "(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)" and replace the deleted text with the following:

"(including but not limited to all fees and charges of engineers, architects and other non-legal professionals)"

SC-13.09.C *Owner May Correct Defective Work*

Delete the first parenthetical grouping in paragraph 13.09.C of the General Conditions that states, "(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)" and replace the deleted text with the following:

"(including but not limited to all fees and charges of engineers, architects and other non-legal professionals)"

SC-14.02.A.2 *Application for Payments*

Delete Paragraph 14.02.A.2 of the General Conditions in its entirety and replace it with the following:

2. Each Application for Payment shall include an affidavit of Contractor, in the form of the "Partial Release of Lien", stating that the Contractor releases a part of its lien, and quit claims all liens, lien rights, claims or demands of every kind to the Owner on the part released. The amount released shall be for the amount of Work completed through previous applications for payment.

SC-14.02.B.5.e-j *Review of Applications*

Add the following paragraphs to Paragraph 14.02.B.5 of the General Conditions:

e. The Work for which payment is requested cannot be verified,

f. Claims or Liens have been filed or there is reasonable evidence indicating the probable filing thereof,

g. Of unsatisfactory prosecution of the Work, including failure to clean up as required by the Contract Documents;

h. Of persistent failure to cooperate with other contractors on the Project and persistent failure to carry out the Work in accordance with the Contract Documents;

i. Of liquidated damages payable by the Contractor; or

j. Of any other violation of, or failure to comply with, the provisions of the Contract Documents.

SC-14.02.C.1 *Payment Becomes Due*

Delete Paragraph 14.02.C.1 of the General Conditions in its entirety and replace it with the following:

1. Upon receipt of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor. Owner will endeavor to make payment to Contractor within 30 days upon receipt of the Application for Payment from Engineer.

SC-14.09.B *Waiver of Claims*

Add the following to Paragraph 14.09 of the General Conditions:

B. The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the Engineer, nor the issuance of a certificate of Substantial Completion, nor any payment

by the Owner to the Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by the Owner, nor any act of acceptance by the Owner nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by the Engineer pursuant to Paragraph 14.07.B, nor any correction of defective work by the Owner will constitute an acceptance of Work not in accordance with the Contract Documents or a release of the Contractor's obligation to perform the Work in accordance with the Contract Documents.

SC-15.02.A.5-8 *Owner May Terminate for Cause*

Add the following to Paragraph 15.02.A of the General Conditions:

5. If the Contractor commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if the Contractor takes any equivalent or similar action by filing a petition or otherwise under any federal or state law in effect at such time relating to bankruptcy or insolvency;

6. If a petition is filed against the Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against the Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency

7. If the Contractor makes a general assignment for the benefit of creditors;

8. If a trustee, receiver, custodian or agent of the Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of property of the Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of the Contractor's creditors.

SC-15.02.C *Owner May Terminate for Cause*

Delete the parenthetical grouping in paragraph 15.02.C of the General Conditions that states, "(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)" and replace the deleted text with the following:

"(including but not limited to all fees and charges of engineers, architects and other non-legal professionals)"

SC-15.02.G *Owner May Terminate for Cause*

Add the following to Paragraph 15.02 of the General Conditions:

G. If after notice of termination as provided for in this Paragraph 15.02, it is determined by a court of competent jurisdiction for any reason that Contractor was not in default or that its default was excusable or that Owner was not entitled to exercise its default remedies, the termination shall be deemed to be a termination for convenience pursuant to Paragraph 15.03 and Contractor's remedies shall be the same as and shall be limited to those afforded by Paragraph 15.03.

SC-15.03.A *Owner May Terminate for Convenience*

Delete Paragraph 15.03.A of the General Conditions in its entirety, including subparagraphs 15.03.A.1, 15.03.A.2, 15.03.A.3, and 15.03.A.4, and replace it with the following:

A. The Owner may terminate this Contract in whole or in part for its convenience, without cause, provided that the Contractor is given not less than seven (7) calendar days written notice and an opportunity for consultation with the Owner prior to termination.

1. When the Contract is terminated for the Owner's convenience, the Contract Price shall be reduced in the proportion to which the canceled or incomplete Work relates to all the Work to be done by Contractor upon the Project. In such event, Contractor shall and hereby does release and discharge the Owner and Engineer from any and all claims arising out of, or as a result of such cessation or cancellation and termination; provided, however, that in any and all such events, Contractor shall be entitled to receive payment from the Owner based on applicable unit prices for contract work already done and performed in accordance with the Contract Documents and not yet paid for, with reimbursement for any actual and provable loss incurred by Contractor with respect to materials, equipment and subcontractors (e.g. reasonable cancellation charges, if any, payable to subcontractors and suppliers and demobilization costs.)

SC-15.05.A-C *Owner May Stop Work*

Add the following new paragraphs 15.05.A-C to Article 15 of the General Conditions:

15.05 *Owner May Stop Work*

A. The Owner may, but is not obligated to, stop work if any one or more of the following occur:

1. Contractor fails to perform the Work in compliance with the required Maintenance of Traffic provisions.

2. Contractor does not provide the required competent resident superintendent at all times during the progress of the Work.

3. Contractor fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents.

4. Contractor fails to obtain, maintain, or renew insurance in conformance with the Contract Documents, or if any insurance company Contractor has obtained insurance with has declared bankruptcy or is declared bankrupt.

5. Contractor fails to prosecute the Work without endangering persons or property.

B. If one or more of the events identified in paragraph 15.05.A occur, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. Any stop of Work order issued by Owner does not give control or responsibility over supervision of the Work, construction means, methods, techniques, sequences or procedures or for safety precautions or programs to Owner or Engineer. During the stoppage of the Work, the Contractor is fully responsible for maintaining all safety and protection requirements in accordance with the General and Supplementary Conditions. If Owner does not stop Work, whether at its discretion or because it is unaware of an occurrence that could cause it to issue a stop Work order, continuation of the Work without stoppage does not make the Owner or Engineer responsible for the safety and protection of the Work.

C. Contractor shall bear all direct costs (including but not limited to fees and charges of engineers, architects and other non-legal professionals, any additional expenses incurred by Owner due to delay of others performing Work under a separate contract) of any stoppage of Work order issued by Owner in accordance with paragraphs 15.05.A and 15.05.B. Contractor shall further bear the responsibility for maintaining the Progress Schedule and shall not be entitled to any extension of Contract Time or increase in Contract Price.

SC-16.01.A-F *Methods and Procedures (Dispute Resolution)*

Delete Paragraph 16.01 of the General Conditions in its entirety, including subparagraphs 16.01.A, 16.01.B, 16.01.C, 16.01.C.1, 16.01.C.2, and 16.01.C.3, and replace them with the following new Paragraphs:

A. The chosen method for dispute resolution for this project is mediation. Mediation pursuant to this Paragraph shall be treated as compromise and settlement negotiations for purposes of the Florida Rules and Evidence.

B. As provided above, the parties shall endeavor to settle the dispute by mediation. The proceeding will be conducted in accordance with the then current Center For Public Resources ("CPR") Model Procedure for Mediation of Business Disputes, with the following exceptions:

1. If the parties have not agreed within ten (10) days of the request for mediation on the selection of a mediator willing to serve, the CPR, upon the request of either party, shall appoint a member of the CPR Panels of Neutrals as the mediator, and

2. Efforts to reach a settlement will continue until the conclusion of the proceeding, which is deemed to occur when: (a) a written settlement is reached, or (b) the mediator concludes and informs the parties in writing that further efforts would not be useful, or (c) the parties agree in writing that an impasse has been reached. Neither party may withdraw before the conclusion of the proceeding.

C. The parties regard the aforesaid obligation to mediate as essential provision of this Agreement and one that is legally binding on them. In case of a violation of such obligation by either party, the other may bring an action to seek enforcement of such obligation in any court of law having jurisdiction thereof.

D. The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the project is located, unless another location is mutually agreed upon.

E. If the dispute has not been resolved by mediation as provided herein within one hundred twenty (120) days of the initiation of such mediation procedure, either party may initiate litigation upon ten (10) days' written notice to the other party.

F. All applicable statutes of limitation and defenses based upon the passage of time shall be tolled while the procedures specified in this Section are pending. The parties will take such action, if any, required to effectuate such tolling.

SC-16.02 *Methods and Procedures (Dispute Resolution)*

Add the following new paragraph 16.02.A to Article 16 of the General Conditions:

16.02 *Methods and Procedures (Dispute Resolution)*

A. Litigation arising out of or related to this contract shall be governed by the laws of Florida and adjudicated in the courts of the County within which the project is located.

SC-17.01.A.3 *Giving Notice*

Add the following to Paragraph 17.01.A of the General Conditions:

3. The parties' obligation to provide written notice under this Agreement may not be waived. Electronic or computerized mail is not an acceptable form of delivery of notices required by this Contract. The parties expressly and unequivocally waive any claim against the other based upon actual, verbal, or constructive notices. All written notice requirements are to be strictly construed and are a non-waivable condition precedent to pursuing any claims, rights, or remedies by under this Agreement.

SC-17.07.A *Mutual Waiver of Consequential Damages*

Add the following new Paragraph 17.07.A to Article 17 of the General Conditions:

17.7 *Mutual Waiver of Consequential Damages*

A. Except to the extent of liquidated damages payable by Contractor under this Agreement and the express third party claim indemnification obligations of the parties hereunder, in no event shall either Owner or Contractor be liable to the other party under any legal theory whatsoever for consequential, incidental, punitive or exemplary damages of any nature whatsoever.

SC-17.08.A *Waiver of Jury Trial*

Add the following new Paragraph 17.08.A to Article 17 of the General Conditions:

17.8 *Waiver of Jury Trial*

A. The parties hereby expressly agree that all disputes, claims, and counterclaims relating to this Agreement and the project shall be litigated, adjudicated, or otherwise resolved without a jury. The parties expressly, voluntarily, and unequivocally waive any right they may have to a jury trial in connection with all disputes, claims, and counterclaims relating to this Agreement and the project.

END OF SECTION

SECTION 00930

REQUEST FOR INFORMATION

RFI No.: _____

Date Submitted: _____

Name of Project: _____

Owner: _____

Contractor: _____

RFI From: _____

Description of Request:

Response to Request:

Response Prepared by: _____

_____

Date of Response: _____

END OF SECTION

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SECTION 00940

PROJECT FIELD ORDER FORM

Field Order No.: _____

Name of Project: _____

Effective Date: _____

Owner: _____

Contractor: _____

Description of Field Order:

_____

_____

_____

_____

Reason for Field Order:

_____

_____

_____

_____

This Field Order has been issued to clarify, interpret or to order minor changes to the Project which do not affect the Contract Price or Contract Time.

Recommended By:

_____ _____

Kimley-Horn and Associates, Inc. Date

Executed By:

_____ _____

Owner's Authorized Representative Date

_____ _____

Contractor's Authorized Representative Date

END OF SECTION

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SECTION 00945

WORK CHANGE DIRECTIVE FORM

Work Directive No.: _____

Name of Project: _____

Agreement Date: _____

Owner: _____

Contractor: _____

Description of Change:

Reason for Change:

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of Determining the Change in Contract Price

_____ Time and Materials
_____ Unit Prices
_____ Cost Plus Fixed Fee
_____ Other

Estimated change in Contract Price = $_____. If the change involves an additional increase, estimated amount is not to be exceeded without further authorization.

Method of Determining the Change in Contract Time

_____ Contractor's Records
_____ Engineer's Records
_____ As Specified Below
_____ Other

Estimated change in Contract Time =_____days. If the change involves an additional increase, estimated time is not to be exceeded without further authorization.

Recommended By:

Kimley-Horn and Associates, Inc.	Date

Executed By:

Owner's Authorized Representative	Date
Contractor's Authorized Representative	Date

END OF SECTION

SECTION 00950

CHANGE ORDER

FORM

Change Order No. _____

Project Name: _____

Bid No.: _____

Owner: _____

Contractor: _____

Agreement Date: _____

This Change Order is necessary to cover changes in the work to be performed under this Agreement. The Agreement, General Conditions, Supplementary Conditions, and Technical Specifications contained in the Project Manual apply to and govern all work under this Change Order.

THE FOLLOWING CHANGES ARE MADE TO THE CONTRACT DOCUMENTS:

1. Original Contract Price	$_____
2. Current Contract Price (Adjusted by Previous Change Orders)	$_____
3. Total Proposed Change in Contract Price	$_____
4. New Contract Price (Item 2 + Item 3)	$_____
5. Original Contract Time	_____ DAYS
6. Current Contract Time (Adjusted by Previous Change Orders)	_____ DAYS
7. Total Proposed Change in Contract Time	_____ DAYS
8. New Contract Time (Item 6 + Item 7)	_____ DAYS
9. New Contract Substantial Completion Date	_____
10. New Contract Final Completion Date	_____

CHANGES ORDERED

ITEM 1

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

ITEM 2

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

ITEM 3

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

ITEM 4

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

ITEM 5

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

ITEM 6

Description of Change:

Reason for Change:

Change in Contract Price: $

Change in Contract Time: Days

CHANGE ORDER SUMMARY			
No.	**Description**	**Change in Contract Price**	**Change in Contract Time**
TOTAL		**$**	**Days**

WAIVER This Change Order constitutes full and mutual accord and satisfaction for the adjustment of the Contract Price and Contract Time as a result of increases or decreases in cost and time of performance caused directly and indirectly from the change. Acceptance of this Waiver constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Agreement and that CONTRACTOR shall waive all rights to file a Contract Claim or claim of any nature on this Change Order. Execution of this Change Order shall constitute CONTRACTOR's complete acceptance and satisfaction that it is entitled to no more costs or time (direct, indirect, impact, etc.) pursuant to this Change Order.

APPROVAL AND CHANGE ORDER AUTHORIZATION

ACKNOWLEDGMENTS

The aforementioned change, and work affected thereby, is subject to all provisions of the original Agreement and specifically changed by this Change Order; and

It is expressly understood and agreed that the approval of the Change Order shall have no effect on the original Agreement other than matters expressly provided herein.

WITNESS to CONTRACTOR:

_____
Contractor

_____ _____
Printed Name and Title of Officer

_____ _____
Date By (Signature)

_____
Date

(Corporate Seal)

ATTEST:

_____
Owner

_____ _____
(Signature) Printed Name and Title

_____ _____
Date By (Signature)

_____
(Seal) Date

END OF SECTION

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SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

Summary of work, other contracts, work sequence, operation of existing facilities, use of premises, Owner furnished products, coordination, cutting and patching.

1.02 SUMMARY OF WORK

A. The Project consists of the relocation/replacements of approximately 415 LF of 4" PVC and 1,880 6" PVC force main, including all the connections, fittings, valves, maintenance of traffic and all other appurtenances to provide a fully functioning system. Project also includes all the valve adjustments required for finish grade.

B. Furnish all materials, equipment, tools, 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.

C. All fees and permits for the permanent construction that are required by controlling agencies or authorities, including fees for the review of Contract Documents prior to construction, will be procured by the Owner. Other licenses or permits for construction facilities of a temporary nature that are necessary for the prosecution of the work shall be secured and paid for by the Contractor.

D. Repair, replace, or otherwise settle with the Owner, if damage to property or existing facilities occurs, including damage to pavements, utilities, lawns, structures, etc.

E. Construct the Project under a single LUMP SUM (LS) contract.

1.03 WORK UNDER OTHER CONTRACTS – N/A

1.04 WORK SEQUENCE

The Contractor's sequence of work may be of his choosing in order to complete the work in the allowed time frame while accommodating other contractors on site.

1.05 OPERATION OF EXISTING FACILITIES

The Owner shall be able to operate existing facilities 24 hours per day, 7 days per week.

1.06 CONTRACTOR USE OF PREMISES

Confine operations at the site to areas permitted by applicable laws, ordinances, permits, and by the Contract Documents. Do not unreasonably encumber the site with materials or equipment. Do not load structures with weight that will endanger the structure. The Contractor shall assume full responsibility for protection and safekeeping of products stored on the job site

1.07 OWNER FURNISHED PRODUCTS – N/A

1.08 COORDINATION

A. The Contractor shall be fully responsible for the coordination of his work and the work of his employees, subcontractors, and suppliers and to assure compliance with schedules.

B. The coordination requirements of this Section are in addition to the requirements of Section 00800, Supplementary Conditions.

C. It is the Contractor's responsibility to coordinate with all the utilities regarding locates, testing, or relocations.

PART 2 PRODUCTS - Not Used PART 3

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

Measurement and payment provisions, schedule of values

1.02 GENERAL MEASUREMENT AND PAYMENT PROVISIONS

A. Payment for all work done in compliance with the Contract Documents, inclusive of furnishing all manpower, equipment, materials, and performance of all operations relative to construction of this project, will be made as a lump sum which will be complete payment for all work called for or reasonably inferable from the Contract Documents and other work will be considered incidental to the Contract and no additional compensation will be allowed.

B. The Owner reserves the right to alter the Drawings, modify incidental work as may be necessary, and increase or decrease the work to be performed to accord with such changes, including deductions or additions to the scope of work outlined in the Contract Documents. Changes in the work shall not be considered as a waiver of any conditions of the Contract nor invalidate any provisions thereof. Changes resulting in changes in the scope or quantities of Work or time or other conditions of work will be basis for consideration of a Change Order which is to be negotiated and executed before proceeding with the work. A supplemental agreement between the Contractor and the Owner will be required when such changes meet the conditions described in the Supplementary Conditions. Work which has not been authorized by a written Change Order will not be subsequently considered for additional payment.

C. The Contractor shall take no advantage of any apparent error or omission in the Drawings or Specifications, and the Engineer shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

D. If the Contractor makes a claim for an extra or additional cost and requests a Change Order be issued prior to performing the work, and the ENGINEER and/or OWNER renders a decision denying such request, the CONTRACTOR must notify the Engineer in writing within 3 days of the time that the CONTRACTOR is informed of the Engineer's decision. Otherwise the Owner will not consider any such difference as a claim for a Change Order or additional payment or time. Any such written notice received by the Engineer from the Contractor within the 3 day period shall be just reason for the Engineer to re-evaluate his previous decision.

E. Failure on the part of the Contractor to construct any item to plan or authorized dimensions within the specification tolerances shall result in: reconstruction to acceptable tolerances at no additional cost to the Owner; acceptance at no pay; or, acceptance at reduced price, all at the discretion of the Engineer.

F. Work shall not be considered complete until all testing has been satisfactorily completed and the item of work has demonstrated compliance with plans and specifications.

G. A preliminary monthly application for payment shall be submitted to the Owner/Engineer for review five (5) days prior to the submittal for approval of the Contractor's monthly payment request.

1.03 SCHEDULE OF VALUES

Submit Schedule of Values for approval prior to commencing construction. As a minimum, include those values reported on the Bid Form. The Schedule of Values shall be the basis for making payment applications and establishing prices for Change Orders.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01310

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 Section Includes

Meetings, construction progress documentation, submittals.

1.02 Related Sections

A. Section 01770 - Contract Closeout

B. Section 01780 - Record Drawings

1.03 Preconstruction Meeting

The Owner will schedule a preconstruction meeting prior to beginning the Work to review shop drawing procedures, submittal requirements, and construction administration requirements (project coordination and communication). The Contractor shall bring to the preconstruction meeting the proposed construction schedule, which will be reviewed with the Owner during the meeting.

1.04 Definitions

A. Shop Drawings - Shop drawings are original drawings, prepared by the Contractor, a subcontractor, supplier, or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting, or erection details. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Contract Drawings

B. Product Data - Product data are manufacturer's standard schematic drawings and manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Catalog sheets, brochures, etc., shall be clearly marked to identify pertinent materials, products, or models.

C. Samples - Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which work is to be evaluated.

1.05 Submittal Requirements

A. Prior to submission, thoroughly check shop drawings, product data, and samples for completeness and for compliance with the Contract Documents. Verify all field measurements, quantities, dimensions, specified performance criteria, fabrication, shipping, handling, storage, assembly, installation, and safety requirements.

B. Coordinate the submittals with the requirements for other related work.

C. Notify the Engineer, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Documents. The Contractor's responsibility for deviations in submittals from the requirements of the Contract Documents is not relieved by the Engineer's review of submittals, unless the Engineer gives written acceptance of specific deviations.

D. Submit at least six (6) copies of each shop drawing and product data. The specific number of copies required of all submittals will be determined during the preconstruction meeting. Submit the number of samples indicated in the individual Specification Sections.

E. Where a specific product manufacturer and model number is listed in individual specification sections and is proposed by the Contractor to be used, full submittal of product data is not required. In this case, submit in letter format the name of the product, manufacturer, model number, specification section, and name of project. Certify the identified product is proposed to be used in the project.

F. Shop drawings, product data, and samples shall be accompanied by a letter of transmittal referring to the name of the project and to the specification page number and/or Drawing number for identification of each item. Submittals for each type of work shall be numbered consecutively, and the numbering system shall be retained throughout all revisions.

G. Submittals shall bear the Contractor's stamp of approval certifying that they have been checked and indicate appropriate specification section and/or drawing location. Submittals without the Contractor's initialed or signed certification stamp and submittals which, in the Engineer's opinion, are incomplete, contain numerous errors or have not been properly checked, will be returned unchecked by the Engineer for resubmission.

H. Begin no work which requires submittals until return of submittals with Engineer stamp and initials or signature indicating the submittal has been approved.

1.06 Engineer Review of Submittals

A. Engineer’s review and approval of submittals will not extend to means, methods, techniques, sequences, procedures of construction or to safety precautions.

B. The review and approval of a separate item will not indicate approval of the assembly in which the item functions. Engineer’s review and approval of submittals shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents.

