

**INVITATION FOR BID**  
**IFB # 13-1833-OV**  
**Force Main Replacement 34A**  
**26<sup>th</sup> Street West from Heron Way to 53<sup>rd</sup> Avenue West**  
**(Project No. 415-6081280)**

Manatee County, a political subdivision of the State of Florida, (hereinafter the "County") will receive sealed Bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

**NON-MANDATORY INFORMATION CONFERENCE**

In order to insure that all prospective Bidders have sufficient information and understanding of the County's needs, an Information Conference will be held on: **August 7, 2013 at 1:30 PM** at the **1022 26<sup>th</sup> Avenue East, (Conference Room "A") Bradenton, FL 34208**. Attendance is not mandatory, but is highly encouraged.

**NOTE:** **Article B.05 Inspection of Site (page 00020-2)** – All potential Contractors, it is mandatory that a site visit be performed at the location to familiarize yourselves with the full scope of the construction site.

**DEADLINE FOR CLARIFICATION REQUESTS:** **August 14, 2013 at 5:00 PM**  
(Reference Bid Article A.06)

**TIME AND DATE DUE:** **August 28, 2013 at 2:00 PM**

**Important Note:** Lobbying is prohibited (reference Bid Article A.08).

**FOR INFORMATION CONTACT:**  
Olga Valcich, CPPB, Contract Specialist  
(941) 749-3055, Fax (941) 749-3034  
[olga.valcich@mymanatee.org](mailto:olga.valcich@mymanatee.org)  
Manatee County Financial Management Department  
Purchasing Division

AUTHORIZED FOR RELEASE: 

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SECTION 00010  
**INFORMATION TO BIDDERS**

**A.01 OPENING LOCATION**

Sealed Bids will be **publicly opened** at **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All Bidders or their representatives are invited to be present.

Any Bids received after the stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have their Bid delivered to the Manatee County Purchasing Division for receipt on or before the stated time and date. If a Bid is sent by U.S. Mail, the Bidder shall be responsible for its timely delivery to the Purchasing Division. Bids delayed by mail shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the respondent's request and expense.

**A.02 SEALED & MARKED**

**One original and two copies** of your **signed Bid** shall be submitted in one **sealed** package, clearly marked on the outside **"Sealed Bid #IFB#13-1833-OV, Force Main Replacement 34A, 26<sup>th</sup> Street West from Heron Way to 53<sup>rd</sup> Avenue West"** with your company name.

Address package to:           Manatee County Purchasing Division  
  1112 Manatee Avenue West, Suite 803  
  Bradenton, Florida 34205

**A.03 SECURING OF DOCUMENTS**

Complete individual copies of the Bidding documents for the project and/or products can be obtained, free of charge, at the Manatee County Public Works Department, 1022 26<sup>th</sup> Avenue, East, Bradenton, FL 34208. Contact Kathleen Casey at 941-708-7450, Extension 7327 or 7334. Documents may be obtained between the hours of 8:00 AM and 4:00 PM Monday through Friday, with the exception of holidays. Complete set of the Bidding document must be used in preparing Bids. The County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of Bidding documents.

**A.04 BID DOCUMENTS**

**Bids** on <http://www.mymanatee.org>, Bid documents and the Notices of Source Selection related to those Bids are available for download in a portable document format (.PDF) file on the Manatee County web page on the Purchasing tab under "Bids." You may view and print these files using Adobe Acrobat software. You may download a free copy of this software (Adobe) from the Owner's web page if you do not have it.

A.04 BID DOCUMENTS (Continued)

**Manatee County collaborates with the Manatee Chamber of Commerce** on distributing solicitations using the RFP Tool web page on the Chambers website: <http://www.Manateechamber.com> to post Bid documents in a portable document format (.PDF) file. This step is in addition to the posting on Manatee County Government web pages.

Manatee County may also use an internet service provider to distribute Bids. A link to that service, <http://www.DemandStar.com>, is provided on this web site under the Tab "DemandStar". Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Note: The County posts the Notice of Source Selection seven (7) calendar days prior to the effective date of the Award.

IT IS THE RESPONSIBILITY OF EACH CONTRACTOR, PRIOR TO SUBMITTING THEIR BID, TO CONTACT THE MANATEE COUNTY PURCHASING DIVISION (see contact information on page one of this document) TO DETERMINE IF ADDENDA WERE ISSUED AND TO MAKE SUCH ADDENDA A PART OF THEIR BID .

A.05 MODIFICATION OF BID SPECIFICATIONS

If a Bidder wishes to recommend changes to the Bid specifications, the Bidder shall furnish in writing, data and information necessary to aid the Owner in evaluating the request to modify the specifications. The Owner is not obligated to make any changes to the Bid specifications. Unless an addendum is issued, the Bid specifications shall remain unaltered. **Bidders must fully comply with the Bid specifications, terms, and conditions.**

A.06 DEADLINE FOR CLARIFICATION REQUESTS

**August 14, 2013 at 5:00 PM** shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Division.

This deadline has been established to maintain fair treatment for all potential Bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this Work may achieve.

A.07 CLARIFICATION & ADDENDA

Each Bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids shall be made through the Manatee County Purchasing Division. The County shall not be responsible for oral interpretations given by any County employee, representative, or others. The

A.07 CLARIFICATION & ADDENDA (Continued)

issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

If any addenda are issued to this Invitation for Bid, the County will broadcast the addenda on the DemandStar distribution system to “Planholders” on this web service, and post the documents on the Purchasing Division’s web page at <http://www.mymanatee.org> which can be accessed by clicking on the “Purchasing” button and then clicking on the “Bids” button. It shall be the responsibility of each Bidder, prior to submitting their Bid, to contact Manatee County Purchasing (see contact on page 1) to determine if addenda were issued and to make such addenda a part of their Bid.

A.08 LOBBYING

After the issuance of any Invitation for Bid, prospective Bidders, or any agent, representative or person acting at the request of such Bidder shall not contact, communicate with or discuss any matter relating in any way to the Invitation for Bid with any officer, agent or employee of Manatee County other than the Purchasing Official or as directed in the Invitation for Bid. This prohibition includes the act of carbon copying officers, agents or employees of Manatee County on email correspondence. This requirement begins with the issuance of an Invitation for Bid, and ends upon execution of the final Contract or when the invitation has been canceled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Purchasing Code of Law Chapter 2-26.

A.09 UNBALANCED BIDDING PROHIBITED

Manatee County recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of the County such variation does not appear to be justified, given Bid specifications and industry and market conditions, the Bid will be presumed to be unbalanced. Examples of unbalanced Bids will include:

1. Bids showing omissions, alterations of form, additions not specified or required conditional or unauthorized alternate Bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the Bids of competitive Bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

A.09 UNBALANCED BIDDING PROHIBITED (Continued)

In the event the County determines that a Bid is presumed unbalanced, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the Bid. The County reserves the right to reject as non-responsive any presumptive unbalanced Bids where the Bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.10 FRONT END LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities to occur early in the project schedule, such as mobilization; clearing and grubbing; or maintenance of traffic; that are substantially higher than pricing of competitive Bidders within the same portion of the project schedule, will be presumed to be front end loaded. Front end loaded Bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the Contractor to complete the Work or otherwise creating an appearance of an under-capitalized Bidder.

In the event the County determines that a Bid is presumed to be front end loaded, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the pricing or acquisition timing for these Bid items. The County reserves the right to reject as non-responsive any presumptive front end loaded Bids where the Bidder is unable to demonstrate the validity and/or necessity of the front end loaded costs.

A.11 WITHDRAWAL OF OFFERS

Contractors may withdraw offers as follows: a) Mistakes discovered before the opening of a solicitation may be withdrawn by written notice from the Bidder submitting the offer. This request must be received in the office designated for receipt of offers in the solicitation document prior to the time set for delivery and opening of the offers. A copy of the request shall be retained and the unopened offer returned to that Contractor. b) After the responses to a solicitation are opened or a selection has been determined, but before a Contract is signed, a Contractor alleging a material mistake of fact may be permitted to withdraw their offer if: (1) the mistake is clearly evident on the solicitation document; or (2) the Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw an offer must be in writing and approved by the Purchasing Official.

A.12 IRREVOCABLE OFFER

Any Bid may be withdrawn up until the date and time set for opening of the Bid. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached specifications until one or more of the Bids have been duly accepted by the County.

**A.13 BID EXPENSES**

All expenses for making Bids to the County are to be borne by the Bidder.

**A.14 RESERVED RIGHTS**

The County reserves the right to accept or reject any and/or all Bids, to waive irregularities and technicalities, and to request resubmission. Also, the County reserves the right to accept all or any part of the Bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received by the first submission date may or may not be rejected by the County depending on available competition and current needs of the County. For all items combined, the Bid of the lowest responsive, responsible Bidder will be accepted, unless all Bids are rejected. The lowest responsible Bidder shall mean **that Bidder who makes the lowest Bid to sell goods and/or services of a quality which** meets or exceeds the quality of goods and/or services set forth in the attached specifications or otherwise required by the County, and who is fit and capable to perform the Bid as made.

To be responsive, a Bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsible Bidder, the Bidder shall have the capability in all respects to perform fully the Contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance. Also, the County reserves the right to make such investigation as it deems necessary to determine the ability of any Bidder to furnish the service requested. Information the County deems necessary to make this determination shall be provided by the Bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

**A.15 APPLICABLE LAWS**

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting Agreement. Any involvement with any Manatee County procurement shall be in accordance with Manatee County Purchasing Ordinance as amended. Any actual or prospective Bidder who is aggrieved in connection with the solicitation or award of a Contract may protest to the Board of County Commissioners of Manatee County as required in Manatee County Code of Laws.

**A.16 COLLUSION**

By offering a submission to this Invitation for Bid, the Bidder certifies that he has not divulged, discussed or compared their Bid with other Bidder, and has not colluded with any other Bidder or parties to this Bid whatsoever. Also, Bidder certifies, and in the case of a joint Bid each party thereto certifies as to their own organization, that in connection with this Bid:

**A.16 COLLUSION (Continued)**

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other Bidder or with any competitor;
- b. any prices and/or cost data quoted for this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder, prior to the scheduled opening, directly or indirectly to any other Bidder or to any competitor;
- c. no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition;
- d. the only person or persons interested in this Bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this Bid or in the Contract to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by Bidder for purpose of doing business.

**A.17 CODE OF ETHICS**

With respect to this Bid, if any Bidder violates, directly or indirectly, the ethics provisions of the Manatee County Purchasing Ordinance and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

By submitting a Bid, the Bidder represents to the County that all statements made and materials submitted are truthful, with no relevant facts withheld. If a Bidder is determined to have been untruthful in its Bid or any related presentation, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

**A.18 BID FORMS**

Bids must be submitted on attached County forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms. Bid Forms must be executed by an authorized signatory who has the legal authority to make the offer and bind the company. Bidders must fully comply with all Bid specifications, terms and conditions.** Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

**A.19 LEGAL NAME**

Bids shall clearly indicate the legal name, address and telephone number of the Bidder. Bids shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the Bidder to the submitted Bid.

**A.20 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES**

A person or affiliate who has been placed on the State's convicted vendor list following a conviction for a public entity crime, as that term is defined in Florida Statute (F.S.) § 287.133, may not submit a Bid, Proposal, or reply on a Contract to provide any goods or services to a public entity; may not submit a Bid, Proposal, or reply on a Contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, Proposals or replies 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 F.S. § 287.017 for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any Contract to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter. To insure compliance with the foregoing, the Code requires all persons or entities desiring to Contract with the County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with the County. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached for this purpose.

A.21 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the Bid and not shown separately. The prices as shown on the Bid Form shall be the price used in determining Award.

A.22 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Exempt Cert. No. 59-78-0089K; FL Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the Contractor is prohibited from delineating a separate line item in his Bid for any sales or service taxes. Nothing herein shall affect the Contractor's normal tax liability.

A.23 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.24 AMERICANS WITH DISABILITIES ACT

The Board of County Commissioners of Manatee County, Florida, does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for an **Information Conference** or **Bid Opening** should contact the person named on the first page of this Bid document at least twenty-four (24) hours in advance of either activity.

A.25 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and Title 15, Part 8 of the Code of Federal Regulations, Manatee County hereby notifies all prospective offerors that they will affirmatively ensure minority business enterprises will be afforded full opportunity to participate in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for an Award of Contract.

A.26 MBE/WBE

The State of Florida, **Office of Supplier Diversity** provides the certification process and the database for identifying certified MBE/WBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>

If you have any questions regarding this State service, please contact their office at (850) 487-0915.



**A.27 MATHEMATICAL ERRORS**

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All Bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

**A.28 DISCLOSURE**

Upon receipt, all inquiries and responses to inquiries related to this Invitation for Bid becomes "Public Records", and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intended Award decision is made earlier than this time as provided by F.S. 119.071(1)(b). No announcement or review of the offer shall be conducted at the public opening.

Based on the above, the County will receive Bids at the date and time stated, and will make public at the opening the names of the business entities of all that submitted an offer and any amount presented as a total offer without any verification of the mathematics or the completeness of the offer.

If the County rejects all Bids and concurrently notices its intent to reissue the solicitation, the rejected Bids are exempt from public disclosure until such time as the County provides notice of an intended decision concerning the reissued solicitation or until the County withdraws the reissued solicitation. A Bid is not exempt for longer than 12 months after the initial notice rejecting all Bids.

**A.29 DAVIS-BACON ACT – PREVAILING MINIMUM WAGE**

This project is funded through the Recovery Zone Economic Development Bonds Act (RZEDBs) and subject to the Prevailing Minimum Wage – Davis-Bacon Act. For this Contract, payment of predetermined minimum wages applies. The U.S. Department of Labor Wage Rates applicable to this Contract is listed in Wage Decision Number(s) FL130165 (03/29/2013) Construction Type: Heavy Construction Projects (Including Sewer and Water Lines) Manatee County, Florida, as modified up through ten (10) days prior to opening of Bids. A copy of the Wage Decision Number(s) FL130165 is made a part of this Bid document.

**NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: BASIS OF AWARD, TERMS AND CONDITIONS OF THE CONTRACT, OR SPECIFICATIONS, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.**

**END OF SECTION A**

SECTION 00020  
**BASIS OF AWARD**

**B.01 BASIS OF AWARD**

Award shall be to the lowest, responsive, responsible Bidder meeting specifications and having the lowest Total Bid Price for **Bid "A"**, or the lowest Total Bid Price for **Bid "B"**, for the requirements listed on the Bid Form for the Work as set forth in this Invitation for Bid. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the Contract documents to the County's satisfaction within the prescribed time.

**Two schedules for Completion of Work shall be considered. Each Bid for completion by the specified stated time shall be offered as a separate "Total Bid Price". The County has the sole authority to select the Bid based on the completion time which is in the best interest of the County. Only one Award shall be made.**

**NOTE: Inspection of the site is a pre-requisite to be considered for award of this Bid.**

In evaluating Bids, the County shall consider the qualifications of the Bidders; and if required, may also consider the qualifications of the Subcontractors, Suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more Bids are equal with respect to price, the Bid received from a local business shall be given preference in Award. Whenever two or more Bids which are equal with respect to price are received, and neither of these Bids are from a local business, the Award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public.

**B.02 SUBCONTRACTORS**

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility of the County for the proper completion of all Work to be executed under this Contract.

The employment of unauthorized aliens by any Contractor is considered a violation of Section 274 (e) of the Immigration and Employment Act. If the Contractor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Agreement.

### **B.03 QUALIFICATIONS OF BIDDERS**

No person who is not certified or registered as a General Contractor or an Underground Utility Contractor pursuant to Florida Statutes, Chapter 489 on the day the Bid is submitted, and who has continuously held that certification or registration for a period of at least five (5) consecutive years immediately prior to the day the Bid is submitted, may be qualified to bid on this project. In the event that a Bidder is a business organization, including a partnership, corporation, business trust or other legal entity as set forth in F.S. 489.119(2), then the Bidder shall only be qualified to bid on this project if: 1) the Bidder (the business organization) is on the day the Bid is submitted, and for at least five (5) consecutive years immediately prior to the day the Bid is submitted has been, in continuous existence, properly licensed and registered as required by Florida law; and 2) the Bidder, on the day the Bid is submitted, has a certified or registered Qualifying Agent, as required by F.S. 489.119, and that Qualifying Agent has been the same Qualifying Agent of the Bidder for a period of at least five (5) consecutive years immediately prior to the day the Bid is submitted.

A complete list of all Subcontractors proposed for any portion of the Work may be requested of any Bidder deemed necessary by the County. Subcontracts shall be awarded only to those Subcontractors considered satisfactory by the County.

### **B.04 PREPARATION OF CONTRACT**

A written notice confirming Award or recommendation thereof will be forwarded to the successful Bidder accompanied by the required number of unsigned counterparts of the Agreement. Within ten (10) days thereafter, successful Bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to County. (Note: Contract must be approved in accordance with the Manatee County Code of Laws, Chapter 2-26, and the Administrative Standards and Procedures Manual approved by the County Administrator).

### **B.05 INSPECTION OF SITE**

Inspection of the site is a requirement to be considered for award of this Bid. Prior to submitting a Bid, each Bidder shall examine the site and all conditions thereon fully familiarizing themselves with the full scope of the project. Failure to become familiar with site conditions will in no way relieve the successful Bidder from the necessity of furnishing any materials or performing any Work that is required to complete the project in accordance with the plans and specifications. Site visit (s) shall be acknowledged in Section 00300, Bid Form page # 00300-1.

**END OF SECTION B**

SECTION 00030  
**GENERAL TERMS AND CONDITIONS OF THE CONTRACT**

**C.01 CONTRACT FORMS**

The Agreement resulting from the acceptance of a Bid shall be in the form of the Agreement stated in this Bid.

**C.02 ASSIGNMENT OF CONTRACT**

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County. The giving of such consent to a particular Subcontractor assignment shall not dispense with the necessity of such consent to any further or other assignment.

**C.03 COMPLETION OF WORK**

The Work will be completed and ready for final inspection within the specified calendar days from the date the Contract time commences to run. Two Bids shall be considered, **Bid "A"** based on **270 calendar days** and **Bid "B"** based on **365 days calendar days**. The County has the sole authority to select the Bid based on the completion time which is in the best interest of the County. Only one Award shall be made.

**C.04 LIQUIDATED DAMAGES**

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Contractor shall pay to the County the sum of **\$1,148.00** as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Contractor and his Surety shall be liable for the amount thereof.

**C.05 PAYMENT**

Contractor may apply for partial payment on monthly estimates, based on the amount of work done or completed in compliance with the provisions of the Contract. Contractor shall submit an application, on a standard pay application form provided or approved by the County, of an approximate estimate of the proportionate value of the Work done, items and locations of the Work performed up to and including the last day of the period then ending. The County will then review said estimate and make any necessary revisions so that the estimate can receive approval for payment. If the Contractor and the County do not agree on the approximate estimate of the proportionate value of the Work done for any pay period, the determination of the County will be binding. The amount of said estimate after deducting any required retainage and all previous payments shall be due and payable to the Contractor, twenty (20) business days if County is its own Engineer of Record (EOR) or twenty-five (25) business days if outside agent

C.05 PAYMENT (Continued)

approval is required after the pay estimate has been approved by the agent for the County.

In accordance with the Prompt Payment Act, F.S. § 218.735(7), a Punch List shall be formulated.

Time allowed for development of punch list:

1. Awarded Contracts with an estimated cost of less than \$10 million will be within thirty (30) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.
2. Awarded Contracts with a cost of \$10 million dollars or more will be within thirty (30) calendar days OR if extended by Contract, up to sixty (60) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.

The final Contract completion date must be at least thirty (30) days after delivery of the list of items. If the list is not provided to the awarded Contractor by the agreed upon date, the Contract completion time must be extended by the number of days the County exceeds the delivery date.

It is the Contractor's responsibility for the care of the materials. Any damage to or loss of said materials is the full responsibility of the Contractor. Any periodical pay estimate signed by the Contractor shall be final as to the Contractor for any or all Work covered by the periodical pay estimate.

Any requests for payment of materials stored on site must be accompanied with a paid receipt. The Contractor warrants and guarantees that title to all work, materials and equipment covered by any application for payment, whether incorporated in the project or not, will pass to the County at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter referred to as "Liens").

The Contractor agrees to furnish an affidavit stating that all laborers, material men, and Subcontractors have been paid on the project for Work covered by the application for payment and that a partial or complete release of lien, as may be necessary, be properly executed by the material men, laborers, Subcontractors on the project for Work covered by the application for payment, sufficient to secure the County from any claim whatsoever arising out of the aforesaid Work.

When the Contractor has completed the Work in compliance with the terms of the Contract documents, he shall notify the County in writing that the project is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what Work, if any, is required to prepare the project or a portion thereof for final inspection. When the County determines the project or portion thereof is ready for final inspection, the County shall perform same. Upon completion of final inspection, the County will notify Contractor of all particulars in

C.05 PAYMENT (Continued)

which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. When all such errors have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the project has been completed in compliance with the terms of the Contract documents.

When final acceptance has been made by the County, the County will make final payment of the Contract amount, plus all approved additions, less approved deductions and previous payments made. The Contract will be considered complete when all Work has been finished, the final inspection made, approved as-builts received, and the project finally accepted in writing by the County. The Contractor's responsibility shall then terminate except as otherwise stated.

C.06 RETAINAGE

A retainage of 10% of the total Work in place shall be withheld until 50% complete. After 50% completion, the retainage shall be reduced to 5% of the total Work in place until final completion and acceptance of the Work by the County. Upon final acceptance, the remaining retainage shall be included in the final payment.

C.07 WARRANTY AND GUARANTEE PROVISIONS

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the Contractor for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the County to be free from defects due either to faulty materials or equipment or faulty workmanship.

All materials, equipment, and workmanship furnished and installed by the Contractor is warranted and guaranteed by the Contractor to meet the required standards and to accomplish the purposes and functions of the project as defined, detailed, and specified herein.

The County shall, following discovery thereof, promptly give written notice to the Contractor of faulty materials, equipment, or workmanship within the period of the guarantee and the Contractor shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost. These warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of guaranty or breach of warranty that the County might have against parties other than the Contractor, and do not constitute exclusive remedies of the County against the Contractor.

C.08 ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Contractor shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save the County harmless from loss on account thereof, including costs and attorney's fees.

C.09 AUTHORIZED PRODUCT REPRESENTATION

The Contractor, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in the County's sole discretion, be deemed a breach of Contract, and shall constitute grounds for the County's immediate termination of the Contract.

C.10 REGULATIONS

It shall be the responsibility of the Bidder to assure compliance with any OSHA, EPA and/or other federal or State of Florida rules, regulations or other requirements, as each may apply.

C.11 CANCELLATION

Any failure of the Contractor to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the Contract, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated. If the Contractor persistently fails to perform the Work in accordance with the Contract, the County reserves the right to terminate the Contract and select the next qualified Bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this Contract with or without cause.

C.12 INDEMNIFICATION

The Contractor covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting Agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the Award, resulting Agreement, Contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in F.S. § 768.28.

C.13 MANUALS, SCHEMATICS, HANDBOOKS (IF APPLICABLE)

All manuals, schematics and handbooks shall be provided which are applicable to the equipment delivered. An operators manual, parts manual and technician manual must also be provided. Parts lists (manuals) must include OEM part numbers for items not manufactured by the Bidder. Contractor shall furnish two (2) copies of each.