C. The Engineer will review submittals with reasonable promptness. The Engineer's review of submittals shall not be construed as a complete check and shall not relieve the Contractor from responsibility for complete compliance with the Contract requirements.

D. No corrections, changes, or deviations indicated on submittals reviewed by the Engineer shall be considered as a change order.

E. Where review of submittals is required by the Owner or other agencies, the Engineer will forward the appropriate submittal(s) to these parties after Engineer review. Once review of all parties is complete, the submittal(s) will be returned to the Contractor reflecting the review of all parties

F. If the submittal is not satisfactory, one copy of the submitted item will be retained by the Engineer and all other copies returned to the Contractor for appropriate action.

G. In the event a third submittal is required, due to previous submittals of incomplete or incorrect data or not in compliance with the Contract Documents, the Contractor will be charged one-half of the cost incurred by the Engineer for the review of the third submittal. The Contractor shall bear the total cost incurred by the Engineer for all subsequent reviews. The Engineer costs charged to the Contractor will be at the cost plus rate generally charged by the Engineer and will be deducted by the Owner from payments due to the Contractor.

H. Distribution of copies of acceptable submittals will be as mutually determined by the Contractor, Owner, and Engineer on an individual item basis during or following the preconstruction conference.

1.07 Progress Meetings

A. The frequency of progress meetings shall be determined during the preconstruction meeting. As a minimum, progress meetings shall be held once per month during construction.

B. The Contractor and Owner shall attend the progress meetings.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01315

PRECONSTRUCTION VIDEO

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide continuous color audio-DVD recording along the entire length of all proposed work areas prior to construction to serve as a record of pre-construction conditions.

B. Supplement audio video recording with digital color photographs for areas which require details not ascertainable on the DVD.

1.02 RELATED REQUIREMENTS

Section 01310 - Administrative Requirements

1.03 DEFINITIONS

Construction Area - All areas used for construction of the proposed improvements, temporary construction, stockpile areas, staging and storage areas, and entry and exit points used by equipment, delivery vehicles, service vehicles, and other vehicles used for transport of labor, equipment, and materials to the job site.

1.04 QUALIFICATIONS

The preconstruction audio-video recording shall be of professional quality that will clearly log an accurate visual description of existing conditions. Any portion of the digital recording that is determined by the Owner or Engineer to be not acceptable in the documentation of the existing condition shall be re-filmed at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 GENERAL

The total video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The digital portion of the recording shall produce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection. The audio portion of the recording shall produce the commentary of the camera operator with proper volume, clarity, and be free from distortion. The recording system shall utilize EIA standard video and RGB compatible video.

2.01 CAMERA

The camera used in the recording system shall be capable of recording in true color and on standard format DVD.

2.02 RECORDER

The recording shall be made with a DVD-based DVR. The recorder shall record the color signal with a minimum horizontal resolution of 240, 4:3 lines, aspect ratio, MPEG-2 video, stored at a resolution of 720 x 480 (NTSC). Audio shall be recorded using Dolby Digital (AC-3) minimum.

2.03 VIDEO DISK

The video disk used for the recordings shall be high resolution, extended still frame capable. The video disk shall be new and thus shall not have been used for any previous recording.

2.04 VIDEO PLAYBACK COMPATIBILITY

The recorded DVD shall be compatible for playback with any TV Standard DVD player.

PART 3 EXECUTION

3.01 GENERAL

A. The recordings shall contain coverage of all surface features located within the construction area and extend outward a minimum of 30-ft outside the construction area plus all off road access routes used to reach the construction area. The recording shall include all surface conditions supported by appropriate audio description.

B. The surface features documented in the recordings shall include, but not be limited to, all driveways, sidewalk, curb, gutter, buildings, walls, storage sheds, swales, culverts, headwalls, landscaping, trees, shrubbery, pull boxes, valve boxes, concrete pads, power poles, mailboxes, and fences.

C. The recordings shall also document the existence or nonexistence of any faults, fractures, or defects, and existing man made material such as debris, construction stockpiles, trash, and fuel containers.

D. Each video recording of each DVD shall be a simultaneous recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the feature being shown in the video portion of the recording. The audio recording also shall be free from any conversations between the camera operator and any other production technicians.

E. All DVDs shall be permanently labeled and shall be properly identified by video number, Project title, and date(s) of the recording.

F. Each video shall have a log of that video's contents. The log shall describe the various segments of coverage contained on that video in terms of the names of streets or easements, coverage beginning and end, directions of coverage, and video unit counter numbers.

3.2 RECORDING SCHEDULE

A. The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site.

B. The Contractor shall coordinate the video recording with the construction schedule so that those portions of the construction that will be completed first will be recorded first.

C. Off road access routes to and from the construction area shall be recorded prior to mobilizing to work areas.

D. The Contractor shall deliver the video recordings to the Owner upon their completion. Upon delivery of the DVD's, transfer of ownership of those DVD's shall be made to the Owner.

3.03 VISIBILITY

All recordings shall be performed during times of good visibility. No recording shall be done during periods of significant precipitation, mist, or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject, and to produce bright, sharp video recordings of those subjects. No recording shall be performed when more than 10% of the area to be recorded contains debris or obstructions unless otherwise authorized by the Engineer.

3.04 CONTINUITY OF COVERAGE

A. In order to increase the continuity of the coverage, the coverage shall consist of a single, continuous, unedited recording which begins at one end of a particular 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.

B. The average rate of travel during a particular segment of coverage (e.g., coverage of one side of the street) shall be directly proportional to the number, size, and value of the surface features within that construction area's zone of influence.

3.05 CAMERA HEIGHT AND STABILITY

When conventional wheeled vehicles are used as conveyances for the recording system, the distance between the camera lens and the ground shall not be more than 10 feet. The camera shall be firmly mounted, such that transport of the camera during the recording process will not cause any unsteady picture.

3.06 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, chroma, white balance, and electrical focus, shall be properly controlled or adjusted to maximize recorded picture quality.

3.07 VIEWER ORIENTATION TECHNIQUES

The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views and visual displays of all visible house and building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent in the recorded video, highly visible yellow flags shall be placed in such a fashion as to clearly indicate the proposed centerline of construction.

3.08 AREAS TO BE VIDEO RECORDED

A. When video recording on private property, the Contractor shall give the Owner sufficient prior notice of such entry so that property owners may be advised of, and their permission obtained for, the Work.

B. All video recording shall be done during regular business hours, unless otherwise specified by the private property owner or the Engineer. The Contractor shall enter and leave private property in a professional and orderly, workmanlike manner.

END OF SECTION

SECTION 01320

PROJECT COMPLETION SCHEDULE

PART 1 GENERAL

1.01 Section Includes

1. Project completion scheduling

1.02 Submittals

A. Prior to construction, prepare a schedule showing all major activities needed to complete project. Include major material and equipment order and delivery times. Submit to Owner no later than the date of the preconstruction conference.

B. Schedule to utilize Critical Path Method formatted by establishing a precedence diagram which is time scaled. Include on schedule activity start dates, stop dates, and duration; critical path; float; delivery schedules. Include submittal dates and durations for components with extended lead times in schedule.

C. Include on the schedule a minimum float of 1 day every 3 weeks during construction.

D. Project substantial and final completion dates shown on schedule shall be same as or earlier than the contractual dates.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Monitoring and Updating of Schedule

A. Float shown on the schedule belongs to the project.

B. Progress data shall be accumulated to update the schedule on a monthly basis, prior to submittal of the application for payment. Progress data shall include:
1. Activities started
2. Activities completed.
3. Predicted activity starts
4. Predicted activity completions
5. Changes in original duration for specific activities
6. Changes in activity sequences
7. Percent complete on activities

C. Update of schedule to include effect of the progress projected for the next two (2) reporting periods.

END OF SECTION

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SECTION 01410

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 Section Includes

Regulatory requirements, project permits

1.02 Requirements of Regulatory Agencies

A. All piping installed within the right-of-way of any city, county, state, or federal highway or railroad shall be in accordance with a permit to construct issued by the controlling agency and obtained by the Owner. In no case shall an open trench be constructed within a railroad right-of-way unless otherwise indicated.

B. Whenever the Drawings and Specifications conflict with the requirements of the permit, then the requirements of the permit shall govern and the cost of abiding by the provisions of the permit shall be considered incidental to the Contract.

C. All electrical apparatus and wiring pertaining to a piece of equipment or an appliance furnished and installed under this Contract shall comply with the National Electrical Code and shall be listed by Underwriters Laboratories or bear the approval of a recognized Testing Laboratory approved by the Engineer.

D. All construction projects 1 or more acres in size that discharge to offsite areas are required to abide by the provisions of the National Pollution Discharge Elimination System (NPDES) General Permit.

1.03 Project Permits

A. The following permits have been obtained for the construction of the project, and are contained in the Appendix of the Project Manual:

1. Right-of-Way Permit to be obtained by Contractor.

B. The Contractor shall review and become familiar with all permits for the Project, complete with all conditions, attachments, exhibits and permit modifications. A copy of all permits for the Project shall be maintained by the Contractor at the project site, and shall be available for review upon request.

C. The Contractor shall be fully responsible to abide by all provisions of the permits. The Contractor is responsible for the selection, implementation and operation of all measures required by the permits, including the maintenance of said measures as necessary during construction. No additional compensation will be allowed for any work associated with permit requirements.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01415

STORMWATER POLLUTION PREVENTION / NPDES REQUIREMENTS

PART 1 GENERAL

1.01 Section Includes

Stormwater Pollution Prevention Plan requirements and recommendations under the NPDES program for construction projects located in Florida.

1.02 Purpose

The purpose of this section is to outline minimum requirements for stormwater pollution prevention as required under the NPDES program. There may be more stringent local government or Owner requirements for Erosion and Sediment Control, which would be located in the Specifications or on the Drawings. The more stringent requirement governs.

1.03 Related Sections

A. Section 01410 – Regulatory Requirements

B. Section 02370 – Erosion and Sediment Control

1.04 Abbreviations

A. NPDES - National Pollution Discharge Elimination System

B. SWPPP - Stormwater Pollution Prevention Plan

C. NOI - Notice of Intent

D. NOT - Notice of Termination

1.05 Definitions

The term “NPDES Generic Permit” means the State of Florida Department of Environmental Protection (FDEP) Generic Permit For Stormwater Discharge from Large and Small Construction Activities.

1.06 Construction Projects Requiring Compliance with NPDES Generic Permit

A. All projects 1 or more acres in size that discharge to offsite areas.

B. Smaller projects that are in the same construction corridor as larger construction projects where the larger project is 1 or more acre in size and is required to comply with the NPDES Generic Permit. In this case, even if the smaller project is less than 1 acre in size, the smaller project must comply with the NPDES Generic Permit.

1.07 General Requirements

A. Construction of this project is required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Generic Permit for Stormwater Discharge from Small and Large Construction Activities.

B. In order to meet NPDES requirements, the Contractor is responsible for preparing a Stormwater Pollution Prevention Plan (SWPPP), implementing, inspecting, maintaining, and reporting on all elements of the SWPPP, completing and submitting the required Notice of Intent (NOI) and Notice of Termination (NOT) forms as the Operator, and paying all associated fees. Copies of the NPDES Generic Permit, NOI, and NOT forms, and permit application fee information are available for download at dep.state.fl.us/water/stormwater/npdes/

C. The Contractor must include in the SWPPP the names and addresses of all subcontractors working on this project who will be involved with the major construction activities that disturb site soil or who implement a pollutant control measure. These subcontractors, in addition to the Contractor, shall comply with the requirements of the NPDES Generic Permit and any local governing agency having jurisdiction concerning erosion and sedimentation control, and shall sign a copy of the certification statement in the SWPPP.

D. The SWPPP shall describe and ensure the implementation of best management practices which will be used to reduce the pollutants in stormwater discharge associated with construction activity and to assure compliance with the terms and conditions of the NPDES Generic Permit. The erosion and sediment control measures shown on these Drawings are the minimum required and are to be installed prior to construction. The Contractor is responsible for complying with all applicable rules, regulations and water quality standards and may need to install additional controls to meet these requirements.

1.08 SWPPP Implementation and Submittal Requirements

A. The SWPPP shall be completed prior to submittal of the NOI and shall include the elements necessary to comply with the NPDES Generic Permit for construction activities administered by the FDEP and shall also include all local governing agency and Owner requirements. There may be more stringent local government or Owner requirements for Erosion and Sediment Control, which would be located in the Specifications or elsewhere on these Drawings.

B. The Contractor must file the NOI with FDEP and the Owner at least two (2) business days prior to the start of construction. The Contractor shall also submit a copy of the NOI to the MS4 operator for all projects that discharge stormwater

associated with construction activity to a municipal separate stormwater system (MS4). A copy of the NOI and a description of the project must be posted in a prominent place for public viewing at the construction site.

C. The SWPPP must be implemented at the start of construction. A complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept in the permanent project records for at least three years following submission of the NOT.

D. Final Stabilization means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover (evenly distributed, without large bare areas) with a density of at least 70% for all unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as geotextiles) have been employed. Once construction is completed and final stabilization has been achieved, the Contractor must file the NOT to FDEP, the Owner, and the MS4 operator within 14 days.

1.09 Inspections

A. It is the responsibility of the Contractor to assure the adequacy of site pollutant discharge controls. Between the time the SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater. The inspections are to be conducted by the Contractor's qualified designated representative.

B. All inspections shall be documented in an inspection report that summarizes the scope of the inspection, the names and qualifications of personnel making the inspection; the date of the inspection; rainfall data; major observations relating to the implementation of the SWPPP, and actions taken in order to ensure compliance with NPDES requirements and the SWPPP. Such reports shall identify any incidents of non-compliance and actions taken to bring the project into compliance. Where a report does not identify any incidents of non- compliance, the report shall contain a certification that the facility is in compliance with the NPDES requirements and the SWPPP. Each inspection report shall be signed and certified by each inspector.

1.10 Updating and Modifying the SWPPP

A. Based on inspection results, any modifications necessary to increase effectiveness of the SWPPP to an acceptable level must be made within seven calendar days of the inspection.

B. The SWPPP must be updated each time there are significant modifications to the pollutant prevention system or a change of contractors working on the project who disturbs site soil. For construction activities where the operator changes, the new operator shall file an NOI for coverage under this permit at least two (2) days before assuming control of the project and the previous operator shall file an NOT to terminate permit coverage in accordance with the NPDES Generic Permit.

Amendments to the plan shall be prepared, signed, dated, and kept as attachments to the original SWPPP.

1.11 Minimum SWPPP Provisions

A. Each SWPPP shall provide a description of pollutant sources and other information including a description of the nature of the construction activity; the intended sequence of major activities which disturb soils for major portions of the site; estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other construction activities; existing data describing the soil or the quality of any discharge from the site and an estimate of the size of the drainage area for each discharge point; a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which may not be disturbed, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters, wetlands, and locations where stormwater is discharged to a surface water or MS4; and the latitude and longitude of each discharge point and the name of the receiving water(s) for each discharge point.

B. The following site data is provided to the Contractor for use in preparing the SWPPP and completing the NOI:

Total Site Area:	
Total Area Impacted by Construction:	
Existing Site Soils:	
Drainage Area Contributing to Each Discharge Point:	
Latitude and Longitude of Project Location:	
MS4 Operator Name:	
Receiving Waters:	

1.12 Minimum Erosion and Sediment Control Construction Requirements

A. Stabilize all construction site exits with coarse aggregate or other approved materials, in accordance with details on the Drawings. Other minimum construction requirements that need to be implemented in order to comply with the NPDES Generic permit include installation of sediment barriers down slope from construction activities that disturb site soil; constructing rock surface temporary parking areas; installation of sediment barriers down slope prior to clearing and grubbing; installation of sediment barriers on the down slope side of utility construction and soil stockpiles; and the installation of sediment barriers on the down slope side of grading activities.

B. Stabilization measures shall be initiated as soon as practicable, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

C. The Owner has the authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, trenching, borrow and embankment operations. The Owner also has authority to direct Contractor to provide immediate permanent or temporary erosion and sediment control measures.

D. The Contractor shall respond to erosion and sediment control maintenance requirements or implement additional measures to control erosion ordered by Owner or governing authorities within 48 hours or sooner if required at no additional cost to the Owner.

E. The Contractor shall incorporate permanent erosion control features into project at earliest practical time to minimize need for temporary controls.

F. For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences, or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

G. Water trucks shall be used as needed during construction to reduce dust generated on the site. Dust control must be provided by the Contractor and shall be in compliance with applicable local and state dust control regulations.

1.13 Maintenance Requirements

A. Maintain all erosion and sediment control measures throughout construction. Repair or replace all damaged sediment barriers. Remove accumulated sediment along all silt fences where the height of the sediment exceeds one-third of the height of the silt fence. Inspect all temporary and permanent grassing area and re-grass where there are bare spots, washouts, or unhealthy growth.

B. At the completion of construction, once final stabilization has been achieved, clean all accumulated sediment from all storm structures, pipelines, and stormwater ponds. Remove all temporary sediment controls upon receipt of authorization to remove has been received from the Owner or Engineer. Note that this may not occur for some time after construction activities have been

completed, in order to ensure their removal has not occurred until final stabilization has been achieved to the satisfaction of the Owner and Engineer.

1.14 Stormwater Discharge Provisions

A. Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the governing local agency. Water used for construction that does not originate from an approved public supply must not discharge from the site. Allowable non-stormwater discharges include discharges from firefighting activities; Fire hydrant flushing; Water used to wash vehicles or control dust; Water flowing from potable sources and water line flushing; Irrigation drainage; and runoff from pavement wash down where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents have not been used.

B. Solid materials, including building materials, are not allowed to be discharged from the site with stormwater. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers shall be emptied periodically by a contract trash disposal service and hauled away from the site.

C. Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil in accordance with local and state regulations.

D. All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities shall be provided at the site throughout the construction phase for use by all construction personnel and shall be serviced by a commercial operator at least once a week.

E. Discharges resulting from groundwater dewatering activities at construction sites are permitted provided the groundwater is free of sediments, is not contaminated, and dewatering occurs in accordance with state and local governing agency regulations.

F. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed at an approved solid waste or chemical disposal facility.

G. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented. This does not relieve the operator of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken. The SWPPP must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

CONTRACTOR AND SUBCONTRACTOR CERTIFICATION

The Contractor and subcontractor(s) that will implement the pollutant control measures described in the SWPPP must be identified below. Each must sign a statement certifying that they understand the NPDES Generic permit authorizing stormwater discharges during construction. These statements must be maintained in the SWPPP file on site.

Contractor implementing the SWPPP:

_____

Business Name

_____

Business Address

_____

_____

_____

Business Telephone Number

CERTIFICATION: (Note signature requirements in Part VI.G. of the NPDES Generic Permit.)

> **"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."**

_____

Signature Date

_____

Printed Name

CONTRACTOR
CERTIFICATION

The SWPPP has been prepared by:

_____
Business Name

_____
Business Address

_____

_____

_____
Business Telephone Number

The Contractor who has prepared the SWPPP shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____
Signature Date

_____
Printed Name

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

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SECTION 01420

REFERENCES

PART 1 GENERAL

1.01 Section Includes

Referenced standards and abbreviations

1.02 Referenced Standards

A. Any reference to published specifications or standards of any organization or association shall comply with the requirements of the specification or standard which is current on the date of Advertisement for Bids. In case of a conflict between the referenced specifications or standards, the one having the more stringent requirements shall govern.

B. In case of conflict between the referenced specifications or standards and the Contract Documents, the Contract Documents shall govern.

1.03 Abbreviations

The following are definitions of abbreviations used within the Project Manual:

AA	Aluminum Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ANSI	American National Standard Institute
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FS	Florida Statutes
NEC	National Electrical Code
NECA	National Electrical Contractors' Association
NEMA	National Electrical Manufacturers Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PS	United States Products Standards
SSPC	Structural Steel Painting Council
UL	Underwriter's Laboratories, Inc.

FDOT Specification	FDOT Standard Specification for Road and Bridge Construction, latest edition
FDOT IndexFDOT	Roadway and Traffic Design Standards, latest edition

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01425

FDOT STANDARDS REFERENCE

PART 1 GENERAL

1.01 Section Includes

Instruction on the use and applicability of FDOT standards on the project

1.02 Requirements

A. The Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest non-metric edition ("Standard Specifications"), and Roadway Traffic and Design Standards, latest non-metric edition ("Design Standards") are referenced herein as source documents for applicable technical specifications and construction details to be used in the construction of this project. The term “latest edition” refers to the latest edition implemented by FDOT and includes all FDOT implemented supplements.

B. Method of Measurement and Basis of Payment is to be in accordance with these Contract Documents rather than the Florida Department of Transportation Standard Specifications. Any item which is detailed in the Plans and for which material types, sizes and quality are also called out, the "Design Standards" shall take preference over the plan detail unless otherwise directed by the Engineer.

C. Where the FDOT Standard Specifications use the reference "Department", replace "Department" with "Owner", except for when such reference is to Department Standards and evaluation criteria.

D. The Design Standards are referenced herein as a source document for applicable construction items and details called for in the plans for which a specific plan detail is not provided. The Contractor shall construct the items called for in the plans in accordance with the "Design Standards" unless otherwise defined or detailed in the plans or as directed by the Owner, Engineer or authorized representative.

E. In case of conflict, the Project Manual takes precedence over FDOT specifications for a particular construction requirement.

F. Copies of the latest implemented edition and implemented supplements of the Florida Department of Transportation Standard Specifications may be purchased from FDOT for a nominal charge. Copies are also for download via the internet at “www.dot.state.fl.us/specificationsoffice”.

G. The Contractor shall inform the Owner and Engineer in writing of any specification that the Contractor feels is ambiguous or conflicting with other plan notes and details prior to the construction of the associated item. The Engineer will determine which information is to be used for construction. The Contractor is responsible for the removal and replacement of any item improperly constructed resulting from a misinterpretation of the specifications at no additional cost to the Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 General

The Contractor shall use Divisions Two (II) and Three (III) of the FDOT Specifications as they relate to methods of construction and material types and quality for the appropriate construction items contained within this project.

END OF SECTION

SECTION 01450

QUALITY CONTROL

PART 1 GENERAL

1.01 Section Includes

Quality control, quality assurance.

1.02 Quality Control

A. It is the Contractor's responsibility to perform all work to a degree and in a manner that satisfies and complies with the Project requirements. In order to fulfill this responsibility, the Contractor is required to have an approved Quality Control Program, including testing, as part of his Contract work in accordance with the Contract Documents and to submit details of his Program to the Engineer for review and approval prior to commencing any construction operations. The submittal shall include detailed information on locations and number of all tests, etc., that will be necessary for the Contractor to make his own determination that the work is being performed in compliance with the Project requirements.

B. As part of the Contractor's Quality Control Program included as part of his work, the Contractor shall employ and pay for an independent, approved soils testing laboratory to perform testing services outlined in these Contract Documents.

C. The Contractor's Quality Control Program shall include, but not be limited to, the following in addition to the type and frequency of tests as required by the technical specifications:

1. Piping and structural excavation, bedding and backfill materials and density quality control testing

2. Determination of compactive effort needed for compliance with the density requirements.

3. Portland cement concrete and asphalt paving quality control testing including design mix review, materials, field slump and air content, and field and lab cured strength samples and testing.

D. In addition to Quality Control Testing, the Contractor shall be responsible for required testing or approvals for any work (or any part thereof) if laws or regulations of any public body having jurisdiction specifically require testing, inspections or approval. The Contractor shall pay all costs in connection therewith and shall furnish the Engineer the required certificates of inspection, testing or approval. The Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with Owner or Engineer

acceptance of a supplier of materials or equipment proposed to be incorporated into the work.

E. Any design or testing laboratory utilized by the Contractor shall be an independent laboratory acceptable to the Owner and the Engineer, approved in writing, and complying with the latest edition of the "Recommended Requirements for Independent Laboratory Qualification", published by the American Council of Independent Laboratories.

F. Testing laboratories, whether provided by the Owner or the Contractor, shall promptly notify the Engineer and the Contractor of irregularities or deficiencies of work that are observed during performance of services. Laboratories shall submit two (2) copies of all reports directly to the Engineer and two (2) copies to the Contractor.

1.03 Quality Assurance

A. In addition to the services provided by the laboratory paid for by the Contractor as a part of his work, the Owner, at his sole discretion, may employ an additional independent soils laboratory as part of Owner's Quality Assurance Program to verify that the work meets the requirements of the Contract Documents. The Owner furnished Quality Assurance testing may include the type and frequency of tests as required by the technical specifications. The Owner reserves the right to have additional tests made beyond those specified in the Contract Documents. The Contractor shall cooperate with the Owner and make the work and samples available for Owner testing at no additional cost in case the Owner chooses to have additional Owner furnished testing performed. It is the sole responsibility of the Contractor to see that his work meets all provisions of the Contract Documents.

B. The Contractor shall cooperate with the soils laboratory personnel and provide access to the work to be tested. The Contractor shall notify the Engineer and Owner's testing laboratory sufficiently in advance of operations to allow scheduling of tests. The Contractor shall furnish casual labor and facilities to obtain and handle samples at the site and to store and cure test samples as required.

1.04 Testing of Materials

A. Unless otherwise specified, all materials shall be sampled and tested in accordance with the latest published standard methods of ASTM in effect at the time bids are received. If no ASTM Standards apply, applicable standard methods of the Federal Government or of other recognized agencies shall be used.

B. Test of materials shall be made by a representative of the Contractor, unless otherwise provided. Testing of equipment shall be the responsibility of the Contractor or an authorized manufacturer's representative. All test results shall be furnished to the Engineer in writing. The Contractor shall provide facilities required to collect and forward samples. The Contractor shall furnish the required samples without charge.

C. The Contractor shall not make use of or incorporate in the work, the materials represented by the sample until tests have been made and the material found to be in accordance with the requirements of the Specifications.

D. Materials to be tested and the applicable test procedure shall be as outlined in the individual sections of these Specifications.

1.05 Source and Quality of Materials and Equipment

A. The source of materials to be used shall be in accordance with the Contract Documents and as approved by the Engineer before delivery. The approval of the source of any material shall continue as long as the material conforms to the Specifications.

B. All material not conforming to the requirements of the Specifications shall be considered as defective and shall be removed from the work. If in place, faulty materials shall be removed by the Contractor at his expense and replaced with acceptable material unless permitted otherwise by the Owner. No defective materials that have been subsequently corrected shall be reused until approval has been given.

C. Upon failure of the Contractor to comply immediately with any order of the Engineer to remove and replace defective material, the Owner shall have authority to remove and replace defective materials, and to deduct the cost of removal and replacement from any monies due or to become due to the Contractor. Failure to reject any defective materials or work at the time of installation shall in no way prevent later rejection when such defects are discovered, nor obligate the Owner to final acceptance.

1.06 Additional Testing

In addition to soils laboratory and materials testing, the Contractor shall perform other testing called for in the Contract Documents including but not limited to piping, pressure, leakage, infiltration and exfiltration, as appropriate.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01520

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 Section Includes

Construction facilities, controls, temporary utilities, project identification signs, field office and storage sheds, storage of materials and equipment.

1.02 Related Sections

Section 01550 - Maintenance of Traffic

1.03 Submittals

A. Prior to installation of construction facilities and temporary controls, submit the following items for review and approval:

B. Project identification sign - provide proposed text, layout, and sizing of all required signs

1.04 Construction Facilities and Temporary Controls

All construction facilities and temporary controls remain the property of the Contractor establishing them and shall be maintained in a safe and useful condition until removed from the construction site.

1.05 Removal of Temporary Construction

Remove the various temporary facilities, services, and controls and legally dispose of them as soon as the Engineer deems permissible. Portions of the site used for temporary facilities shall be properly reconditioned and restored to a condition acceptable to the Engineer.

1.06 Transportation and Handling

A. Manufactured materials and products shall be delivered to the project site as needed for installation, undamaged, in original packages, containers, or bundles, as packaged by the manufacturer with manufacturer's name, brand, seals, and labels intact.

B. Materials other than those designated within the Specifications or approved by the Engineer shall not be delivered to the project site.

1.07 Storage and Protection

A. The Contractor shall be responsible for protection and preservation of all materials until final acceptance of the Project. Any damage to work prior to acceptance shall be remedied by the Contractor at no additional cost to the Owner.

B. Provide temporary weather-tight enclosures to protect work from damage by the elements, and protect finished surfaces to prevent any damage resulting from the work of any trade.

1.08 Security

A. Contractor shall, at all times, be responsible for the security required in all project areas and shall provide all reasonable protection to prevent damage, injury or loss to employees on the Work and all other persons who may be affected thereby; all the work materials and equipment to be incorporated therein, whether in storage on or off the project site, under the care, custody or control of the Contractor or any subcontractors; and any other property under the care, custody or control of the Contractor or any subcontractors. Contractor shall be responsible for such security and safety until final acceptance of the Work.

B. Full time watchmen will not be specifically required as a part of the Contract, but the Contractor shall provide inspection of work area daily and shall take whatever measures are necessary to protect the safety of the public, workmen, and materials, and provide for the security of the site, both day and night.

PART 2 PRODUCTS

2.01 Temporary Electric Service

A. Furnish and maintain temporary lighting and power required to perform the Work. Include in the Bid all costs for providing temporary electrical service.

B. Temporary service shall include protective enclosures, branch wiring, outlets, lamps, and grounding as required by NEC and Local Electrical Codes.

2.02 Temporary Heating

The Contractor shall furnish fuel or power and provide and operate all temporary heating units. Heat shall be provided as necessary to perform the Work. Temporary heating units shall be adequately vented and approved devices which will not damage finished areas. The Contractor shall also furnish all tarpaulins and temporary enclosures necessary to provide this protection.

2.03 Temporary Ventilation

The Contractor shall provide, operate, and furnish power for temporary ventilation required for the proper installation and curing of materials and safety of workmen.

2.04 Temporary Water

A. Provide a temporary water distribution system for all construction purposes and pay for all water used. Obtain temporary meters from the local water utility as required and pay all associated fees.

B. Furnish potable drinking water in suitable dispensers and with cups for use of all employees at the job.

C. Provide all temporary piping, hoses, etc., required to transport water to the point of usage by all trades.

2.05 Temporary Sanitary Facilities

Provide temporary toilet facilities as required. Maintain these during the entire period of construction under this Contract for the use of all construction personnel on the job. Enough chemical toilets shall be provided to conveniently serve the needs of all personnel. Chemical toilets and their maintenance shall meet the requirements of State and local health regulations and ordinances.

2.06 Temporary Pumping and Site Drainage

Keep the site free from water at all times to permit continuous access and to prevent damage to the work.

2.07 Material Hoists and Cranes

A. Provide material hoists required for normal use by all trades and employ skilled hoist operators. Provide all necessary guards, signals, safety devices, etc., required for safe hoist operation. The construction and operation of material hoists shall be in accordance with the applicable ANSI Standards, the "Manual Code of Accident Prevention in Construction" of the Associated General Contractors of America, OSHA, and of other Federal, State, and municipal codes or ordinances. The Contractor shall prohibit the use of hoists for transporting personnel. Hoists shall be located to avoid risk of damage to completed work.

B. Special rigging and hoisting facilities shall be provided by each trade requiring their use.

2.08 Temporary Runways, Scaffolding, and Ladders

A. Provide temporary ladders, ramps, and runways as required for performance and inspection of the work. The above facilities shall be constructed and maintained in

accordance with the applicable Federal, State, and Municipal regulations and codes.

B. Furnish, erect, and maintain all scaffolding required for this work. Scaffolding shall be constructed and maintained in accordance with applicable State and Federal laws and local ordinances. Scaffolding shall be promptly removed after serving its purpose.

C. The structural strength and safety of scaffolding, runways, covers, railings, ladders, stairs, etc., and compliance with law shall be the sole responsibility of the Contractor.

2.09 Temporary Chutes

No materials shall be dropped from structures except through enclosed wooden or metal chutes which shall be provided and maintained as required for the performance of the work by the various trades.

2.10 Project Identification Sign - N/A

2.11 Contractor's Field Office and Storage Sheds

The Contractor shall provide field office and storage sheds that it determines are required for the performance of the Work and protection of materials and equipment.

2.12 Owner / Engineer Field Office – N/A

PART 3 EXECUTION

3.01 Access Roads and Parking Areas

A. Construct temporary roadways and parking areas within the site as required to provide proper access to the site for delivery of material and equipment of all trades. It is up the Contractor to determine whether it needs to construct any temporary roads or parking areas to accommodate its construction (including delivery of materials, equipment, and manpower to the site).

B. At completion of the work or when directed by the Engineer, surfacing and sub-base material used for the temporary road and parking areas shall be removed, unless otherwise approved by the Engineer.

END OF SECTION

SECTION 01550

MAINTENANCE OF TRAFFIC

PART 1 GENERAL

1.01 Section Includes

Traffic and dust control

1.02 Related Sections

Section 01520 - Temporary Facilities and Controls

1.03 Definitions

The term "Maintenance of Traffic" as used herein, shall include all facilities, devices, traffic control personnel, and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.

1.04 References

A. Florida Department of Transportation Roadway and Traffic Design Standards

B. Manual on Uniform Traffic Control Devices

1.05 Submittals

Provide traffic control plan. Include proposed signs, markings, barricades, detour routes, sequencing, and phasing for vehicular and pedestrian traffic routes during construction.

1.06 Qualifications

Provide at least one employee in the field (superintendent or foreman) who holds an IMSA (International Municipal Signal Association) Work Zone Traffic Control Safety Certification. This certified employee shall be on the job site when the traffic control measures are installed and when work is occurring within the zones.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Site Preparation

A. Contact property owners affected by construction. Coordinate temporary driveway closures and sequencing. Maintain access for all property owners

during construction.

B. Remove existing pavement markings and remove or relocate existing signs as necessary to implement traffic control.

C. Install signs, markings, barricades in accordance with approved traffic control plan.

D. Implement lane closures in accordance with the parameters shown on the drawings and in the approved traffic control plan.

E. Perform work in a manner that will cause minimum interruptions to traffic.

F. Place excavated material outside roadway clear zones, and away from pedestrian facilities.

G. All trenches shall be backfilled each day prior to the completion of construction activities.

H. Where special hazards exist, install traffic control through the use of lighted concrete barriers, barricades, or other such traffic control facilities as needed to ensure public safety.

3.02 Maintenance

A. Inspect traffic control devices on a daily basis to ensure placement of barricades and function of lights is maintained throughout construction.

B. Wet un-stabilized areas as necessary to control dust.

C. Adjust traffic control devices as required under emergency conditions.

END OF SECTION

SECTION 01630

PRODUCT SELECTION AND SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 Section Includes

Product selection and substitution procedures

1.02 Product Selection

A. Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, new at the time of installation.

B. To the fullest extent possible, provide products of the same kind from a single source.

C. Compatibility among product options is required. Where more than one choice is available as options during product selection, select an option which is compatible with other products and materials already selected.

D. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.

E. Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

F. Where Contract Documents are at variance with specific manufacturer's details and installation procedures, contact Engineer for resolution prior to start of work.

G. For products specified by naming a number of products and manufacturers and "or equal", select any of the products and manufacturers listed, or propose a substitution. If the Contractor wishes to propose a substitution, the Contractor must submit a request for product substitution for approval by the Engineer and Owner.

H. For products specified naming only one product and manufacturer or a number of products and manufacturers without the "or equal" allowance, no substitutes are allowed.

I. For products specified by reference standards only, the Contractor may provide any product complying with the specified standard.

J. For products specified by performance and descriptive methods, without naming manufacturer's products, the Contractor may provide the products of any manufacturer complying with the Contract Documents, subject to the review of product data and concurrence by the Engineer as specified herein.

1.03 Substitutions

A. The intent of these Specifications is to provide the OWNER with a quality facility without discouraging competitive bidding. Substitutions may be submitted and will be evaluated as specified herein.

B. If the Contractor wishes to provide a product other than one named in the Specifications, he shall submit sufficient information to the Engineer for evaluation and determination of acceptability of the product prior to Bid Opening.

C. The Contractor is responsible for obtaining information required by the Engineer for the evaluation of products. The Engineer is responsible for determination of the equality of products, and his decision shall be final, except as otherwise provided by law and funding agency regulations.

D. Substitution requests can be made after Bid Opening when:

1. A specified product is no longer available
2. The product cannot be delivered by the manufacturer in a timely manner
3. The product is found to be incompatible with other specified products
4. Proposed substitutions will yield a cost savings to the Owner

E. The Contractor shall be responsible for the constructability and performance of any substitute materials requested by the Contractor and approved by the Engineer or by the Owner. The Contractor shall ensure that any approved substitute materials will perform to the intent of the specified materials, at no additional cost or time to the Owner, including the costs of installation, testing, repair, or correction of the utility system due to the performance or lack thereof of the substitute material.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01770

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 Section Includes

Substantial completion requirements, clean-up, final completion requirements, closeout submittals

1.02 Clean-Up Operations

A. The entire Project site shall be thoroughly cleaned at the completion of the Work.

B. Clean all installed pipelines, structures, sidewalks, paved areas, accumulated silt in ponds, plus all adjacent areas affected by construction, as directed by the Owner or jurisdictional agency. Equipment to clean these surfaces shall be subject to approval by the Owner.

1.03 Substantial Completion Requirements

A. Complete the following before requesting the inspection for certification of substantial completion.

1. Submit Record Drawings.
2. Deliver tools, spare parts, extra stocks of material and similar physical items to the Owner.
3. Complete required cleaning and testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock-ups, and similar elements.
4. Complete final cleaning up requirements, including touch-up painting of marred surfaces.
5. Touch-up and otherwise repair and restore marred exposed finishes.

B. Work is not substantially complete until regulatory agency letters of clearance for placing systems into service are received by the Owner.

1.04 Closeout Submittals

A. At the Completion of all Work, provide the following to the Owner:

1. Executed Certificates of Substantial Completion and Final Completion
2. Final Record Drawings
3. Manufacturer operation and maintenance instructions
4. Submittal of manufacturers' guarantees, warranties, bonds, and letters of coverage extending beyond the time limitations of the Contractor's

guarantee

5. Material and Workmanship Bond
6. Delivery of any salvaged or borrowed materials or equipment to the Owner
7. Waivers of lien from Contractor plus all Subcontractors and Suppliers
8. Checklist indicating satisfactory completion of all unfinished items from the final inspection
9. Consent of Surety to Final Payment
10. Stormwater NPDES Notice of Termination

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01780

RECORD DRAWINGS

PART 1 GENERAL

1.01 Section Includes

Record Drawing requirements including format requirements and submittal procedures.

1.02 General Requirements

A. As the Work progresses, the Contractor shall be responsible for recording information on the approved Contract Documents concurrently with construction progress.

B. Mark on the Contract Drawings all changes in direction and location of structure, piping, equipment, electrical, and mechanical work.

C. If requested, mark on the Specifications the manufacturer, trade name, catalog, and supplier of each product actually installed, and mark changes made by Change Order or Field Order.

D. All Record Drawings shall be prepared by the Contractor in ACAD format using construction plan sheets provided by the Engineer. As-built information shall be field verified, measured, added to the ACAD files of the construction plan sheets provided by the Engineer, and certified, signed and sealed by the Contractor's licensed Surveyor who will be responsible for the accuracy of all dimensions and elevations.

E. Record Drawings shall clearly show all field changes of dimension and detail including changes made by field order or by change order.

F. The X, Y and Z location based on the coordinate system Florida West Zone State Plane Coordinate Feet NAD83, of all valves (center of pipe) and valve boxes (grade), hydrants (grade), blow offs (grade), sample points (grade) and meter boxes (grade) etc. shall be clearly shown. Acceptable position accuracy shall be sub-meter or better for compatibility with Global Positioning System (GPS) equipment. The vertical datum used shall be NAVD 88 unless otherwise shown on the construction plans.

G. All water valves, hydrants, and blowoffs shall be horizontally referenced from at least two and preferably three permanent points.

H. The as-built information shown on the Record Drawings is to include, but not be limited to, the following:

1. Horizontal locations and vertical elevations for all utility and storm structures including but not limited to manholes, inlets and cleanouts, including structure top and invert elevations and invert elevations of all connecting pipes.
2. Distance along pipelines between structures.
3. Horizontal locations and vertical elevations of all utility valves, fittings, connection points, etc.
4. Vertical elevations of all pipelines at crossings of potable water mains (whether the water main is existing or new) in order to document that the minimum required vertical separation has been met.
5. Horizontal offsets from adjacent potable water mains (whether the water main is existing or new) in order to document that the minimum required horizontal separation has been met.
6. Utility pipeline tied horizontally to edge of pavement and right-of-way lines, located every 200-ft plus all changes in horizontal offset.
7. Vertical elevations of the top of casing and top of carrier pipe measured at each end of crossings that have been jack and bored.
8. Pipeline that is directional bored is to be horizontally and vertically located every 20' along the bore. Provide this information by submitting boring logs and by drawing the as-built locations of the bored pipeline on the Record Drawings.
9. Top of pipe elevations.
10. Horizontal and vertical data for any construction that deviates from the approved engineering drawings.
11. Where the plans contain specific horizontal location data, such as station and offset, the as-built drawings are to reflect the actual horizontal location.
12. Where the plans contain specific vertical elevation data, the as-built drawings are to reflect the actual measured vertical elevation.

1.03 Submittal Requirements

A. Record Drawings are to be prepared by the Contractor, certified by the Contractor's licensed surveyor, and delivered to the Engineer for review. The Engineer will review the drawings for completeness in accordance with the requirements of this section within seven (7) full working days. For preliminary review, submittal in ACAD and PDF format is sufficient and signed and sealed copies are not necessary. Final submittal of complete Record Drawings shall consist of one set signed and sealed by the Contractor's licensed surveyor plus ACAD and PDF files of the Record Drawings delivered to the Engineer.

B. If the drawings are found to be incomplete or inaccurate, the drawings will be returned to the Contractor for correction.

C. In cases where the Owner determines partial clearances from permitting agencies are beneficial to the Owner for completed portions of the project, provide preliminary record drawings (ACAD format) to the Engineer for its use in preparing the partial clearance applications for the Owner.

D. Complete record drawings that are found to be satisfactory as a result of the Engineer's review will be used as the basis for the final project Record Drawings prepared by the Engineer using the Contractor provided record drawings plus Engineer added information.

E. Complete signed and sealed Record Drawings are required to be delivered to the Owner prior to final inspection of the project. Final inspections will only be scheduled upon receipt of signed and sealed record drawings that have been reviewed by the Engineer and delivered by the Engineer to the Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 02220

SITE DEMOLITION

PART 1 GENERAL

1.01 Section Includes

A. Demolition of designated site structures, retaining walls and foundations and removal of materials from project site.

B. Demolition and removal of pavements, curbs and gutters, drainage structures, utilities, signage or landscaping.

C. Disconnecting and capping or removal of identified utilities.

D. Filling voids in subgrade created as a result of removals or demolition.

E. Disposal of demolished materials.

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02310 - Finish Grading

C. Section 02315 - Excavation and Fill

1.03 Regulatory Requirements

A. Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and runoff control.