**C.14 INSURANCE**

The Contractor will not commence Work under a Contract until all insurance under this section and such insurance coverage as might be required by the County has been obtained. The Contractor shall obtain, and submit to purchasing within ten (10) calendar days of request, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

a. Workers' Compensation/Employers' Liability

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the Contract documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage required by the Contract documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

|                         |                  |
|-------------------------|------------------|
| (Each Accident)         | <u>\$100,000</u> |
| (Disease-Policy Limit)  | <u>\$500,000</u> |
| (Disease-Each Employee) | <u>\$100,000</u> |

b. Commercial General Liability

The limits are to be applicable only to Work performed under this Contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) a Commercial General Liability Policy with the following minimum limits.

|   |                    |
|---|--------------------|
| General Aggregate:                      |                    |
| Products/Completed Operations Aggregate | <u>\$1,000,000</u> |
| Personal and Advertising Injury         | <u>\$1,000,000</u> |
| Each Occurrence                         | <u>\$1,000,000</u> |
| Fire Damage (Any One Fire)              | <u>\$Nil</u>       |
| Medical Expense (Any One Person)        | <u>\$Nil</u>       |

**ADDITIONAL INSURED:** Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Commercial General Liability Policy.

c. Business Auto Policy

|                                    |                    |
|------------------------------------|--------------------|
| Each Occurrence Bodily Injury and  |                    |
| Property Damage Liability Combined | <u>\$1,000,000</u> |
| Annual Aggregate (if applicable)   | <u>\$2,000,000</u> |

**ADDITIONAL INSURED:** Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Business Auto Policy.



C.14 INSURANCE (Continued)

d. County's Protective Liability Coverage

The minimum Owner's Protective OPC Policy limits per occurrence and, if subject to an aggregate, annual aggregate to be provided by the Contractor shall be the same as the amounts shown above as the minimum per occurrence and general policy aggregate limits respectively required for the Commercial General Liability coverage. The limits afforded by the OPC Policy and any excess policies shall apply only to the County and the County's officials, officers, agents and employees and only to claims arising out of or in connection with the Work under this Contract.

e. Property Insurance

**If this Contract includes** construction of or additions to above ground buildings or structures, Contractor shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

f. Installation Floater

**If this Contract does not include** construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, Contractor shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

g. Certificates of Insurance and Copies of Policies

Certificates of Insurance in triplicate evidencing the insurance coverage specified in the six above paragraphs a., b., c., d., e., and f., shall be filed with the Purchasing Official before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the Bid number, project title and location of project. Insurance shall remain in force at least one year after completion and acceptance of the project by the County, in the amounts and types as stated herein, with coverage for all products and services completed under this Contract.

h. **Complete Policies:** The entire and complete insurance policies required herein shall be provided to the County on request.

If the initial insurance expires prior to the completion of operations and/or services by the Contractor, renewal certificates of insurance and required copies of policies shall be furnished by the Contractor and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the County in connection with any claim against the Contractor for labor, services, or materials, or of Subcontractors; and nothing herein shall limit the liability of the Contractor or Contractor's sureties to the County or to any workers, suppliers, material men or employees in relation to this Contract.

**C.14 INSURANCE (Continued)**

i. Certification Requirements – In order for the certificate of insurance to be accepted it must comply with the following:

1. The certificate holder shall be:

**Manatee County Board of Commissioners, a political subdivision of the State of Florida  
P.O. Box 1000  
Bradenton, FL 34206-1000**

2. Certificate shall be mailed to:

**Manatee County Purchasing Division  
1112 Manatee Avenue West, Suite 803  
Bradenton, FL 34205  
Attn: Olga Valcich, CPPB, Contract Specialist**

**C.15 BID BOND/CERTIFIED CHECK**

By offering a submission to this Invitation for Bid, the Bidder agrees should the Bidder's Bid be accepted, **to execute the form of Contract and present the same to Manatee County for approval within ten (10) calendar days after notice of Intent to Award.** The Bidder further agrees that failure to execute and deliver said form of Contract **within ten (10) calendar days** will result in damages to Manatee County and as guarantee of payment of same a Bid Bond/Certified Check shall be enclosed within the submitted sealed Bid in the amount of five (5%) percent of the total amount of the Bid. The Bidder further agrees that in case the Bidder fails to enter into a Contract, as prescribed by Manatee County, the Bid Bond/Certified Check accompanying the Bid shall be forfeited to Manatee County as agreed liquidated damages. If the County enters into a Contract with a Bidder, or if the County rejects any and/or all Bids, accompanying bond will be promptly returned.

**C.16 PERFORMANCE AND PAYMENT BONDS**

The successful Bidder shall furnish surety bonds using the Public Construction Bond form prescribed in F.S. § 255.05, which is provided herein, as security for faithful performance of the Contract awarded as a result of this Bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful Bidder being deemed nonresponsive. Bonds must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. § 255.05.

Surety of such bonds shall be in an amount equal to the Bid Award (100% each) issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and Payment Bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notification of Intent to Award.

**C.16 PERFORMANCE AND PAYMENT BONDS (Continued)**

In addition, pursuant to F.S. § 255.05(1)(b), prior to commencing Work, the Contractor shall be responsible and bear all costs associated to record the Performance and Payment Bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to F.S. § 255.05(1)(b), the County will make no payment to the Contractor until the Contractor has complied with this paragraph.

Furnishing of the recorded Performance and Payment Bonds shall be requisite to execution of a Contract with the County. Said Performance and Payment Bonds will remain in force for the duration of the Contract with the premiums paid by the Contractor. Failure of the successful Bidder to execute such Contract and to supply the required bonds shall be just cause for cancellation of the Award. The County may then contract with another acceptable Bidder or re-advertise this Invitation for Bid. If another Bidder is accepted, and notice given within ninety (90) days after the opening of the Bids, this acceptance shall bind the Bidder as though they were originally the successful Bidder.

Failure of the County at any time to require performance by the Contractor of any provisions set out in the Contract will in no way affect the right of the County, thereafter, to enforce those provisions.

**C.17 NO DAMAGES FOR DELAY**

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Contractor shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Contractor for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents. Otherwise, the Contractor shall only be entitled to extensions of the Contract time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

**C.18 NO INTEREST**

Any monies not paid by the County when claimed to be due to the Contractor under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Contractor for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.19 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

C.20 BE GREEN

All Bidders are encouraged to use as many **environmentally preferable** "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. **Environmentally preferable are products or services that have a reduced adverse effect on the environment.** Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

**END OF SECTION C**

SECTION 00100  
**BID SUMMARY**

**D.01 THE WORK**

The Work included in this Bid consists of the replacement of an existing +/-7,200 LF force main that is made up of sections of 10", 16" and 18" diameter cast iron pipe utilizing horizontal directional drilling (HDD) with HDPE pipe with associated valves, fittings, pavement repair and ARV's. Also included is approximately 220 LF of 16" HDPE pipe by Horizontal Directional Drilling (HDD) under and across a Florida Department of Transportation right-of-way, (Cortez Road). The Contractor shall be responsible for preparing an Erosion Control Plan, a Maintenance of Traffic Plan (MOT), and a force main by-pass system plan.

The Contractor shall provide a temporary force main by-pass system that will keep the existing force main active while the new force main canal crossing is installed. The by-pass system shall be submitted to and approved by the County prior to implementation.

The Contractor shall have a MOT Plan prepared by an individual certified to prepare a MOT Plan in the State of Florida that meets or exceeds the requirements of the FDOT Series 600 Design Standards and/or the Manual on Uniform Traffic Control Devices (MUTCD). Any and all deviations must be signed and sealed by a Professional Engineer registered in the State of Florida. The MOT Plan shall be submitted for review and approval by the Florida Department of Transportation and Manatee County prior to commencement of construction. A copy of the preparer's MOT certification shall be provided with the MOT plan submittal.

The successful Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by these specifications.

The successful Contractor shall perform the Work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the Owner.

The successful Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Bid documents or not.

**D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS**

The identity of Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by the County for each Bid item from any of the Bidders; and the Bidder shall respond within five (5) days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, persons or organization if requested by County. If County,

D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS (Continued)

given, request the apparent successful Bidder to submit an acceptable substitute without an increase in Contract price or Contract time.

If apparent successful Bidder declines to make any such substitution, County may award the Contract to the next lowest qualified Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons who County does not make written objection to. Contractor shall not be required to employ any Subcontractor, Supplier, other person or organization who Contractor has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility to the County for the proper completion of all Work to be executed under this Contract.

D.03 BIDS

Bids are to be submitted in **triplicate, one original and two copies**, upon the County supplied forms. All blank spaces must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items mentioned therein. In the event a change is made in your submittal, the Bidder shall write its initials by the change. Any Bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to Bid requirements.

A Bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the Bid shall be executed by two or more of the general partners. If made by a corporation, the Bid shall be executed by its President or other legally authorized corporate officer or agent.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Bid documents thoroughly; (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work; (c) consider federal, state, and local codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Bid documents; and (e) notify County of all conflicts, errors, or discrepancies in the Bid document.

Each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine his Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bid documents. County will provide each Bidder access to the site to conduct such explorations and tests.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE (Continued)

Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Bid documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the Bid documents.

D.05 MATERIALS AND WORKMANSHIP

All materials and apparatus required for this Work, except as specified otherwise, shall be new, of first class quality, and shall be furnished, delivered, connected and finished in every detail. Construction shall be prescribed by good industry practice and in accordance with manufacturer's recommendations for the type being installed.

Use skilled workman trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

D.06 REGULATIONS AND MATERIAL DISPOSAL

It shall be the responsibility of the Contractor to assure compliance with any OSHA, EPA, federal, state, and/or local rules, regulations or other requirements as each may apply.

D.07 PROJECT CLOSE-OUT

Clean construction site and remove any and all excess materials. Correct any damages to property that may have occurred as a result of installation and/or delivery. Repair and patch all surfaces cut for installation. The Contractor shall remedy any deficiencies promptly should the County determine any Work is incomplete or defective.

When the County determines the Work is acceptable in accordance with this Invitation for Bid, the Contractor shall provide the close out submittals, including but not necessarily limited to the following:

- 1 set Certificate of Warranties
- 1 set Manufacturer's Product Literature (when applicable)
- 1 set Project Record Drawings
- 1 set Subcontractor Information (when applicable)

**D.08 DISCRETIONARY WORK**

This Bid item entails minor increases (that may be directed by staff) to existing Bid item quantities or minor modification items not bid which were unforeseen and necessary during the construction to provide a safe, complete project in accordance with Bid documents. (This will not affect the requirement for change orders involving major modifications to the project.) Payment for all Work under this item shall be made only at the County's discretion in order to satisfactorily complete the project. In general, this item is for unanticipated conflicts and/or design changes required during construction which are necessary to complete the project without changing the initial Scope of Work and without costly delays.

**D.09 PROGRESS REQUIREMENTS**

All Work done under this Contract shall be done with a minimum of inconvenience to the private property owners in the area. The Contractor shall coordinate his Work with private property owners such that existing utility services are maintained and they have access to their property at all times.

**END OF SECTION D**



SECTION 00150

**MANATEE COUNTY LOCAL PREFERENCE LAW AND VENDOR REGISTRATION**

**E.01 Vendor Registration**

All vendors are encouraged to register with Manatee County using the on-line "Vendor Registration" web page on [www.mymanatee.org](http://www.mymanatee.org).

Enclosed are a copy of the current Manatee County law that details the County's Local Preference and the County's definition of a local business.

If you assert that your firm meets the stated definition of a local business, we ask that in addition to registering on the County's web page, you fill out the attached "**Affidavit As To Local Business Form**" that is included in this section, have the completed document notarized, and mail the original to the following address: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

Your cooperation in registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify local businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

You will note that Manatee County collaborates with the Manatee Chamber of Commerce, posting Bids on [www.manatee-chamber.com](http://www.manatee-chamber.com) as well as using the same vendor categories for registration.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a Purchasing staff member assist you.

**Quick steps to registration:**                      **[www.mymanatee.org](http://www.mymanatee.org)**

A link to "Purchasing" is listed under "Quick Links" on page one of the County web site.

On the left hand side of the Purchasing web page, click on "Vendor Registration".

This will bring up the Vendor Registration form for on-line input. Please note that the definition of a "local business" changed on March 17, 2009. The web page will be updated to include the current law which has been provided in this section of the Bid.

Thank you for reviewing this information and considering registering your business with Manatee County. Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notifications of Quotation, Bid and Proposal opportunities to your business.

**E.02 Section 2-26-6. Local preference, tie Bids, local business defined.**

- a) Whenever a responsible local business Bidder and a responsible non-local business Bidder are found, upon the opening of Bids, to have both submitted the lowest responsive Bid, the Bid of the local Bidder shall be awarded the Contract. Should more than one responsible local business Bidder match the responsible non-local business Bidder's lowest responsive Bid, or should no responsible local business Bidder match the lowest responsive Bid but two or more responsible non-local business Bidders submit lowest responsive Bids for equal amounts, then the Award of the Contract shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public. Any Bidders seeking to be recognized as local businesses for purposes of this local business preference provision may be required by the terms of the Bid announcement to certify they meet the definition of local business set forth in this section, and to register as a local business with the County in the manner prescribed by the County to facilitate the County's ability to track the Award of Contracts to local businesses and to allow the County to provide future notifications to its local businesses concerning other Bidding opportunities.
- b) Nothing herein shall be deemed to prohibit the inclusion of requirements with respect to operating and maintaining a local place of business in any Invitation for Bids when the Bidder's location materially affects the provisions of the services or supplies that are required by the invitation.
- c) **Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its Bid that for at least six (6) months prior to the announcement of the solicitation of Bids it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.**
- d) **Each solicitation for Bids made by the County shall contain terms expressly describing the local business preference policies of the County, and shall provide that by electing to submit a Bid pursuant to an Invitation for Bid, all Bidders are deemed to understand and agree to those policies.**
- e) For all Contracts for architecture, professional engineering, or other professional services governed by Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, the County shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory Contract, preference shall be given to a local business where all other relevant factors are equal.

E.02 Section 2-26-6. Local preference, tie Bids, local business defined (Continued)

f) Local preference shall not apply to the following categories of Contracts:

1. Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
2. Contracts for professional services subject to Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, except as provided for in subsection (e) above;
3. Purchases or Contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
4. Purchases or Contracts made pursuant to a non-competitive award process, unless otherwise provided by this section;
5. Any Bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.

g) To qualify for local preference under this section, a **local business must certify to the County that it:**

1. Has not within the five (5) years prior to the Bid announcement admitted guilt or been found guilty by any court or state or federal regulatory enforcement agency of violation of any criminal law, or a law or administrative regulation regarding fraud;
2. Is not currently subject to an unresolved citation or notice of violation of any Manatee County Code provision, except citations or notices which are the subject of a current legal appeal, as of the date of the Bid announcement;
3. Is not delinquent in the payment of any fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, except any such sums which are the subject of a current legal appeal.

Ref: Ordinance 09-21 and 09-23 **PASSED AND DULY ADOPTED** in open session, with a quorum present and voting, on the 17<sup>th</sup> day of March, 2009.

**END OF SECTION E**

**MANATEE COUNTY GOVERNMENT  
AFFIDAVIT AS TO LOCAL BUSINESS  
(Complete and Initial Items B-F)**

**A. Authorized Representative**

I, [name] \_\_\_\_\_, am the [title] \_\_\_\_\_ and the duly authorized representative of: [name of business] \_\_\_\_\_, and that I possess direct personal knowledge to make informed responses to these certifications and the legal authority to make this Affidavit on behalf of myself and the business for which I am acting; and by electing to submit a Bid pursuant to this Invitation for Bids, shall be deemed to understand and agree to the local business preference policies of Manatee County; and that I have the direct knowledge to state that this firm complies with all of the following conditions to be considered to be a local business as required by the Manatee County Code of Law, Section 2-26-6.

**B. Place of Business:** I certify that the above business is legally authorized to engage in the sale of goods and/or services and has a physical place of business in Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one (1) fulltime employee at that location. The physical address of the location which meets the above criteria is: \_\_\_\_\_ [Initial] \_\_\_\_\_

Business Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

**C. Business History:** I certify that business operations began at the above physical address with at least one fulltime employee on [date] \_\_\_\_\_ [Initial] \_\_\_\_\_

**D. Criminal Violations:** I certify that within the past five (5) years of the date of this Bid announcement, this business has not admitted guilt nor been found guilty by any court or local, state or federal regulatory enforcement agency of violation of any criminal law or administrative regulation regarding fraud. [Initial] \_\_\_\_\_

**E. Citations or Code Violations:** I certify that this business is not currently subject to any unresolved citation or notice of violation of any Manatee County Code provision, with the exception of citations or notices which are the subject of a legal current appeal within the date of this Bid announcement. [Initial] \_\_\_\_\_

**F. Fees and Taxes:** I certify that this business is not delinquent in the payment of fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, with the exception of those which are the subject of a current legal appeal. [Initial] \_\_\_\_\_

*Each of the above certifications is required to meet the qualification of "local business" under Manatee County Code of Laws, 2-26-6.*

Signature of Affiant \_\_\_\_\_

STATE OF FLORIDA  
COUNTY OF \_\_\_\_\_

Sworn to (or affirmed) and subscribed before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by (name of person making statement).

(Notary Seal) Signature of Notary: \_\_\_\_\_

Name of Notary: (Typed or Printed) \_\_\_\_\_

Personally Known \_\_\_\_ OR Produced Identification \_\_\_\_ Type of Identification Produced \_\_\_\_\_

**Submit executed copy to Manatee County Purchasing Division - 1112 Manatee Avenue West - Suite 803 - Bradenton, FL 34205**

SECTION 00300  
**BID FORM**  
(SUBMIT IN TRIPLICATE)

**For: IFB#13-1833-OV, 26<sup>th</sup> Street West from Heron Way to 53<sup>rd</sup> Avenue West**

|  |
|--|
| <b>TOTAL BID PRICE (BID "A"):</b> _____                |
| <b>Based on a Completion Time of 270 calendar days</b> |
| <b>TOTAL BID PRICE (BID "B"):</b> _____                |
| <b>Based on a Completion Time of 365 calendar days</b> |

Two schedules for completion of the Work shall be considered. Each Bid for completion by the specified stated time shall be offered as a separate "Total Bid Price". The County has the sole authority to select the Bid based on the completion time which is in the best interest of the County. Only one Award shall be made.

We, the undersigned, hereby declare that we have carefully reviewed the Bid documents, and with full knowledge and understanding of the aforementioned herewith submit this Bid, meeting each and every specification, term, and condition contained in the Invitation for Bids, in its entirety.

We understand that the Bid package, in its entirety, including but not limited to, all specifications, terms, and conditions in their entirety shall be made a part of any Agreement or Contract between Manatee County and the successful Bidder. Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

Communications concerning this Bid shall be addressed as follows: **(Complete all fields)**

Person's Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Date: \_\_\_\_\_ FL Contractor License# \_\_\_\_\_

License in the Name of: \_\_\_\_\_

Bidder is a WBE/MBE Vendor? \_\_\_\_\_ Certification \_\_\_\_\_

COMPANY'S NAME: \_\_\_\_\_

AUTHORIZED SIGNATURE(S): \_\_\_\_\_

Name and Title of Above Signer(s) \_\_\_\_\_

CO. MAILING ADDRESS: \_\_\_\_\_

STATE OF INCORPORATION \_\_\_\_\_ (if applicable)

TELEPHONE: (\_\_\_\_) \_\_\_\_\_ FAX: (\_\_\_\_) \_\_\_\_\_

Email address: \_\_\_\_\_

I, \_\_\_\_\_ on [date] \_\_\_\_\_ attest that I have visited the project site(s) to familiarize myself with the full Scope of Work required for the Bid.

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

BID "A"

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "A" Based on Completion time of 270 Calendar Days**

| ITEM #                | DESCRIPTION   | U/M | QTY. | BID PRICE PER UNIT | TOTAL BID PRICE |
|-----------------------|---|-----|------|--------------------|-----------------|
| <b>SANITARY SEWER</b> |   |     |      |                    |                 |
| 1                     | Curb Replacement  | LF  | 240  | \$                 | \$              |
| 2                     | Pavement Repair & Road Restoration (Base, Mill & Resurfacing) | SY  | 979  | \$                 | \$              |
| 3                     | Pavement Repair & Road Restoration (Mill & Resurface)         | SY  | 2326 | \$                 | \$              |
| 4                     | Sidewalk Replacement, Concrete (4" min. thick)                | SY  | 55   | \$                 | \$              |
| 5                     | Sodding, Bahia  | SY  | 65   | \$                 | \$              |
| 6                     | Fence Repair  | LF  | 30   | \$                 | \$              |
| 7                     | Grout Fill Abandoned Force Main, 10"                          | CY  | 9    | \$                 | \$              |
| 8                     | Grout Fill Abandoned Force Main, 14"                          | CY  | 2    | \$                 | \$              |
| 9                     | Grout Fill Abandoned Force Main, 16"                          | CY  | 193  | \$                 | \$              |
| 10                    | Grout Fill Abandoned Force Main, 18"                          | CY  | 179  | \$                 | \$              |
| 11                    | Remove Existing Valve, 10"                                    | EA  | 1    | \$                 | \$              |
| 12                    | 18" PVC (C-905) Pipe  | LF  | 38   | \$                 | \$              |
| 13                    | 6" Pressure Class 350 Ductile Iron Pipe                       | LF  | 20   | \$                 | \$              |
| 14                    | 14" Pressure Class 350 Ductile Iron Pipe                      | LF  | 50   | \$                 | \$              |
| 15                    | 16" Pressure Class 350 Ductile Iron Pipe                      | LF  | 346  | \$                 | \$              |
| 16                    | 18" Pressure Class 350 Ductile Iron Pipe                      | LF  | 140  | \$                 | \$              |
| 17                    | 10" HDPE (C-906) Pipe   | LF  | 222  | \$                 | \$              |
| 18                    | 14" HDPE (C-906) Pipe   | LF  | 20   | \$                 | \$              |

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "A"

00300-2

**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

**BID "A"**

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "A" Based on Completion time of 270 Calendar Days**

| ITEM # | DESCRIPTION                                   | U/M | QTY.   | BID PRICE PER UNIT | TOTAL BID PRICE |
|--------|---|-----|--------|--------------------|-----------------|
| 19     | 16" HDPE (C-906) Pipe                         | LF  | 3537   | \$                 | \$              |
| 20     | 18" HDPE (C-906) Pipe                         | LF  | 2601   | \$                 | \$              |
| 21     | Precast Concrete Manhole (doghouse) 5 ft. dia | EA  | 3      | \$                 | \$              |
| 22     | DI Fittings                                   | LB  | 13,330 | \$                 | \$              |
| 23     | Pipe Adapter, 10"                             | EA  | 2      | \$                 | \$              |
| 24     | Pipe Adapter, 14"                             | EA  | 2      | \$                 | \$              |
| 25     | Pipe Adapter, 16"                             | EA  | 12     | \$                 | \$              |
| 26     | Pipe Adapter, 18"                             | EA  | 6      | \$                 | \$              |
| 27     | 10" Gate Valve                                | EA  | 2      | \$                 | \$              |
| 28     | 14" Gate Valve                                | EA  | 2      | \$                 | \$              |
| 29     | 16" Gate Valve                                | EA  | 5      | \$                 | \$              |
| 30     | 18" Gate Valve                                | EA  | 4      | \$                 | \$              |
| 31     | Air Release Valve, Above Ground               | EA  | 5      | \$                 | \$              |
| 32     | Air Release Valve, Fiberglass Cabinet         | EA  | 5      | \$                 | \$              |
| 33     | By-Pass Pumping, LS34-A, 963 gpm, 49 TDH      | LS  | 1      | \$                 | \$              |

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "A"

00300-3

**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

BID "A"

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "A" Based on Completion time of 270 Calendar Days**

| ITEM #  | DESCRIPTION   | U/M       | QTY.     | BID PRICE PER UNIT | TOTAL BID PRICE     |
|---|---|-----------|----------|--------------------|---------------------|
| 34  | By-Pass Pumping, LS36-A, 1719 gpm, 60 TDH               | LS        | 1        | \$                 | \$                  |
| 35  | By-Pass Pumping, LS 31-A, 1542 gpm, 44 TDH              | LS        | 1        | \$                 | \$                  |
| 36  | 24 Hour Pump Operator                                   | LS        | 1        | \$                 | \$                  |
| 37  | Traffic Control, Signing & Barricades to FDOT Standards | LS        | 1        | \$                 | \$                  |
| 38  | Connect to Existing 18" Force Main                      | EA        | 1        | \$                 | \$                  |
| 39  | Connect to Existing 14" Force Main                      | EA        | 2        | \$                 | \$                  |
| 40  | Temporary 18" Force Main Bypass Jumper (Over Bridge)    | LS        | 1        | \$                 | \$                  |
| 41  | Erosion Control   | LS        | 1        | \$                 | \$                  |
| <b>SUBTOTAL CONSTRUCTION COST</b>   |   |           |          |                    | \$                  |
| 42  | Mobilization  | LS        | 1        | \$                 | \$                  |
| 43  | Miscellaneous Work & Clean Up                           | LS        | 1        | \$                 | \$                  |
| 44  | Record Drawings   | LS        | 1        | \$                 | \$                  |
| 45  | <b>DISCRETIONARY WORK</b>                               | <b>LS</b> | <b>1</b> |                    | <b>\$151,000.00</b> |
| <b>TOTAL BID PRICE "A"- Based On Completion Time of 270 Calendar Days</b> |   |           |          |                    | <b>\$</b>           |