B. Obtain required permits and licenses from appropriate authorities. Pay associated fees including disposal charges.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, or fire hydrants without appropriate permits.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

F. Test soils around buried tanks for contamination.

1.04 Project Record Documents

A. Accurately record actual locations of capped utilities and subsurface obstructions that will remain after demolition.

1.05 Project Conditions

A. Structures to be demolished will be discontinued in use and vacated prior to start of work.

B. Owner assumes no responsibility for condition of structures to be demolished.

C. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as practicable. Variations within structures may occur by Owner's removal and salvage operations prior to start of demolition work.

D. Unless otherwise indicated in Contract Documents or specified by the Owner, items of salvageable value to Contractor shall be removed from site and structures. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified in Contract Documents.

E. Explosives shall not be brought to site or used to demolish structures.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Preparation

A. Provide, erect, and maintain erosion control devices, temporary barriers, and security devices at locations indicated on Construction Drawings.

B. Protect existing landscaping materials, appurtenances, and structures which are not to be demolished. Repair damage caused by demolition operations at no cost to Owner.

C. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as needed.

D. Mark location of utilities. Protect and maintain in safe and operable condition utilities that are to remain. Prevent interruption of existing utility service to occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities and Owner.

3.02 Salvage –

A. Utilities Inc. of Florida shall have the first right of refusal for any salvageable

items.

3.03 Demolition Requirements

A. Conduct demolition to minimize interference with adjacent structures or pavements.

B. Cease operations immediately if adjacent structures appear to be in danger and notify the Owner. Do not resume operations until directed by the Owner.

C. Conduct operations with minimum of interference to public or private access. Maintain ingress and egress at all times.

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.

E. Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.

F. Comply with governing regulations pertaining to environmental protection.

G. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

H. Demolition plan identifies major structures and items to be demolished. Include incidental demolition to completely demolish structures whether indicated on plan or not.

3.04 Demolition

A. Demolish buildings completely and remove from site using methods as required to complete work within limitations of governing regulations. Small structures may be removed intact when acceptable to the Owner.

B. Locate demolition equipment and remove materials so as to prevent excessive loading to supporting walls, floors, or framing.

C. Demolish concrete and masonry in small sections. Break up concrete slabs-on- grade that are 2-feet or more below proposed subgrade. Remove slabs-on- grade and below grade construction within 2-feet of proposed subgrade.

3.05 Filling Voids

A. Completely fill below grade areas and voids resulting from demolition or removal of structures, underground fuel storage tanks, wells, cisterns, etc., using approved select fill materials consisting of stone, gravel, and sand free from debris, trash, frozen materials, roots, and other organic matter.

B. Ensure that areas to be filled are free of standing water, frost, or unsuitable

material, trash, and debris prior to fill placement.

C. Place fill materials in accordance with Sections 02315 or 02320 as applicable unless subsequent excavation for new work is required.

D. Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.

3.06 Disposal of Demolished Materials

A. Remove from site debris, rubbish, and other materials resulting from demolition operations.

B. No burning of any material, debris, or trash on-site or off-site will be allowed.

C. Transport materials removed from demolished structures with appropriate vehicles and dispose off-site to areas that are approved for disposal by governing authorities and appropriate property owners.

3.07 Cleanup

A. Clean the Project site to a condition satisfactory to the Engineer, free from demolished materials, rubbish or debris. Grade the site to meet adjacent contours and provide a positive flow for surface drainage.

B. Restore items intended to remain that have been damaged by demolition work at no cost to, and to the satisfaction of the Owner.

C. Return all interrupted utility services to their pre-demolition state and disconnect temporary services, unless otherwise specified.

END OF SECTION

SECTION 02230

SITE PREPARATION

PART 1 GENERAL

1.01 Section Includes

A. Layout of work and protection of bench marks.

B. Protection of structures, trees, or vegetation to remain.

C. Clearing and grubbing.

D. Stripping and storing topsoil.

1.02 Related Sections

A. Section 02220 - Site Demolition

B. Section 02370 - Erosion and Sedimentation Control

C. Section 02505 - Pipeline Removal and Abandonment

1.03 Coordination

A. Notify the following utility owners which may have utilities in the project area and coordinate with them to avoid service interruptions and/or safety hazards:

1. Florida Power & Light
2. Duke Energy
3. Sprint
4. AT&T
5. Florida Public Utilities
6. TECO People's Gas
7. Bright House Networks
8. Pinellas County

B. Contact "Sunshine State, One-Call" by dialing "811", to determine if there are other utilities in the area, and their location. For additional information: www.callsunshine.com.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Bench Marks and Monuments

A. Maintain all existing bench marks, monuments and other reference points; if destroyed, replacement costs will be deducted from payments due the Contractor.

3.02 Laying Out Work

A. Base lines, property lines, and easement lines, are shown on the Drawings. Bench marks utilized are also shown on the drawings. If the bench marks are disturbed as a result of construction activities, reestablish such items by utilizing a surveyor licensed in the state where the project is located.

B. Stake out the construction, establish lines and levels, temporary bench marks, batter boards, centerlines and reference points for the work, and verify all dimensions relating to interconnection with existing features.

C. Report any inconsistencies in the proposed grades, lines and levels, dimensions and locations to the Engineer before commencing work.

D. Contain all construction activities within the right-of-way, easements, and property secured by the Owner, as shown on the drawings. Do not disturb surrounding properties or travel on surrounding properties without written consent from the property owner. Repair or reconstruct damaged areas on an immediate basis. All costs for repairs shall be the responsibility of the Contractor.

3.03 Burning

A. Burning is not allowed, unless notes on the drawings specifically allow it to occur. In the event burning is allowed, secure all necessary permits.

3.04 Protection of Trees and Shrubs

A. Protect all trees and shrubs located outside the right-of-way, easements, and Owner secured property, particularly those trees and shrubs located adjacent to work areas.

B. Within the right-of-way, easements, and Owner secured property, the intent is to allow trees and shrubs to remain in accordance with the following schedule:

1. New roadway construction – trees and shrubs to remain where located more than 15 feet from the back of curb, or outside the limits of excavation or fill areas, whichever is further.
2. Utility pipeline construction – trees and shrubs to remain outside a 15 foot wide path, centered on the pipeline.

C. Protect branches, trunks, and roots of trees and shrubs that are to remain. Trees to remain in the construction area shall be boxed, fenced or otherwise protected before any work is started; remove boxing when directed by the Engineer. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks and cover scars with tree paint.

3.05 Relocation of Utilities

A. Active utilities which do not interfere with the work shall be supported and protected from damage. After obtaining the Engineer's approval, relocate or remove active utilities which will interfere with work as indicated. Pay for all damage to active utilities and for relocation or removal of all interfering utilities which are ascertainable from Drawings, surveys, site inspection or encountered during construction.

B. Coordinate with each utility and pay all costs associated with the protection of existing facilities during construction. Also coordinate necessary relocations or other construction related matters with each utility.

C. Inactive or abandoned utilities and appurtenant structures encountered shall be removed to avoid interference as directed by the Engineer. Exposed ends of abandoned lines shall be plugged or capped in a water-tight manner.

3.06 Clearing and Grubbing

A. Areas to receive clearing and grubbing shall include all areas to be occupied by the proposed improvements, areas for fill and site grading, and borrow sites. Remove trees outside of these areas only as indicated on the Drawings or as approved in writing by the Engineer.

B. Clearing shall consist of removing trees and brush and disposal of other materials that encroach upon or otherwise obstruct the work.

C. Exercise extreme care during the clearing and grubbing operations. Do not damage existing structures, pipes or utilities.

D. Grubbing shall consist of removing and disposing of stumps, roots larger than 2" in diameter, and matted roots. Remove to a depth of not less than 18" below the original surface level of the ground.

E. All combustible debris and refuse from site preparation operations shall be removed to legal offsite disposal areas.

3.07 Topsoil Removal

A. All areas to be occupied by proposed improvements, and borrow sites shall be stripped of all brush, weeds, grass, roots and other material.

B. Remove all loamy, organic topsoil suitable for seeding and planting to whatever depth encountered and store separately from other excavated material. Stockpile in designated areas and provide for proper drainage. Cover storage piles as required to prevent windblown dust.

C. All removed topsoil shall be stockpiled within the project work area. Topsoil can be incorporated into the project in all areas that are to be grassed.

D. Dispose of unsuitable topsoil as specified under disposal of debris. Excess topsoil shall be removed from site unless specifically noted on Contract Drawings.

3.08 Disposal of Debris

A. All combustible debris and refuse from site preparation operations shall be removed to legal offsite disposal areas.

B. All non-combustible debris (not including acceptable fill material, fences, or other structures), resulting from site preparation operations shall become the property of the Contractor and shall be removed to legal offsite disposal areas.

END OF SECTION

SECTION 02240

DEWATERING

PART 1 GENERAL

1.01 Section Includes

Dewatering design and operation requirements.

1.02 Related Sections

Section 02370 - Erosion and Sedimentation Control.

1.03 General Requirements

A. Obtain the services of a qualified dewatering specialist to provide dewatering plan as may be necessary to complete the Work. Contractor shall be solely responsible for the design, installation, operation, maintenance, and any failure of any component of the system.

B. Dewatering discharge from the site shall comply with all NPDES general permit requirements and state water quality standards. Provide all testing and permitting required and comply with all treatment or disposal methods required to meet all local, state and federal requirements.

C. Design and provide dewatering system using accepted and professional methods consistent with current industry practice to eliminate water entering the excavation under hydrostatic head from the bottom and/or sides. Design system to prevent differential hydrostatic head which would result in floating out soil particles in a manner termed as a “quick” or “boiling” condition. System shall not be dependent solely upon sumps and/or pumping water from within the excavation where differential head would result in a quick condition, which would continue to worsen the integrity of the excavation’s stability.

D. Provide dewatering system of sufficient size and capacity to prevent ground and surface water flow into the excavation and to allow all Work to be installed in a dry condition.

E. No additional payment will be made for any supplemental measures to control seepage, groundwater, or artesian head.

F. If dewatering equipment needed exceeds any of the following: 1) 6" pump volute; 2) 100,000 GPD total 24 hour (1 day) dewatering, and; 3) 1,000,000 GPD pump capacity, the Contractor shall be required to permit the dewatering system with the water management district.

G. Contractor shall be responsible for and shall repair without cost to the Owner any damage to work in place, or other contractor's equipment, utilities, residences, highways, roads, railroads, private and municipal well systems, adjacent structures, natural resources, habitat, existing wells, and the excavation, including, damage to the bottom due to heave and including but not limited to, removal and pumping out of the excavated area that may result from Contractor's negligence, inadequate or improper design and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 General Requirements

A. Control, by acceptable means, all water regardless of source and be fully responsible for disposal of the water.

B. Confine discharge piping and/or ditches to available easement or to additional easement obtained by Contractor.

C. Control groundwater in a manner that preserves strength of foundation soils, does not cause instability or raveling of excavation slopes, and does not result in damage to existing structures. Where necessary to these purposes, lower water level in advance of excavation, utilizing wells, wellpoints, jet educators, or similar positive methods. Maintain the groundwater level to a minimum of 2 feet below excavations. Provide piezometers if directed by the Engineer to document the groundwater level is being maintained.

D. Commence dewatering prior to any appearance of water in excavation and continue until Work is complete to the extent that no damage results from hydrostatic pressure, flotation, or other causes.

E. Open pumping with sumps and ditches shall be allowed, provided it does not result in boils, loss of fines, softening of the ground, or instability of slopes.

F. Install wells and/or wellpoints, if required, with suitable screens and filters, so that continuous pumping of fines does not occur. During normal pumping, and upon development of well(s), levels of fine sand or silt in the discharge water shall not exceed 5 ppm. Install sand tester on discharge of each pump during testing to verify that levels are not exceeded.

G. Control grading around excavations to prevent surface water from flowing into excavation areas.

H. Remove subgrade materials rendered unsuitable by excessive wetting and replace with approved backfill material at no additional cost to the Owner.

I. Walls shall not be exposed to water pressure before structural work at the next higher level has properly cured and the cantilever action of walls is eliminated.

J. Any dewatering pumps within 1500-ft of private residences shall be equipped with satisfactory sound suppression.

K. Water from dewatering activities shall be disposed in a manner that does not cause flooding, erosion, or the transfer of sediments.

3.02 Maintaining Excavation in Dewatering Condition

A. Dewatering shall be a continuous operation. Interruptions due to power outages, or any other reason will not be permitted.

B. Continuously maintain excavation in a dry condition with positive dewatering methods during preparation of subgrade, installation of pipe, and construction of structures until the critical period of construction and/or backfill is completed to prevent damage of subgrade support, piping, structure, side slopes, or adjacent facilities from flotation or other hydrostatic pressure imbalance.

C. Provide standby equipment on site, installed, wired, and available for immediate operation if required to maintain dewatering on a continuous basis in the event any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional cost to Owner.

D. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components, and any other work required to maintain excavation in dewatered condition.

3.02 System Removal

Remove all dewatering equipment from the site, including wells and related temporary electrical service.

END OF SECTION

THIS PAGE INTENTIONALLY

SECTION 02310

FINISH GRADING

PART 1 GENERAL

1.01 Section Includes

Topsoil placement, grading of site

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02315 - Excavation and Fill

C. Section 02320 - Trenching, Bedding, and Backfilling

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO T267 – Determination of Organic Matter in Soils by Loss on Ignition

PART 2 PRODUCTS

2.01 Topsoil

A. Topsoil shall be fertile, friable, natural topsoil typical of the area, free from subsoil, stones, plants, roots or other extraneous material and shall not be used while muddy or frozen.

B. Topsoil shall contain not less than 8% organic matter (AASHTO T267). The topsoil shall consist of either natural topsoils typical of the locality and free from coarse stone aggregate or surface soils stripped from the site and enriched with humus at a rate of 8% by volume. The soil mixture prepared by mixing surface soils and humus shall be free of oil, cinders, coarse stone, and woody root material.

PART 3 EXECUTION

3.01 General

Provide all topsoil placement and finish grading and filling to achieve the lines and grades indicated on the Drawings. All earthwork shall be done in a manner that provides drainage.

3.02 Topsoil Placement

Place topsoil in all areas of new grading. The compacted subgrade to receive topsoil shall be scarified to a depth of 3 inches. Topsoil shall be spread evenly and compacted to a thickness of not less than 6 inches, to the proposed elevations and grades. Grade flush with walks, curbs, and paving.

3.03 Finish Grading

A. All areas of the project including all previously grassed areas that have been disturbed, borrow sites, excavated and filled sections and adjacent transition areas shall be uniformly smooth-graded. Depressions from settlement shall be filled and compacted. Tops of embankments and breaks in grade shall be rounded. All surfaces shall be finished to provide adequate drainage. Finished surfaces shall be reasonably smooth, compacted, free from irregular surface changes and comparable to the smoothness obtained by blade-grader operations.

B. Slope grades to drain away from structures at a minimum of ¼-inch per foot for 10 feet.

C. Finished surfaces adjacent to paved or surfaced areas and within 10 feet of structures shall be within 1 inch of the proposed grade. All other areas shall be within 3 inches of the proposed grade.

D. Newly graded areas shall be protected from traffic and erosion. All settlement or washing away that may occur from any cause prior to seeding or acceptance shall be repaired and grades re-established to the required elevations and slopes at no additional cost to the Owner.

E. Unless otherwise indicated, dispose of all surplus material.

END OF SECTION

SECTION 02315

EXCAVATION AND FILL

PART 1 GENERAL

1.01 Section Includes

A. Excavation and fill for roads, ponds, general site work

B. Sheeting, shoring and bracing

C. Compaction

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02240 - Dewatering

C. Section 02310 - Finish Grading

D. Section 02320 - Trenching, Bedding, and Backfilling

E. Section 02370 - Erosion and Sedimentation Control

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO M145 - Classification of Soils and Soil Aggregate Mixtures
2. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort
2. ASTM D2487 - Classification of Soils for Engineering Purposes

C. Occupational Safety and Health Administration (OSHA) Regulations, including:

1. Part 1926 Subpart P – Excavations

1.04 Definitions

A. Backfill - material placed in newly excavated areas to the topsoil, paving sub-grade, or foundation level.

B. Influence Area - the area within lines sloped downward at 45 degrees from the outer edges of paving, foundations, and utility lines. As a minimum, the influence area shall extend 5 feet beyond the edge of pavement (where there is no curb) or 5 feet beyond the back of curb.

1.05 Quality Assurance

A. Field density testing frequencies:

1. One test for each 5,000 square feet or fraction thereof per lift of general backfilling, minimum 2 tests each layer.
2. One test per each lift of backfill around and under structures.
3. One test per lift per each change in type of fill.
4. One test per 1000 square feet of pavement subgrade, minimum of 2 tests.

B. Pond construction shall result in the finished pond having side slopes and dimensions that are in accordance with the construction drawings. It is the Contractor's sole responsibility to ensure that these requirements have been met. If the constructed side slopes are steeper than the required side slopes, or the pond volume is not within three (3) percent of the design volume, the Contactor may be required to make corrections to the pond at no additional cost to the Owner.

C. Sheeting, shoring, and bracing used for the support of excavations over 20 feet deep shall be designed by a professional engineer licensed by the State of Florida.

1.06 Preconstruction Requirements

Precondition surveys and vibration monitoring are required for those areas where residential structures are within 100 feet of the proposed construction.

PART 2 PRODUCTS

2.01 General

It is intended that previously excavated materials conforming to the following requirements be utilized wherever possible.

2.02 Materials

A. Acceptable materials (suitable material): AASHTO M145 classification A-1, A-3, A-2-4, A-2-6; ASTM D2487 classification GW, GP, GM, SM, SW, SP; unless otherwise disapproved within the Soil and Subsurface investigation reports. No more than 12% of acceptable materials shall pass the number 200 sieve.

B. Unacceptable materials (unsuitable material): AASHTO M145 classification A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 classification GC, SC, ML, MH, CL, CH, OL, OH, PT; unless otherwise approved within the Soil and Subsurface investigation reports.

C. Flowable fill shall be “Excavatable” and shall meet the requirements of FDOT specification section 121, with a maximum 28-day compressive strength of 100 psi and a minimum 28-day compressive strength of 80 psi.

2.03 Sheeting, Shoring, and Bracing

A. The structural strength and safety of all sheeting, shoring and bracing shall be the sole responsibility of the Contractor. Repair any damage resulting from failure to provide adequate supports.

B. Provide timber work, shoring, bracing, sheeting, and sheet piling where necessary to retain banks of excavations, prevent cave-in of adjacent ground, prevent displacement of utilities and structures, and to protect public safety.

C. Contractor is solely responsible for the design, installation, and operation of dewatering systems and their safety and conformity with local codes and regulations.

PART 3 EXECUTION

3.01 General Construction Requirements

A. Provide suitable temporary drainage channels for any water that may flow along or across the work as specified hereafter.

B. Provide barriers, warning lights and other protective devices at all excavations.

C. Sidewalks, roads, streets, and pavements shall not be blocked or obstructed by excavated materials, except as authorized by the Engineer, in which case adequate temporary provisions must be made for satisfactory temporary passage of pedestrians, and vehicles. Minimize inconvenience to public travel or to tenants occupying adjoining property.

D. Where necessary to place excavated material adjacent to buildings, erect barriers to keep earth at least 4 feet from such buildings. Earth deposited on

lawns shall be promptly and carefully removed to preserve the turf. All trees, shrubs, and landscaping shall be protected. Directional drilling shall be used, if necessary, except where written permission is granted to remove trees and shrubs.

E. If open excavations cross existing rigid surfacing, the surfacing shall be removed for a width one foot beyond the anticipated edge of the excavation. The pavement break shall be sawed to insure a straight joint. Surface replacement shall match existing surfacing except as otherwise indicated on the Drawings. Where open excavation is allowed along or across public roadways, excavation, backfill, and surface replacement shall conform to the requirements of all permits applicable thereto. In no case shall surface replacement edges bear on less than 12" of undisturbed soil.

3.02 Preparation

A. Identify required lines, levels, contours, and datum.

B. Locate and identify existing utilities that are to remain and protect from damage.

C. Notify utility companies to remove or relocate utilities that are in conflict with proposed improvements.

D. Protect plant life, lawns, fences, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by licensed land surveyor and replaced, as necessary, by same.

F. Prior to placing fill in low areas, such as previously existing ditches, ponds, or lakes, perform following procedures:

1. Drain water out by gravity with ditch having flow line lower than lowest elevation in low area. If drainage cannot be performed by gravity ditch, use adequate pump to obtain the same results.
2. After drainage of low area is complete, remove mulch, mud, debris, and other unsuitable material by using acceptable equipment and methods that will keep natural soils underlying low area dry and undisturbed.
3. If proposed for fill, muck, mud, and other materials removed from low areas shall be dried on-site by spreading in thin layers for observation by Engineer.
   Material shall be inspected and, if found to be suitable for use as fill material, shall be incorporated into lowest elevation of site filling operation, but not under building or pavement subgrade or within 10'-0" of perimeter of building subgrade or paving subgrade. If, after observation by Engineer, material is found to be unsuitable, unsuitable material shall

be removed from site.

3.03 Sheeting, Shoring, and Bracing

A. Furnish, install, and maintain, without additional compensation, sheeting, bracing, and shoring support required to keep excavations within the easement provided, to support the sides of the excavation, and to prevent any movement which may damage adjacent pavements or structures, damage or delay the work, or endanger life and health. Voids outside the supports shall be immediately filled and compacted.

B. Sheeting, where required, shall be driven below the bottom of excavation so the lowest set of wales and struts are above the bottom of the excavation to allow necessary working room.

C. The Engineer may direct in writing that supports in trenches be cut off at any specified elevation, in which case Contractor shall be paid for the supports left in place.