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "A"

00300-4



**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

**BID "B"**

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "B" Based on Completion time of 365 Calendar Days**

| ITEM #                | DESCRIPTION   | U/M | QTY. | BID PRICE PER UNIT | TOTAL BID PRICE |
|-----------------------|---|-----|------|--------------------|-----------------|
| <b>SANITARY SEWER</b> |   |     |      |                    |                 |
| 1                     | Curb Replacement  | LF  | 240  | \$                 | \$              |
| 2                     | Pavement Repair & Road Restoration (Base, Mill & Resurfacing) | SY  | 979  | \$                 | \$              |
| 3                     | Pavement Repair & Road Restoration (Mill & Resurface)         | SY  | 2326 | \$                 | \$              |
| 4                     | Sidewalk Replacement, Concrete (4" min. thick)                | SY  | 55   | \$                 | \$              |
| 5                     | Sodding, Bahia  | SY  | 65   | \$                 | \$              |
| 6                     | Fence Repair  | LF  | 30   | \$                 | \$              |
| 7                     | Grout Fill Abandoned Force Main, 10"                          | CY  | 9    | \$                 | \$              |
| 8                     | Grout Fill Abandoned Force Main, 14"                          | CY  | 2    | \$                 | \$              |
| 9                     | Grout Fill Abandoned Force Main, 16"                          | CY  | 193  | \$                 | \$              |
| 10                    | Grout Fill Abandoned Force Main, 18"                          | CY  | 179  | \$                 | \$              |
| 11                    | Remove Existing Valve, 10"                                    | EA  | 1    | \$                 | \$              |
| 12                    | 18" PVC (C-905) Pipe  | LF  | 38   | \$                 | \$              |
| 13                    | 6" Pressure Class 350 Ductile Iron Pipe                       | LF  | 20   | \$                 | \$              |
| 14                    | 14" Pressure Class 350 Ductile Iron Pipe                      | LF  | 50   | \$                 | \$              |
| 15                    | 16" Pressure Class 350 Ductile Iron Pipe                      | LF  | 346  | \$                 | \$              |
| 16                    | 18" Pressure Class 350 Ductile Iron Pipe                      | LF  | 140  | \$                 | \$              |
| 17                    | 10" HDPE (C-906) Pipe   | LF  | 222  | \$                 | \$              |
| 18                    | 14" HDPE (C-906) Pipe   | LF  | 20   | \$                 | \$              |

Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Bid "B"

00300-5

**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

**BID "B"**

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "B" Based on Completion time of 365 Calendar Days**

| ITEM # | DESCRIPTION                                   | U/M | QTY.   | BID PRICE PER UNIT | TOTAL BID PRICE |
|--------|---|-----|--------|--------------------|-----------------|
| 19     | 16" HDPE (C-906) Pipe                         | LF  | 3537   | \$                 | \$              |
| 20     | 18" HDPE (C-906) Pipe                         | LF  | 2601   | \$                 | \$              |
| 21     | Precast Concrete Manhole (doghouse) 5 ft. dia | EA  | 3      | \$                 | \$              |
| 22     | DI Fittings                                   | LB  | 13,330 | \$                 | \$              |
| 23     | Pipe Adapter, 10"                             | EA  | 2      | \$                 | \$              |
| 24     | Pipe Adapter, 14"                             | EA  | 2      | \$                 | \$              |
| 25     | Pipe Adapter, 16"                             | EA  | 12     | \$                 | \$              |
| 26     | Pipe Adapter, 18"                             | EA  | 6      | \$                 | \$              |
| 27     | 10" Gate Valve                                | EA  | 2      | \$                 | \$              |
| 28     | 14" Gate Valve                                | EA  | 2      | \$                 | \$              |
| 29     | 16" Gate Valve                                | EA  | 5      | \$                 | \$              |
| 30     | 18" Gate Valve                                | EA  | 4      | \$                 | \$              |
| 31     | Air Release Valve, Above Ground               | EA  | 5      | \$                 | \$              |
| 32     | Air Release Valve, Fiberglass Cabinet         | EA  | 5      | \$                 | \$              |
| 33     | By-Pass Pumping, LS 34-A, 963 gpm, 49 TDH     | LS  | 1      | \$                 | \$              |

Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Bid "B"

00300-6

**BID FORM**  
**(Submit in Triplicate)**  
**IFB #13-1833-OV**

IFB#13-1833-OV

**BID "B"**

**FORCE MAIN REPLACEMENT PROJECT 34A - 26th Street West from Heron Way to 53rd Avenue  
West (Project No.: 415-6081280)**

**BID "B" Based on Completion time of 365 Calendar Days**

| ITEM #  | DESCRIPTION   | U/M | QTY. | BID PRICE PER UNIT | TOTAL BID PRICE     |
|---|---|-----|------|--------------------|---------------------|
| 34  | By-Pass Pumping, LS 36-A, 1719 gpm, 60 TDH              | LS  | 1    | \$                 | \$                  |
| 35  | By-Pass Pumping, LS 31-A, 1542, gpm, 44 TDH             | LS  | 1    | \$                 | \$                  |
| 36  | 24 Hour Pump Operator                                   | LS  | 1    | \$                 | \$                  |
| 37  | Traffic Control, Signing & Barricades to FDOT Standards | LS  | 1    | \$                 | \$                  |
| 38  | Connect to Existing 18" Force Main                      | EA  | 1    | \$                 | \$                  |
| 39  | Connect to Existing 14" Force Main                      | EA  | 2    | \$                 | \$                  |
| 40  | Temporary 18" Force Main Bypass Jumper (Over Bridge)    | LS  | 1    | \$                 | \$                  |
| 41  | Erosion Control   | LS  | 1    | \$                 | \$                  |
| <b>SUBTOTAL CONSTRUCTION COST</b>   |   |     |      |                    | \$                  |
| 42  | Mobilization  | LS  | 1    | \$                 | \$                  |
| 43  | Miscellaneous Work & Clean Up                           | LS  | 1    | \$                 | \$                  |
| 44  | Record Drawings   | LS  | 1    | \$                 | \$                  |
| 45  | <b>DISCRETIONARY WORK</b>                               | LS  | 1    |                    | <b>\$151,000.00</b> |
| <b>TOTAL BID PRICE "B"- Based On Completion Time of 365 Calendar Days</b> |   |     |      |                    | \$                  |

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "B"

00300-7

**SWORN STATEMENT  
THE FLORIDA TRENCH SAFETY ACT**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with IFB No. #13-1833-OV
2. This Sworn Statement is submitted by \_\_\_\_\_ whose business address is \_\_\_\_\_ and, if applicable, its Federal Employer Identification Number (FEIN) is \_\_\_\_\_. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement \_\_\_\_\_.
3. Name of individual signing this Sworn Statement is: \_\_\_\_\_, Whose relationship to the above entity is: \_\_\_\_\_.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the County and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.

6. The undersigned has appropriated the following costs for compliance with the applicable standards:

| Trench Safety Measure<br>(Description) | Units of<br>Measure<br>(LF, SY) | Unit<br>Quantity | Unit Cost | Extended<br>Cost |
|--|---------------------------------|------------------|-----------|------------------|
| a. _____                               | _____                           | _____            | \$ _____  | _____            |
| b. _____                               | _____                           | _____            | \$ _____  | _____            |
| c. _____                               | _____                           | _____            | \$ _____  | _____            |
| d. _____                               | _____                           | _____            | \$ _____  | _____            |

7. The undersigned intends to comply with these standards by instituting the following procedures:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THE UNDERSIGNED, in submitting this Bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

(AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
**(Impress official seal)**

Notary Public, State of Florida: \_\_\_\_\_

My commission expires: \_\_\_\_\_

SECTION 00430  
**CONTRACTOR'S QUESTIONNAIRE**  
(Submit in Triplicate)

The Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

**THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID**

1. License #: \_\_\_\_\_

License Issued to: \_\_\_\_\_

Date License Received (MM/DD/YR): \_\_\_\_\_

Company Name: \_\_\_\_\_

\_\_\_\_\_  
Company's Physical Address

\_\_\_\_\_  
City  
\_\_\_\_\_ State of Incorporation, if applicable \_\_\_\_\_ (Zip Code)

(\_\_\_\_\_) \_\_\_\_\_ Telephone Number; (\_\_\_\_\_) \_\_\_\_\_ Fax Number

Email Address: \_\_\_\_\_

2. Bidding as an individual \_\_\_ a partnership: \_\_\_ a corporation; \_\_\_ a joint venture \_\_\_

3. If a partnership: list names and addresses of partners; if a corporation: list names of officers, directors, shareholders, and state of incorporation; if joint venture: list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Your organization has been in business (under this firm's name) as a

\_\_\_\_\_  
For how many years? \_\_\_\_\_ Is this firm in bankruptcy? \_\_\_\_\_

**(Attach a list of projects where this specific type of work was performed)**

BIDDER: \_\_\_\_\_

4. (Continued)

Has license ever been suspended, revoked, removed or under investigation?

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5. Describe and give the date and County of the last three government or private work of similar scope you've completed which are similar in cost, type, size, and nature as the one proposed (for a public entity), include contact name and phone number. Provide the budget, actual cost, size and summary of work for each project. Attach additional pages as necessary. (Note: If listing a Manatee County reference they should not be directly associated with this project).

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6. Have you ever been assessed liquidated damages under a Contract during the past five (5) years? If so, state when, where (contact name, address and phone number) and why.

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7. Have you ever failed to complete work awarded to you? Or provide projects not completed within Contract time. If so, state when, where (contact name, address, phone number) and why.

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8. Have you ever been debarred or prohibited from bidding on a governmental entity's construction project? If yes, name the entity and describe the circumstances:

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BIDDER: \_\_\_\_\_

9. What specific steps have you taken to examine the physical conditions at or contiguous to the site, including but not limited to, the location of existing underground facilities? Have you visited the site(s)? \_\_\_\_\_  
Provide date(s) of site visit: \_\_\_\_\_

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10. What specific physical conditions, including, but not limited to, the location of existing underground facilities have you found which will, in any manner, affect cost, progress, performance, or finishing of the Work?

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11. Will you subcontract any part of this Work? If so, describe which major portion(s):

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12. If any, list (with Contract amount) WBE/MBE to be utilized:

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---

---

13. What equipment do you own to accomplish this Work? (A listing may be attached)

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---

14. What equipment will you purchase/rent for the Work? (Specify which)

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BIDDER: \_\_\_\_\_

15. List the following in connection with the Surety which is providing the Bond(s):

Surety's Name: \_\_\_\_\_

Surety's Address: \_\_\_\_\_

Surety's Address: \_\_\_\_\_

Name, address and phone number of Surety's resident agent for service of process in Florida:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

Email \_\_\_\_\_

BIDDER: \_\_\_\_\_



SECTION 00491  
**PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION**  
SWORN STATEMENT PURSUANT TO ARTICLE V,  
MANATEE COUNTY PURCHASING ORDINANCE

**THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.**

This sworn statement is submitted to the Manatee County Board of County Commissioners by

\_\_\_\_\_ [Print individual's name and title]

\_\_\_\_\_ for \_\_\_\_\_ [print name of entity submitting sworn statement]

whose business address is \_\_\_\_\_

and (if applicable) its Federal Employer Identification Number (FEIN) is \_\_\_\_\_. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

\_\_\_\_\_

I understand that no person or entity shall be awarded or receive a County Contract for public improvements, procurement of goods or services (including professional services) or a County lease, franchise, concession or management Agreement, or shall receive a grant of County monies unless such person or entity has submitted a written certification to the County that it has not:

- (1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or
- (2) been convicted of an agreement or collusion among Bidders or prospective Bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or
- (3) been convicted of a violation of an environmental law that, in the sole opinion of the County's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or
- (4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or
- (5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

(Cont'd.)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to the County's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with the County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

\_\_\_\_\_  
[Signature]

STATE OF FLORIDA  
COUNTY OF \_\_\_\_\_

Sworn to and subscribed before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ by \_\_\_\_\_

Personally known \_\_\_\_\_ OR Produced identification \_\_\_\_\_  
[Type of identification]

\_\_\_\_\_  
Notary Public Signature My commission expires \_\_\_\_\_

\_\_\_\_\_  
[Print, type or stamp Commissioned name of Notary Public]

**Signatory Requirement** - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

SECTION 00500  
FORM OF AGREEMENT  
BETWEEN THE  
COUNTY OF MANATEE, FLORIDA  
AND THE CONTRACTOR AS IDENTIFIED BELOW  
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the State of Florida, hereinafter referred to as the "COUNTY" and **insert Contractor name**, hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the State of Florida, with offices located at **insert Contractor address**.

**ARTICLE 1. WORK**

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for **IFB #13-1833-OV, Force Main Replacement 34A, 26<sup>th</sup> Street West from Heron Way to 53<sup>rd</sup> Avenue West** in strict accordance with Contract documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

**ARTICLE 2. COMPENSATION**

As compensation to the CONTRACTOR, the COUNTY shall pay and the CONTRACTOR will accept as full consideration for the performance of all Work required by **FB #13-1833-OV, Force Main Replacement 34A, 26th Street West from Heron Way to 53rd Avenue West**, subject to additions and deductions as provided therein, the sum of **\$insert Award amount including discretionary dollars** for Bid "**insert A or B**" based on a completion time of **insert days** calendar days.

**ARTICLE 3. LIQUIDATED DAMAGES**

Time is of the essence in this Agreement. As of the date of this Agreement, the damages that will be suffered by the County in the event of the Contractor's failure to timely complete the Work are impossible to determine. In lieu thereof, it is agreed that if the Contractor fails to achieve substantial completion of the Work within **insert days** calendar days of issuance of the Notice to Proceed (accounting, however, for any

extensions of time granted pursuant to approved change orders), the Contractor shall pay to the County, as liquidated damages (and not as a penalty), the sum of \$1,148.00 dollar amount per calendar day for each day beyond insert days days until the Contractor achieves substantial completion. The County shall have the option of withholding said liquidated damages from any pay application(s) thereafter submitted by the Contractor. Alternatively, the Contractor shall immediately pay said sums to the County upon the County's demand for same.

#### **ARTICLE 4. ENGINEER**

The County of Manatee, Public Works Department, is responsible as the COUNTY and as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract documents.

All communications involving this project will be addressed to: Mr. Anthony Benitez, Project Engineer II and to the Engineer of Record, Mr. John S. Shoun, Project Engineer II. All invoicing will be addressed to the attention of: Mr. Anthony Benitez (address noted below) with invoice copies sent to Mr. John S. Shoun, P.E., (address noted below).

Manatee County Public Works Dept.  
IFB#13-1833-OV  
Attention Anthony Benitez  
Project Engineer II  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208  
Phone: (941) 708-7450, Ext. 7334

Manatee County Public Works Dept.  
Attn: Mr. John S. Shoun, P.E.  
Project Engineer  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208  
Phone: (941) 708-7463, Ext. 7661

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

## **ARTICLE 5. CONTRACTOR'S REPRESENTATIONS**

In order to induce COUNTY to enter into this Agreement, CONTRACTOR makes the following representations:

- 5.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid documents, Work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 5.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.
- 5.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract price, within the Contract time and in accordance with the other terms and conditions of the Bid documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 5.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.

- 5.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 5.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 5.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

**ARTICLE 6. CONTRACT DOCUMENTS**

The Contract documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 6.1 This Agreement and Bid document **IFB#13-1833-OV**
- 6.2 Public Construction Bond Form and Insurance Certificate(s)
- 6.3 Drawings/Plans (not attached)
- 6.4 Addendum number insert Addendum # to insert Addendum # inclusive
- 6.5 CONTRACTOR'S Bid Form
- 6.6 Reports
- 6.7 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written change orders and other documents amending, modifying, or supplementing the Contract documents.

6.8 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract documents other than those listed above in this Article 6.

## **ARTICLE 7. MISCELLANEOUS**

7.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.

7.2 No assignment by a party hereto of any rights under or interest in the Contract documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract documents.

7.3 COUNTY and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract documents.

**AGREEMENT**  
**IFB #13-1833-OV**

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their authorized representatives.

**CONTRACTOR**

By: \_\_\_\_\_

\_\_\_\_\_  
Print Name & Title of Signer

Date: \_\_\_\_\_

**COUNTY OF MANATEE, FLORIDA**

By: \_\_\_\_\_  
Melissa M. Wendel, CPPO  
Purchasing Official

Date: \_\_\_\_\_



**MANATEE COUNTY GOVERNMENT  
PUBLIC CONSTRUCTION BOND**

Bond No. \_\_\_\_\_  
(Enter bond number)

BY THIS BOND, We \_\_\_\_\_, located at \_\_\_\_\_, as  
(Name of Contractor) (Address) as  
Principal and \_\_\_\_\_, a corporation, whose address is  
(Name of Surety)

\_\_\_\_\_

are bound to Manatee County, a political subdivision of the State of Florida, herein called County, in the sum of \$ \_\_\_\_\_, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into Contract No. \_\_\_\_\_ with the County for the project titled insert title of project, with conditions and provisions as are further described in the aforementioned Contract, which Contract is by reference made a part hereof for the purposes of explaining this bond.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs Contract No. \_\_\_\_\_, between Principal and County for construction of insert title of project, the Contract being made a part of this bond by reference, at  
(Title of Project)

the times and in the manner prescribed in the Contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the Contract; and

3. Pays County all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that County sustains because of a default by Principal under the Contract; and

4. Performs the guarantee of all Work and materials furnished under the Contract for the time specified in the Contract, then this bond is void; otherwise it remains in full force.

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

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

DATED ON \_\_\_\_\_.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name & Title

\_\_\_\_\_  
Print Name & Title

*(Corporate Seal)*

*(Corporate Seal)*

**AGENT or BROKER**

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address  
\_\_\_\_\_

\_\_\_\_\_  
Telephone

Licensed Florida Insurance Agent?  Yes  No

License #: \_\_\_\_\_

State of: \_\_\_\_\_

County of: \_\_\_\_\_

City of: \_\_\_\_\_

SECTION 00700  
**GENERAL CONDITIONS**

**ARTICLE 1. DEFINITIONS**

Whenever used in the Bid documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

Addendum - Written or graphic instruments issued prior to the opening of Bids which clarify or change the Bidding documents or the Contract documents.

Agreement - The written Agreement between Owner and Contractor covering the Work to be performed; other Contract documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by the Project Representative which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract documents.

Award - Acceptance of the Bid from the person, firm, or corporation which in the Owner's sole and absolute judgment will under all circumstances best serve the public interest. Award shall be made in accordance with Manatee County Code of Laws.

Bid - The offer of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - One who submits a Bid directly to the Owner, as distinct from a Sub-bidder, who submits a Bid to a Bidder.

Bidding Documents - Consists of the Invitation for Bid, which includes but is not limited to the Bid Form, drawings, technical specifications, terms and conditions, and the proposed Contract documents (including all addenda issued prior to receipt of Bids); and becomes a part of the Agreement.

Bonds - Performance and payment bonds and other instruments of security.

Change Order - A document recommended by the Project Representative 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 time, issued on or after the effective date of the Agreement.

Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.

Contract Documents - The Agreement, addenda (which pertain to the Contract documents), Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award), the bonds, the specifications, special provisions and the drawings, together with all amendments, modifications and supplements issued on or after the effective date of the Agreement.

Contract Price - The monies payable by Owner to Contractor under the Contract documents as stated in the Agreement.

Contract Time - The number of days or the date stated in the Notice to Proceed for the completion of the Work.

Contractor - The person, firm or corporation with whom Owner has entered into an Agreement.

Days - All references to days are to be considered calendar days except as specified differently.

Defective - An adjective which when modifying the Work refers to work that is unsatisfactory, faulty or deficient, or does not conform to the Contract documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract documents, or has been damaged prior to Project Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner).

Discretionary - Payment for all Work that shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the plans and specifications.

Drawings - The drawings which show the character and Scope of Work to be performed and which have been prepared or approved by Engineer and are referred to in the Bidding and Contract documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective (date of execution).

Excusable Delay - Any delay beyond the control and without the negligence of the Contractor, the Owner, or any other Contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, fires, floods, freight embargoes, acts of government other than Owner or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

Field Order - A written order issued by Project Representative which orders minor changes in the Work, but which does not involve a change in the Contract price or the Contract time.

Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Inexcusable Delay - Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor.

Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the Contract time.

Notice of Award - The written notice to the successful Bidder stating Award has been approved by the Board of County Commissioners; or by the Purchasing Official in accordance with Manatee County Code of Laws, Chapter 2-26, Manatee County Purchasing Ordinance.

Notice of Intent to Award - The written notice to the apparent low Bidder stating Award has been recommended with final Award to be authorized by the Board of County Commissioners.

Notice to Proceed - Written notice by Owner (after execution of Contract) to Contractor fixing the date on which the Contract time will commence to run and on which Contractor shall start to perform (ten (10) days from date of such notice) Contractor's obligations under the Contract documents.

Owner - Manatee County, Florida, Board of County Commissioners.

Preconstruction Conference - Prior to starting the Work, a meeting scheduled by Owner with Contractor to review the Work schedules, to establish procedures for handling shop drawings and other submissions, for processing periodical pay estimates, and such other matters as may be pertinent to the project.

Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract time unless the Work is accelerated.

Pre-operation Testing - All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract documents for their intended purposes.

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

Project Representative - The authorized representative of Owner who is assigned to the project or any part thereof.

Schedule of Values – Unit prices shall be established for this Contract by the submission of a schedule of values. The Contractor shall submit a schedule of values within ten (10) days of Notice to Proceed date. The schedule shall include quantities and prices of items equaling the Total Bid Price and will subdivide the Work into components in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.

Special Provisions: As required to define work or procedures not covered in the standard specifications, and as necessary to supplement or modify items in the standard specifications.

Specifications - Those portions of the Contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor - An individual or corporation having a direct contact with Contractor or with any other Subcontractor for the performance of a part of the Work at the site. Such person or firm has contractual relations with the Contractor, not with the Owner.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point when, in the opinion of the Engineer as evidenced by Engineer's definitive certificate of substantial completion, it is sufficiently complete in accordance with Contract documents so that the Work can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due.

Successful Bidder - The lowest, responsible and responsive Bidder to whom an Award is made.

Supplier - A manufacturer, fabricator, supplier, distributor, material man or vendor.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or

other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work - Work to be paid for on the basis of unit prices.

Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract documents.

Work Directive Change - A written directive to Contractor, issued on or after the effective date of the Agreement and signed by Owner and recommended by Project Representative ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or to emergencies. A work directive change may not change the Contract price or the Contract time; but is evidence that the parties expect that the change directed or documented by a work directive change will be incorporated in a subsequently issued change order following negotiations by the parties as to its effect, if any, on the Contract price or Contract time.

Written Amendment - A written amendment of the Contract documents, signed by Owner and Contractor on or after the effective date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly work related aspects of the Contract documents.

## **ARTICLE 2. PRELIMINARY MATTERS**

Computation of Time: When time is referred to in the Contract documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

2.1 The Contractor must submit a proposed schedule of the Work at the preconstruction conference. The purpose of this schedule is to enable the Owner to govern the Work, to protect the functions of the local government and its citizens and to aid in providing appropriate surveillance. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract. The schedule shall show, as a minimum, the approximate dates on which each segment of the Work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The Owner, after necessary rescheduling and obtaining additional information for specific purposes, shall review and approve the schedule. The Contractor shall also forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work under the Contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if



any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

- 2.2 A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. The Contract time will commence at the time specified in such notice. Contractor shall start to perform the Work on the date specified in the Notice to Proceed, but no Work shall be done at the site prior to the date on which the Contract time commences to run.
- 2.3 If at any time the materials and appliances to be used appear to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase his efficiency or to improve the character of his Work and the Contractor shall conform to such an order. The failure of the Owner to demand any increase of such efficiency of any improvement shall not release the Owner from his obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract. The Owner may require the Contractor to remove from the Work such employees as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Work is deemed to be contrary to the Owner's interest.
- 2.4 The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

### **ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, RE-USE**

- 3.1 The Contract documents comprise the entire Agreement between Owner and Contractor concerning the Work. The Contract documents are complementary; what is called for by one is as binding as if called for by all. The Contract documents will be construed in accordance with the laws and ordinances of the State of Florida and Manatee County.