D. Contractor may leave in place, to be embedded in the backfill of the excavation, any or all supports for the purpose of preventing injury to persons or property, whether public or private. However, no supports which are within 4' of the ground or pavement surface may be left in place without written permission of the Engineer. No extra payment will be made for supports left in place at the Contractor's option.

E. All supports not left in place shall be removed in such manner as to avoid endangering the piping, structures, utilities or property, whether public or private. All voids left by the withdrawal of sheeting shall be immediately filled and compacted.

F. The right of the Engineer to order supports left in place shall not be construed as creating an obligation on his part to issue such orders. Failure by the Engineer to exercise this right shall not relieve the Contractor from total liability for damages to persons or property resulting from the failure of the Contractor to leave in place sufficient supports to prevent any caving or moving of the ground adjacent to the excavation.

3.04 Excavation

A. Do not excavate for any structure until that structure is scheduled for construction. Excavate only to the depth and dimensions necessary for the construction. Slope sides of excavations in accordance with OSHA requirements and the recommendations contained within the project geotechnical report.

B. The bottom of all excavations shall be undisturbed earth unless otherwise indicated, and shall be approved by the Engineer before any subsequent work is

started. Over excavate a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

C. Excavations carried below depths indicated on the Drawings without the previous approval of the Engineer shall be filled with 2500 psi concrete or flowable fill to the correct level at the expense of the Contractor.

D. Maintain excavations in good order. If the bearing capacity of the foundation soils is reduced because the excavation is allowed to remain open prior to commencing work, the weathered soil shall be removed and replaced with 2500 psi concrete or flowable fill at the Owner's discretion at the expense of the Contractor.

E. All suitable materials removed from excavation areas shall be used for the project. Excess excavated suitable material shall be stockpiled on site at a location of the Owner's choosing, and shall become the property of the Owner, unless otherwise indicated on the Drawings.

F. Suitable onsite excavated materials containing silty or slightly clayey to clayey fine sands shall be sufficiently dried by surface spreading and discing if necessary, or by mixing with cleaner fine sands prior to placement in fill areas.

G. Unsuitable materials within the influence area of construction shall be excavated, removed from the site, and disposed, unless otherwise indicated on the Drawings.

H. Excavations shall be kept dry, compacted, and stable to a depth two feet below the bottom of the excavation.

I. If portions of the bottom of excavations consist of material unstable to such a degree that, in the opinion of the Engineer, it cannot adequately support the construction, the bottom shall be over excavated and stabilized with approved coarse granular stabilization material. Depth of stabilization shall be as directed by the Engineer. The initial 50 tons of stabilization shall be incidental to the Contract. Compensation will be allowed only for such additional quantities as the Engineer shall direct in writing to be placed.

3.05 Filling

A. All fill material shall be suitable soils or flowable fill. Fill placed within 1 foot of structures shall not contain rock or stone larger than 2 inch diameter. If a sufficient quantity of suitable material is not available from other excavations within the site, provide additional suitable material or flowable fill.

B. Fill within the influence area of roadways, structures, foundations, or slabs, shall be placed in layers of 8 inch loose depth. In all other areas, place fill in layers of 12 inch loose depth.

C. Take necessary precautions not to cause settlement or damage to adjacent slabs, walls, structures, or foundations. Place fill materials evenly adjacent to structures, without wedging against structures.

D. Where filling is required on both sides of structures, fill and compact simultaneously on opposite sides in even layers.

3.06 Compaction

A. Unless otherwise indicated, the type of equipment and number of passes required to obtain the specified degree of compaction shall be determined at the site, subject to the approval of the Engineer.

B. Provide mechanical compaction for cohesive material and vibratory compaction for granular materials, unless otherwise approved by the Engineer. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

C. Noncohesive soils shall be compacted with vibrating roller or equivalent; cohesive soils shall be compacted with sheeps-foot roller, pneumatic tamping, or approved equivalent, unless otherwise indicated.

D. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.07 Testing and Cleanup

A. Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling.

B. All surplus excavated material shall be disposed of by the Contractor.

3.08 Field Quality Control

A. Minimum Density Requirement (ASTM D1557 or AASHTO T180):

1. Fill placed under and within the influence area of roadways, structures, slabs, foundations = 98 percent
2. Fill placed within pond and road embankment = 95 percent
3. Fill placed within public road right-of-way and utility easements outside the road influence area = 95 percent
4. Fill placed within landscape areas = 85 percent

5. Fill placed within all other areas = 90 percent

Where fill is placed and differing density requirements are defined, the more stringent density requirement governs.

END OF SECTION

SECTION 02320

TRENCHING, BEDDING, AND BACKFILLING

PART 1 GENERAL

1.01 Section Includes

A. Trenching for piping and electrical work.

B. Excavation for manholes, junction boxes, meter vaults, and appurtenances.

C. Sheeting, shoring and bracing

D. Bedding, backfilling, and compaction.

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02240 - Dewatering

C. Section 02310 - Finish Grading

D. Section 02315 - Excavation and Fill

E. Section 02370 - Erosion and Sedimentation Control

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO M145 - Classification of Soils and Soil Aggregate Mixtures
2. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort
2. ASTM D2487 - Classification of Soils for Engineering Purposes

C. Occupational Safety and Health Administration (OSHA) Regulations, including:

1. Part 1926 Subpart P – Excavations

1.04 Definitions

A. Bedding - Area from bottom of trench to centerline of pipe

B. Backfill - material above the top of pipe to the topsoil, paving sub-grade, or foundation level.

C. Influence Area - the area within lines sloped downward at 45 degrees from the outer edges of paving, foundations, and utility lines. As a minimum, the influence area shall extend 5 feet beyond the edge of pavement (where there is no curb) or 5 feet beyond the back of curb.

1.05 Quality Assurance

A. Field density testing frequencies:

1. One test for each 150 linear feet of pipeline or fraction thereof per lift of general backfilling in the pipeline trench. Where less than 150 linear feet of pipeline is installed, one test per lift of backfill is required, staggered along the pipeline at locations determined by the Engineer.
2. One test for each 100 square feet or fraction thereof of backfill around and under structures, with a minimum of two tests per lift.
3. One test per lift per each change in type of fill.

B. Sheeting, shoring, and bracing used for the support of excavations over 20 feet deep shall be designed by a professional engineer licensed by the State of Florida.

1.05 Preconstruction Requirements

Precondition surveys and vibration monitoring are required for those areas where residential structures are within 100 feet of the proposed construction.

PART 2 PRODUCTS

2.01 General

It is intended that previously excavated materials conforming to the following requirements be utilized wherever possible.

2.02 Materials

A. Acceptable materials (suitable material): AASHTO M145 classification A-1, A-3, A-2-4, A-2-6; ASTM D2487 classification GW, GP, GM, SM, SW, SP; unless otherwise disapproved within the Soil and Subsurface investigation reports. No more than 12 percent of acceptable materials shall pass the number 200 sieve.

B. Unacceptable materials (unsuitable material): AASHTO M145 classification A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 classification GC, SC, ML, MH, CL, CH, OL, OH, PT; unless otherwise approved within the Soil and Subsurface investigation reports.

C. Flowable fill shall be “Excavatable” and shall meet the requirements of FDOT specification section 121, with a maximum 28-day compressive strength of 100 psi and a minimum 28-day compressive strength of 80 psi.

2.03 Sheeting, Shoring, and Bracing

A. The structural strength and safety of all sheeting, shoring and bracing shall be the sole responsibility of the Contractor. Repair any damage resulting from failure to provide adequate supports.

B. Provide timber-work, shoring, bracing, sheeting, and sheet piling where necessary to retain banks of excavations, prevent cave-in of adjacent ground, prevent displacement of utilities and structures, and to protect public safety.

C. Contractor is solely responsible for the design, installation, and operation of dewatering systems and their safety and conformity with local codes and regulations.

PART 3 EXECUTION

3.01 General Construction Requirements

A. Provide suitable temporary drainage channels for any water that may flow along or across the work as specified hereafter.

B. Provide barriers, warning lights and other protective devices at all excavations.

C. Sidewalks, roads, streets, and pavements shall not be blocked or obstructed by excavated materials, except as authorized by the Engineer, in which case adequate temporary provisions must be made for satisfactory temporary passage of pedestrians, and vehicles. Minimize inconvenience to public travel or to tenants occupying adjoining property.

D. Where necessary to place excavated material adjacent to buildings, erect barriers to keep earth at least 4 feet from such buildings. Earth deposited on lawns shall be promptly and carefully removed to preserve the turf. All trees, shrubs, and landscaping shall be protected. Boring and jacking shall be used, if necessary, except where written permission is granted to remove trees and shrubs.

E. If open excavations cross existing rigid surfacing, the surfacing shall be removed for a width one foot beyond the anticipated edge of the excavation. The pavement break shall be sawed to insure a straight joint. Surface replacement

shall match existing surfacing except as otherwise indicated on the Drawings. Where open excavation is allowed along or across public roadways, excavation, backfill, and surface replacement shall conform to the requirements of all permits applicable thereto. In no case shall surface replacement edges bear on less than 12 inches of undisturbed soil.

3.02 Preparation

A. Identify required lines, levels, contours, and datum.

B. Locate and identify existing utilities that are to remain and protect from damage.

C. Notify utility companies to remove or relocate utilities that are in conflict with proposed improvements.

D. Protect plant life, lawns, fences, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by licensed land surveyor and replaced, as necessary, by same.

3.03 Sheeting, Shoring, and Bracing

A. Furnish, install, and maintain, without additional compensation, sheeting, bracing, and shoring support required to keep excavations within the easement provided, to support the sides of the excavation, and to prevent any movement which may damage adjacent pavements or structures, damage or delay the work, or endanger life and health. Voids outside the supports shall be immediately filled and compacted.

B. Sheeting, where required, shall be driven below the bottom of excavation so the lowest set of wales and struts are above the bottom of the excavation to allow necessary working room.

C. The Engineer may direct in writing that supports in trenches be cut off at any specified elevation, in which case Contractor shall be paid for the supports left in place.

D. Contractor may leave in place, to be embedded in the backfill of the excavation, any or all supports for the purpose of preventing injury to persons or property, whether public or private. However, no supports which are within 4 feet of the ground or pavement surface may be left in place without written permission of the Engineer. No extra payment will be made for supports left in place at the Contractor's option.

E. All supports not left in place shall be removed in such manner as to avoid endangering the piping, structures, utilities or property, whether public or private.

All voids left by the withdrawal of sheeting shall be immediately filled and compacted.

F. The right of the Engineer to order supports left in place shall not be construed as creating an obligation on his part to issue such orders. Failure by the Engineer to exercise this right shall not relieve the Contractor from total liability for damages to persons or property resulting from the failure of the Contractor to leave in place sufficient supports to prevent any caving or moving of the ground adjacent to the excavation.

3.04 Trenching

A. All excavations shall be made by open cut unless otherwise indicated. Sides of trenches shall be kept as nearly vertical as possible from the trench bottom to a level of one foot above the top of the pipe. Slope sides of trenches in accordance with OSHA requirements and the recommendations contained within the project geotechnical report.

B. Excavation of trenches shall not advance more than 50 feet ahead of completed pipe installation except as approved by the Engineer.

C. Excavate trenches to depth indicated or required for indicated flow lines and invert elevations. Over excavate trenches a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

D. Where rock is encountered, carry excavation 6 inches below scheduled elevation and backfill with a 6 inch layer of crushed stone or gravel prior to installation of pipe.

E. For pipes or conduit 5 inches or less, excavate to indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

F. For pipes or conduit 6 inches or larger, and other work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated, to 6 inches below bottom of work to be supported.

G. Except as otherwise indicated, excavate for pressure piping so top of piping is minimum 3 feet below finished grade.

H. Unsuitable excavated materials shall be removed from the site and disposed, unless otherwise indicated on the Drawings.

I. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

J. Trench bottoms shall be kept dry, compacted, and stable to a depth two feet below the bottom of the trench.

K. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 9 -12 inch clearance on each side of pipe or conduit.

L. If more than one pipe is to be installed in a trench, the pipes shall be spaced a minimum of one foot apart for pipes 4 inches and larger.

M. If portions of the bottom of trenches consist of material unstable to such a degree that, in the opinion of the Engineer, it cannot adequately support the pipe or structure, the bottom shall be over excavated and stabilized with approved coarse granular stabilization material. Depth of stabilization shall be as directed by the Engineer. The initial 50 tons of stabilization shall be incidental to the Contract. Compensation will be allowed only for such additional quantities as the Engineer shall direct in writing to be placed.

N. Do not backfill trenches until tests and inspections have been made.

3.05 Trench Backfilling

A. Following placement of pipe and inspection of joints, install tamped bedding material. Place bedding fill materials in layers of 6 inch loose depth.

B. All bedding and backfill material shall be suitable soils or flowable fill. Backfill material within 1 foot of pipe and appurtenances shall not contain rock or stone larger than 2 inch diameter. If a sufficient quantity of suitable material is not available from the trench or other excavations within the site, provide additional suitable material or flowable fill.

C. After completion of bedding and preliminary approval of piping and testing, the pipe shall be covered to a point one foot above the top of the pipe for the full trench width, placed in layers of 8 inch loose depth.

D. Place backfill over pipe. Where trench is within the influence area of roadways, structures, foundations, or slabs, place backfill in layers of 8 inch loose depth. In all other areas, place backfill in layers of 12 inch loose depth.

E. Take necessary precautions not to cause settlement or damage to adjacent slabs, walls, structures, or foundations. Place backfill and fill materials evenly adjacent to structures, without wedging against structures or displacement of piping or conduit.

3.06 Minor Structural Excavation and Backfilling

A. Minor structures are defined as manholes, junction boxes, inlets, valve vaults, and meter vaults. Do not excavate for any structure until that structure is

scheduled for construction. Excavate only to the depth and dimensions necessary for the construction.

B. The bottom of all excavations shall be undisturbed earth unless otherwise indicated, and shall be approved by the Engineer before any subsequent work is started. Over excavate a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

C. Excavations carried below depths indicated on the Drawings without the previous approval of the Engineer shall be filled with 2500 psi concrete or flowable fill at the Owner's discretion to the correct level at the expense of the Contractor.

D. Maintain excavations in good order. If the bearing capacity of the foundation soils is reduced because the excavation is allowed to remain open prior to commencing work, the weathered soil shall be removed and replaced with 2500 psi concrete or flowable fill at the Owner's discretion at the expense of the Contractor.

E. Do not backfill until new concrete has properly cured, coatings have been approved, and any required tests have been accepted.

F. Fill within the influence area of roadways, structures, foundations, or slabs, shall be placed in layers of 8 inch loose depth. In all other areas, place fill in layers of 12 inch loose depth.

G. Exercise care during backfilling operations to avoid any puncture, break or other damage to waterproofing systems, if any. Backfill adjacent to waterproofing in the presence of the Engineer.

H. Where backfilling is required on both sides of structures, backfill and compact simultaneously on opposite sides in even layers. Other backfilling sequences shall be as specifically noted.

3.07 Compaction

A. Unless otherwise indicated, the type of equipment and number of passes required to obtain the specified degree of compaction shall be determined at the site, subject to the approval of the Engineer.

B. Provide mechanical compaction for cohesive material and vibratory compaction for granular materials, unless otherwise approved by the Engineer. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

C. Noncohesive soils shall be compacted with vibrating roller or equivalent; cohesive soils shall be compacted with sheeps-foot roller, pneumatic tamping, or approved equivalent, unless otherwise indicated.

D. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.08 Testing and Cleanup

A. Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling.

B. All surplus excavated material shall be disposed of by the Contractor.

3.09 Field Quality Control

A. Minimum Density Requirement (ASTM D1557 or AASHTO T180):

1. Backfill placed under and within the influence area of roadways, structures, slabs, foundations = 98 percent
2. Backfill placed within pond and road embankment = 95 percent
3. Backfill placed within public road right-of-way and utility easements outside the road influence area = 95 percent
4. Backfill placed within landscape areas = 85 percent
5. Backfill placed within all other areas = 90 percent

Where backfill is placed and differing density requirements are defined, the more stringent density requirement governs.

END OF SECTION

SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 Section Includes

Designing, providing, maintaining, removing temporary erosion and sedimentation controls.

1.02 Related Sections

A. Section 01415 - Stormwater Pollution Prevention / NPDES Requirements

B. Section 02230 - Site Preparation

C. Section 02240 - Dewatering

D. Section 02315 - Excavation and Fill

E. Section 02320 - Trenching, Bedding, and Backfilling

1.03 References

A. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, latest edition:

1. Specification 104 - Prevention, Control, and Abatement of Erosion and Water Pollution
2. Specification 300 - Prime and Tack Coats for Base Courses
3. Specification 985 - Geotextile Fabrics

1.04 Owner's Instructions / Sequencing

A. Owner has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, trenching, borrow and embankment operations. Owner also has authority to direct Contractor to provide immediate permanent or temporary erosion and sediment control measures.

B. Contractor shall respond to erosion and sediment control maintenance requirements or implement additional measures to control erosion ordered by Owner or governing authorities within 48 hours or sooner if required at no additional cost to the Owner.

C. Contractor will be required to incorporate permanent erosion control features into project at earliest practical time to minimize need for temporary controls.

PART 2 PRODUCTS

2.01 Erosion Control

A. Seeding and Mulching

B. Sodding

C. Hydro-seeding

D. Coarse Aggregate

E. Prime Coat - Per FDOT Specification 300

2.02 Sedimentation Control

A. Silt Fence - Per FDOT Index No. 102

B. Floating Turbidity Barriers - Per FDOT Index No. 103

PART 3 EXECUTION

3.01 Erosion Control

A. Maintain temporary erosion control systems as directed by Owner or governing authorities to control erosion and siltation during life of contract.

B. The erosion and sediment control measures shown on the plans represent a minimum requirement. The Contractor is responsible for determining additional erosion and sediment control measures needed in order to prevent the transfer of sediment from the project area and prevent the erosion of surfaces during construction, as needed to protect adjacent properties and water bodies.

C. Permanently grass cut slopes as excavation proceeds to extent considered desirable and practical as determined by the Owner.

D. Grass all disturbed areas within 7 days of initial disturbance. Type of grassing shall be as follows: temporary grassing to be sodding at all drainage structures, retention areas, swales and ditches, and where slopes are steeper than 5:1. Temporary grassing can be seed and mulch at all other locations unless otherwise indicated in the drawings or specifications.

E. Erosion control of areas to be paved shall meet the following:

1. Install subgrade and base course materials within 48 hours of the removal/open cutting of existing pavement consisting of streets, driveways, or sidewalk. Install final surface courses within 14 days after removal of existing pavement.
2. Areas to receive asphalt shall receive erosion control measures no later than 48 hours after installation of base course. Temporary erosion control consists of placement of a bituminous prime coat and sanding the surface. Permanent erosion control consists of placement of the structural course.
3. Areas to receive concrete paving shall be either protected with a layer of FDOT coarse aggregate material or shall be paved within 48 hours of installation of the subgrade.

F. Dirt roads are to be stabilized and compacted within 7 days of the completion of trenching and grading activities.

3.02 Sedimentation Control

A. Install prior to construction.

B. Inspect every two weeks during construction.

C. Remove any sediment build-up.

D. Repair and reinstall any damaged or missing sediment control measures. Install additional measures if inspection reveals additional sedimentation control is necessary.

E. Rough excavate and grade any proposed stormwater ponds at the start of site grading activities. Direct site runoff to the ponds to minimize runoff to offsite areas.

END OF SECTION

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SECTION 02505

PIPELINE REMOVAL AND ABANDONMENT

PART 1 GENERAL

1.01 Section Includes

Pipeline removal, abandonment, including pipeline grouting, pipe salvage, pipe disposal of pipelines located outside buildings.

1.02 Related Sections

A. Section 01550 - Maintenance of Traffic

B. Section 02230 - Site Preparation

1.03 References

A. American Water Works Association (AWWA) and American National Standards Institute (ANSI) latest edition:

1. ANSI/AWWA C110/A21.10 - Ductile Iron and Gray Iron Fittings
2. ANSI/AWWA C153/A21.53 - Compact Ductile Iron Fittings

B. All work associated with asbestos material shall be performed in accordance with the standards listed below and all other applicable local, State, or Federal standards.

1. Florida Administrative Code, Chapter 17-251, “Asbestos”
2. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR 61, subpart M.
3. U.S. Occupational Safety and Health Administration (OSHA), 29 CFR, Part 1926, Subpart Z
4. Environmental Protection Agency (EPA) Asbestos Abatement Worker Protection Rule
5. Florida Statutes Chapters 255.551 - 255.565 and 469.

1.04 Definitions

A. Pipeline Abandonment - isolate from active pipelines, remove from service, dispose of pipeline contents, plug pipeline, leave pipe in place.

B. Pipeline Removal - isolate from active pipelines, remove from service, dispose of pipeline contents, remove pipe, valves, fittings, dispose or stockpile removed materials as required.

C. Take Out of Service - see “pipeline abandonment”.

D. Asbestos Abatement - the removal, encapsulation, enclosure, or disposal of asbestos.

1.05 Submittals

A. Grout mixture data

B. Asbestos abatement contractor/subcontractor licensing (if required).

C. Asbestos abatement contractor/subcontractor. Provide at least three (3) references for asbestos abatement work including the name of the project, description of asbestos abatement work, contact person name, organization, and phone number.

D. Pipeline grouting contractor/subcontractor licensing and qualifications.

E. Provide documentation that the contractor or subcontractor performing the asbestos abatement work has liability insurance with a pollution endorsement against claims or claim expenses arising from any asbestos abatement project.

1.06 Qualifications

A. All work associated with the removal or taking out of service of existing asbestos cement pipelines shall be performed by a licensed asbestos abatement contractor or subcontractor registered in the State of Florida. Licensure as an asbestos consultant or contractor is not required for the repair, maintenance, removal, or disposal of asbestos-containing pipe or conduit, if:

1. The pipe or conduit is used for electrical, electronic, communications, sewer, or water service;
2. The pipe or conduit is not located in a building;
3. The pipe or conduit is made of Category I or Category II nonfriable material as defined in NESHAP; and
4. All such activities are performed according to all applicable regulations, including work practices and training, per OSHA 29 CFR, part 1926.

1.07 Regulatory Requirements

Contact the local governing agency having jurisdiction prior to removal or taking out of service of any asbestos material and obtain all required permits and licenses and issue all required notices. Pay all fees associated with permits, licenses and notices to the governing regulatory agencies.

PART 2 PRODUCTS

2.01 Fittings

A. Fittings shall be manufactured of ductile iron, conforming to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53.

B. All full body (C110/A21.10) fittings shall be pressure rated to 250 psi, minimum. All compact fittings (C153/A21.53) shall be pressure rated to 350 psi, minimum.

2.02 Concrete Grout

A. Provide grout with minimum 28 day compressive strength of 1000 psi, minimum slump of 5 inches, maximum slump of 9 inches. The grout mixture per cubic yard shall be:

1. Cement - 500 pounds
2. Fly Ash - 500 pounds
3. Water - 350 pounds (42 gallons)
4. Sand - 2248 pounds
5. Air entrainment admixture (Darex or equal) - 3 ounces
6. Bentonite - 6 pounds (to be mixed with sufficient water to form colloidal mixture, added at the job site)

PART 3 EXECUTION

3.01 Preparation

Implement traffic control measures prior to construction.

3.02 Pipe Isolation

A. Where indicated on the Drawings, line stops shall be utilized to isolate portions of pressurized mains.

B. In lieu of line stops, the use of existing valves may be used to isolate portions of the pipeline. Provide a written proposal showing existing valves to be closed to

provide isolation. Review of proposal will be conducted by Engineer and Utility to determine affected area. In no case will service to residences and businesses affected by the isolation be allowed to be interrupted by more than 1 hour.

C. Line stops shall be completed while the pipelines are pressurized.

D. Line stops shall consist of a line stop fitting, stopping valve, blind flange for installation after stop is completed, and 1 inch equalization/purge fitting.

E. Provide additional pipe restraining in the vicinity of the line stop for preventing pipe movement due to any unbalanced forces created by the line stop and subsequent cutting and removal of existing pipe adjacent to any line stop.

F. In the event a pressurized potable water pipeline that will remain in service loses pressure to less than 20 psi, disinfect the water main and submit bacteriological test results to the Florida Department of Environmental Protection. Satisfactory test results are required to be submitted for tests conducted on two consecutive days.

3.03 Pipe Cutting and Plugging

A. Cut all pipe as necessary. Cut sections of pipe shall be reamed or filed to remove all burrs. The contents of the pipe are to be removed and disposed as allowed by local rules and regulations.

B. Plug ends of pipe to remain in accordance with the following:

1. Remaining pressurized pipe (non-asbestos pipe) - install ductile iron plug or cap fitting. Pour concrete thrust restraint block or implement other restraining measures to prevent pipe movement.
2. Remaining non-pressurized pipe - grout ends of pipe or install ductile iron cap fitting.
3. Remaining asbestos pipe - grout ends of pipe.

3.04 Removal of Existing Non-Asbestos Pipe

A. Uncover and remove existing pipe as shown on the Drawings. Do not remove pipe until the new pipe is installed and placed in operation.

B. All buried pipe uncovered and removed from the trench shall be properly disposed unless the Drawings or this specification section require the pipe to be salvaged to the Owner.

3.05 Asbestos Cement Pipe Removal / Abandonment

A. Wherever possible, asbestos cement pipe is to remain undisturbed and abandoned. In order to abandon pipe, if there are portions that require pipe cutting or breaking, then the Contractor is to provide a list of proposed cuts and breaks and is to be able to demonstrate that pipe abandonment is not feasible without performing the proposed pipe cutting and breaking. Do not proceed with the proposed pipe cutting or breaking until authorized by the Owner and all required permits have been secured.

B. Post warning signs around the perimeter of all asbestos work area enclosures and support areas. Warning signs shall conform to OSHA requirements for size and wording.

C. All workers that perform tasks that result in asbestos exposure shall wear respirators in accordance with OSHA requirements.

D. Preventing dust dispersion is the primary means of controlling the spread of asbestos. Whenever practical, the point of pipe cutting and or removal shall be isolated, enclosed, covered, or shielded from the workers in the area.

E. Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup is required.

F. Where asbestos containing material is to be removed, the material shall be thoroughly wetted prior to and during its removal. The material shall be removed in an intact state unless the Contractor demonstrates that intact removal is not possible.

G. Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers is required. Waste asbestos containing materials shall be bagged using two layers of 6 mil plastic bags and is to be sealed. The material must remain saturated until the waste container is sealed.

H. Removed asbestos containing materials shall be disposed of offsite, and the disposal is to meet all local and state requirements.

3.06 Pipeline Abandonment Schedule (Schedule of Pipe Taken Out of Service)

A. Remove or abandon (take out of service) in accordance with information shown on the Drawings. Abandonment (taking out of service) shall be in accordance with the following schedule:

Pipes Under Roadways or Less than 5-ft from Edge of Pavement	
2 Inch and Larger Pipe	Fully Grout along entire length
Pipe Smaller than 2 Inches	Cap or grout the ends of the pipe
Pipes Outside Roadways (5-Ft or More from Edge of Pavement)	
Ductile Iron Pipe (All Sizes)	Cap or grout the ends of the pipe
Asbestos Cement Pipe (All Sizes)	Grout ends of pipe
2 Inch and Larger Size (Other Than Ductile Iron, Asbestos Cement)	Fully grout pipe along entire length
Pipe Smaller than 2 Inches	Cap or grout the ends of the pipe

3.07 Pipeline Grouting

A. The grouting program shall consist of pumping sand cement grout at pressures necessary to fill pipe sections.

B. Introduce grout to lowest end of pipeline in order to displace air and entrapped material within the pipeline.

C. Grouting of pipe shall be completed in sections not exceeding 400 feet in length and shall not be completed in more than 3 stages, with the final stage containing at least 50 percent of the volume to be grouted for the section.

D. One set of three 3 inch x 6 inch sample test cylinders shall be made for each grout mix preparation.

E. The pump used for grouting shall be a continuous flow positive displacement model with a pugmill type mixing vat having a minimum shaft speed of 60 rpm and incorporated as an integral part of the equipment. Alternate equipment may be used subject to the approval of the Engineer. The rate of pumping shall not exceed 6 cubic feet per minute.

F. Grout shall not be allowed to set up until the line being filled is full and there is still free flowing grout from the far end of each section.

G. Provide records at the end of each day's grouting operations that document the grout quantity pumped.

3.08 Restoration

Restore all areas disturbed as a result of pipeline removal and abandonment to equal or better condition than the existing condition.

END OF SECTION

SECTION 02535

SANITARY SEWER FORCE MAIN SYSTEMS

PART 1 GENERAL

1.01 Section Includes

A. Piping and fittings

B. Valves

C. Testing

1.02 Related Sections

A. Section 02320 - Trenching, Bedding and Backfilling

B. Section 02955 - Cleaning and Flushing Of Underground Piping

1.03 References

A. American Water Works Association (AWWA) and American National Standards Institute (ANSI) latest edition:

1. ANSI/AWWA C105/A21.5 - Polyethylene Encasement for Ductile Iron Pipe Systems
2. ANSI/AWWA C110/A21.10 - Ductile Iron and Gray Iron Fittings, 3 Inch Through 48 Inch, for Water
3. ANSI/AWWA C111/A21.11 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
4. ANSI/AWWA C115/A21.15 - Flanged Ductile Iron Pipe with Ductile Iron or Gray Iron Threaded Fittings
5. ANSI/AWWA C150/A21.50 - Thickness Design of Ductile Iron Pipe
6. ANSI/AWWA C151/A21.51 - Ductile Iron Pipe, Centrifugally Cast, for Water
7. ANSI/AWWA C153/A21.53 - Compact Ductile Iron Fittings for Water Service
8. AWWA C517 - Resilient Seated Cast Iron Eccentric Plug Valves
9. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances
10. AWWA C900 - PVC Pressure Pipe, and Fabricated Fittings, 4 Inch Through 12 Inch, for Water Distribution
11. AWWA C905 - PVC Pressure Pipe and Fabricated Fittings, 14 Inch Through 48 Inch

12. AWWA C906 - Polyethylene Pressure Pipe and Fittings, 4 Inch Through 63 Inch for Water Distribution and Transmission

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM A307 - Carbon Steel Bolts and Studs
2. ASTM A536 - Ductile Iron Castings
3. ASTM D1248 - Polyethylene Plastics Extrusion Materials for Wire and Cable
4. ASTM D1784 - Rigid PVC Compounds and CPVC Compounds
5. ASTM F1674 - Test Method for Joint Restraint Products for Use with PVC Pipe
6. ASTM F2164 - Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure

1.04 Submittals

C. Product data for gaskets, pipe, joints, joint restraint, fittings, valves, coatings.

D. Product data for all locate wire, tape, markers, warning tape

E. Piping specialties and installation details.

F. Product data and painting schedule for field applied paint and coatings.

G. Final coat paint colors.

1.05 Product Delivery, Storage, and Handling

A. Exercise care in transporting and handling pipe and fittings in order to avoid damage to materials or coatings. Lifting shall be by hoist or on skids when hand lifting is not feasible. Dropping shall not be permitted. Store pipe as recommended by the manufacturer. Damaged pipe and fittings shall be replaced.

PART 2 PRODUCTS

2.01 Ductile Iron Pipe

A. Buried pipe shall conform with ANSI/AWWA C150/A21.50 and C151/ A21.51, and shall have a minimum working pressure of 150 psi. Buried pipe shall comply with the following pressure class (PC) designations unless otherwise indicated on the Drawings:

1. 12 inch diameter and smaller = PC 350
2. 14 inch through 24 inch diameter = PC 250
3. 30 inch through 64 inch diameter = PC 200

B. Exposed pipe 4” and larger shall be flanged and shall conform with AWWA/ANSI C115/A21.15, and shall have a minimum working pressure of 150 psi. Flanged pipe shall comply with the following thickness class (TC) designations unless otherwise indicated on the Drawings:

1. 4 inch diameter = TC 54
2. 6 inch through 24 inch diameter = TC 53

C. All flanges shall be class 125, and shall be fully machine faced after being screwed tightly on the pipe. Bolts and nut shall conform to ASTM A307, Grade B.

2.02 Fittings for Ductile Iron and PVC Pipe

A. Fittings shall be manufactured of ductile iron, conforming to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53.

B. All full body (C110/A21.10) fittings shall be pressure rated to 250 psi, minimum. All compact fittings (C153/A21.53) shall be pressure rated to 350 psi, minimum.

C. Fitting joints shall be compatible with the type of pipe in use or specified, e.g., flange fittings for flange pipe and mechanical joint for mechanical joint pipe and push-on joint pipe.

2.03 Linings and Coatings for Ductile Iron Pipe and Fittings

A. Interior lining for pipes and fittings shall be either:

1. Minimum 40 mils dry film thickness (60 mils nominal) of ceramic epoxy lining, as manufactured under the name of “Protecto 401", or equal.
2. Minimum 40 mils dry film thickness (60 mils nominal) of fusion bonded epoxy and polyethylene lining, as manufactured under the name of “Polybond Plus", or equal.

B. Exterior coating for buried pipe and fittings shall be a petroleum asphaltic coating in accordance with ANSI/AWWA C110/A21.10.

C. All exposed pipe and fittings shall be painted with a three coat system. The first coat shall be primer, 2.5-3.5 mil Dry Film Thickness (DFT) Tnemec Series 135 ChemBuild or approved equal; the intermediate coat shall be 4.0-10.0 mil DFT Tnemec Color Hi-Build Epoxoline II Series N69 or approved equal, and the final coat shall be 2.0-3.0 mil DFT Tnemec EnduraShield Series 73 or approved equal. The final coat paint color shall be as selected by the local utility.

2.04 Joints for Ductile Iron Pipe and Fittings

A. Mechanical and push-on joints shall be rubber gasketed, conforming to ANSI/AWWA C111/A21.11. Mechanical joint bolts and nuts shall conform to

ASTM A307, Grade B. Ductile iron glands shall be provided with ductile iron pipe.

B. Lubricants other than that furnished by the pipe manufacturer with the pipe shall not be used.

2.05 Restrained Joints for Ductile Iron Pipe and Fittings

A. Restrained joints for ductile iron pipe bell joints shall be American Fast Grip Gasket, McWane Sure Grip 350 Gasket, U.S. Pipe Field Lok 350 Gasket, or EBAA Iron Mega Lug Series 1100HD.

B. Restrained joints for ductile iron pipe and fitting mechanical joints shall be EBAA Iron Mega Lug Series 1100, Star Grip Series 3000, or Tyler Union Tuf-Grip Series TLD.

C. Locking bell joint restraint shall be American Flex Ring Joint, American Lok-Ring Joint, or U.S. Pipe TR-Flex.

D. Pipe joints shall be restrained upstream and downstream of fittings in accordance with the manufacturer's requirements or the table shown in the Drawings, whichever is greater.

2.06 PVC Pressure Pipe

A. Pipe 4 inch through 12 inch diameter shall conform to AWWA C900.

B. Pipe 14 inch through 30 inch diameter shall conform to AWWA C905.

C. Pipe shall conform to ASTM D1784, Type I, Grade I, 4000 psi design stress, and shall be National Sanitation Federation (NSF) approved.

D. 4 inch through 12 inch diameter pipe shall be class 165 (DR 25) and 14 inch through 30 inch diameter pipe shall be class 235 (DR 18). Pipe shall contain markings on each section showing conformance to the above specifications.

E. PVC pipes shall be color coded green and stenciled (0.75-inch lettering on the pipe in at least three areas per pipe section) "Sewer Force Main".

2.07 PVC Pressure Pipe Joints

A. Joints shall be rubber gasketed conforming to AWWA C900 or C905

B. The bell shall be integral with the pipe and of equal or greater pressure rating. The bell of pipe and fittings using push-on joints shall have an integral groove to retain the gasket in place.

C. Provide adapters as required to join PVC pipe to pipe, fittings and equipment of other materials.

2.08 Restrained Joints for PVC Pressure Pipe

A. Restrained joints for PVC pipe mechanical joints shall be Tyler Union Series 2000 Tuf Grip TLP, JCM Sur-Grip Bell Restrainer, Ford Uni-Flange Series 1500 Circle Lock, or EBAA Iron Mega Lug Series 2000PV.

B. Restrained joints for PVC pipe push on joints shall be EBAA Iron Mega Lug Series 1500 or Series 1600 (C900 PVC), Series 2800 (C905 PVC), Ford Uni-Flange Series 1390, or Smith-Blair Bell-Lok Series 165.

C. Pipe joints shall be restrained upstream and downstream of fittings in accordance with the manufacturer's requirements or the table shown in the Drawings, whichever is greater.

2.09 General Valve Requirements

A. Where required for satisfactory operation of valves, provide valve operators, extension stems, stem guides, cast iron valve boxes, floor boxes, handwheels, operator stands, position indicators, and other valve appurtenances. Extension stems shall be complete with guide bearings, wrench nut, and tee handle wrench. All machinery stuffing boxes shall be packed with material selected for the service intended. Maintain all packing until final acceptance by the Owner.

B. Manufacturer's name, service, and pressure marking shall be cast into the body.

C. Valve operators shall be sized for operation at the pressure and flow conditions required for proper operation.

D. Manual operators for exterior buried valves shall conform to AWWA C504.

E. Extension stems shall be provided for all valves in buried locations and in other locations where indicated on the Drawings.

F. Extension stems shall be fabricated from solid steel shafting not smaller in diameter than the stem of the valve or from galvanized steel pipe having an internal diameter not smaller than the diameter of the valve stem. Stem couplings shall be both threaded and keyed to the coupled stems and shall be of standard design and construction. Pipe couplings will not be acceptable.

G. Stems for buried valves shall extend to within 6 inches of the surface of the ground. Each extension stem shall be connected to the valve operator with a suitable universal joint type coupling. All connections shall be pinned. Each extension stem shall be provided with spacers which will center the stem in a valve box having an inside diameter of approximately 5 inches, and shall be

equipped with a standard AWWA wrench nut as described in AWWA C500, except where handwheels are indicated.

2.10 Linings and Coatings for Valves

A. The interior and exterior of the valve shall be coated with an NSF/ANSI 61 approved fusion bonded epoxy.

B. Exterior coating of exposed valves shall be factory applied rust inhibiting epoxy primer, minimum 3 mils dry film thickness.

C. After installation, exterior surfaces shall be painted with a two coat system. The first coat (intermediate coat) shall be 4.0-10.0 mil DFT Tnemec Color Hi-Build Epoxoline II Series N69 or approved equal, and the final coat shall be 2.0-3.0 mil DFT Tnemec EnduraShield Series 73 or approved equal. The final coat paint color shall be as selected by the local utility.

2.11 Plug Valves

A. Plug Valves shall be Cast Iron suitable for wastewater service with pressures up to 250 psig, and shall be quarter-turn, non-lubricated, eccentric type with resilient faced plug, manufactured and tested in accordance with AWWA C517.

B. Port areas shall be true 100% of the circular cross-sectional area of the pipe.

C. The valve seat shall be a welded overlay of 95% pure nickel applied directly to the body on a pre-machined, cast seating surface and machined to a smooth finish.

D. Shaft seals shall consist of V-type packing in a fixed gland with an adjustable follower designed to prevent over compression of the packing and to meet design parameters of the packing manufacturer.

E. Removable, slotted shims shall be provided under the follower flanges to provide for adjustment and prevent over tightening.

F. The valve body and cover shall be constructed of ASTM A126 Class B cast iron for working pressures up to 175 psig. The words "SEAT END" shall be cast on the exterior of the body seat end.

G. The plug shall be of one-piece construction and made of ASTM A536 Grade 65-45-12 ductile iron and fully encapsulated with a resilient facing.

H. Radial shaft bearings shall be constructed of self-lubricating type 316 stainless steel. The top thrust bearing shall be Teflon. The bottom thrust bearing shall be Type 316 stainless steel. The packing shall be adjustable and replaceable and

the bonnet shall be bolted. All bolts, nuts and washers shall be 316 stainless steel for buried, non-buried, and pit installed service.

I. Valves 4 inches in diameter and smaller shall be lever or wrench nut operated. Valves larger than 4 inches shall be equipped with totally enclosed worm gear actuators, except where automatic operation is specified.

J. Standard plug valves shall be DeZurik Series PEC or approved equal.

2.12 Swing Check Valves

A. Below grade buried swing check valves shall be ductile iron body, with rubber encapsulated ductile iron reversible disc, resilient seated disc, full flow area, and shall conform to AWWA C508. Valves shall be pressure rated at a minimum of 250 PSI working pressure.

B. Below grade non-buried or above grade swing check valves shall be iron body, bronze mounted, with rubber faced disc, Class 125 flanged ends, removable inspection cover, O-ring sealed stuffing box, with an external weighted lever, and shall conform to AWWA C508.

C. Acceptable manufacturers: Val-Matic 500 Series

2.13 Tapping Valves

Tapping valves shall be resilient seated gate valves and shall conform to the requirements of AWWA C509. Tapping Valves shall be American Flow Control Series 2500, Clow Series F-6100, or Mueller Series A2361.

2.14 Air Release Valves

A. Air release valves shall be combination valves that permit automatic release of large quantities of air from an empty pipe during filling and to permit air to enter the pipeline when the line is being emptied. The valve shall be capable of discharging accumulated air in the line while the line is operating under a pressure of 150 psi. Float material shall be stainless steel. Attachment shall be by means of threaded pipe connections. Valves shall be vented to the atmosphere by means of threaded piping and shall discharge into drainage areas.

2.15 Valve Boxes

A. All buried valves shall be provided with adjustable valve boxes approximately 5 inches in diameter and shall be heavy duty traffic rated.

B. Valve boxes shall be cast iron. Valve box lids shall be cast iron H-20 load rated.

C. Valve boxes shall be of sufficient length to operate all valves buried in the ground. Valve boxes shall consist of base, center section, and top section with cover. All valve box extensions shall be cast iron.

D. Valve box lids in paved areas shall be lockable.

E. Valve boxes located in unpaved areas shall be Slip Type design to permit movement of the top section without transmitting forces onto the valve body.

F. Valve boxes shall have valve box covers with the inscription "SEWER" cast thereon.

G. All valve box covers shall be painted with a three coat system. The first coat shall be primer, 2.5-3.5 mil Dry Film Thickness (DFT) Tnemec Series 135 ChemBuild or approved equal; the intermediate coat shall be 4.0-10.0 mil DFT Tnemec Color Hi-Build Epoxoline II Series N69 or approved equal, and the final coat shall be 2.0-3.0 mil DFT Tnemec EnduraShield Series 73 or approved equal. The final coat paint color shall be green as approved by the local utility.

H. Acceptable manufacturers: Tyler Union, Sigma Corporation, Star Pipe Products.

2.16 Pipeline Identification Tape

A. Identification tape shall be an inert plastic film specifically formulated for prolonged underground use. Minimum thickness 4 mils, width 6 inches, letter size 1 inch. Lettering shall be continuous.

B. Tape shall be the standard product of a manufacturer regularly engaged in the supply of this tape. Provide tape with adhesive backing for attachment to pipe.