Should a conflict exist within the Contract documents, the precedence in ascending order of authority are as follows: 1) Standard Printed Contract Documents, 2) Special Conditions, 3) General Conditions, and 4) Drawings.

Note: Computed dimensions shall govern over scaled dimensions.

- 3.2 It is the intent of the Contract documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract documents. Any work, materials or equipment that may reasonably be inferred from the Contract documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or

equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Engineer, or any of their agents or employees from those set forth in the Contract documents.

3.3 The Contract documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.3.1 A Formal Written Amendment

3.3.2 A Change Order

3.3.3 Administrative Contract Adjustment (ACA)

3.3.4 A Work Directive Change

3.4 In addition, the requirements of the Contract documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

3.4.1 Discretionary Work – Field Directive

3.4.2 Engineer's approval of a Shop Drawing or sample

#### **ARTICLE 4. CONTRACTOR'S RESPONSIBILITIES**

4.1 Contractor shall keep on the Work at all times during its progress a competent resident superintendent; who shall be the Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

4.2 Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the Contract documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the

performance of work on Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Engineer (at least seventy-two (72) hours in advance).

- 4.2.1 Contractor shall pay for all additional engineering charges to the Owner for any overtime work which may be authorized. Such additional engineering charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner on account of such overtime work. At Owner's option, overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.
- 4.3 Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 4.4 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract documents. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the Contract documents.
- 4.5 Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect Contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract documents shall create any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization.
- 4.6 Permits: Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.
- 4.7 During the progress of the Work, Contractor shall keep the premises free from accumulation of waste materials rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste

materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to original conditions all property not designated for alteration by the Contract documents.

- 4.8 Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.
- 4.9 Safety and Protection: Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:
- 4.9.1 all employees on the work and other persons and organizations who may be affected thereby;
- 4.9.2 all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- 4.9.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.
- 4.9.4 Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic way for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.
- 4.10 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Engineer or Owner, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract documents have been caused thereby. If Owner

determines that a change in the Contract documents is required because of the action taken in response to an emergency, a work directive change or change order will be issued to document the consequences of the changes or variation.

4.11 For substitutes not included with the Bid, but submitted after the effective date of the Agreement, Contractor shall make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, Owner/Engineer and Contractor shall have access to any available float time in the construction schedule. In the event that substitute materials or equipment not included as part of the Bid, but proposed after the effective date of the Agreement, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the Owner and an appropriate change order executed.

4.11.1 If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the Contract documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Engineer if Contractor submits sufficient information to allow Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract documents.

4.11.2 Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a change order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

4.11.3 Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Agreement and all costs resulting from any delays in the Work while the substitute was undergoing review.

- 4.12 The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the construction work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the project or parts of the project critical are involved, the Contractor will employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the Work. The Contractor will be held responsible for the preservation of all stakes, marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they will be immediately and accurately replaced by the Contractor.
- 4.13 The Contractor has, by careful examination, satisfied himself as to the nature and location of the Work and all other matters which can in any way affect the Work under this Contract, including, but not limited to details pertaining to boring, as shown on the drawings, are not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the Work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his Bid on his own opinion of the conditions likely to be encountered. In no event shall an extension of time be considered for any conditions that existed at the time of bidding, nor shall the Contractor receive extra compensation for completion of the project as intended by the drawings and in keeping with the Contract documents. No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- 4.14 If the Contractor, in the course of the Work, finds that the drawings and/or Contract documents cannot be followed, he shall immediately inform the Owner in writing, and the Owner shall promptly check the accuracy of the information. Any work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's risk.

#### **ARTICLE 5. OWNER'S RESPONSIBILITIES**

- 5.1 Owner shall furnish the data required of Owner under the Contract documents promptly and shall make payments to the Contractor within a reasonable time (no more than twenty (20) days) after the Work has been accepted by the Owner. The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract documents shall be determined by the Owner/Engineer. Standard County forms shall be utilized.

- 5.2 The Owner shall provide the lands upon which the Work under this Contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.
- 5.3 The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract documents.

#### **ARTICLE 6. CHANGES IN THE WORK**

- 6.1 Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a change order, or a work directive change. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract documents (except as otherwise specifically provided).
- 6.2 Contractor shall not be entitled to an increase in the Contract price or an extension of the Contract time with respect to any Work performed that is not required by the Contract documents as amended, modified and supplemented.
- 6.3 Owner and Contractor shall execute appropriate change orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work.
- 6.4 At any time Engineer may request a quotation from Contractor for a proposed change in the Work and within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract price or Contract time for the proposed change. Engineer shall have twenty-one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

## **ARTICLE 7. CHANGE OF CONTRACT PRICE**

- 7.1 The Contract price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at his expense without change in the Contract price.
- 7.2 The Contract price may only be changed by change order or by a written amendment. Any claim for an increase or decrease in the Contract price shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within ten (10) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.
- 7.3 The value of any Work covered by a change order or of any claim for an increase or decrease in the Contract price shall be determined in one of the following ways (at Owner's discretion):
- 7.3.1 Where the Work involved is covered by unit prices contained in the Contract documents, cost will be determined by application of such unit prices to the quantities of the items involved.
  - 7.3.2 By mutual acceptance of lump sum.
  - 7.3.3 On the basis of the cost of the Work, plus a 15% Contractor's fee for overhead and profit. (Contractor shall submit an itemized cost breakdown together with supporting data.)
- 7.4 Either Owner or Contractor may make a claim for an adjustment in the Contract price. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:
- 7.4.1 If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract price and the variation in the quantity of the particular item of Unit Price Work performed by Contractor differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and
  - 7.4.2 If there is no corresponding adjustment with respect to any other item of Work; and
  - 7.4.3 If a Contractor believes that it has incurred additional expense as a result thereof; or



- 7.4.4 If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or
- 7.4.5 If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

## **ARTICLE 8. CHANGE OF CONTRACT TIME**

- 8.1 Contract time may only be changed by a change order or a written amendment. Any claim for an extension or shortening of the Contract time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.
- 8.2 The Contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God.
- 8.3 All time limits stated in the Contract documents are of the essence.

## **ARTICLE 9. WARRANTY, TEST/INSPECTION, CORRECTION**

- 9.1 Contractor warrants (for a minimum period of three (3) years or as otherwise stated herein), from date of final acceptance, all material supplied, workmanship and guarantees to Owner that all Work will be in accordance with the Contract documents and will not be defective; that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing (Contractor shall give Engineer timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner).
- 9.2 If any Work (including work of others) that is to be inspected, tested, or approved is covered without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract documents.

9.3 If the Work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract documents, Owner may order Contractor to stop the Work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective Work, including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and any additional expenses experienced by Owner due to delays to other Contractors performing additional Work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the Contract time and the recovery of delay damages due to correcting or removing defective Work.

9.3.1 If Contractor fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Contract documents, or fails to comply with any other provision of the Contract documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, Contractor's tools, construction equipment and machinery at the site or for which Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer and a change order will be issued incorporating the necessary revisions.

9.3.2 If within three (3) years after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor.

## **ARTICLE 10. SUSPENSION/TERMINATION OF WORK**

10.1 Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which Work will be resumed. Contractor shall be allowed an increase in the Contract price or an extension of the Contract

time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore.

10.2 Owner may terminate the Contract if Contractor commences a voluntary case under any chapter of the Bankruptcy Code or any similar action by filing a petition under any other federal or state law relating to the bankruptcy or insolvency; if a petition is filed against the Contractor under any chapter of the Bankruptcy Code or similar relief under any other federal or state law; if Contractor persistently fails to perform the Work in accordance with the Contract documents; if Contractor disregards laws or regulations of any public body having jurisdiction or the Engineer; or otherwise violates in any substantial way any provisions of the Contract.

10.2.1 Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor; exclude Contractor from the site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the Work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract price, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner and incorporated in a change order; but in finishing the Work, Owner shall not be required to obtain the lowest figure for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

10.3 If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) days by Owner or under an order of court or other public authority, or Engineer fails to act on any application or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon seven (7) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Engineer has failed to act on any application of payment or Owner has failed to make any payment as aforesaid, Contractor may upon seven (7) days written notice to Owner stop the Work until payment of all amounts then due.

## **ARTICLE 11. CONTRACT CLAIMS**

- 11.1 The rendering of a decision by Engineer with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such right or remedies as either may otherwise have under the Contract documents or by laws or regulations in respect of any such claim, dispute or other matter. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty (30) days after the date on which Owner/Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty (30) day period shall result in Engineer's decision being final and binding on the 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.
- 11.2 Before bringing any action in court pertaining to any claim, dispute or other matter in question(s) arising out of or relating to the Contract documents or the breach thereof, or Engineer's final decision, except for claims which have been waived by the making and acceptance of final payment, the Contractor shall first submit written notice(s) of Contract claims to the Purchasing Official for a decision; within the earlier of sixty (60) days after the last date on which the Contractor provided any goods or services required by the Contract or after the date on which the Contractor knew or should have known such a claim existed. The Manatee County Code of Laws, Section 2-26-63, Contract Claims, details the requirements and process for such a claim.

## **ARTICLE 12. RESIDENT PROJECT REPRESENTATIVE - DUTIES, RESPONSIBILITIES**

- 12.1 Resident Project Representative is Engineer/Owner's Agent, who will act as directed by and under the supervision of the Engineer, and who will confer with Owner/Engineer regarding his actions. Resident Project Representative's dealing in matters pertaining to the on-site Work shall, in general, be only with the Owner/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.
- 12.2 Resident Project Representative will:
- 12.2.1 Review the progress schedule, schedule of shop drawing submissions and schedule of values prepared by Contractor and consult with Owner/Engineer concerning their acceptability.
  - 12.2.2 Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Engineer and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.

- 12.2.3 Serve as Owner/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the Contract documents. As requested by Owner/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work.
- 12.2.4 Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify Owner/Engineer of their availability for examination.
- 12.2.5 Advise Owner/Engineer and Contractor or his superintendent immediately of the commencement of any Work requiring a shop drawing or sample submission if the submission has not been approved by the Owner/Engineer.
- 12.2.6 Conduct on-site observations of the Work in progress to assist Owner/Engineer in determining if the Work is proceeding in accordance with the Contract documents and that completed Work will conform to the Contract documents.
- 12.2.7 Report to Owner/Engineer whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract documents, or does not meet the requirements of any inspections, tests or approvals required or if Work has been damaged prior to final payment; and advise Owner/Engineer when he believes Work should be corrected or rejected or should be uncovered of observation or requires special testing, inspection or approval.
- 12.2.8 Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the Contract documents and in the presence of the required personnel, and that Contractor maintains adequate records thereof; observe, record and report to Engineer appropriate details relative to the test procedures and start-ups.
- 12.2.9 Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Engineer.
- 12.2.10 Transmit to Contractor, Owner/Engineer's clarifications and interpretations of the Contract documents.
- 12.2.11 Consider and evaluate Contractor's suggestions or modifications in drawings or Contract Documents and report them with recommendations to Owner/Engineer.

- 12.2.12 Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original Contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the Contract, Owner/Engineer's clarifications and interpretations of the Contract documents, progress reports and other project related documents.
- 12.2.13 Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions; list of visiting officials and representatives or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to Owner/Engineer.
- 12.2.14 Record names, addresses and telephone numbers of all Contractors, Subcontractors and major Suppliers of materials and equipment.
- 12.2.15 Furnish Owner/Engineer periodic reports as required of progress of the Work and Contractor's compliance with the approved progress schedule and schedule of shop drawing submissions.
- 12.2.16 Consult with Owner/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work.
- 12.2.17 Report immediately the occurrence of any accident.
- 12.2.18 Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/Engineer, noting particularly their relation to the Schedule of Values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 12.2.19 During the course of the Work, verify that certificates, maintenance and operations manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed, and deliver this material to Owner/Engineer for his review prior to final acceptance of the Work.
- 12.2.20 Before Owner/Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
- 12.2.21 Conduct final inspection in the company of Owner/Engineer and Contractor and prepare a final list of items to be completed or corrected.

12.2.22 Verify that all items on final list have been completed or corrected and make recommendations to Owner/Engineer concerning acceptance.

12.3 Except upon written instructions of Owner/Engineer, Resident Project Representative:

12.3.1 Shall not authorize any deviation from the Contract documents or approve any substitute materials or equipment;

12.3.2 Shall not exceed limitations on Owner/Engineer's authority as set forth in the Contract documents;

12.3.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;

12.3.4 Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract documents;

12.3.5 Shall not advise on or issue directions as to safety precautions and programs in connection with the Work;

12.3.6 Shall not authorize Owner to occupy the project in whole or in part; and

12.3.7 Shall not participate in specialized field or laboratory tests.

### **ARTICLE 13. APPRENTICES**

13.1 If successful Contractor employs apprentices, he shall be governed and comply with the provisions of F.S. § 446.011.

NOTE: The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract shall be determined by the County. Standard County forms shall be utilized.

**END OF SECTION**

General Decision Number: FL130165 03/29/2013 FL165

Superseded General Decision Number: FL20120165

State: Florida

Construction Type: Heavy

County: Manatee County in Florida.

HEAVY CONSTRUCTION PROJECTS (Including Sewer and Water Lines)

| Modification Number | Publication Date |
|---------------------|------------------|
| 0                   | 01/04/2013       |
| 1                   | 03/08/2013       |
| 2                   | 03/29/2013       |

ELEC0915-003 12/01/2012

|                  | Rates    | Fringes    |
|------------------|----------|------------|
| ELECTRICIAN..... | \$ 25.13 | 34%+\$0.25 |

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 ENGI0925-008 01/01/2012

|   | Rates | Fringes |
|---|-------|---------|
| POWER EQUIPMENT OPERATOR:<br>Crawler Cranes; Truck<br>Cranes; Pile Driver<br>Cranes; Rough Terrain<br>Cranes; and Any Crane not<br>otherwise described below...\$ 28.91   |       | 10.74   |
| Hydraulic Cranes Rated 100<br>Tons or Above but Less<br>Than 250 Tons; and Lattice<br>Boom Cranes Less Than 150<br>Tons if not described below.\$ 29.91   |       | 10.74   |
| Lattice Boom Cranes Rated<br>at 150 Tons or Above;<br>Friction Cranes of Any<br>Size; Mobile Tower Cranes<br>or Luffing Boom Cranes of<br>Any Size; Electric Tower<br>Cranes; Hydraulic Cranes<br>Rated at 250 Tons or<br>Above; and Any Crane<br>Equipped with 300 Foot or<br>More of Any Boom<br>Combination.....\$ 30.91 |       | 10.74   |
| Oiler.....\$ 22.38  |       | 10.74   |

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 IRON0397-006 07/01/2012

|                             | Rates    | Fringes |
|-----------------------------|----------|---------|
| IRONWORKER, STRUCTURAL..... | \$ 27.67 | 12.59   |

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 LABO0517-002 05/01/2008



|                             | Rates    | Fringes |
|-----------------------------|----------|---------|
| LABORER: Grade Checker..... | \$ 17.20 | 5.47    |

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\* PAIN0088-008 09/01/2011

|  | Rates    | Fringes |
|--|----------|---------|
| PAINTER: Brush, Roller and<br>Spray..... | \$ 19.50 | 7.93    |

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SUFL2009-161 06/24/2009

|  | Rates    | Fringes |
|--|----------|---------|
| CARPENTER.....   | \$ 14.95 | 2.92    |
| CEMENT MASON/CONCRETE FINISHER...  | \$ 14.77 | 3.50    |
| LABORER: Common or General.....  | \$ 10.90 | 0.38    |
| LABORER: Landscape.....  | \$ 7.25  | 0.00    |
| LABORER: Pipelayer.....  | \$ 13.75 | 2.06    |
| LABORER: Power Tool Operator<br>(Hand Held Drills/Saws,<br>Jackhammer and Power Saws<br>Only)..... | \$ 10.63 | 2.20    |
| OPERATOR: Asphalt Paver.....   | \$ 11.59 | 0.00    |
| OPERATOR: Backhoe Loader<br>Combo.....   | \$ 16.10 | 2.44    |
| OPERATOR: Backhoe/Excavator.....   | \$ 15.00 | 0.52    |
| OPERATOR: Bulldozer.....   | \$ 17.00 | 0.00    |
| OPERATOR: Grader/Blade.....  | \$ 16.00 | 2.84    |
| OPERATOR: Loader.....  | \$ 14.75 | 0.00    |
| OPERATOR: Mechanic.....  | \$ 14.32 | 0.00    |
| OPERATOR: Roller.....  | \$ 10.76 | 0.00    |
| OPERATOR: Scraper.....   | \$ 11.00 | 1.74    |
| OPERATOR: Trackhoe.....  | \$ 20.92 | 5.50    |
| OPERATOR: Tractor.....   | \$ 10.54 | 0.00    |
| TRUCK DRIVER, Includes Dump<br>Truck.....  | \$ 11.00 | 0.00    |
| TRUCK DRIVER: Lowboy Truck.....  | \$ 12.73 | 0.00    |
| TRUCK DRIVER: Off the Road<br>Truck.....   | \$ 12.21 | 1.97    |

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 WELDERS - Receive rate prescribed for craft performing  
 operation to which welding is incidental.  
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Unlisted classifications needed for work not included within  
 the scope of the classifications listed may be added after  
 award only as provided in the labor standards contract clauses  
 (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification  
 and wage rates that have been found to be prevailing for the  
 cited type(s) of construction in the area covered by the wage  
 determination. The classifications are listed in alphabetical  
 order of "identifiers" that indicate whether the particular  
 rate is union or non-union.

#### Union Identifiers

An identifier enclosed in dotted lines beginning with  
 characters other than "SU" denotes that the union  
 classification and rate have found to be prevailing for that  
 classification. Example: PLUM0198-005 07/01/2011. The first  
 four letters , PLUM, indicate the international union and the  
 four-digit number, 0198, that follows indicates the local union  
 number or district council number where applicable , i.e.,  
 Plumbers Local 0198. The next number, 005 in the example, is  
 an internal number used in processing the wage determination.  
 The date, 07/01/2011, following these characters is the  
 effective date of the most current negotiated rate/collective  
 bargaining agreement which would be July 1, 2011 in the above  
 example.

Union prevailing wage rates will be updated to reflect any  
 changes in the collective bargaining agreements governing the  
 rates.

0000/9999: weighted union wage rates will be published annually  
 each January.

#### Non-Union Identifiers

Classifications listed under an "SU" identifier were derived  
 from survey data by computing average rates and are not union  
 rates; however, the data used in computing these rates may  
 include both union and non-union data. Example: SULA2004-007  
 5/13/2010. SU indicates the rates are not union majority rates,  
 LA indicates the State of Louisiana; 2004 is the year of the  
 survey; and 007 is an internal number used in producing the  
 wage determination. A 1993 or later date, 5/13/2010, indicates

the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.

Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

## MAILING LABEL

Cut along the outside border and affix this label to your sealed Bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the Bid and the Bid due date and time where requested.

### MAILING LABEL TO AFFIX TO OUTSIDE OF SEALED BID PACKAGE:

**SEALED BID - DO NOT OPEN**

**CONTRACTOR:** \_\_\_\_\_

**SEALED BID NO:** insert IFB #

**BID TITLE:** insert IFB title

**DUE DATE/TIME:** \_\_\_\_\_ @ \_\_\_\_\_

CONTRACT DOCUMENTS

FOR

Force Main Replacement 34A  
26<sup>th</sup> Street West from Heron Way to 53<sup>rd</sup> Avenue West

PROJECT # 415-6081280

May 2013

PROJECT OWNER:

County of Manatee, Florida  
c/o Manatee County Purchasing Division  
1112 Manatee Avenue West  
Bradenton, Florida 34205  
(941) 748-4501

PREPARED BY:

Engineering Division  
Manatee County Public Works Department  
1022 26<sup>th</sup> Avenue East  
Bradenton, Florida 34208  
(941) 708-7450

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**THIS SPECIFICATION INCLUDES BY REFERENCE THE MANATEE COUNTY UTILITY STANDARDS APPROVED MAY 2011.**



## DIVISION 1 GENERAL REQUIREMENTS

### SECTION 01005 GENERAL REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SCOPE AND INTENT

###### A. Description

The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.

###### B. Work Included

The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, shop drawings, working drawings and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits necessary for the work, other than those permits such as the DEP permit and railroad permit which may have already been obtained. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the County, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all incidental costs. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

The cost of incidental work described in these General Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made.

The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment.

###### C. Public Utility Installations and Structures

Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto.

The Contractor shall protect all installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the County. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as approved by the County. No separate payment shall be made for such protection or repairs to public utility installations or structures.

Public utility installations or structures owned or controlled by the County or other governmental body, which are required by this contract to be removed, relocated, replaced or rebuilt by the Contractor not identified in any separate bid item shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various contract items. No separate payment shall be made.

Where public utility installations or structures owned or controlled by the County or other governmental body are encountered during the course of the work, and are not indicated on the Plans or in the Specifications, and when, in the opinion of the County, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the County, for the contractor to accomplish. If such work is accomplished by the utility having jurisdiction, it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be in accordance with the General and Supplemental General Conditions.

The Contractor shall give written notice to County and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Sunshine State One-Call of Florida, Inc. Call Center ("Call Sunshine") and per all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).

The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the County.

## **1.02 PLANS AND SPECIFICATIONS**

### **A. Plans**

When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

### **B. Copies Furnished to Contractor**

The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. Additional copies of the Plans and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.

### **C. Supplementary Drawings**

When, in the opinion of the County, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the County and five paper prints thereof will be given to the Contractor.

D. Contractor to Check Plans and Data

The Contractor shall verify all dimensions, quantities and details shown on the Plans, Supplementary Drawings, Schedules, Specifications or other data received from the County, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the County, should such errors or omissions be discovered. All schedules are given for the convenience of the County and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

E. Specifications

The Technical Specifications consist of three parts: General, Products and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.

F. Intent

All work called for in the Specifications applicable to this Contract, but not shown on the Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Plans or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.

The inclusion of the Related Requirements (or work specified elsewhere) in the General part of the specifications is only for the convenience of the Contractor, and shall not be interpreted as a complete list of related Specification Sections.

**1.03 MATERIALS AND EQUIPMENT**

A. Manufacturer

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the County, that the manufacturer or subcontractor deal directly with the County. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.

Any two or more pieces or material or equipment of the same kind, type or classification, and being used for identical types of services, shall be made by the same manufacturer.

B. Delivery

The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete the work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.

C. Tools and Accessories

The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified.

Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

D. Installation of Equipment.

The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.

Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the County during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.

The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the County and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations.

Grout shall completely fill the space between the equipment base and the foundation. All metal surfaces coming in contact with concrete or grout shall receive a coat of coal tar epoxy equal to Koppers 300M or provide a 1/32-inch neophrene gasket between the metal surface and the concrete or grout.

E. Service of Manufacturer's Engineer

The Contract prices for equipment shall include the cost of furnishing (as required by equipment specifications sections) a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor,

when required, to install, adjust, test and place in operation the equipment in conformity with the Contract Documents. After the equipment is placed in permanent operation by the County, such engineer or superintendent shall make all adjustments and tests required by the County to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the County in the proper operation and maintenance of such equipment.

## 1.04 INSPECTION AND TESTING

### A. General

Inspection and testing of materials will be performed by the County unless otherwise specified.

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Three (3) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the County as a prerequisite for the acceptance of any material or equipment.

If, in the making of any test of any material or equipment, it is ascertained by the County that the material or equipment does not comply with the Contract, the Contractor will be notified thereof and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the County.

Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the County formally takes over the operation thereof.

### B. Costs

All inspection and testing of materials furnished under this Contract will be performed by the County or duly authorized inspection engineers or inspections bureaus without cost to the Contractor, unless otherwise expressly specified.

The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor and such costs shall be deemed to be included in the Contract price.

Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the County for compliance. The Contractor shall reimburse the County for the expenditures incurred in making such tests on materials and equipment which are rejected for non-compliance.