C. Identification tape shall be color coded brown with black or white lettering "SEWER FORCE MAIN".

2.17 Electronic Marker Balls

A. Marker balls shall consist of a passive device capable of reflecting a specifically designated repulse frequency tuned to the utility being installed.

B. Balls shall be four inches (4") in diameter with a high density polyethylene shell and shall be color coded green (sewer).

C. Balls shall be as manufactured by 3M or Omni.

2.18 Pipeline Warning Tape

Warning tape shall be 6 inch wide vinyl continuous tape, for identification and warning purposes. It shall be color coded brown or green with black lettering “CAUTION: FORCE MAIN BURIED BELOW”.

2.19 Locating Wire

Locating wire shall be color-coded 10 gage continuous insulated wire. Color coding shall be similar to warning tape colors.

PART 3 EXECUTION

3.01 General Installation Requirements

A. All lengths of pipe shall be dimensioned accurately to measurements established at the site, and shall be worked into place without springing or forcing.

B. Cut all pipe and drill all holes that may be necessary. Cut sections of pipe shall be reamed or filed to remove all burrs. The pipe interior and joints shall be thoroughly cleaned before being installed and kept clean during construction.

C. All changes in direction shall be made with fittings or approved joint deflection. Bending of pipe, except copper and polyethylene, is prohibited. Joint deflection shall not exceed 75 percent of the manufacturer's recommended maximum deflection.

D. Any transition from one pipe size to another shall be made with a reducing fitting. Reducing bushings are prohibited except where specifically indicated on the Drawings or approved by the Engineer.

E. Make adequate provision for expansion and contraction of piping.

F. Trenching, bedding and backfilling shall be in accordance with Section 02320.

G. Valves shall be installed in all pipe ahead of appliances and equipment not furnished with stops, and elsewhere as required for proper control and isolation of sections of systems for maintenance purposes.

H. Minimum cover over pipe shall be 36 inches.

3.02 Concrete Cradles and Encasement

Concrete cradles and encasement shall be as indicated on the Drawings, or as directed by the Engineer. All concrete cradles and anchors shall be of Class B concrete.

3.03 Separation of Force Mains and Potable Water Lines

A. The outside of wastewater force mains shall be separated horizontally a minimum of six feet from the outside of any existing or proposed water main.

B. Wherever possible, wastewater force mains shall cross under existing or proposed water mains. Whether the wastewater force main crosses over or under the water main, the outside of the force main shall be at least 12 inches from the outside of the water main. At the crossing, the proposed pipe joints shall be arranged so that all water main joints are a minimum of six feet from the joints of wastewater force mains.

C. The following are acceptable alternative construction features to be considered for cost evaluation with no guarantee they will be approved for implementation where it is not possible to meet the separation requirements. Exceptions from meeting the pipe separation requirements, without mitigation, shall be allowed only by FDEP if technical or economic justifications for each exception provided by the Engineer are acceptable to FDEP and are only to be implemented upon receipt of expressed written consent from the Engineer and approval from FDEP on a case by case basis. All possible measures to achieve compliance with the pipe separation requirements shall be considered first along with design changes to meet the requirements before the Engineer submits a justification of an exception to FDEP for approval. Implementation of these measures without the expressed written consent of the Engineer and approval by FDEP could result in the requirement that the installed unapproved measures be removed and replaced at no cost to the Owner.

1. Where a sewer force main is less than the required minimum horizontal distance from a water main or where a force main crosses a water main and joints in the force main are less than the minimum required distance between the joints in the water main:

    a. Use of welded, fused, or otherwise restrained joints for either pipeline.
    b. Use of watertight casing pipe or concrete encasement at least four inches thick for either pipe.

2. Where a force main is less than three feet horizontally a water main and or where a force main crosses a water main at less than the required minimum separation:

    a. Use of pipe or casing pipe, having high impact strength (at least equal to 0.25 inch thick ductile iron pipe), or concrete encasement at least four inches thick for both the water main and the force main.

3.04 Plugs

A. Installed piping systems shall be temporarily plugged at the end of each day's work, or other interruption to progress on a given line. Plugging shall be adequate to prevent entry of small animals or persons into the pipe or the entrance or insertion of deleterious materials.

B. Standard plugs shall be inserted into all dead-end pipes, tees, or crosses; spigot ends shall be capped; flanged and mechanical joint ends shall have blind flanges of metal.

C. Plugs installed for pressure testing shall be blind flanges fully secured and blocked to withstand the test pressure.

D. Where plugging is required because of contract division or phasing for later connection, the ends of such lines shall be equipped with a permanent type plug or blind flange. Installation or removal of such plugging shall be considered incidental to the work.

3.05 Ductile Iron Pipe

A. Mechanical joints: install according to the manufacturer's specifications. Socket and gasket shall be clean and gasket shall be properly centered before joint is made.

B. Push-On Type Joints: Remove any foreign matter in the gasket seat, wipe gasket clean, flex and place in socket. Apply thin film of lubricant to inside surface of gasket. Complete joint assembly by forcing the plain end of the entering pipe past the gasket until it makes contact with the bottom of the socket.

C. Flanged Joints: Bolt flanged joints with care so there is no restraint on the opposite end of the piece, which would prevent pressure from being evenly and uniformly applied upon the gasket. The pipe or fitting must be free to move in any direction while bolting. Gradually tighten bolts, each in turn, at a uniform rate of gasket compression around the entire flange.

3.06 O-Ring Type Push-On Joints for PVC Pipe

A. Clean the pipe end and the bell thoroughly. Insert O-Ring gasket, making certain it is properly oriented. Lubricate the spigot well with an approved lubricant; do not lubricate the bell or O-ring. Insert the spigot end of the pipe carefully into the bell until the reference mark on the spigot is flush with the bell.

B. Field cut pipe shall be beveled, have all burrs removed, and shall have a reference mark applied the correct distance from the end.

3.07 Buried and Exposed Valves

A. Buried valves 6 inch diameter and larger shall be set on a foundation of solid concrete or stone not less than 8 inches thick nor less than one cubic foot in volume. Foundations shall be set on firmly compacted ground.

B. The height of the valve and its supporting foundation shall conform to the height of the connecting pipe. Valves shall be set in a vertical position, except where indicated on the Drawings or as determined in the field to require a horizontal installation as determined by the Engineer and Owner. Where valves are required to be installed in a horizontal position, provide with a bevel gear side actuator.

C. Exposed valves shall be installed in a vertical position wherever possible. Unless otherwise indicated or directed by the Engineer, valve stems shall never be below a horizontal position.

D. Open and close each valve observing full operation prior to installing successive lengths of pipe.

3.08 Air Release Valves

Air release valves shall be placed at high points of the pipeline to permit escape of trapped air. The valve size, location and method of installation shall be indicated on the Drawings or as directed by the Engineer.

3.09 Valve Boxes

A. Boxes shall rest on the valve and shall be adjusted so that the cover may be set flush with paving; in areas without paving, set the cover as directed by the Engineer. Boxes shall be set to allow equal movement above and below finish grade.

B. The base of the box shall be centered over the valve, and the top of the base section shall be approximately on line with the nut on top of the valve stem. The entire assembly shall be plumb.

3.10 Electronic Marker Balls

A. Electronic markers shall be furnished and installed so that a marker will be located at one hundred foot (100') intervals along the pipeline length. Markers shall also be placed at all valves, changes in direction, tees, or other points of connection and as directed by the Engineer.

B. Marker balls shall be placed in a position directly above the pipe and hand backfilled one foot (1') above the ball to prevent damage or movement during subsequent backfilling. Depth of burial shall not be less than one and one half feet (1½') nor more than two feet (2').

3.11 Installation of Identification and Warning Tape

A. Install identification tape on all pipelines. Place tape as follows:

1. 2 inch through 8 inch diameter pipe - center along top half of pipe
2. 10 inch through 18 inch diameter pipe - place along both sides of the top half of pipe
3. 20 inch diameter and larger pipe - place on both sides of top half of pipe with a third strip centered along top half of pipe

B. Place tape from joint to joint on every section of pipe.

C. Install warning tape along all pipelines. Install 2 feet above pipe, minimum of 1 foot below grade.

3.12 Locator Wire

A. Install locator wire along all pressurized pipelines 2 inch diameter and larger.

B. Terminate locator wires at top of the valve box with 12" of extra wire.

C. Test the locate wire for continuity and submit report documenting the continuity testing. Repair or replace locate wire at failed test locations as directed by Owner.

3.13 Testing General Requirements

A. Hydrostatic testing shall be in accordance with AWWA C600 (Ductile iron force mains), AWWA C605 (PVC force mains) and ASTM F2164 (polyethylene force mains).

B. Test procedures and method of disposal of water shall be approved by the Engineer. All tests shall be made in the presence of the Engineer and utility. Preliminary tests made by the Contractor without being observed by the Engineer will not be accepted. Notify the Engineer and the utility companies at least 48 hours before any work is to be inspected or tested.

C. All defects in piping systems shall be repaired and/or replaced and retested until acceptable. Repairs shall be made to the standard of quality specified for the entire system.

D. Sections of the system may be tested separately, but any defect which may develop in a section previously tested and accepted shall be promptly corrected and retested. Pressure tests shall be made between valves to demonstrate ability of valves to sustain pressure.

E. Provide all necessary test equipment. Increments on gages used for pressure pipe testing shall be of scaled to the nearest 1 psi. Gages, pumps, and hoses shall be in good working order with no noticeable leaks.

F. Tests for any exposed piping shall be made before covering and insulation is placed.

G. The pressure and leakage test for buried piping shall be made after all jointing operations are completed and restraints have been in place at least seven days. Lines tested before backfill is in place shall be retested after compacted backfill is placed.

H. Sections of piping between valves and other short sections of line may be isolated for testing. If shorter sections are tested, test plugs or bulkheads required at the ends of the test section shall be furnished and installed by Contractor, together with all anchors, braces, and other devices required to withstand the hydrostatic pressure without imposing any thrust on the pipe line. Contractor shall be solely responsible for any damage that results from the failure of test plugs or supports.

I. All items including valves and controls shall be given a thorough test. The entire system shall be operated for two days to prove compatibility of equipment and to achieve proper adjustment for operation. Valves, pipes, tanks, and other items that are non-operating or occasional-operating shall be tested for ability to meet design criteria.

3.14 Sequence of Testing

A. The sequence of testing shall be as follows:

1. Conduct pressure and leakage testing.
2. Perform flushing in accordance with Section 02955

3.15 Pressure and Leakage Testing (PVC and DI Mains)

A. Piping shall be slowly filled with water and all air expelled. Care shall be taken that all air valves are installed and open in the section being filled, and that the rate of filling does not exceed the venting capacity of the air valves.

B. Apply hydrostatic test pressure of 100 psi for 10 minutes and for such additional period necessary for the Engineer to complete the inspection of the line under test. Do not exceed pipe manufacturer's suggested time duration at the test pressure. If defects are noted, repairs shall be made and the test repeated until all parts of the line withstand the test pressure.

C. Apply leakage test pressure of 100 psi. Maintain pressure at a maximum variation of 5 percent during the entire leakage test. The duration of the leakage

test shall be two hours minimum, and for such additional time necessary for the Engineer to complete inspection of the section of line under test. Leakage measurements shall not be started until a constant test pressure has been established. The line leakage shall be measured by means of a water meter installed on the supply side of the pressure pump.

D. No leakage is allowed in exposed piping, buried piping with flanged, threaded, or welded joints or buried non-potable piping in conflict with potable water lines.

E. The testing allowance shall be defined as the quantity of water that must be applied to the pipe section being tested to maintain a pressure within 5 psi of the specified hydrostatic test pressure. No installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$L = \frac{S \times D \times P^{0.5}}{148{,}000} -$$

L = Testing Allowance (quantity of makeup water) in gallons per hour
S = Length of line being tested, in feet
D = Nominal internal diameter (in inches) of the pipe.
P = The average test pressure during the pressure test, in pounds per square inch (gauge) This actual pressure shall be determined by finding the difference between the average elevation of all tested pipe joints and the elevation of the pressure gauge and adding the difference in elevation head to the authorized test pressure.

F. All leaks shall be repaired by removing and replacing defective pipe and joints with pipe and joints free of defects, after which the lines shall be retested. Such repair and retesting shall be done until the lines pass the specified retest.

G. All apparent leaks discovered within one year from the date of final acceptance of the work by the Owner shall be located and repaired by Contractor, regardless of the total line leakage rate.

3.16 Placing the Force Main into Service

The force main can only be placed into service once clearance is received from FDEP, followed by approval by the Utility and Owner.

END OF SECTION

THIS PAGE INTENTIONALLY

SECTION 02619

HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SCOPE

The Contractor shall furnish all labor, materials, equipment and incidentals required to install all pipe, fittings and appurtenances as shown on the Drawings and specified in the Contract Documents by Horizontal Directional Drilling (HDD).

1.02 GENERAL

A. All existing structures, water and sewer lines, storm drains, utilities, driveways, sidewalks, signs, mail boxes, fences, trees, landscaping, and any other improvement or facility in the construction area that the Contractor disturbs for his own construction purposes shall be replaced to original condition at no additional cost to the Owner.

1.03 TESTING

A. In place soil compaction tests shall be performed by a qualified testing laboratory.

B. Compaction tests shall be taken at every excavation, except in the road crossings or road shoulders; tests are to be taken according to current FDOT Standards.

C. All pipe shall be tested in accordance with the appropriate material specifications.

D. Reference Standards: American Society for Testing and Materials (ASTM), D1557, Moisture-Density Relations of Soils Using 10-lb. Rammer and 18-in. Drop.

E. The density of soil in place shall be a minimum of 95 percent in accordance with ASTM test 1557-70T, Method A or C.

1.04 QUALIFICATIONS

A. Pipe Manufacture: All pipe and fittings shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be furnished.

B. Drilling Supervisor: The Contractor shall provide a competent boring

specialist who shall remain on the project site during the entirety of the directional boring operation. This includes, but is not limited to, drilling fluid preparation, seaming, boring and pulling. The boring specialist shall have a minimum of five years of experience in supervising directional bores of similar nature, diameter, materials and lengths.

C. Pipe Fusion: All boring and fusing equipment shall be certified for operation. The Contractor responsible for thermal butt fusing pipe and fittings shall have manufacturer certification for performing such work or a minimum of five years of experience performing this type of work. If no certification is available, written documentation of the required work experience shall be submitted for approval.

D. Drilling Fluid Specialist: The personnel responsible for supervising the supply, mixing, monitoring fluid quality, pumping and re-circulation system proposed for the drilling fluid shall have a written certification issued by the Drilling Fluid manufacturer for performing such work or a minimum of five years of experience performing this type of work. If no certification is available, written documentation of the required work experience for the proposed personnel shall be submitted for review and approval.

1.05 SUBMITTALS

A. Detailed description including specifications and catalog cuts for:

1. Shop drawings and catalog data for all HDD equipment.
2. The pipe manufacturer's maximum degree of radial bending allowed for the pipe when full and when empty and pullback force recommended setting.
3. Steering and tracking devices including specific tracer wire.
4. Drilling fluids; the drilling fluid submittal shall include the ratio of mixture to water, including any additives, based on the Contractor’s field observations prior to construction, knowledge and experience with drilling in similar conditions, and any soil data provided in the Contract Documents, which shall be verified by the fluid specialist.
5. Shop drawings for the breakaway swivel, including the method of setting the swivels’ break point and set point to be used.
6. Shop drawings for sizing of the mandrel for pull through testing
7. Pipe assembly procedure, details of support devices, and staging area layout including methods to avoid interference with local streets, driveways, and sidewalks.
8. Details of pipe fusion procedures and copies of the fusion technician qualification certification or documentation.
9. Drilling fluid technician qualification certification or documentation

B. If the Contractor proposes any changes to the pull-back distance or profile shown on the drawings, he may be required to submit a complete design for the proposed pipe including an analysis for pull-back forces, external loads including full hydrostatic pressure if empty, external forces due to borehole

collapse, ovalization during pull-back, thermal stress while exposed to Sunlight, shortening after release of pull-back force, and tensile stress during pull-back.

C. Bore Plan: For all contiguous piping installations over 300 feet in length or any installations for piping larger than 4" in diameter, the Contractor shall submit a Bore Plan that includes the following:

1. Contact information and experience for the drilling fluid specialist.
2. The number of passes the bore will include to get the product pipe installed.
3. The pilot bore and all reaming bore sizes including the final pullback with the product pipe.
4. Drilling rod length in feet.
5. The pilot bore, pre-ream bores (if any) and pullback production rate in minutes per (drilling) rod to maintain adequate mud flow.
6. Details of the entry and exit pit locations along with entry and exit angles for the bore, drawn to scale, depicting the position of all required equipment, access points, existing facilities to remain in place, existing traffic lanes to be maintained in operation, office trailers and storage sites.
7. The method of fusing or joining pipe of adjacent bores to ensure that the joint is on grade with the installed pipe.

D. Furnish a Bore Path Report to the Engineer within seven days of the completion of each bore path. Data collected by the Owner/Engineer does not relieve the Contractor from the responsibility of recording his own data. Include the following in the report:

1. Location of project, project name and number
2. Name of person collecting data, including title, position and company name
3. Investigation site location (Contract plans station number or reference to a permanent structure within the project right-of-way)
4. Driller's Log & identification of the detection method used
5. Elevations and offset dimensions of installed pipe as referenced to the drawings
6. Data log of pullback force during product pipe installation
7. All failed bores. Include length of pipe left in place and explanation of failed installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Incidental materials that may or may not be used to install the product depending on field requirements are not paid for separately and will be

included in the cost of the installed product.

B. Drilling Fluids shall use a mixture of bentonite clay or other approved stabilizing agent mixed with potable water with a pH of 8.5 to 10.0 to create the drilling fluid for lubrication and soil stabilization. Vary the fluid viscosity to best fit the soil conditions encountered. Contractor shall have appropriate additives for drilling fluid available for different soil conditions that may be encountered. Do not use any other chemicals or polymer surfactants in the drilling fluid without written consent from the County. Certify to the County in writing that any chemicals to be added are environmentally safe and not harmful or corrosive to the product pipe.

C. For drilling operations that will be below waters of the State of Florida, only bentonite free drilling fluids shall be used. Acceptable products are BioMax, manufactured by M-I Swaco, Inc., P.O. Box 2216, Laurel, Mississippi 39440, Phone: (800) 731-7331 or Bio-Bore, manufactured by Baroid Drilling Fluids, Inc., P.O. Box 1675, Houston, Texas 77251, Phone: (731) 987-5900 or approved equal.

D. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds or fire hydrants. Any water source used other than potable water may require a pH test.

E. The tracer wire to be used for all directional drills shall be a solid, 10 gauge, high strength, copper clad steel wire with a polyethylene jacket of appropriate color manufactured by Copperhead Industries approved equal.

F. Breakaway connectors shall be supplied by DCD Design & Manufacturing, Condux International, Inc. or approved equal.

PART 3 EXECUTION

3.01 SITE CONDITIONS

A. Carry out excavation for entry, exit, recovery pits, slurry sump pits, or any other excavation as specified in the Contract documents. Sump pits are required to contain drilling fluids if vacuum devices are not operated throughout the drilling operation, unless approved by the County.

B. Within 48 hours of completing installation of the boring product, clean the work site of all excess slurry or spoils. Take responsibility for the removal and final disposition of excess slurry or spoils. Ensure that the work site is restored to pre-construction conditions or as identified on the plans.

C. Exposure of product pipe to sunlight shall be limited to 14 consecutive days unless approved by the County.

D. The pipe shall be supported at intervals along its length with rollers or Teflon pads to minimize frictional forces when being pulled, and to hold the pipe above the ground. Surface cuts or scratches greater than or equal to the maximum defect depth in 3.08 E are not acceptable.

3.02 DAMAGE RESTORATION & REMEDIATION

A. The Contractor shall take responsibility for restoration for any damage caused by heaving, settlement, separation of pavement, escaping drilling fluid (frac-out), or the directional drilling operation, at no cost to the Owner.

B. When required by the Owner/Engineer, provide detailed plans which show how damage to any roadway facility will be remedied. These details will become part of the Record Drawings Package. Remediation Plans must follow the same guidelines for development and presentation of the Record Drawings. When remediation plans are required, they must be approved by the Owner/Engineer before any work proceeds.

C. For HDD operations that will be below waters of the State of Florida, the contractor shall be responsible for any damage caused by the drilling operation, including, but not limited to, fracturing of the channel bottom. Any State or Federal required environmental cleanup due to the release of drilling fluids into State waters shall be at the Contractor's expense. The Contractor may at his own expense increase the depth of his drilling operations upon the approval from the Owner/Engineer.

3.03 QUALIFICATIONS FOR REJECTION OF DIRECTIONAL BORE

A. The Owner may reject any portion of the work that is deemed to be non-responsive to the Contract requirements or not in conformance with approved plans and submittals, and for other factors including the following:

1. Failed Bore: When there is any indication that the installed product has sustained damage, stop all work, notify the Owner/Engineer and investigate damage. The Owner may require a pressure and / or mandrel test at no additional cost to the Owner and shall have a representative present during the test. Perform all testing within 24 hours unless otherwise approved by the Owner. Furnish a copy of the test results and all bore logs to the Owner/Engineer for review and approval. The Owner is allowed up to 5 working days to approve or determine if the product installation is not in compliance with the specifications.
2. Obstructions: If an obstruction is encountered during boring which prevents completion of the installation in accordance with the design location and specification, the pipe may be taken out of service and left in place at the discretion of the Owner.