C. Inspections of Materials

The Contractor shall give notice in writing to the County, at least two weeks in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the County will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

D. Certificate of Manufacture

When inspection is waived or when the County so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

E. Shop Tests of Operating Equipment

Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents. No such equipment shall be shipped to the work until the County notifies the Contractor, in writing, that the results of such tests are acceptable.

The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

F. Preliminary Field Tests

As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments and replacements required. The furnishing Contractor shall assist in the preliminary field tests as applicable.

G. Final Field Tests

Upon completion of the work and prior to final payment, all equipment and piping installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.

The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the County. The Supplier shall assist in the final field tests as applicable.

H. Failure of Tests

Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor. The decision of the County as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails to make these corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees of specified requirements, the County, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.

In case the County rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the County may, after the expiration of a period of thirty (30) calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under his Contract.

I. Final Inspection

During such final inspections, the work shall be clean and free from water. In no case will the final pay application be prepared until the Contractor has complied with all requirements set forth and the County has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Document.

**1.05 TEMPORARY STRUCTURES**

A. Temporary Fences

If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the County, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The County shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

**1.06 TEMPORARY SERVICES**

A. First Aid

The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when people are employed on the work.

## **1.07 LINES AND GRADES**

### **A. Grade**

All work under this Contract shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the County. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

### **B. Safeguarding Marks**

The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or removing without authorization such established points, stakes and marks.

The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

### **C. Datum Plane**

All elevations indicated or specified refer to the Mean Sea Level Datum of the NGVD 1929 Datum and/or NAVD 1988.

## **1.08 ADJACENT STRUCTURES AND LANDSCAPING**

### **A. Responsibility**

The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation and reconstruction of such items called for on the Plans or specified shall be included in the various Contract Items and no separate payments will be made therefore. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the County, additional work is deemed necessary to avoid interference with the work, payment therefore will be made as provided for in the General Conditions.

Contractor is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.

Contractor shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions which might be aggravated by open excavation and construction. Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the County. This does not preclude



conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the County.

Prior to the beginning of any excavations, the Contractor shall advise the County of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

**B. Protection of Trees**

1. All trees and shrubs shall be adequately protected by the Contractor with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season and at the sole expense of the Contractor.
2. Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.
3. The County may order the Contractor, for the convenience of the County, to remove trees along the line or trench excavation. If so ordered, the County will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate Contract Items.

**C. Lawn Areas**

Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with new sod.

**D. Restoration of Fences**

Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the County. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or items, or if no specific Item is provided therefore, as part of the overhead cost of the work, and no additional payment will be made therefore.

**1.09 PROTECTION OF WORK AND PUBLIC**

**A. Barriers and Lights**

During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers and lights as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public, in accordance with state and local requirements.

**B. Smoke Prevention**

A strict compliance with ordinances regulating the production and emission of smoke will be required. No open fires will be permitted.

**C. Noise**

The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all engines or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

**D. Access to Public Services**

Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

**E. Dust prevention**

The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the roads and/or construction areas sprinkled with water at all times.

**1.10 CUTTING AND PATCHING**

The Contractor shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the County and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

**1.11 CLEANING**

**A. During Construction**

During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the County, such material, debris, or rubbish constitutes a nuisance or is objectionable. The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

**B. Final Cleaning**

At the conclusion of the work, all equipment, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operating condition.

**1.12 MISCELLANEOUS**

**A. Protection Against Siltation and Bank Erosion**

1. The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage ditches.
2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the County which results from his construction operations.

**B. Protection of Wetland Areas**

The Contractor shall properly dispose of all surplus material, including soil, in accordance with Local, State and Federal regulations. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection or Southwest Florida Water Management District.

**C. Existing Facilities**

The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

**D. Use of Chemicals**

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01010 SUMMARY OF WORK

### PART 1 GENERAL

#### 1.01 WORK COVERED BY CONTRACT DOCUMENTS/REQUIREMENTS INCLUDED

- A. The work included in this contract consists of the replacement of an existing  $\pm 7,200$  LF force main that is made up of sections of 10", 16", and 18" diameter cast iron pipe utilizing horizontal directional drilling (HDD) with HDPE pipe with associated valves, fittings, pavement repair and ARV's. The scope of work shall also included approximately 220 LF of the 16" HDPE pipe to be installed under and across a Florida Department of Transportation right-of-way (Cortez Rd), the preparation of an Erosion Control Plan, a Maintenance of Traffic Plan (MOT), and a force main by-pass system.

The contractor shall provide a temporary force main by-pass system that will keep the existing force main active while the new force main canal crossing is installed. The by-pass system shall be submitted to and approved by the County prior to implementation.

The contractor shall have a MOT Plan prepared by an individual certified to prepare a MOT Plan in the state of Florida that meets or exceeds the requirements of the FDOT Series 600 and/or MUTCD. Any deviations must be signed and sealed by a Professional Engineer registered in the State of Florida. The MOT Plan shall be submitted for review and approval by the Florida Department of Transportation and Manatee County prior to commencement of construction. A copy of the preparer's MOT certification shall be provided with the MOT plan submittal.

- B. The Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Specifications and as shown on the Contract Drawings.
- C. The Contractor shall perform the work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the County.
- D. The Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Documents or not.
- E. It is the intent of these specifications to install a complete sewer system force main; and the Contractor shall furnish everything necessary to do this, whether or not all items are specifically called for in these plans and/or specification

#### 1.02 CONTRACTS

Construct all the Work under a single contract.

#### 1.03 WORK SEQUENCE

- A. All work done under this Contract shall be done with a minimum of inconvenience to the users of the system or facility. The Contractor shall coordinate his work with private property owners such that existing utility services are maintained to all users to the maximum extent possible.

- B. The Contractor shall, if necessary and feasible, construct the work in stages to accommodate the County's use of the premises during the construction period; coordinate the construction schedule and operations with the County's Representative.
- C. The Contractor shall, where feasible, construct the Work in stages to provide for public convenience and not close off public use of any facility until completion of construction to provide alternative usage.

**1.04 CONSTRUCTION AREAS**

- A. The Contractor shall: Limit his use of the construction areas for work and for storage, to allow for:
  - 1. Work by other Contractors.
  - 2. County's Use.
  - 3. Public Use.
- B. Coordinate use of work site under direction of County's Representative.
- C. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- D. Move any stored products under the Contractor's control, which interfere with operations of the County or separate contractor.
- E. Obtain and pay for the use of additional storage of work areas needed for Contractor operations.

**1.05 COUNTY OCCUPANCY**

- A. It is assumed that portions of the Work will be completed prior to completion of the entire Work. Upon completion of construction of each individual facility, including testing, if the County, at its sole discretion, desires to accept the individual facility, the Contractor will be issued a dated certificate of completion and acceptance for each individual facility. The County will assume ownership and begin operation of the individual facility on that date and the three-year guaranty period shall commence on that date. The County has the option of not accepting the entire work as a whole until it is completed, tested and approved by the County.

**1.06 PARTIAL COUNTY OCCUPANCY**

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

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01015 CONTROL OF WORK

### PART 1 GENERAL

#### 1.01 WORK PROGRESS

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

#### 1.02 PRIVATE LAND

The Contractor shall not enter or occupy private land outside of easements, except by permission of the affected property owner.

#### 1.03 WORK LOCATIONS

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

#### 1.04 OPEN EXCAVATIONS

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

#### 1.05 DISTRIBUTION SYSTEMS AND SERVICES

- A. The Contractor shall avoid interruptions to water, telephone, cable TV, sewer, gas, or other related utility services. He shall notify the County and the appropriate agency well in advance of any requirement for dewatering, isolating, or relocating a section of a utility, so that necessary arrangements may be made.
- B. If it appears that utility service will be interrupted for an extended period, the County may order the Contractor to provide temporary service lines at the Contractor's expense.

Inconvenience of the users shall be kept to the minimum, consistent with existing conditions. The safety and integrity of the systems are of prime importance in scheduling work.

#### **1.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES**

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

#### **1.07 TEST PITS**

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

#### **1.08 CARE AND PROTECTION OF PROPERTY**

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

- C. Along the location of this work, all fences, walks, bushes, trees, shrubbery and other physical features shall be protected and restored in a thoroughly workmanlike manner unless otherwise shown on the drawings. Fences and other features removed by the Contractor shall be replaced in the location indicated by the County as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regraded and sodded to equal or exceed original conditions.
- D. Trees close to the work which drawings do not specify to be removed, shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification to the County. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting and painting according to approved methods, using only approved tools and materials.
- E. The protection, removal and replacement of existing physical features along the line of work shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Bid.

#### **1.09 MAINTENANCE OF TRAFFIC**

- A. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the County.
- B. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other safety measures which are satisfactory to the County.
- C. Any changes to the traffic pattern require a Traffic Control Plan as detailed in section 01570 of this specification..

#### **1.10 WATER FOR CONSTRUCTION PURPOSES**

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

#### **1.11 MAINTENANCE OF FLOW**

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



**1.12 CLEANUP**

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

**1.13 COOPERATION WITHIN THIS CONTRACT**

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

**1.14 PROTECTION OF CONSTRUCTION AND EQUIPMENT**

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.
- B. All structures shall be protected in a manner approved by the County. Should any of the floors or other parts of the structures become heaved, cracked, or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor, at his own expense and to the satisfaction of the County. If, in the final inspection of the work, any defects, faults, or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the warranty period described in the Contract.
- C. Further, the Contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the County.

**1.15 CONSTRUCTION WITHIN RIGHT-OF-WAY**

Where pipe lines are installed within FDOT right-of-way, all excavation backfill and compaction for the purpose of reconstructing roadways and/or adjacent slopes contiguous thereto shall be in accordance with FDOT or Manatee County Standards and Specifications, whichever is applicable. Contractor shall satisfy the authorized representative of the FDOT with respect to proper safety procedures, construction methods, required permitting, etc., within the FDOT right-of-way.

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

**END OF SECTION**

## **SECTION 01030 SPECIAL PROJECT PROCEDURES**

### **PART 1 GENERAL**

#### **1.01 PERMITS**

Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the County to do the work from the appropriate governmental agency or agencies. No work shall commence until all applicable permits have been obtained and copies delivered to the County. The costs for obtaining all permits shall be borne by the Contractor.

#### **1.02 CONNECTIONS TO EXISTING SYSTEM**

The Contractor shall perform all work necessary to locate, excavate and prepare for connections to the existing systems all as shown on the Drawings or where directed by the County. The cost for this work and for the actual connection shall be included in the price bid for the project and shall not result in any additional cost to the County. The termination point for each contract shall be as shown on the Contract Drawings.

#### **1.03 RELOCATIONS**

The Contractor shall be responsible for the coordination of the relocation of structures, including but not limited to light poles, power poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. No relocation of the items under this Contract shall be done without approval from the County.

#### **1.04 EXISTING UNDERGROUND PIPING, STRUCTURES AND UTILITIES**

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines as to avoid damage to the existing lines.
- B. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice.
- C. The existing utility locations are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered. The Contractor shall be responsible for notifying the various utility companies to locate their respective utilities in advance of construction in conformance with all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).
- D. The existing piping and utilities that interfere with new construction shall be rerouted as shown, specified, or required. Before any piping and utilities not shown on the Drawings are disturbed, the Contractor shall notify the County and shall provide suggestions on how best to resolve the issue.

- E. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities which do not interfere with complete work shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at his expense as directed by the County.
- F. It is intended that wherever existing utilities such as water, sewer, gas, telephone, electrical, or other service lines must be crossed, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated in the Drawings. However, when in the opinion of the County this procedure is not feasible, he may direct the use of fittings for a utilities crossing as detailed on the Drawings. No deflections will be allowed in gravity sanitary sewer lines or in existing storm sewer lines.

**1.05 SUSPENSION OF WORK DUE TO WEATHER**

Refer to FDOT Standards and Specifications Book, Section 8.

**1.06 HURRICANE PREPAREDNESS PLAN**

- A. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the County a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the County in case of a hurricane warning.
- B. In the event of inclement weather, or whenever County shall direct, Contractor shall insure that he and his Subcontractors shall carefully protect work and materials against damage or injury from the weather. If, in the opinion of the County, any portion of work or materials is damaged due to the failure on the part of the Contractor or Subcontractors to protect the work, such work and materials shall be removed and replaced at the expense of the Contractor.

**1.07 POWER SUPPLY**

Electricity as may be required for construction and permanent power supply shall be secured and purchased by the Contractor.

**1.08 SALVAGE**

Any existing equipment or material, including, but not limited to, valves, pipes, fittings, couplings, etc., which is removed or replaced as a result of construction under this project may be designated as salvage by the County and if so shall be protected for a reasonable time until picked up by the County. Any equipment or material not worthy of salvaging, as directed by the County, shall be disposed of by the Contractor at no additional cost.

**1.09 DEWATERING**

- A. The Contractor shall do all groundwater pumping necessary to prevent flotation of any part of the work during construction operations with his own equipment.
- B. The Contractor shall pump out water and wastewater which may seep or leak into the excavations for the duration of the Contract and with his own equipment. He shall dispose of this water in an appropriate manner.

## 1.10 ADDITIONAL PROVISIONS

- A. Before commencing work on any of the existing pipelines, structures or equipment, the Contractor shall notify the County, in writing, at least 10 calendar days in advance of the date he proposes to commence such work.
- B. The Contractor shall provide, at his own expense, all necessary temporary facilities for access to and for protection of, all existing facilities. The County's personnel must have ready access at all times to the existing facilities. The Contractor is responsible for all damage to existing structures, equipment and facilities caused by his construction operations and must repair all such damage when and as ordered by the County.

## 1.11 CONSTRUCTION CONDITIONS

The Contractor shall strictly adhere to the specific requirements of the governmental unit(s) and/or agency(ies) having jurisdiction over the work. Wherever there is a difference in the requirements of a jurisdictional body and these Specifications, the more stringent shall apply.

## 1.12 PUBLIC NUISANCE

- A. The Contractor shall not create a public nuisance including but not limited to encroachment on adjacent lands, flooding of adjacent lands, excessive noise or dust.
- B. Sound levels must meet Manatee County Ordinance #87-34, (which amends Ordinance 81-3, The Manatee County Noise Control Ordinance). Sound levels in excess of such ordinance are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the County for excessive noise shall not relieve the Contractor of the other portions of this specification.
- C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

## 1.13 WARRANTIES

- A. All material supplied under these Specifications shall be warranted by the Contractor and the manufacturers for a period of three (3) years. Warranty period shall commence on the date of County acceptance.
- B. The material shall be warranted to be free from defects in workmanship, design and materials. If any part of the system should fail during the warranty period, it shall be replaced at no expense to the County. All material and installation costs shall be 100% borne by the Contractor.
- C. The manufacturer's warranty period shall run concurrently with the Contractor's warranty or guarantee period. No exception to this provision shall be allowed. The Contractor shall be responsible for obtaining warranties from each of the respective suppliers or manufacturers for all the material specified under these contract specifications,
- D. In the event that the manufacturer is unwilling to provide a three-year warranty commencing at the time of County acceptance, the Contractor shall obtain from the manufacturer a four (4) year warranty starting at the time of equipment delivery to the job

site. This four-year warranty shall not relieve the Contractor of the three-year warranty starting at the time of County acceptance of the equipment.

**1.14 FUEL STORAGE & FILLING**

- A. If the contractor is storing fuel on site, or doing his own fuel filling of portable equipment (other than hand-held equipment), he is responsible for any required response, clean-up or reporting required, at no additional cost to the county.
- B. The Contractor shall prepare and submit a fuel storage / spill abatement plan prior to start of construction if required.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01045 CUTTING AND PATCHING

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the work or to:
1. Make its several parts fit together properly.
  2. Uncover portions of the work to provide for installation of ill-timed work.
  3. Remove and replace defective work.
  4. Remove and replace work not conforming to requirements of Contract Documents.
  5. Provide penetrations of non-structural surfaces for installation of piping and electrical conduit.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

Comply with specifications and standards for each specific product involved.

### PART 3 EXECUTION

#### 3.01 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to County. Do not proceed with work until County has provided further instructions.

#### 3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value to integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work and maintain excavations free from water.

#### 3.03 PERFORMANCE

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute excavating and backfilling by methods which will prevent settlement or damage to other work.

- C. Fit and adjust products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- D. Restore work which has been cut or removed; install new products to provide completed work in accordance with the requirements of the Contract Documents.
- E. Replace surfaces airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.

**END OF SECTION**

## **SECTION 01050 FIELD ENGINEERING AND SURVEYING**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

- A. The Contractor shall provide and pay for field surveying service required for the project.
- B. The Contractor shall furnish and set all necessary stakes to establish the lines and grades as shown on the Contract Drawings and layout each portion of the Work of the Contract.

#### **1.02 QUALIFICATION OF SURVEYOR AND ENGINEER**

All construction staking shall be conducted by or under the supervision of a Florida Registered Professional Surveyor and Mapper. The Contractor shall be responsible for the layout of all such lines and grades, which will be subject to verification by the County.

#### **1.03 SURVEY REFERENCE POINTS**

- A. Existing basic horizontal and vertical control points for the Project are designated on the Contract Drawings.
- B. Locate and protect all survey monumentation, property corners and project control points prior to starting work and preserve all permanent reference points during construction. All costs associated with the replacement of all survey monumentation, property corners and project control points shall be borne by the Contractor.

Make no changes or relocations without prior written notice to County.

Report to County when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

Require surveyor to replace project control points which may be lost or destroyed.

Establish replacements based on original survey control.

#### **1.04 PROJECT SURVEY REQUIREMENTS**

The Contractor shall establish temporary bench marks as needed, referenced to data established by survey control points.

#### **1.05 RECORDS**

The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings per Section 01720.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



## SECTION 01090 REFERENCE STANDARDS

### PART 1 GENERAL

#### 1.01 REQUIREMENTS

Abbreviations and acronyms used in Contract Documents to identify reference standards.

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes established stricter standards.
- B. Publication Date: The most recent publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

#### 1.03 ABBREVIATIONS, NAMES AND ADDRESSES OR ORGANIZATIONS

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

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

|               |   |
|---------------|---|
| ASME          | American Society of Mechanical Engineers<br>345 East 47th Street<br>New York, NY 10017  |
| ASTM          | American Society for Testing and Materials<br>1916 Race Street<br>Philadelphia, PA 19103  |
| AWWA          | American Water Works Association<br>6666 West Quincy Avenue<br>Denver, CO 80235   |
| AWS           | American Welding Society<br>2501 N.W. 7th Street<br>Miami, FL 33125   |
| CRSI          | Concrete Reinforcing Steel Institute<br>180 North LaSalle Street, Suite 2110<br>Chicago, IL 60601   |
| FDEP          | Florida Department of Environmental Protection<br>3900 Commonwealth Blvd.<br>Tallahassee, Florida 32399   |
| FDOT          | Florida Department of Transportation Standards Specifications for Road<br>and Bridge Construction<br>Maps & Publication Sales - Mail Station 12<br>605 Suwannee St.<br>Tallahassee, FL 32399-0450 |
| FS            | Federal Specification<br>General Services Administration Specifications and Consumer Information<br>Distribution Section (WFSIS)<br>Washington Navy Yard, Bldg. 197<br>Washington, DC 20407       |
| MCPW UTIL STD | Manatee County Utility Engineering<br>4410-B 66th St. W.<br>Bradenton, FL 34210   |
| MLSFA         | Metal Lath/Steel Framing Association<br>221 North LaSalle Street<br>Chicago, IL 60601   |
| MMA           | Monorail Manufacturer's Association<br>1326 Freeport Road<br>Pittsburgh, PA 15238   |
| NAAMM         | National Association of Architectural Metal Manufacturers<br>221 North LaSalle Street<br>Chicago, IL 60601  |
| NEMA          | National Electrical Manufacturer's Assoc.   |

2101 L Street N.W.  
Washington, DC 20037

- OHSA Occupational Safety and Health Assoc.  
5807 Breckenridge Pkwy., Suite A  
Tampa, FL 33610-4249
- PCA Portland Cement Association  
5420 Old Orchard Road  
Skokie, IL 20076
- PCI Prestressed Concrete Institute  
20 North Wacker Drive  
Chicago, IL 60606
- SDI Steel Door Institute  
712 Lakewood Center North  
Cleveland, OH 44107
- SMACNA Sheet Metal and Air Conditioning Contractor's National Association  
8224 Old Court House Road  
Vienna, VA 22180
- SSPC Steel Structures Painting Council  
402 24<sup>th</sup> Street, Suite 600  
Pittsburgh, PA 15213
- SWFWMD Southwest Florida Water Management District  
2379 Broad Street  
Brooksville, FL 34604-6899
- UL Underwriter's Laboratories, Inc.  
333 Pfingston Road  
Northbrook, IL 60062

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01150 MEASUREMENT AND PAYMENT**

### **PART 1 GENERAL**

#### **1.01 SCOPE**

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

#### **1.02 ESTIMATED QUANTITIES**

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The County does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

#### **1.03 WORK OUTSIDE AUTHORIZED LIMITS**

No payment will be made for work constructed outside the authorized limits of work.

#### **1.04 MEASUREMENT STANDARDS**

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

#### **1.05 AREA MEASUREMENTS**

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

#### **1.06 LUMP SUM ITEMS**

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

#### **1.07 UNIT PRICE ITEM**

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the

work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Replacement of unpaved roadways, and shrubbery plots.
7. Cleanup and miscellaneous work.
8. Foundation and borrow materials, except as hereinafter specified.
9. Testing and placing system in operation.
10. Any material and equipment required to be installed and utilized for the tests.
11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
12. Maintaining the existing quality of service during construction.
13. Maintaining or detouring of traffic.
14. Appurtenant work as required for a complete and operable system.
15. Seeding and hydromulching.
16. As-built Record Drawings.

#### **BID ITEM NO. 1: CURB REPLACEMENT**

Measurement shall be per linear feet of curb replacement.

Payment will be for the actual linear feet and type of curbing installed and accepted. Curb replacement shall match the existing curb and shall be constructed in accordance with the latest FDOT Specifications, Section 520, and the latest Manatee County Transportation Department Highway and Drainage Standards. Payment shall represent full compensation for all labor, material and equipment required for the curb replacement.

The unit bid price shall include, but is not limited to, removal, proper disposal, compaction, forming, reinforcement, furnishing, placing the concrete, finishing as specified and all incidentals necessary to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

#### **BID ITEM NOS. 2 AND 3: ASPHALT PAVEMENT RESTORATION**

Measurement shall be per square yards of asphalt pavement restoration. Payment will be for the actual square yards of pavement restoration installed and accepted.

Payment will include complete restoration of the roadway section in accordance with the latest Manatee County Transportation Department Highway and Drainage Standards and FDOT Specifications for Road and Bridge Construction.

The unit bid price shall include, but is not limited to, all required items, including base, subbase, milling, asphalt overlay, prime and tack coats, labor, materials and equipment,

testing and incidentals necessary to complete these bid items, ready for approval and acceptance by the Engineer/Owner. Also included in the bid item is the replacement of all existing roadway striping that was removed as part of the installation and completion of this project. Striping material shall match existing in all aspects.

#### **BID ITEM NO. 4: CONCRETE SIDEWALK REPLACEMENT**

Measurement shall be per square yards of concrete sidewalk replacement.

Concrete sidewalk replacement shall be replaced in accordance with the latest Manatee County Transportation Department Highway and Drainage Standards.

Payment will be for the actual square yards of concrete sidewalk installed and accepted.

The unit bid price shall include, but is not limited to, all labor, materials and equipment, cutting joints, reinforcing, finishing, testing and incidentals necessary to complete this bid item, ready for approval and acceptance by the Engineer/Owner.

#### **BID ITEM NO. 5: SODDING, BAHIA**

Measurement shall be per square yards of sod.

Payment will be per actual quantity of square yards of sod installed and accepted.

The unit bid price shall include, but is not limited to, all labor, materials, necessary equipment, and incidentals necessary to complete this bid item, ready for approval and acceptance by the Engineer/Owner.

#### **BID ITEM NO. 6: FENCE REPAIR**

Payment will be per actual quantity of fence furnished and installed.

Measurement shall be the length of fence installed, including all posts, panels, gates, hardware, top rail, post caps, tension wire, barbed wire, etc to completely replace the existing fence. A fence segment is defined as a section of fencing which includes a line post and a running length of 10 feet. Partial segments may be allowed, depending on the specific job.