3. Pull-back Failure: If the installed breakaway device should fail during pull back.
4. Loss of Drilling Fluids: If the drilling fluid is “lost” during the pull back of the product and cannot be regained within the required timeframe of the manufacturer or if more than a reasonable amount of fluid is used to fill an unknown void and flow cannot be regained. No pipe shall be pulled without visible flow of drilling fluid.
5. Test Failure: If the pipe shall fail a hydraulic pressure test or mandrel test as specified by the Owner.
6. Damaged Pipe: If at any time when the product is pulled back and any exposed areas have a greater than allowable “gouging” or visible marring of the pipe per the table in 3.08 E.
7. Alignment Tolerance Exceeded: If the vertical and horizontal limits are not within tolerances.
8. Defective Material: Any other defect in material or workmanship which would affect the quality, performance, or installation life of the installed pipeline.

B. Remediation: All rejected bores shall be at the Contractors expense to correct and provide a satisfactory installed product. The Contractor shall submit to the County a revised installation plan and procedure for approval before resuming work. The County may require non-compliant installations to be filled with excavatable flowable fill or to be completely removed at no additional cost to the County.

3.04 PRODUCT LOCATING AND TRACKING

A. The County recognizes walkover, wire line, and wire line with surface grid verification, or any other system as approved by the Owner/Engineer, as the accepted methods of tracking directional bores. Use a locating and tracking system capable of ensuring that the proposed installation is installed as intended. The locating and tracking system must provide information on:

1. Clock and pitch information
2. Depth
3. Transmitter temperature
4. Battery status
5. Position (x,y)
6. Azimuth, where direct overhead readings (walkover) are not possible (i.e. sub aqueous)

B. Ensure proper calibration of all equipment before commencing directional drilling operation.

C. Prepare the Driller’s Log. Take and record alignment readings or plot points such that elevations on top of and offset dimensions from the center of the product to a permanent fixed feature are provided. Such permanent fixed

feature must have prior approval of the Owner/Engineer. Provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a minimum distance between points of 10 feet. Provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product.

D. Installation Location Tolerances: The location of the initial bored hole shall be deemed acceptable by the Owner if the deviations of the bore from the design alignment or approved adjustments do not exceed the following tolerances:

1. Profile:
   a. 2.0 feet within a length of 100 feet
   b. No reverse curvature within 200 feet
   c. Total deviation not to exceed 5 feet
2. Alignment:
   a. 3.0 feet within a length of 200 feet
   b. No reverse curvature
   c. Total deviation not to exceed 7.0 feet

3.05 PRODUCT BORE HOLE DIAMETER

Minimize potential damage from soil displacement/settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit, if no back reaming is required, will be limited relative to the product diameter to be installed as follows:

Maximum Pilot or Back-Reamer Bit Diameter When Rotated 360 Degrees	
Nominal Inside Pipe Diameter Inches	Bit Diameter Inches
2	4
3	6
4	8
6	10
8	12
10	16
12 and greater	Maximum Product OD plus 6

3.06 EQUIPMENT REQUIREMENTS

A. The HDD equipment selected by the Contractor shall be capable of drilling, steering, tracking, reaming and installing the pipeline through all the

subsurface conditions that may be present at the site.

B. Match equipment to the size of pipe being installed. Obtain the Owner/Engineer approval for installations differing from the above chart. Ensure that the drill rod can meet the bend radius required for the proposed installation.

C. All HDD equipment shall have an electronic data logger to record pull back force during all pipe installations.

D. All HDD equipment that has the capability to exceed the maximum recommended pulling force shall have a breakaway swivel properly attached to the product pipe that will release if the pullback force exceeds the pipe manufacturers recommended pulling force.

3.07 THRUST / PULLBACK REQUIREMENTS

The Contractor shall provide as part of the required working drawings submittal complete data regarding the operational and maximum thrust or pulling forces to be used for the initial drill head and back-reamer installations, and the final pull-back of the pipe. Gages or other measurement tools shall be used to monitor the forces being used.

3.08 INSTALLATION PROCESS

A. Ensure adequate removal of soil cuttings and stability of the bore hole by monitoring the drilling fluids such as the pumping rate, pressures, viscosity and density during the pilot bore, back reaming and pipe installation. Relief holes can be used as necessary to relieve excess pressure down hole. Obtain the Owner's approval of the location and all conditions necessary to construct relief holes to ensure the proper disposition of drilling fluids is maintained and unnecessary inconvenience is minimized to other facility users.

B. The Contractor shall determine the pull-back rate in order to allow the removal of soil cuttings without building excess down-hole pressure and to avoid local heaving, or spills. Contain excess drilling fluids at entry and exit points until they are recycled and separated from excavated materials, or removed from the site or vacuumed during drilling operations. Ensure that entry and exit pits and storage tanks are of sufficient size to contain the expected return of drilling fluids and soil cuttings. The bored hole shall always be maintained full of drilling fluids for support of surfaces, and the fluid re-circulation equipment shall operate continuously until the pipe installation is completed and accepted by the Owner.

C. Ensure that all drilling fluids are disposed of or recycled in a manner

acceptable to the appropriate local, state, or federal regulatory agencies. When drilling in suspected contaminated ground, test the drilling fluid for contamination and appropriately dispose of it. Remove any excess material upon completion of the bore. If in the drilling process it becomes evident that the soil is contaminated, contact the responsible party immediately. Do not continue drilling until all issues are resolved.

D. The timing of all boring processes is critical. Install a product into a bore hole within the same day that the pre-bore is completed to ensure necessary support exists. Once pullback operations have commenced, the operation shall continue without interruption until the pipe is completely pulled into the borehole.

E. All prepared pipe that is being used for installation shall be adequately supported off the ground along the entire length to avoid damaging of the material during pullback due to ground surface conditions. Surface cuts or scratches greater than or equal to the maximum defect depth are not acceptable.

Pipe Size In.	Max. Defect Depth In.
4	1/16
6	1/11
8	5/32
10	3/16
12	1/4
> 12	Per Pipe Manufacturer's Recommendations

F. The drilling fluid specialist shall remain on the project site during the entirety of the directional boring operation to ensure proper mixture and production of drilling fluids needed for the bore.

G. Upon successful completion of the pilot hole, the borehole shall be reamed to a minimum of 25 percent greater than the outside diameter of the pipe being installed.

H. For bores with more than two radii of curvature (entrance and exit), the borehole should be reamed up to 50 percent larger than the outside diameter of the carrier pipe. Prereaming may be necessary dependent on size of material to be pulled.

I. Additional passes for prereaming may be required for larger pipe. Incremental increases shall be used as needed until appropriate bore hole size has been achieved.

J. Prereaming must be accomplished with no product attached to the reamer

head on all bore pipe 6" and larger. The bore product maybe pulled back on final pass of prereaming upon prior approval from the Owner/Engineer.

K. After reaming the borehole to the required diameter, the pipe shall be pulled through the hole. In front of the pipe shall be a breakaway swivel and barrel reamer to compact the borehole walls.

L. The Contractor shall not attempt to ream at a rate greater than the drilling equipment and drilling fluid system are designed to safely handle.

M. Install all piping such that their location can be readily determined by electronic designation (tracer wire) after installation.

1. For non-conductive installations, externally attach two (2) tracer wires; see Section 2.01 – Materials, Part I. above, to the top of product pipe and secure in place with duct tape or 10-mil thickness polyethylene pressure sensitive tape at every joint and at 5 foot intervals.

N. Connect any break in the conductor line before construction with an electrical clamp, or solder, and coat the connection with a rubber or plastic insulator to maintain the integrity of the connection from corrosion. Clamp connections must be made of brass or copper and of the butt end type with wires secured by compression. Soldered connections must be made by tight spiral winding of each wire around the other with a finished length minimum of 3 inches overlap. Tracking conductors must extend 2 feet beyond bore termini. Test conductors for continuity. Each conductor that passes must be identified as such by removing the last 6 inches of the sheath. No deductions are allowed for failed tracking conductors. Upon completion of the directional bore, the Contractor shall demonstrate to the Owner that the wire is continuous and unbroken through the entire run of the pipe by providing full signal conductivity (including splices) when energizing for the entire run in the presence of the Owner's Representative. If the wire is broken, the Contractor shall repair or replace it at no additional cost to the Owner.

3.09 PIPELINE TESTING

A. HYDROSTATIC TESTING

1. For pressure pipelines laid wholly using HDPE pipe, a modified hydrostatic test is required. In the modified test, the pipeline shall be cleaned, flushed, filled and vented, and otherwise prepared for testing similar to other types of pipeline materials; but, prior to the test, an initial expansion period at test pressure shall be allowed, during which the HDPE pipe shall be allowed to stretch and assume an equilibrium volume against the applied pressure. During the expansion period, make-up water shall be added to the pipeline to

maintain the test pressure. If pressure testing dissimilar materials (PVC and HDPE, etc.) the test shall use the PVC standard for allowable leakage. Otherwise test the HDPE individually.

2. After the initial expansion period, the test shall commence, and shall proceed in accordance with the methods presented in Chapter 2, "Inspections, Tests and Safety Considerations" of the Handbook of Polyethylene Pipe, Plastics Pipe Institute, or using information provided by the pipe manufacturer for the material and class of pipe installed and conducted in accordance with ASTM F2164, unless otherwise approved by the County. In the event of a test failure, locate and repair the cause of the leakage and retest the pipeline. Repair all visible leaks regardless of the amount of leakage.

B. The following deficiencies in the flexible pipe system installation shall be corrected by the Contractor at no cost to the Owner:

1) Overdeflections
2) Stretched or "Necked" Pipe
3) Damaged Pipe
4) Improper Pipe Welds
5) Infiltration Points
6) Debris in the line

C. The Owner will not accept a credit, maintenance bond, or any other form of compensation in lieu of corrective measures that may be required to correct any sections of flexible pipe system that are improperly installed or do not meet the requirements of these specifications. In addition, all corrective measures proposed by the Contractor shall be approved by the Owner/Engineer. In addition, should repairs of the flexible pipe system be accomplished by the use of any unauthorized materials or procedure, the Owner will require replacement of those substandard portions or repairs made to conform to the requirements of these specifications.

END OF SECTION

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SECTION 02620

POLYETHYLENE (PE) PRESSURE PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install polyethylene pressure pipe, fittings and appurtenances as shown on the Drawings and specified in the Contract Documents and these Standards.

B. Newly installed pipe shall be kept clean and free of all foreign matter & gouges.

C. All pipe shall be correctly color coded / identified.

1.02 QUALIFICATIONS

All polyethylene pipe, fittings and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be furnished.

1.03 SUBMITTALS

A. The Contractor shall submit to the Owner/Engineer 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.

B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

C. The Contractor shall submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

PART 2 PRODUCTS

2.01 POLYETHYLENE PRESSURE PIPE

A. Polyethylene pipe 4" diameter and larger shall be high-density PE 4710 polyethylene resin per ASTM D 3350, Cell Classification 445574, Class 202, DR 11, CPChem DriscoPlex 4000, 4300 or 4500 or an approved equal, 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 size (DIPS).

Material Designation PPI/ASTM PE 4710
Material Classification ASTM D-3350
Cell Classification ASTM D-3350

2.02 JOINTS

A. Where PE pipe is joined to PE pipe, it shall be by thermal butt fusion. Thermal fusion shall be accomplished in accordance with the written instructions of the pipe manufacturer and fusion equipment supplier. The installer of the thermal butt fused PE pipe shall have received training in heat fusion pipe joining methods and shall have had experience in performing this type of work.

B. Where thermal butt fusion cannot be used, or when specifically called for on the plans, electro-fused couplings may be used. Fusion shall be in accordance with the written instructions of the fitting manufacturer.

C. Flanged joints, mechanical joints, tapping saddles, and molded fittings shall be in accordance with AWWA C901, C906 or C909, ASTM D3350 and D3140, as applicable. Fusion and mechanical connections are allowed, chemical (solvents, epoxies, etc.) are not allowed.

2.03 DETECTION

A. Direct buried HDPE pipe shall have 3" detectable metallic tape of the proper color placed directly above the pipe and 12" below finished grade or 6" detectable tape between 12" and 24" below finished grade.

B. Direct buried or horizontal directional drilled HDPE pipe shall also have tracer wire installed along the pipe alignment. The tracer wire to be used shall be a solid, 10 gauge, high strength, copper clad steel wire with a polyethylene jacket of appropriate color manufactured by Copperhead Industries approved equal.

2.04 IDENTIFICATION

A. Pipe shall bear identification markings in accordance with AWWA C906.

B. Pipe shall be color coded blue for water, purple (Pantone 522 C) for reclaimed water or green for pressure sewer using a solid pipe color or embedded colored stripes. Where stripes are used, there shall be a minimum of three stripes equally spaced.

PART 3 EXECUTION

3.01 INSTALLING POLYETHYLENE PRESSURE PIPE AND FITTINGS

All polyethylene pressure pipe shall be installed by direct bury, directional bore, or a method approved by the Owner prior to construction. If directional bore is used, or if directed by the Owner, the entire area of construction shall be surrounded by silt barriers during construction.

3.02 INSPECTION AND TESTING

All pipelines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipelines shall be subjected to a hydrostatic pressure and leak test.

END OF SECTION

SECTION 02920

GRASSING

PART 1 GENERAL

1.01 Section Includes

Soil preparation, sodding, seeding, mulching, fertilizing, watering, and maintenance of grassed areas

1.02 References

Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest implemented edition.

1.03 Submittals

A. All sod shall have a valid and current state of Florida, Division of Plant Industry (DPI) inspection certification prior to being transported to the construction site. Submit the DPI certification to the Engineer and maintain a copy of the certification onsite with the construction records.

B. Tickets from each sod pallet of sod delivered to the site shall be provided to the Owner. The tickets are to identify the sod type, the sod farm (source) of the sod, and the date the sod was cut.

C. Provide signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed.

1.04 Warranty

All seeding shall be warrantied by the General Contractor to be true to name and in a vigorous growing condition through one growing cycle including one summer and one winter season.

1.05 Certification

Sod shall have a valid and current State of Florida, Division of Plant Industry (DPI) inspection certification prior to being transported to the construction site.

1.06 Maintenance

A. Maintenance for lawns shall begin immediately after seeding or sodding. Provide fertilizing, watering, mowing and replanting and continue as necessary until a close healthy stand of specified grasses is established.

B. Mowing and watering shall be continued until project completion as directed by the Owner.

PART 2 PRODUCTS

2.01 Lime

Lime shall be agricultural grade dolomitic limestone, ground sufficiently fine so that at least 80 percent will pass through a No. 8 sieve, and it shall contain not less than 80 percent calcium carbonate equivalent. Moisture content at time of delivery shall not exceed 8 percent.

2.02 Fertilizer

Fertilizer shall be a composition recommended by a local County Agricultural Agent or State Agricultural Extension Service or a preformulated 10-6-4 mixture.

2.03 Water

Water shall be free from oil, acid, alkali, salts, and other harmful substances.

2.04 Sod

A. Sod shall be either field or nursery grown sod that is native to the locality of the Project. The Contractor shall obtain Engineer's approval of the source of the sod prior to cutting the sod.

B. Sod grown on soil high in organic matter, such as peat, will not be acceptable. The consistency of sod shall be such that it will not break, crumble or tear during handling and placing. Sod shall be reasonably free of stones, crab grass, noxious weeds, and other objectionable plants or substances injurious to plant growth.

C. Sod shall have at least 1 inch of soil adhering firmly to the roots and cut in rectangular pieces with the shortest side not less than 12 inches. At the time of cutting sod the grass shall be mowed to a height not less than 2 inches nor more than 4 inches.

D. Sod cut for more than 48 hours shall not be used without the approval of the Engineer.

E. Bermuda Sodding shall be 419 Tifway Bermuda.

F. Bahia Sodding shall be Argentine Bahia Sod.

G. If so designated on the drawings, Bahia Sodding along coastal areas subject to high salt content shall be Seashore Paspalum Bahia (Paspalum vagination), such as Sea Isle 1, as produced by Turfgrass America, or approved equal.

2.06 Seed and Mulch

A. Permanent grass seed shall be scarified argentine bahia, in accordance with FDOT specification 981.

B. Temporary grass seed shall be annual rye grass in accordance with FDOT specification 981.

C. Mulch shall be dry mulch in accordance with FDOT specification 981.

PART 3 EXECUTION

3.01 Timing Requirements

A. Grass all disturbed areas, whether temporary or permanent grassing, within 7 days of initial disturbance.

B. Permanently grass disturbed areas after all required testing is complete.

3.02 Regrading of Topsoil

Topsoil shall be graded reasonably smooth and level after final settlement. All humps shall be removed and depressions or eroded areas filled in with additional topsoil before proceeding with seeding or sodding.

3.03 Preparation for Sodding or Seeding

A. Preparation shall not be started until all other site and utility work and finished grading within the areas to be seeded have been completed.

B. Loosen topsoil by tilling it to a depth of at least 3 inches and smooth out all surface resulting irregularities. Leave area free of rocks or hard soil clods that will not pass through the tines of a standard garden rake.

C. At least 7 days before applying fertilizer, spread lime uniformly in sufficient quantity to produce a soil pH of 6.5. Work lime thoroughly into topsoil to a depth of 3 inches.

D. Apply fertilizer uniformly at a rate of 20 pounds per 1000 square feet. Work fertilizer into soil prior to seeding or sodding.

3.04 Sodding

A. Provide sod in areas indicated on the Drawings. Generally, all disturbed areas are to be sodded except for those areas specifically identified to be seeded and mulched or hydroseeded. Sodding shall also be used in ditches and drainage swales and on all embankment slopes steeper than 3 to 1 unless protection is provided against erosion of seeding.

B. Place sod with the edges in close contact and alternate courses staggered. Lightly tamp or roll to eliminate air pockets. On slopes 2 to 1 or steeper, stake sod with not less than 4 stakes per square yard and with at least one stake for each piece of sod. Stakes shall be driven with the flat side parallel to the slope. Do not place sod when the ground surface is frozen or when air temperature may exceed 90 degrees F. Water the sod thoroughly within 8 hours after placement and as often as necessary to become well established.

C. In ditches, the sod shall be placed with the longer dimension perpendicular to the flow of water in the ditch. On slopes, starting at the bottom of the slope, the sod shall be placed with the longer dimension parallel to the contours of the ground.

D. All exposed edges of sod shall be buried flush with the adjacent turf.

3.05 Seeding and Mulching – N/A

3.06 Hydroseeding – N/A

3.07 Watering

Immediately after placing erosion control or mulch, water seeded areas thoroughly with a fine mist spray. Keep soil thoroughly moist until seeds have sprouted and achieved a growth of 1 inch. For sod, immediately begin watering and continually keep moist until the sod has firmly knit itself to the topsoil.

3.08 Protection of Work

Protect newly seeded and sodded areas from all traffic by erecting temporary fences and signs. Protect slopes from erosion. Properly and promptly repair all damaged work when required.

3.09 Application of Fertilizer

Six weeks after completion of seeding or sodding apply granular fertilizer over all areas at the rate of two pounds of nitrogen nutrients per 1000 square feet of area.

3.10 Turf Establishment

A. Any sod that is more than 20% brown and has not become green within 14 calendar days of installation shall be re-sodded as directed by the Owner.

B. Any sod that does not have root establishment (can be pulled up by hand) 14 calendar days or more after installation shall be re-sodded as directed by the Owner.

C. All bare spots larger than 1 square foot shall be re-grassed as directed by the Owner.

D. Any bare areas compromising more than 1% of any given 1000 square foot area shall be re-grassed as directed by the Owner.

E. For the re-grassing, areas that were sodded are to be re-sodded and areas that were seeded are to be re-seeded.

F. Scattered bare spots, none of which is larger than one square foot, will be allowed up to a maximum of 3% of the total area.

G. Except for factors caused by a third party (other than the Contractor, subcontractor or supplier for the project), all re-grassing or repair of washed out and eroded areas shall be at no additional cost to the Owner.

H. Grassed areas not showing a close uniform stand of healthy specified grasses at the time of substantial completion shall be replaced and maintained until final payment is made to the Contractor.

3.11 Clean-Up

At the time of final inspection of work, but before final acceptance, remove from seeded and sodded areas all debris, rubbish, excess materials, tools, and equipment.

END OF SECTION

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SECTION 02955

CLEANING AND FLUSHING OF UNDERGROUND PIPING

PART 1 GENERAL

1.01 Section Includes

Water transmission main flushing and cleaning.

1.02 Related Sections

A. Section 02535 - Sanitary Sewer Force Main Systems

1.03 References

A. American Water Works Association (AWWA) and American National Standards Institute (ANSI) latest edition:

1. AWWA C651 - Disinfecting Water Mains

1.04 Submittals

Proposed points of connection to water sources.

PART 2 PRODUCTS

2.01 Water Source For Flushing

A. The following water sources can be used for flushing of the main:

1. Pinellas County Utilities

B. Provide all temporary jumpers and taps for connecting the water source to the water main to be flushed.

C. Provide proposed tap locations to the utility for approval prior to placement of taps.

D. Potable water provided by the utility shall be metered and all meter and usage fees shall be paid by the Contractor. Where, in the determination of the utility it is not practical to meter the flushing water, the water volume must be estimated by the Contractor by an approved methodology before the flushing begins.

PART 3 EXECUTION

3.01 General

A. The system shall be thoroughly cleaned of all material, sand, grit, gravel, stones, fluids, construction debris, and other items that can generally be construed as foreign material and that would not be found in a properly cleaned system.

B. Clean the installed water transmission main piping system by conducting a full bore flush.

3.02 Flushing of Pipeline

A. Conduct flushing of pipeline in sections in order to remove any solids or contaminated material that may have become lodged in the pipe.

B. All taps required for flushing and the temporary or permanent release of air as needed for flushing shall be provided by the Contractor.

END OF SECTION