The unit bid price shall include, but is not limited to, all labor, materials, necessary equipment, and incidentals necessary to complete this bid item, ready for approval and acceptance by the Engineer/Owner.

#### **BID ITEM NOS. 7 THRU 10: GROUT FILL ABANDONED PIPE (FLOWABLE FILL)**

Measurement shall be per cubic yard of grout fill.

Payment will be per actual quantity of cubic yards of grout fill furnished, installed and accepted in any size of pipe, abandoned and left in place.

The unit bid price shall include, but is not limited to, capping, cleaning, labor, materials, sludge removal and disposal, equipment for mixing and placing the grout and all incidentals necessary to complete this bid item, ready for approval and acceptance by the Engineering/Owner.

#### **BID ITEM NO. 11: REMOVE EXISTING VALVE**

Measurement shall be per each existing valve removed.

Payment will be according to the size of valve removed as listed on the Bid Form.

The unit bid price shall include, but is not limited to, removal and proper disposal of any valve, as noted to be removed on the plans, all labor, materials and equipment required to complete these bid items ready for approval and acceptance by the Engineer/Owner.

#### **BID ITEM NOS. 12 THRU 20: PIPE**

Measurement for the quantity of pipe to be paid for under these Bid Items shall be the length in linear feet of pipe measured along the centerline of pipe through valves, fittings and manholes, in place, completed and accepted. Installation shall be by open-cut or directional drill.

Payment will be according to the type of pipe installed (PVC, ductile iron or HDPE), diameter of pipe and the depth of pipe as listed on the Bid Form. The depth of pipe shall be measured from the top of the trench to the top of the installed pipe at the center of pipe.

The unit bid price shall include, but is not limited to, furnishing and installing all pipe; temporary blow-offs for disinfecting pipe; and materials above or below ground along pipeline alignment; joints and jointing materials; field layout; bracing, shoring and sheeting; excavation, including rock; dewatering, clearing, grubbing, stripping, and trenching, including exploratory excavation; detectable tape; detector wire; bedding, backfill and compaction; chlorinating; constructing the specified protection and adjusting of existing aboveground and underground utilities and service connections; polyethylene encasement; butt fusion welds; drilling fluid disposal; thrust blocking; disposal of spoil; hydrostatic testing; labor, equipment and materials required and all other related and necessary items required to complete these bid items, ready for approval and acceptance by the Engineer/Owner. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement. Site restoration, traffic control, erosion control, services, fittings, joint restraints and pipe adapters paid under separate bid items. This bid items shall also include the removal of the old ductile iron pipe canal crossing and the furnishing, install/replace, and connection of the new ductile iron pipe canal crossing to the newly installed HDPE pipe.

#### **BID ITEM NO. 21: PRECAST CONCRETE MANHOLE (DOGHOUSE)**

Measurement shall be per traffic bearing manhole with top ring and cover, furnished, installed and accepted.

Payment will be according to the inside diameter of the manhole as listed on the Bid Form.

The unit bid price shall include, but is not limited to, information in detail US-10, dewatering, excavation, including rock excavation, backfill, compaction, sheeting, removal of unsuitable material, furnishing and installing frame and cover, liner, invert construction, protective coatings, outside drop connections if applicable, sealing of lift holes, rainwater protector, seals, testing and any and all other items necessary to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

## **BID ITEM NO. 22: FITTINGS**

Measurement shall be per weight in pounds for Ductile Iron, PVC and HDPE pipe fittings. The quantity to be paid for under this item is the weight in pounds of fittings as denoted in the manufacturer's catalogues.

Payment will be according to the weight and the type of each fitting as listed on the Bid Form.

The unit bid price shall include, but is not limited to, furnishing and installing tees, crosses, bends, sleeves, plugs, caps, reducers, increasers, couplings; all fittings and materials above or below ground along the pipeline alignment; restraints, and jointing materials; bolts, nuts, washers, gaskets, coating, lining, excavation, including rock; thrust blocking; bracing, shoring, and sheeting; dewatering, clearing, grubbing, and stripping; trenching, bedding and backfill; constructing the specified protection and adjusting of existing aboveground and underground utilities and service connections; disposal of spoil; hydrostatic testing; and all other related and necessary materials, labor and equipment required to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

## **BID ITEM NOS. 23 THRU 26: PIPE ADAPTERS**

Measurement shall be per each pipe adapter used in connecting different types and materials of pipe. The quantity to be paid for under these bid items is the number of pipe adapters furnished, installed and accepted.

Payment will be according to the size of pipe adapter, as listed on the Bid Form.

The unit bid price shall include, but is not limited to, furnishing and installing all pipe adapters above or below ground along the pipeline alignment, excavation, bracing, shoring, sheeting, dewatering, clearing, grubbing, stripping, bedding, backfill, disposal of spoil, bolts, nuts, washers, pipe stiffeners, hydrostatic testing and any other related and necessary materials, labor and equipment required to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

## **BID ITEM NOS. 27 THRU 30: VALVES**

Measurement shall be per each valve, furnished and installed.

Payment will be according to the size and type of valve, as listed on the Bid Form.

The unit bid price shall include, but is not limited to, valves, valve boxes and covers, concrete pad, identification disc, extension stems, cutting, adapters, gaskets, jointing materials, connectors, pipe sleeves, detector wire, excavation, including rock, backfill, dewatering, sheeting, shoring, and any other related and necessary materials, labor and equipment required to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

## **BID ITEM NOS. 31: AIR RELEASE VALVE, ABOVE GROUND**

Measurement shall be per each air release valve furnished and installed.

Payment will be according to the size of the air release valve, as listed on the Bid Form.

The unit bid price shall include, but is not limited to, dewatering, excavation, including rock



excavation, valve inclusive of tapping saddle, shutoff valve and nipples, concrete pad, bedding, backfill, compaction, testing, core drilling manhole (if required), and any other related and necessary materials, labor, and equipment required to complete these bid items, ready for approval and acceptance by the Engineer/Owner. Manhole or stainless steel cabinet shall be paid under separate bid item.

**BID ITEM NO. 32: AIR RELEASE VALVE FIBERGLASS CABINET**

Measurement shall be per each fiberglass cabinet used on aboveground air release valves

Payment will be according to the quantity of cabinets installed.

The unit bid price shall include, but is not limited to, all hardware, pad, anchorage, excavation, and any other related and necessary materials, labor, and equipment required to complete this bid item, ready for approval and acceptance by the Engineer/Owner.

**BID ITEM NOS. 33 THRU 35: BY-PASS PUMPING SYSTEM**

Payment for all labor, material, and equipment included in the Bid Item will be made at the applicable Contract lump sum price bid and will be according to the maximum flow and maximum head required as listed on the Bid Form.

The lump sum bid price shall include, but is not limited to, pumps, piping, temporary lines, vacuum trucks, anchors, barricades, noise abatement procedures, and all other related and necessary materials, labor and equipment required to complete these bid items, ready for approval and acceptance by the Engineer/Owner.

**BID ITEM NO. 36: BY-PASS PUMPING SYSTEM OPERATOR**

Payment for all labor, material, and equipment included in the Bid Item will be made at the applicable Contract lump sum price bid for 24-hour monitoring and/or maintenance by qualified personnel of the by-pass pumping system required for flows at or over 750 GPM as listed on the lift station information spreadsheet maintained by the Lift Station Supervisor.

**BID ITEM NO. 37: MAINTENANCE OF TRAFFIC PLAN, SIGNAGE & BARRICADES TO FDOT STANDARDS**

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum price bid for preparing and implementing all traffic control plans required by FDOT and the County, including supply of all traffic control devices, signs, flagmen, barricades, detours, temporary signal re-timing, temporary striping, traffic barriers for directional drilling and/or jack & bore excavation, and other measures. The contractor shall have a MOT Plan prepared by an individual certified to prepare a MOT Plan in the state of Florida that meets or exceeds the requirements of the FDOT Series 600 and/or MUTCD. Any deviations must be signed and sealed by a Professional Engineer registered in the State of Florida and submitted to the FDOT and the County for approval. The MOT plan shall be submitted to the County and FDOT for review and approval at least thirty (30) days prior to implementation. Payment shall represent full compensation for all labor, materials and equipment for all incidentals necessary for completion of this Bid Item, ready for approval and acceptance by the Engineer/Owner.

**BID ITEM NOS. 38 AND 39: CONNECTION TO EXISTING FORCE MAIN**

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per each connection to existing water main as specified, acceptably furnished and installed as shown on the Contract Drawings or where directed by the Project Representative. Measurement will be based on each complete connection made and accepted. The work for this item includes but is not limited to all non- DI fittings, bolts, gaskets, thrust blocking, pipe restraints, excavation, backfill, couplings, adapters, and materials except where specifically included in other pay items. Payment shall represent full compensation for all labor, materials, equipment, testing and disinfection necessary to complete this Bid Item, ready for approval and acceptance by the Engineer/Owner.

**BID ITEM NO. 40: TEMPORARY 18" FORCE MAIN BYPASS JUMPER**

Payment for all work included in these Bid Items will be made at the applicable Contract lump sum price bid for the design, furnishing, installing, and removal of a temporary 18" force main by-pass jumper as required by County and state regulations and as demonstrated on the Contract Drawings. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work. The Contractor shall be responsible for all clean-up, permits, and payments resulting from accidental spills of effluent materials. The Contractor shall submit a report to the County for review and approval at least fourteen (14) days prior to implementation.

**BID ITEM NO. 41: EROSION CONTROL**

Payment for all work included in these Bid Items will be made at the applicable Contract lump sum price bid for preparing an Erosion and Control Plan, furnishing and installing erosion control facilities as required by county and state regulations. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work.

**BID ITEM NO. 42: MOBILIZATION**

Measurement and payment for this Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project and the Contractor's mobilization and demobilization costs as shown in the Bid Form. Mobilization includes, but it not limited to: preparation and movement of personnel, equipment, supplies and incidentals such as safety and sanitary supplies/ facilities

Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%).

Partial payments for this Bid Item will be made in accordance with the following schedule:

| Percent of Original Contract Amount: | Percent Allowable Payment of Mobilization/Demobilization Bid Item Price: |
|--------------------------------------|--|
| 5                                    | 25   |
| 10                                   | 35   |
| 25                                   | 45   |
| 50                                   | 50   |

|     |     |
|-----|-----|
| 75  | 75  |
| 100 | 100 |

These payments will be subject to the standard retainage provided in the Contract. Payment of the retainage will be made after completion of the work and demobilization.

**BID ITEM NO. 43: MISCELLANEOUS WORK AND CLEANUP**

Payment for all work included under this Bid Item shall be made at the Contract lump sum price bid listed in the Bid Form. Partial payments will be based on the breakdown of the Bid Item in accordance with the Schedule of Values submitted by the Contractor and approved by the County. Payment shall also include, but not limited to, full compensation for project photographs, project signs, rubbish and spoil removal, repair, replacement or relocation of all signs, walls, private irrigation systems and related items and any and all other items required to complete the project in accordance with Contract Documents.

**BID ITEM NO. 44: RECORD DRAWINGS**

Payment for all work included under this Bid Item shall be made at the Contract lump sum price bid listed in the Bid Form and shall represent full compensation for all labor, materials and equipment required to generate and provide record drawings approved by the County. Record drawings shall be in strict accordance with Section 14 of the Manatee County Public Work Utility Standards.

**BID ITEM NO. 45: DISCRETIONARY WORK**

Payment for all work under this Bid Item and listed in the Bid Form shall be made only at the County's discretion and written approval in order to satisfactorily complete the project in accordance with the Plans and Specifications.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01152 REQUESTS FOR PAYMENT**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

Submit Applications for Payment to the Project Manager or as directed at the preconstruction meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between County and Contractor.

#### **1.02 FORMAT AND DATA REQUIRED**

- A. Submit payment requests in the form provided by the County with itemized data typed in accordance with the Bid Form.
- B. Provide construction photographs in accordance with Contract Documents.

#### **1.03 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS**

- A. When the County requires substantiating data, Contractor shall submit suitable information with a cover letter.
- B. Submit one copy of data and cover letter for each copy of application.

#### **1.04 PREPARATION OF APPLICATION FOR FINAL PAYMENT**

Fill in application form as specified for progress payments.

#### **1.05 SUBMITTAL PROCEDURE**

- A. Submit applications for payment at the times stipulated in the Agreement.
- B. Number: Three (3) copies of each application; all signed and certified by the Contractor.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01153 CHANGE ORDER PROCEDURES

### PART 1 GENERAL

#### 1.01 DEFINITION

- A. Change Order: Major change in contract scope or time that must be approved and executed by the Board before it becomes effective.
- B. Administrative Change Adjustment: Minor change order under 10% of project cost or 20% time, does not have to be Board approved.
- C. Field Directive Change: Change to contract quantity that does not require a change of scope or time extension.

#### 1.02 REQUIREMENTS INCLUDED

- A. The Contractor shall promptly implement change order procedures:
  - 1. Provide full written data required to evaluate changes.
  - 2. Maintain detailed records of work done on a time-and-material/force account basis.
  - 3. Provide full documentation to County on request.
- B. The Contractor shall designate a member of the Contractor's organization who:
  - 1. Is authorized to accept changes to the Work.
  - 2. Is responsible for informing others in the Contractor's employ of the authorized changes into the Work.

#### 1.03 PRELIMINARY PROCEDURES

- A. Project Manager may initiate changes by submitting a Request to Contractor. Request will include:
  - 1. Detailed description of the change, products, costs and location of the change in the Project.
  - 2. Supplementary or revised Drawings and Specifications.
  - 3. The projected time extension for making the change.
  - 4. A specified period of time during which the requested price will be considered valid.
  - 5. Such request is for information only and is not an instruction to execute the changes, nor to stop work in progress.
- B. Contractor may initiate changes by submitting a written notice to the Project Manager, containing:
  - 1. Description of the proposed changes.
  - 2. Statement of the reason for making the changes.
  - 3. Statement of the effect on the Contract Sum and the Contract Time.
  - 4. Statement of the effect on the work of separate contractors.
  - 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

**1.04 FIELD DIRECTIVE CHANGE**

- A. In lieu of a Change Order, the Project Manager may issue a Field Directive change for the Contractor to proceed with additional work within the original intent of the Project.
- B. Field Directive change will describe changes in the work, with attachments of backup information to define details of the change.
- C. Contractor must sign and date the Field Directive change to indicate agreement with the terms therein.

**1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS**

- A. Support each quotation for a lump sum proposal and for each unit price which has not previously been established, with sufficient substantiating data to allow the County to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations:
  - 1. Labor required.
  - 2. Equipment required.
  - 3. Products required.
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required.
  - 4. Taxes, insurance and bonds.
  - 5. Credit for work deleted from Contract, similarly documented.
  - 6. Overhead and profit.
  - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal.
  - 1. Name of the County's authorized agent who ordered the work and date of the order.
  - 2. Date and time work was performed and by whom.
  - 3. Time record, summary of hours work and hourly rates paid.
  - 4. Receipts and invoices for:
    - a. Equipment used, listing dates and time of use.
    - b. Products used, listing of quantities.
    - c. Subcontracts.

**1.06 PREPARATION OF CHANGE ORDERS**

- A. Project Manager will prepare each Change Order.
- B. Change Order will describe changes in the Work, both additions and deletions, with attachments as necessary to define details of the change.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

**1.07 LUMP SUM/FIXED PRICE CHANGE ORDER**

- A. Project Manager initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by the Contractor, or requests from the County, or both.
- B. Once the form has been completed, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to County for approval. The County will distribute executed copies after approval by the Board of County Commissioners.

**1.08 UNIT PRICE CHANGE ORDER**

- A. Contents of Change Orders will be based on, either:
  - 1. County's definition of the scope of the required changes.
  - 2. Contractor's Proposal for a change, as approved by the County.
  - 3. Survey of completed work.
- B. The amounts of the unit prices to be:
  - 1. Those stated in the Agreement.
  - 2. Those mutually agreed upon between County and Contractor.

**1.09 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/CONSTRUCTION CHANGE AUTHORIZATION**

- A. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- B. County will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- C. County will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- D. County and Contractor will sign and date the Change Order to indicate their agreement therewith.

**1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS**

- A. Periodically revise Schedule of Values and Application for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time. Revise sub schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

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

**END OF SECTION**

## SECTION 01200 PROJECT MEETINGS

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The County shall schedule the pre-construction meeting, periodic progress meetings and special meetings, if required, throughout progress of work.
- B. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

#### 1.02 PRE-CONSTRUCTION MEETING

##### A. Attendance:

- 1. County's Engineer.
- 2. County's Project Manager
- 3. Contractor.
- 4. Resident Project Representative.
- 5. Related Labor Contractor's Superintendent.
- 6. Major Subcontractors.
- 7. Major Suppliers.
- 8. Others as appropriate.

##### B. Suggested Agenda:

- 1. Distribution and discussion of:
  - a. List of major subcontractors.
  - b. Projected Construction Schedules.
  - c. Coordination of Utilities
- 2. Critical work sequencing.
- 3. Project Coordination.
  - a. Designation of responsible personnel.
  - b. Emergency contact persons with phone numbers.
- 4. Procedures and processing of:
  - a. Field decisions.
  - b. Submittals.
  - c. Change Orders.
  - d. Applications for Payment.
- 5. Procedures for maintaining Record Documents.
- 6. Use of premises:
  - a. Office, work and storage areas.
  - b. County's REQUIREMENTS.
- 7. Temporary utilities.
- 8. Housekeeping procedures.
- 9. Liquidated damages.
- 10. Equal Opportunity Requirements.
- 11. Laboratory testing.
- 12. Project / Job meetings: Progress meeting, other special topics as needed.



**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01310 CONSTRUCTION SCHEDULE & PROJECT RESTRAINTS**

### **PART 1 GENERAL**

#### **1.01 GENERAL**

- A. Construction under this contract must be coordinated with the County and accomplished in a logical order to maintain utilization and flow through existing facilities and public properties and rights-of-way and to allow construction to be completed within the time allowed by Contract Documents and in the manner set forth in the Contract.

#### **1.02 CONSTRUCTION SCHEDULING GENERAL PROVISIONS**

- A. No work shall be done between 7:00 p.m. and 7:00 a.m. nor on weekends or legal holidays without written permission of the County. However, emergency work may be done without prior permission.
- B. Night work may be established by the Contractor as regular procedure with the written permission of the County. Such permission, however, may be revoked at any time by the County if the Contractor fails to maintain adequate equipment and supervision for the proper execution and control of the work at night.
- C. Due to potential health hazards and requirements of the State of Florida and the U.S. Environmental Protection Agency, existing facilities must be maintained in operation.
- D. The Contractor shall be fully responsible for providing all temporary piping, plumbing, electrical hook-ups, lighting, temporary structure, or other materials, equipment and systems required to maintain the existing facility's operations. All details of temporary piping and temporary construction are not necessarily shown on the Drawings or covered in the Specifications. However, this does not relieve the Contractor of the responsibility to insure that construction will not interrupt proper facility operations.
- E. The Contractor shall designate an authorized representative of his firm who shall be responsible for development and maintenance of the schedule and of progress and payment reports. This representative of the Contractor shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the commitments of the Contractor's schedule.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL REQUIREMENTS**

- A. The Contractor shall submit a critical path schedule as described herein.
- B. The planning, scheduling, management and execution of the work is the sole responsibility of the Contractor. The progress schedule requirement is established to allow County to review Contractor's planning, scheduling, management and execution of the work; to assist County in evaluating work progress and make progress payments and to allow other contractors to cooperate and coordinate their activities with those of the Contractor.

## 2.02 FORM OF SCHEDULES

- A. Prepare schedules using the latest version of Microsoft Project, or other County approved software, in the form of a horizontal bar chart diagram. The diagram shall be time-scaled and sequenced by work areas. Horizontal time scale shall identify the first work day of each week.
- B. Activities shall be at least as detailed as the Schedule of Values. Activity durations shall be in whole working days. In addition, man-days shall be shown for each activity or tabulated in an accompanying report.
- C. Diagrams shall be neat and legible and submitted on sheets at least 8-1/2 inches by 11 inches suitable for reproduction. Scale and spacing shall allow space for notations and future revisions.

## 2.03 CONTENT OF SCHEDULES

- A. Each monthly schedule shall be based on data as of the last day of the current pay period.
- B. Description for each activity shall be brief, but convey the scope of work described.
- C. Activities shall identify all items of work that must be accomplished to achieve substantial completion, such as items pertaining to Contractor's installation and testing activities; items pertaining to the approval of regulatory agencies; contractor's time required for submittals, fabrication and deliveries; the time required by County to review all submittals as set forth in the Contract Documents; items of work required of County to support pre-operational, startup and final testing; time required for the relocation of utilities. Activities shall also identify interface milestones with the work of other contractors performing work under separate contracts with County.
- D. Schedules shall show the complete sequence of construction by activities. Dates for beginning and completion of each activity shall be indicated as well as projected percentage of completion for each activity as of the first day of each month.
- E. Submittal schedule for shop drawing review, product data, and samples shall show the date of Contractor submittal and the date approved submittals will be required by the County, consistent with the time frames established in the Specifications.
- F. For Contract change orders granting time extensions, the impact on the Contract date(s) shall equal the calendar-day total time extension specified for the applicable work in the Contract change orders.
- G. For actual delays, add activities prior to each delayed activity on the appropriate critical path(s). Data on the added activities of this type shall portray all steps leading to the delay and shall further include the following: separate activity identification, activity description indicating cause of the delay, activity duration consistent with whichever set of dates below applies, the actual start and finish dates of the delay or, if the delay is not finished, the actual start date and estimated completion date.
- H. For potential delays, add an activity prior to each potentially delayed activity on the appropriate critical path(s). Data for added activities of this type shall include alternatives available to mitigate the delay including acceleration alternatives and further show the following: separate activity identification, activity description indicating cause of the

potential delay and activity duration equal to zero work days.

## **2.04 SUPPORTING NARRATIVE**

- A. Status and scheduling reports identified below shall contain a narrative to document the project status, to explain the basis of Contractor's determination of durations, describe the Contract conditions and restraints incorporated into the schedule and provide an analysis pertaining to potential problems and practical steps to mitigate them.
- B. The narrative shall specifically include:
  - 1. Actual completion dates for activities completed during the monthly report period and actual start dates for activities commenced during the monthly report period.
  - 2. Anticipated start dates for activities scheduled to commence during the following monthly report period.
  - 3. Changes in the duration of any activity and minor logic changes.
  - 4. The progress along the critical path in terms of days ahead or behind the Contract date.
  - 5. If the Monthly Status Report indicates an avoidable delay to the Contract completion date or interim completion dates as specified in the Agreement, Contractor shall identify the problem, cause and the activities affected and provide an explanation of the proposed corrective action to meet the milestone dates involved or to mitigate further delays.
  - 6. If the delay is thought to be unavoidable, the Contractor shall identify the problem, cause, duration, specific activities affected and restraints of each activity.
  - 7. The narrative shall also discuss all change order activities whether included or not in the revised/current schedule of legal status. Newly introduced change order work activities and the CPM path(s) that they affect, must be specifically identified. All change order work activities added to the schedule shall conform with the sequencing and Contract Time requirements of the applicable Change Order.
  - 8. Original Contract date(s) shall not be changed except by Contract change order. A revision need not be submitted when the foregoing situations arise unless required by County. Review of a report containing added activities will not be construed to be concurrence with the duration or restraints for such added activities; instead the corresponding data as ultimately incorporated into the applicable Contract change order shall govern.
  - 9. Should County require additional data, this information shall be supplied by Contractor within 10 calendar days.

## **2.05 SUBMITTALS**

- A. Contractor shall submit estimated and preliminary progress schedules (as identified in the Terms and Conditions of the Contract and the General Conditions), monthly status reports, a start-up schedule and an as-built schedule report all as specified herein.
- B. All schedules, including estimated and preliminary schedules, shall be in conformance with the Contract Documents.
- C. The finalized progress schedule discussed in the Contract Documents shall be the first monthly status report and as such shall be in conformance with all applicable specifications contained herein.

- D. Monthly Status Report submittals shall include a time-scaled (days after notice to proceed) diagram showing all contract activities and supporting narrative. The initial detailed schedule shall use the notice to proceed as the start date. The finalized schedule, if concurred with by County, shall be the work plan to be used by the contractor for planning, scheduling, managing and executing the work.
- E. The schedule diagram shall be formatted as above. The diagram shall include (1) all detailed activities included in the preliminary and estimated schedule submittals, (2) calendar days prior to substantial completion, (3) summary activities for the remaining days. The critical path activities shall be identified, including critical paths for interim dates, if possible.
- F. The Contractor shall submit progress schedules with each application for payment.

## **2.06 MONTHLY STATUS REPORTS**

- A. Contractor shall submit detailed schedule status reports on a monthly basis with the Application for Payment. The first such status report shall be submitted with the first Application for Payment and include data as of the last day of the pay period. The Monthly Report shall include a "marked-up" copy of the latest detailed schedule of legal status and a supporting narrative including updated information as described above. The Monthly Report will be reviewed by County and Contractor at a monthly schedule meeting and Contractor will address County's comments on the subsequent monthly report. Monthly status reports shall be the basis for evaluating Contractor's progress.
- B. The "marked-up" diagram shall show, for the latest detailed schedule of legal status, percentages of completion for all activities, actual start and finish dates and remaining durations, as appropriate. Activities not previously included in the latest detailed schedule of legal status shall be added, except that contractual dates will not be changed except by change order. Review of a marked-up diagram by County will not be construed to constitute concurrence with the time frames, duration, or sequencing for such added activities; instead the corresponding data as ultimately incorporated into an appropriate change order shall govern.

## **2.07 STARTUP SCHEDULE**

- A. At least 60 calendar days prior to the date of substantial completion, Contractor shall submit a time-scaled (days after notice to proceed) diagram detailing the work to take place in the period between 60 days prior to substantial completion, together with a supporting narrative. County shall have 10 calendar days after receipt of the submittal to respond. Upon receipt of County's comments, Contractor shall make the necessary revisions and submit the revised schedule within 10 calendar days. The resubmittal, if concurred with by County, shall be the Work Plan to be used by Contractor for planning, managing, scheduling and executing the remaining work leading to substantial completion.
- B. The time-scaled diagram shall use the latest schedule of legal status for those activities completed ahead of the last 60 calendar days prior to substantial completion and detailed activities for the remaining 60-day period within the time frames outlined in the latest schedule of legal status.

- C. Contractor will be required to continue the requirement for monthly reports, as outlined above. In preparing this report, Contractor must assure that the schedule is consistent with the progress noted in the startup schedule.

**2.08 REVISIONS**

- A. All revised Schedule Submittals shall be made in the same form and detail as the initial submittal and shall be accompanied by an explanation of the reasons for such revisions, all of which shall be subject to review and concurrence by County. The revision shall incorporate all previously made changes to reflect current as-built conditions. Minor changes to the approved submittal may be approved at monthly meetings; a minor change is not considered a revision in the context of this paragraph.
- B. A revised schedule submittal shall be submitted for review when required by County.

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01340 SHOP DRAWINGS, PROJECT DATA AND SAMPLES

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the County for review and approval: working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this section called data), and material samples (hereinafter in this section called samples) as are required for the proper control of work, including, but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
- B. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the County. This log should include the following items:
1. Submittal description and number assigned.
  2. Date to County.
  3. Date returned to Contractor (from County).
  4. Status of Submittal (No exceptions taken, returned for confirmation or resubmittal, rejected).
  5. Date of Resubmittal and Return (as applicable).
  6. Date material released (for fabrication).
  7. Projected date of fabrication.
  8. Projected date of delivery to site.
  9. Projected date and required lead time so that product installation does not delay contact.
  10. Status of O&M manuals submitted.

#### 1.03 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check all drawings, data and samples prepared by or for him before submitting them to the County for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the County without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the contract Documents.
- B. Determine and verify:
1. Field measurements.
  2. Field construction criteria.
  3. Catalog numbers and similar data.
  4. Conformance with Specifications and indicate all variances from the Specifications.
- C. The Contractor shall furnish the County a schedule of Shop Drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.

- D. The Contractor shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the County, with No Exceptions Taken or Approved As Noted.
- E. The Contractor shall submit to the County all drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the County receives them.
- F. All material & product submittals, other than samples, may be transmitted electronically as a pdf file. All returns to the contractor will be as a pdf file only unless specifically requested otherwise.
- G. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by County of the necessary Shop Drawings.

#### **1.04 COUNTY'S REVIEW OF SHOP DRAWINGS AND WORKING DRAWINGS**

- A. The County's review of drawings, data and samples submitted by the Contractor shall cover only general conformity to the Specifications, external connections and dimensions which affect the installation.
- B. The review of drawings and schedules shall be general and shall not be construed:
  - 1. As permitting any departure from the Contract requirements.
  - 2. As relieving the Contractor of responsibility for any errors, including details, dimensions and materials.
  - 3. As approving departures from details furnished by the County, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the County finds to be in the interest of the County and to be so minor as not to involve a change in Contract Price or time for performance, the County may return the reviewed drawings without noting any exception.
- D. When reviewed by the County, each of the Shop and Working Drawings shall be identified as having received such review being so stamped and dated. Shop Drawings stamped "REJECTED" and with required corrections shown shall be returned to the Contractor for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the County on previous submissions. The Contractor shall make any corrections required by the County.
- F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the County.
- G. The County shall review a submittal/resubmittal a maximum of three (3) times after which cost of review shall be borne by the Contractor. The cost of engineering shall be equal to the County's actual payroll cost.



- H. When the Shop and Working Drawings have been completed to the satisfaction of the County, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the County.
- I. No partial submittals shall be reviewed. Incomplete submittals shall be returned to the Contractor and shall be considered not approved until resubmitted.

## 1.05 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for material and equipment which become an integral part of the Project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, drawings, setting drawings, schedule drawings, manufacturer's scale drawings and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.
- B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the County and shall bear the Contractor's stamp of approval and original signature as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval and original signature shall be returned to the Contractor for resubmission.
- C. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
  - 1. Number and title of the drawing.
  - 2. Date of Drawing or revision.
  - 3. Name of project building or facility.
  - 4. Name of contractor and subcontractor submitting drawing.
  - 5. Clear identification of contents and location of the work.
  - 6. Specification title and number.
- D. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility of executing the work in accordance with the Contract, even though such drawings have been reviewed.
- E. Data on materials and equipment shall include, without limitation, materials and equipment lists, catalog sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.
- F. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the County along with the required shop drawings. The

installation list shall include at least five installations where identical equipment has been installed and have been in operation for a period of at least one (1) year.

- H. Only the County will utilize the color "red" in marking shop drawing submittals.

## 1.06 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the Contractor's fabrication and erection drawings for structures such as roof trusses, steelwork, precast concrete elements, bulkheads, support of open cut excavation, support of utilities, groundwater control systems, forming and false work; underpinning; and for such other work as may be required for construction of the project.
- B. Copies of working drawings as noted above, shall be submitted to the County where required by the Contract Documents or requested by the County and shall be submitted at least thirty (30) days (unless otherwise specified by the County) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed without specific exceptions by the County, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the County and Engineer shall not have responsibility therefor.

## 1.07 SAMPLES

- A. The Contractor shall furnish, for the review of the County, samples required by the Contract Documents or requested by the County. Samples shall be delivered to the County as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until reviewed by the County.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
  - 2. Full range of color, texture and pattern.
  - 3. A minimum of two samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
  - 1. Name of product.
  - 2. Name of Contractor and Subcontractor.
  - 3. Material or equipment represented.
  - 4. Place of origin.
  - 5. Name of Producer and Brand (if any).
  - 6. Location in project.  
(Samples of finished materials shall have additional markings that will identify them under the finished schedules.)

7. Reference specification paragraph.

- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the County. Review of a sample shall be only for the characteristics or use named in such and shall not be construed to change or modify any Contract requirements.
- E. Reviewed samples not destroyed in testing shall be sent to the County or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the reviewed samples. If requested at the time of submission, samples which failed testing or were rejected shall be returned to the Contractor at his expense.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01370 SCHEDULE OF VALUES

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the County a Schedule of Values allocated to the various portions of the work, within 10 days after date of Notice to Proceed.
- B. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.
- C. The Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

#### 1.02 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Schedule of Values will be considered for approval by County upon Contractor's request. Identify schedule with:
  - 1. Title of Project and location.
  - 2. Project number.
  - 3. Name and address of Contractor.
  - 4. Contract designation.
  - 5. Date of submission.
- B. Schedule of Values shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Follow the table of contents for the Contract Document as the format for listing component items for structures:
  - 1. Identify each line item with the number and title of the respective major section of the specification.
  - 2. For each line item, list sub values of major products or operations under item.
- D. Follow the bid sheets included in this Contract Documents as the format for listing component items for pipe lines.
- E. The sum of all values listed in the schedule shall equal the total Contract sum.

### PART 2 PRODUCTS (NOT USED)

### PART 3 EXECUTION (NOT USED)

END OF SECTION

## SECTION 01380 CONSTRUCTION PHOTOGRAPHS

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall employ a competent photographer to take construction record photographs or perform video, recording including furnishing all labor, materials, equipment and incidentals necessary to obtain photographs and/or video recordings of all construction areas.
- B. Preconstruction record information shall consist of video recordings on digital video disks (DVD).
- C. Construction progress information shall consist of photographs and digital photographs on a recordable compact disc (CD-R).

#### 1.02 QUALIFICATIONS

- A. All photography shall be done by a competent camera operator who is fully experienced and qualified with the specified equipment.
- B. For the video recording, the audio portion should be done by a person qualified and knowledgeable in the specifics of the Contract, who shall speak with clarity and diction so as to be easily understood.

#### 1.03 PROJECT PHOTOGRAPHS

- A. Provide one print of each photograph with each pay application.
- B. Provide one recordable compact disc with digital photographs with each pay application.
- C. Negatives:
  - 1. All negatives shall remain the property of photographer.
  - 2. The Contractor shall require that photographer maintain negatives or protected digital files for a period of two years from date of substantial completion of the project.
  - 3. Photographer shall agree to furnish additional prints to County at commercial rates applicable at time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as an expert witness.
- D. The Contractor shall pay all costs associated with the required photography and prints. Any parties requiring additional photography or prints shall pay the photographer directly.
- E. All project photographs shall be a single weight, color image. All finishes shall be smooth surface and glossy and all prints shall be 8 inches x 10 inches.
- F. Each print shall have clearly marked on the back, the name of the project, the orientation of view, the date and time of exposure, name and address of the photographer and the photographers numbered identification of exposure.

- G. All project photographs shall be taken from locations to adequately illustrate conditions prior to construction, or conditions of construction and state of progress. The Contractor shall consult with the County at each period of photography for instructions concerning views required.

**1.04 VIDEO RECORDINGS**

- A. Video, recording shall be done along all routes that are scheduled for construction. Video, recording shall include full, recording of both sides of all streets and the entire width of easements plus 10 feet on each side on which construction is to be performed. All video recording shall be in full color.
- B. A complete view, in sufficient detail with audio description of the exact location shall be provided.
- C. The engineering plans shall be used as a reference for stationing in the audio portion of the recordings for easy location identification.
- D. Two complete sets of video recordings shall be delivered to the County on digital video disks (DVD) for the permanent and exclusive use of the County prior to the start of any construction on the project.
- E. All video recordings shall contain the name of the project, the date and time of the video, recording, the name and address of the photographer and any other identifying information required.
- F. Construction shall not start until preconstruction video recordings are completed, submitted and accepted by the County. In addition, no progress payments shall be made until the preconstruction video recordings are accepted by the County.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01410 TESTING AND TESTING LABORATORY SERVICES**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

- A. County shall employ and pay for the services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or called out in the Specifications. County may elect to have materials and equipment tested for conformity with the Contract Documents at any time.
1. Contractor shall cooperate fully with the laboratory to facilitate the execution of its required services.
  2. Employment of the laboratory shall in no way relieve the Contractor's obligations to perform the work of the Contract.

#### **1.02 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY**

- A. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on requirements of Contract Documents.
  2. Approve or accept any portion of the Work.
  3. Perform any duties of the Contractor.

#### **1.03 CONTRACTOR'S RESPONSIBILITIES**

- A. Cooperate with laboratory personnel; provide access to Work and/or to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The County may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor and no extra charge to the County shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:
1. To provide access to work to be tested.
  2. To obtain and handle samples at the project site or at the source of the product to be tested.
  3. To facilitate inspections and tests.
  4. For storage and curing of test samples.

- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
  - 1. When tests or inspections cannot be performed due to insufficient notice, Contractor shall reimburse County for laboratory personnel and travel expenses incurred due to Contractor's negligence.
- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the County.
- H. If the test results indicate the material or equipment complies with the Contract Documents, the County shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the contractor shall pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



## **SECTION 01510 TEMPORARY AND PERMANENT UTILITIES**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

The Contractor shall be responsible for furnishing all requisite temporary utilities, i.e., power, water, sanitation, etc. The Contractor shall obtain and pay for all permits required as well as pay for all temporary usages. The Contractor shall remove all temporary facilities upon completion of work.

#### **1.02 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local codes and regulations and with utility company requirements.
- C. Comply with County Health Department regulations.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS, GENERAL**

Materials for temporary utilities may be "used". Materials for electrical utilities shall be adequate in capacity for the required usage, shall not create unsafe conditions and shall not violate requirements of applicable codes and standards.

#### **2.02 TEMPORARY ELECTRICITY AND LIGHTING**

Arrange with the applicable utility company for temporary power supply. Provide service required for temporary power and lighting and pay all costs for permits, service and for power used.

#### **2.03 TEMPORARY WATER**

- A. The Contractor shall arrange with Manatee County Utilities Customer Service office to provide water for construction purposes, i.e., meter, pay all costs for installation, maintenance and removal, and service charges for water used.
- B. The Contractor shall protect piping and fitting against freezing.

#### **2.04 TEMPORARY SANITARY FACILITIES**

- A. The Contractor shall provide sanitary facilities in compliance with all laws and regulations.
- B. The Contractor shall service, clean and maintain facilities and enclosures.

**PART 3 EXECUTION**

**3.01 GENERAL**

- A. The Contractor shall maintain and operate systems to assure continuous service.
- B. The Contractor shall modify and extend systems as work progress requires.

**3.02 REMOVAL**

- A. The Contractor shall completely remove temporary materials and equipment when their use is no longer required.
- B. The Contractor shall clean and repair damage caused by temporary installations or use of temporary facilities.

**END OF SECTION**

## SECTION 01570 TRAFFIC REGULATION

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for providing safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.
- B. The Contractor shall remove temporary equipment and facilities when no longer required, restore grounds to original or to specified conditions.

#### 1.02 TRAFFIC CONTROL

- A. The necessary traffic control shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and detour routes and signage for the duration of the construction period. The Contractor shall utilize the appropriate traffic plan from the FDOT Maintenance of Traffic Standards, Series 600 of the FDOT Roadway & Traffic Design Standards, Latest Edition.
- B. Should there be the necessity to close any portion of a roadway carrying vehicles or pedestrians the Contractor shall submit a Traffic Control Plan (TCP) at least 5 days before a partial or full day closure, and at least 8 days before a multi-day closure. TCP shall be submitted, along with a copy of their accreditation, by a certified IMSA or ATSA Traffic Control Specialist.
  - 1. At no time will more than one (1) lane of a roadway be closed to vehicles and pedestrians without an approved road closure from the County Transportation Department. With any such closings, adequate provision shall be made for the safe expeditious movement of each.
  - 2. All traffic control signs must be in place and inspected at least 1 day in advance of the closure. Multi-day closures notification signs shall be in place at least 3 days in advance of the closure. All signs must be covered when no in effect, and checked twice a day by the Worksite Traffic Supervisor when they are in effect.
- C. The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal preconstruction traffic control scheme. Any such actions shall be performed by the Contractor under the supervision and in accordance with the instructions of the applicable highway department unless otherwise specified.
- D. The Contractor will consult with the County immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project.
- E. The Contractor shall provide ready access to businesses and homes in the project area during construction. The Contractor shall be responsible for coordinating this work with affected homeowners.

- F. When conditions require the temporary installation of signs, pavement markings and traffic barriers for the protection of workers and traffic, the entire array of such devices shall be depicted on working drawings for each separate stage of work. These drawings shall be submitted to the County for review and approval prior to commencement of work on the site.
  
- G. Precast concrete traffic barriers shall be placed adjacent to trenches and other excavations deeper than six inches below the adjacent pavement surface.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01580 PROJECT IDENTIFICATION AND SIGNS**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

- A. Furnish, install and maintain County project identification signs.
- B. Remove signs on completion of construction.
- C. Allow no other signs to be displayed except for traffic control and safety.

#### **1.02 PROJECT IDENTIFICATION SIGN (COUNTY)**

- A. One painted sign, of not less than 32 square feet (3 square meters) area, with painted graphic content to include:
  - 1. Title of Project.
  - 2. Name of County.
  - 3. Names and titles of authorities as directed by County.
  - 4. Prime Contractor.
- B. Graphic design, style of lettering and colors: As approved by the County.
- C. Erect on the site at a lighted location of high public visibility, adjacent to main entrance to site, as approved by the County

#### **1.03 INFORMATIONAL SIGNS**

- A. Painted signs with painted lettering, or standard products.
  - 1. Size of signs and lettering: as required by regulatory agencies, or as appropriate to usage.
  - 2. Colors: as required by regulatory agencies, otherwise of uniform colors throughout project.
- B. Erect at appropriate locations to provide required information.

#### **1.04 QUALITY ASSURANCE**

- A. Sign Painter: Professional experience in type of work required.
- B. Finishes, Painting: Adequate to resist weathering and fading for scheduled construction period.

#### **1.05 PUBLIC NOTIFICATION**

- A. Door Hangers: The Contractor shall generate and distribute door hangers to all residents who will be impacted by project construction.
  - 1. Residents impacted include anyone who resides inside, or within 500 feet of project limits of construction.



**PART 3 EXECUTION**

**3.01 PROJECT IDENTIFICATION SIGN**

- A. Paint exposed surface or supports, framing and surface material; one coat of primer and one coat of exterior paint.
- B. Paint graphics in styles, size and colors selected.

**3.02 MAINTENANCE**

The Contractor shall maintain signs and supports in a neat, clean condition; repair damages to structures, framing or sign.

**3.03 REMOVAL**

The Contractor shall remove signs, framing, supports and foundations at completion of project.

**END OF SECTION**

## **SECTION 01600 MATERIAL AND EQUIPMENT**

### **PART 1 GENERAL**

#### **1.01 REQUIREMENTS INCLUDED**

- A. Material and equipment incorporated into the work:
1. Conform to applicable specifications and standards.
  2. Comply with size, make, type and quality specified, or as specifically approved in writing by the County.
  3. Manufactured and Fabricated Products:
    - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
    - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
    - c. Two or more items of the same kind shall be identical and manufactured by the same manufacturer.
    - d. Products shall be suitable for service conditions.
    - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
  4. Do not use material or equipment for any purpose other than that for which it is specified.
  5. All material and equipment incorporated into the project shall be new.

#### **1.02 MANUFACTURER'S INSTRUCTIONS**

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to County. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with County prior to proceeding. Do not proceed with work without clear instructions.

#### **1.03 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
  2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.



## **1.04 SUBSTITUTIONS AND PRODUCT OPTIONS**

### **Contractor's Options:**

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming one or more products or manufacturers and "or equal", Contractor must submit a request for substitutions of any product or manufacturer not specifically named in a timely manner so as not to adversely affect the construction schedule.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01620 STORAGE AND PROTECTION

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

Provide secure storage and protection for products to be incorporated into the work and maintenance and protection for products after installation and until completion of Work.

#### 1.02 STORAGE

- A. Store products immediately on delivery and protect until installed in the Work, in accord with manufacturer's instructions, with seals and labels intact and legible.
- B. Exterior Storage
  - 1. Provide substantial platform, blocking or skids to support fabricated products above ground to prevent soiling or staining.
    - a. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
    - b. Prevent mixing of refuse or chemically injurious materials or liquids.
- A. Arrange storage in manner to provide easy access for inspection.

#### 1.03 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:
  - 1. State of storage facilities is adequate to provide required conditions.
  - 2. Required environmental conditions are maintained on continuing basis.
  - 3. Surfaces of products exposed to elements are not adversely affected. Any weathering of products, coatings and finishes is not acceptable under requirements of these Contract Documents.
- B. Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.
  - 1. Equipment shall not be shipped until approved by the County. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the County.
  - 2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the County until such time as the equipment is to be installed.
  - 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
  - 4. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate

from lack of use.

5. Lubricants shall be changed upon completion of installation and as frequently as required, thereafter during the period between installation and acceptance.
6. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.

**1.04 PROTECTION AFTER INSTALLATION**

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01700 CONTRACT CLOSEOUT

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the work.

#### 1.02 SUBSTANTIAL COMPLETION

- A. The Contractor shall submit the following items when the Contractor considers the work to be substantially complete:
  - 1. A written notice that the work, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the County shall make an inspection to determine the status of completion.
- C. Project record documents and operations and maintenance manuals must be submitted before the project shall be considered substantially complete.
- D. If the County determines that the work is not substantially complete:
  - 1. The County shall notify the Contractor in writing, stating the reasons.
  - 2. The Contractor shall remedy the deficiencies in the work and send a second written notice of substantial completion to the County.
  - 3. The County shall reinspect the work.
- E. When the County finds that the work is substantially complete:
  - 1. The Engineer shall prepare and deliver to the County a tentative Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a tentative list of the items to be completed or corrected before final payment.
  - 2. The Engineer shall consider any objections made by the County as provided in Conditions of the Contract. When the Engineer considers the work substantially complete, he will execute and deliver to the County a definite Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a revised tentative list of items to be completed or corrected.

#### 1.03 FINAL INSPECTION

- A. When the Contractor considered the work to be complete, he shall submit written certification stating that:
  - 1. The Contract Documents have been reviewed.
  - 2. The work has been inspected for compliance with Contract Documents.
  - 3. The work has been completed in accordance with Contract Documents.
  - 4. The equipment and systems have been tested in the presence of the County's representative and are operational.
  - 5. The work is completed and ready for final inspection.

- B. The County shall make an inspection to verify the status of completion after receipt of such certification.
- C. If the County determines that the work is incomplete or defective:
  - 1. The County shall promptly notify the Contractor in writing, listing the incomplete or defective work.
  - 2. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to County that the work is complete.
  - 3. The County shall reinspect the work.
- D. Upon finding the work to be acceptable under the Contract Documents, the County shall request the Contractor to make closeout submittals.
- E. For each additional inspection beyond a total of three (3) inspections for substantial and final completion due to the incompleteness of the work, the Contractor shall reimburse the County's fees.

**1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO COUNTY**

- A. Project Record Documents (prior to substantial completion).
- B. Operation and maintenance manuals (prior to substantial completion).
- C. Warranties and Bonds.
- D. Evidence of Payment and Release of Liens: In accordance with requirements of General and Supplementary Conditions.
- E. Certification letter from Florida Department of Transportation and Manatee County Department of Transportation, as applicable.
- F. Certificate of Insurance for Products and Completed Operations.
- G. Final Reconciliation, Warranty Period Declaration, and Contractor's Affidavit (Manatee County Project Management Form PMD-9).

**1.05 FINAL ADJUSTMENT OF ACCOUNTS**

- A. Submit a final statement of accounting to the County.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders
    - b. Unit Prices
    - c. Penalties and Bonuses
    - d. Deductions for Liquidated Damages
    - e. Other Adjustments
  - 3. Total Contract Sum, as adjusted.
  - 4. Previous payments.

5. Sum remaining due.

- C. Project Management shall prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

**1.06 FINAL APPLICATION FOR PAYMENT**

Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01710 CLEANING

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

Execute cleaning during progress of the work and at completion of the work, as required by the General Conditions.

#### 1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with all Federal, State and Local codes, ordinances, regulations and anti-pollution laws.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

### PART 3 EXECUTION

#### 3.01 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste materials, rubbish and wind-blown debris, resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

#### 3.02 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

#### 3.03 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

- C. Prior to final completion or County occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that the entire work is clean.

**END OF SECTION**



## SECTION 01720 PROJECT RECORD DOCUMENTS

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. Contractor shall maintain at the site for the County one record copy of:
1. Drawings.
  2. Specifications.
  3. Addenda.
  4. Change Orders and other modifications to the Contract.
  5. County's field orders or written instructions.
  6. Approved shop drawings, working drawings and samples.
  7. Field test records.
  8. Construction photographs.

#### 1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
1. Provide files and racks for storage of documents.
  2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the County.

#### 1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the County.

#### 1.04 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
- C. Do not conceal any work until required information is recorded.
- D. Drawings; Legibly mark to record actual construction:
1. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc. Locations of drainage ditches, swales, water lines and force mains shall be shown every 200 feet (measured along the centerline) or alternate lot lines, whichever is closer. Dimensions at these locations shall indicate

- distance from centerline of right-of-way to the facility.
2. Field changes of dimension and detail.
  3. Changes made by Field Order or by Change Order.
  4. Details not on original contract drawings.
  5. Equipment and piping relocations.
  6. Locations of all valves, fire hydrants, manholes, water and sewer services, water and force main fittings, underdrain cleanouts, catch basins, junction boxes and any other structures located in the right-of-way or easement, shall be located by elevation and by station and offset based on intersection P.I.'s and centerline of right-of-way. For facilities located on private roads, the dimensioning shall be from centerline of paving or another readily visible baseline.
  7. Elevations shall be provided for all manhole rim and inverts; junction box rim and inverts; catch basin rim and inverts; and baffle, weir and invert elevations in control structures. Elevations shall also be provided at the PVI's and at every other lot line or 200 feet, whichever is less, of drainage swales and ditches. Bench marks and elevation datum shall be indicated.
  8. Slopes for pipes and ditches shall be recalculated, based on actual field measured distances, elevations, pipe sizes, and type shown. Cross section of drainage ditches and swales shall be verified.
  9. Centerline of roads shall be tied to right-of-way lines. Elevation of roadway centerline shall be given at PVI's and at all intersections.
  10. Record drawings shall show bearings and distances for all right-of-way and easement lines, and property corners.
  11. Sidewalks, fences and walls, if installed at the time of initial record drawing submittal, shall be located every 200 feet or alternate lot lines, whichever is closer. Dimensions shall include distance from the right-of-way line and the back of curb and lot line or easement line.
  12. Sanitary sewer mainline wyes shall be located from the downstream manhole. These dimensions shall be provided by on-site inspections or televising of the sewer following installation.
  13. Elevations shall be provided on the top of operating nuts for all water and force main valves.
  14. Allowable tolerance shall be  $\pm 6.0$  inches for horizontal dimensions. Vertical dimensions such as the difference in elevations between manhole inverts shall have an allowable tolerance of  $\pm 1/8$  inch per 50 feet (or part thereof) of horizontal distance up to a maximum tolerance of  $\pm 2$  inch.
  15. Properly prepared record drawings on mylar, together with two copies, shall be certified by a design professional (Engineer and/or Surveyor registered in the State of Florida), employed by the Contractor, and submitted to the County.

E. Specifications and Addenda; Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Changes made by field order or by change order.

F. Shop Drawings (after final review and approval):

1. Five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

## **1.05 SUBMITTAL**

- A. Prior to substantial completion and prior to starting the bacteria testing of water lines, deliver signed and sealed Record Documents and Record Drawings to the County. These will be reviewed and verified by the inspector. If there are any required changes or additions, these shall be completed and the entire signed and sealed set resubmitted prior to final pay application.
- B. The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings. Record drawings shall be certified by the professional(s) (Engineer or Surveyor licensed in Florida), as stipulated by the Land Development Ordinance and submitted on signed and sealed paper drawings, signed and dated mylar drawings together with an AutoCAD version on a recordable compact disk (CD).
- C. The CD shall contain media in AutoCad Version 2004 or later, or in any other CAD program compatible with AutoCad in DWG or DXF form. All fonts, line types, shape files or other pertinent information used in the drawing and not normally included in AutoCad shall be included on the media with a text file or attached noted as to its relevance and use.
- D. Accompany submittal with transmittal letter, containing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name and address.
  - 4. Title and number of each Record Document.
  - 5. Signature of Contractor or his authorized representative.

Note: The data required to properly prepare these record drawings shall be obtained at the site, at no cost to the County by the responsible design professional or his/her duly appointed representative. The appointed representative shall be a qualified employee of the responsible design professional or a qualified inspector retained by the responsible design professional on a project-by-project basis.

## **PART 2 STANDARDS**

### **2.01 MINIMUM RECORD DRAWING STANDARDS FOR ALL RECORD DRAWINGS SUBMITTED TO MANATEE COUNTY**

- A. Record drawings shall be submitted to at least the level of detail in the contract documents. It is anticipated that the original contract documents shall serve as at least a background for all record information. Original drawings in CAD format may be requested of the County.
- B. Drawings shall meet the criteria of paragraph 1.04 D above.

## **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01730 OPERATING AND MAINTENANCE DATA

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for County's maintenance and operation of products furnished under Contract.

Prepare operating and maintenance data as specified in this and as referenced in other pertinent sections of Specifications.

- B. Instruct County's personnel in maintenance of products and equipment and systems.
- C. Provide three (3) sets of operating and maintenance manuals for each piece of equipment provided within this Contract.

#### 1.02 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by County's personnel.

- B. Format:

1. Size: 8-1/2 inch x 11 inch
2. Paper: 20 pound minimum, white, for typed pages
3. Text: Manufacturer's printed data or neatly typewritten
4. Drawings:
  - a. Provide reinforced punched binder tab, bind in with text.
  - b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
  - a. Provide typed description of product and major component parts of equipment.
  - b. Provide indexed tabs.
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
  - a. Title of Project.
  - b. Identity of separate structures as applicable.
  - c. Identity of general subject matter covered in the manual.

- C. Binders:

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

#### 1.03 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit three copies of complete manual in final form.
- B. Content for each unit of equipment and system, as appropriate:

1. Description of unit and component parts.
  - a. Function, normal operating characteristics and limiting conditions.
  - b. Performance curves, engineering data and tests.
  - c. Complete nomenclature and commercial number of replaceable parts.
2. Operating Procedures:
  - a. Start-up, break-in, routine and normal operating instructions.
  - b. Regulation, control, stopping, shut-down and emergency instructions.
  - c. Summer and winter operating instructions.
  - d. Special operating instructions.
3. Maintenance Procedures:
  - a. Routine operations.
  - b. Guide to "trouble-shooting".
  - c. Disassembly, repair and reassembly.
  - d. Alignment, adjusting and checking.
4. Servicing and lubricating schedule.
  - a. List of lubricants required.
5. Manufacturer's printed operating and maintenance instructions.
6. Description of sequence of operation by control manufacturer.
7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
  - a. List of predicted parts subject to wear.
  - b. Items recommended to be stocked as spare parts.
8. As installed control diagrams by controls manufacturer.
9. Each contractor's coordination drawings.
  - a. As installed color coded piping diagrams.
10. Charts of valve tag numbers, with location and function of each valve.
11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
12. Other data as required under pertinent sections of specifications.

C. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts.
  - a. Function, normal operating characteristics and limiting conditions.
  - b. Performance curves, engineering data and tests.
  - c. Complete nomenclature and commercial number of replaceable parts.
2. Circuit directories of panelboards.
  - a. Electrical service.
  - b. Controls.
  - c. Communications.
3. As-installed color coded wiring diagrams.
4. Operating procedures:
  - a. Routine and normal operating instructions.
  - b. Sequences required.
  - c. Special operating instructions.
5. Maintenance procedures:
  - a. Routine operations.
  - b. Guide to "trouble-shooting".
  - c. Disassembly, repair and reassembly.
  - d. Adjustment and checking.
6. Manufacturer's printed operating and maintenance instructions.
7. List of original manufacture's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.

8. Prepare and include additional data when the need for such data becomes apparent during instruction of County's personnel.

D. Prepare and include additional data when the need for such data becomes apparent during instruction on County's personnel.

E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

**1.04 SUBMITTAL SCHEDULE**

A. Submit one copy of completed data in final form fifteen days prior to substantial completion.

1. Copy will be returned after substantial completion, with comments (if any).

B. Submit two copies of approved data in final form. Final acceptance will not be provided until the completed manual is received and approved.

**1.05 INSTRUCTION OF COUNTY'S PERSONNEL**

A. Prior to final inspection or acceptance, fully instruct County's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.

B. Operating and maintenance manual shall constitute the basis of instruction.

1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01740 WARRANTIES AND BONDS

### PART 1 GENERAL

#### 1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to County for review and transmittal.

#### 1.02 SUBMITTAL REQUIREMENTS

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

#### 1.03 FORM OF SUBMITTALS

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

**1.04 TIME OF SUBMITTALS**

- A. Make submittals within ten days after date of substantial completion and prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

**1.05 SUBMITTALS REQUIRED**

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

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



## DIVISION 2 SITE WORK

### SECTION 02064 MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

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

#### PART 2 PRODUCTS (NOT USED)

#### PART 3 EXECUTION

##### 3.01 GENERAL

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

work site at his own place of disposal. Operating equipment shall be thoroughly cleaned, lubricated, and greased for protection during prolonged storage.

- G. All alterations to existing utility pipes and structures shall be done at such time and in such manner as to comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.
- H. All workmanship and new materials involved in constructing the alterations shall conform to the General Specifications for the classes of work insofar as such specifications are applicable.
- I. All cutting of existing concrete or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective section of these Specifications covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the Resident Project Representative.
- J. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
- K. Non-shrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.
- L. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, he shall use flanges, or provide Dresser Couplings, all as required.
- M. The Contractor shall provide flumes, hoses, piping and other related items to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of water or other liquids, all as required in the performance of the work under this Contract.
- N. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

### **3.02 CONNECTING TO EXISTING PIPING AND EQUIPMENT**

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

### **3.03 REMOVAL AND ABANDONMENT OF ASBESTOS CEMENT PIPE AND APPURTENANCES**

- A. All work associated with the removal or abandonment of existing asbestos cement pipe and appurtenances shall be performed by a licensed asbestos abatement contractor or subcontractor registered in the State of Florida. After removal of the facilities, all trenches shall be backfilled in accordance with the Contract Documents. The cost of disposing of the removed materials shall be borne by the Contractor.
- B. The asbestos abatement contractor or subcontractor shall contact the appropriate regulatory agencies prior to removal or abandonment of any asbestos material and shall

obtain all required permits and licenses and issue all required notices. The Contractor shall be responsible for all fees associated with permits, licenses and notices to the governing regulatory agencies. An asbestos manifest form must accompany each and every shipment of such pipe or pipe material waste to the Manatee County Lena Road Landfill. Prior to each shipment, a minimum of 24 hours notice to the Landfill field office (Phone #748-5543) is required.

- C. All work associated with removal or abandonment of asbestos cement pipe and appurtenances shall be performed in accordance with the standards listed below and all other applicable local, State, or Federal standards.
  - 1. Florida Administrative Code, Chapter 62-257, "Asbestos Program".
  - 2. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR, Part 61, Subpart M, latest revision.
  - 3. Occupational Safety and Health Act, 29 CFR, 1910.1001 - Asbestos.
  - 4. Title 40 CFR, Part 763, Asbestos.
  - 5. Florida Statute Title XXXII, Chapter 469, Asbestos Abatement.

### **3.04 IN-PLACE GROUTING OF EXISTING PIPE**

- A. Where water and wastewater utility pipes are to be abandoned in place, they shall be filled with a sand/cement grout as specified herein. When such pipes are constructed with asbestos cement materials, the abandonment activities shall be performed by a licensed asbestos abatement contractor as specified in these Specifications.
- B. Grout shall be injected within the pipe sections indicated on the Drawings. The ends of these sections shall be capped and/or plugged. The grouting program shall consist of pumping sand-cement grout with suitable chemical additives at pressures necessary to fill the pipe sections shown on the Drawings to prevent the potential for future collapse.
- C. The pump used for grouting should 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 County. The rate of pumping shall not exceed six (6) cubic feet per minute. The pumping pressures shall be in the range of 100 to 150 psi.
- D. The Contractor shall provide standpipes and/or additional means of visual inspection as required by the County to determine if adequate grout material has filled the entire pipe section(s). The Contractor shall make necessary provisions for the County's representative to monitor all grouting operations.
- E. All pipe to be abandoned shall be capped or plugged with a fitting or material that will prevent soil or other material from entering the pipe. All caps and plugs shall be subject to approval by the County.

**END OF SECTION**

## **SECTION 02100 SITE PREPARATION**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

- A. This Section covers clearing, grubbing and stripping of the project site and/or along the pipeline route.
- B. The Contractor shall clear and grub all of the area within the limits of construction or as required, which includes, but is not limited to utility easements. The width of the area to be cleared shall be reviewed by the County prior to the beginning of any clearing.
- C. The Contractor's attention is directed to any Soil Erosion and Sediment Control Ordinances in force in Manatee County. The Contractor shall comply with all applicable sections of these ordinances.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION**

#### **3.01 CLEARING**

The surface of the ground, for the area to be cleared and grubbed shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, rubbish and all other objectionable obstructions resting on or protruding through the surface of the ground. However, trees shall be preserved as hereinafter specified unless otherwise designated by the County. Clearing operations shall be conducted so as to prevent damage to existing structures and installations and to those under construction, so as to provide for the safety of employees and others. Soil erosion control devices such as hay bales and silt fences shall be installed to satisfy all Federal, State and County requirements.

#### **3.02 GRUBBING**

Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs and any other organic or metallic debris not suitable for foundation purposes, resting on, under or protruding through the surface of the ground to a depth of 18 inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with suitable materials and compacted to a density conforming to the surrounding ground surface.

#### **3.03 STRIPPING**

In areas so designated, topsoil shall be stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. The County shall have the option to receive all excess topsoil materials. The Contractor shall pay all equipment and labor cost to deliver excess top soil material to a remote site chosen by the County within a five mile radius of the construction site. Should County not choose to receive any or all excess topsoil materials, the Contractor shall dispose of said material at no additional cost to County.

**3.04 DISPOSAL OF CLEARED AND GRUBBED MATERIAL**

The Contractor shall dispose of all material and debris from the clearing and grubbing operation by hauling such material and debris off site. The cost of disposal (including hauling) of cleared and grubbed material and debris shall be considered a subsidiary obligation of the Contractor; the cost of which shall be included in the prices bid for the various classes of work.

**3.05 PRESERVATION OF TREES**

Those trees which are not designated for removal by the County shall be carefully protected from damage. The Contractor shall erect such barricades, guards and enclosures as may be considered necessary by him for the protection of the trees during all construction operation.

**3.06 PRESERVATION OF DEVELOPED PRIVATE PROPERTY**

- A. The Contractor shall exercise extreme care to avoid unnecessary disturbance of developed private property adjacent to proposed project site. Trees, shrubbery, gardens, lawns and other landscaping, which are not designated by the County to be removed, shall be replaced and replanted to restore the construction easement to the condition existing prior to construction.
- B. All soil preservation procedures and replanting operations shall be under the supervision of a nursery representative experienced in such operations.
- C. Improvements to the land such as fences, walls, outbuildings and other structures which of necessity must be removed, shall be replaced with equal quality materials and workmanship.
- D. The Contractor shall clean up the construction site across developed private property directly after construction is completed upon approval of the County.

**3.07 PRESERVATION OF PUBLIC PROPERTY**

The appropriate paragraphs of these Specifications shall apply to the preservation and restoration of public lands, parks, rights-of-way, easements and all other damaged areas. This includes, but is not limited to the trimming of trees damaged by contractor's equipment.

**END OF SECTION**

## SECTION 02220 EXCAVATION, BACKFILL, FILL AND GRADING FOR STRUCTURES

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. Structural excavation shall consist of the removal of material for the construction of foundations for structures and other excavation designated on the drawings or in these specifications.
- B. Structural excavation and backfill shall consist of furnishing material, if necessary and placing and compacting backfill material around structures to the lines and grades designated on the drawings, as specified or directed by the County.
- C. Structural excavation and backfill shall include the furnishing of all materials, equipment and other facilities which may be necessary to perform the excavations, place and compact the backfill, install sheeting and bracing, and carry out any necessary dewatering. It shall also include the wasting or disposal of surplus excavated material in a manner and in locations approved by the County.
- D. The Contractor is responsible for the protection of every tree which is scheduled to remain in the project area. This includes trees which may or may not be shown on the plans. Every tree shall be adequately protected in place at no additional cost to the County. This includes, but is not limited to, protecting the root systems and adjusting grades as necessary for tree/root protection.

#### 1.02 QUALITY ASSURANCE

- A. Testing Agency:
  - 1. In place soil compaction tests shall be performed by a qualified testing laboratory.
  - 2. Compaction tests shall be taken every 500 feet, except in the road crossings or road shoulders. Tests are to be taken according to current FDOT Standards.
- B. Reference Standards:
  - 1. American Society for Testing and Materials (ASTM):
    - a. ASTM D1557, Moisture-Density Relations of Soils Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop.

#### 1.03 JOB CONDITIONS

- A. The Contractor shall provide, operate and maintain all necessary pumps, discharge lines, well points, etc., in sufficient number and capacity to keep all excavation, bases, pits, etc., free from seepage, standing or running water at all times throughout the period of construction.
- B. The Contractor shall assume all responsibility for the security of the excavation required, employing bracing, lining or other accepted means necessary to accomplish same.
- C. Excavated areas shall be cleared of all debris, water, slush, muck, clay and soft or loose earth and shall be conditioned to the entire satisfaction of the County.

- D. All excavated material unsuitable for use or which will not be used shall be disposed of in a manner consistent with State and County regulation.
- E. All unsuitable organic materials, roots, logs, etc., found during excavation shall be removed by the Contractor and the trench shall be refilled with suitable material.

## **PART 2 PRODUCTS**

### **2.01 MATERIAL FOR CONTROLLED FILL**

- A. Composition: Only approved material free from organic matter and lumps of clay, shall be used for backfill. Excavated earth free from debris or organic material may be used for backfilling foundations or fill.
- B. Crushed stone and shell shall meet or exceed current FDOT Standards.

### **2.02 UNSUITABLE MATERIAL**

Unsuitable material shall be defined as highly organic soil per ASTM D2487 Group PT. This includes, but is not limited to, such items as topsoil, roots, vegetable matter, trash, debris, and clays that cannot be dried sufficiently to obtain specified compaction.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. The Contractor shall verify that work preceding the affected work of this Section has been satisfactorily completed.
- B. Conditions adversely affecting the work of this Section shall be corrected to the satisfaction of the County.

### **3.02 REMOVAL OF UNSUITABLE MATERIALS**

- A. The Contractor shall remove unsuitable material from within the limits of the Work.
- B. Materials meeting requirements for controlled fill shall be stockpiled as necessary and in such a manner satisfactory to the County.
- C. All material excavated shall be placed so as to minimize interference with public travel and to permit proper access for inspection of the work.

### **3.03 EXCAVATION**

- A. When concrete or shell subbase footing is to rest on an excavated surface, care shall be taken not to disturb the natural soil. Final removal and replacement of the foundation material and subbase compaction to grade shall not be made until just before the concrete or masonry is placed.
- B. When any structural excavation is completed, the Contractor shall notify the County who will make an inspection of the excavation. No concrete or masonry shall be placed until the excavation has been approved by the County.

- C. The elevations of the footing bottom and the base slab as shown on the Drawings, shall be considered as approximate and the County may order in writing, such changes in dimensions or elevations of the footings and slab base as necessary to secure satisfactory foundations.
- D. All excavation shall be made within an area bounded by lines five feet outside and parallel to the exterior walls of the structure to allow for correct forming, shoring and inspection of foundation work. Pouring of concrete against earth side walls shall not be permitted.
- E. If the ground is excavated below the grade called for by the Drawings or becomes unstable due to the Contractor's carelessness or operations, the ground shall be excavated to undisturbed native soil before continuing concreting operations.
- F. If in the opinion of the County, the material at or below the normal grade of the bottom of the trench is unsuitable for pipe or structure foundation, it shall be removed to the depth directed by the County and if so directed, replaced by crushed stone or washed shell.

### **3.04 STRUCTURAL BACKFILL**

- A. Structural backfill shall not be placed until the footings or other portions of the structure or facility have been inspected by the County and approved for backfilling.
- B. A minimum of 1-1/2" layer of lean concrete shall be placed as a working mat for the concrete base slabs and footings if required by the County.
- C. Fill shall be placed in uniform layers not more than 12" thick and compacted to a minimum of 98 percent of the maximum density determined by ASTM D1557, Method A or C, or as directed by the County. The Contractor shall securely tamp the backfill with pneumatic rammer around all wall foundations. The method of compaction shall be satisfactory to the County.
- D. Compaction of structural backfill by ponding and jetting may be permitted when, as determined by the County: the backfill material is of such character that it will be self-draining when compacted; foundation materials will not soften or be otherwise damaged by the applied water; no damage from hydrostatic pressure will result to the structure. Ponding and jetting within two feet below finished subgrade shall not be permitted in roadway areas. At the discretion of the County, ponding and jetting may be permitted with compaction layers not to exceed four feet.
- E. Surplus material not used on-site shall be removed and disposed of off-site by the Contractor. In no case shall surplus material be deposited on adjacent lands. Fill used for grading shall be placed in layers not to exceed 12 inches in thickness and shall be compacted to a density equal or greater to that of the surrounding natural ground.

### **3.05 BACKFILLING AROUND STRUCTURES**

- A. Common fill and structural fill are specified for use as backfill against the exterior walls of the structures. Fill shall be placed in layers having a maximum thickness of eight (8) inches in loose state and shall be compacted sufficiently to prevent settlement. If compaction is by rolling or ramming, material shall be wetted down as required. Where material can be suitably compacted by jetting or puddling, the Contractor may use one of these methods. No boulders shall be allowed to roll down the slopes and hit the walls.



- B. Backfilling shall be carried up evenly on all walls of an individual structure simultaneously. A variation of two (2) feet in elevation will be the maximum allowable. No backfill shall be allowed against walls until the walls and their supporting slabs, if applicable, have attained sufficient strength. Backfilling shall be subjected to approval by the County.
- C. In locations where pipes pass through building walls, the Contractor shall take the following precautions to consolidate the refill up to an elevation of at least one foot above the bottom of the pipes:
  - 1. Place structural fill in such areas for a distance of not less than three feet either side of the center line of the pipe in level layers not exceeding 6-inches in depth.
  - 2. Wet each layer to the extent directed and thoroughly compact each layer with a power tamper to the satisfaction of the County.
  - 3. Structural fill shall be of the quality specified under Part 2 of this Section.
- D. The surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated on the grading plan. No soft spots or uncompacted areas shall be allowed in the work.
- E. Temporary bracing shall be provided as required during construction of all structures to protect partially completed structures against all construction loads, hydraulic pressure and earth pressure. The bracing shall be capable of resisting all loads applied to the walls as a result of backfilling.

**3.06 FIELD QUALITY CONTROL**

- A. The density of soil in place shall be a minimum of 95 percent in accordance with ASTM test 1557-70T, Method A or C.

**END OF SECTION**

## SECTION 02221 TRENCHING, BEDDING AND BACKFILL FOR PIPE

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, fill, grading, trench protection or other related work required to complete the piping work shown on the Drawings and specified herein. The work shall include, but not be limited to: vaults; duct conduit; pipe; roadways and paving; backfilling; required fill or borrow operations; grading; disposal of surplus and unsuitable materials; and all related work such as sheeting, bracing and dewatering.
- B. Prior to commencing work, the Contractor shall examine the site and review test borings if available, or undertake his own subsurface investigations and take into consideration all conditions that may affect his work.
- C. The Contractor is responsible for the protection of every tree which is scheduled to remain in the project area. This includes trees which may or may not be shown on the plans. Every tree shall be adequately protected in place at no additional cost to the County. This includes, but is not limited to protecting the root systems and adjusting grades as necessary for tree/root protection.

#### 1.02 PROTECTION

- A. Sheeting and Bracing in Excavations:
  - 1. In connection with construction of underground structures, the Contractor shall properly construct and maintain cofferdams. These shall consist of: sheeting and bracing as required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction and to protect adjacent structures, existing yard pipe and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
  - 2. Trench sheeting for pipes: no sheeting is to be withdrawn if driven below, mid-diameter of any pipe and no wood sheeting shall be cut off at a level lower than one foot above the top of any pipe unless otherwise directed by the County. During the progress of the work, the County may direct the Contractor in writing to leave additional wood sheeting in place. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given for an alternate method of removal.
  - 3. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, utilities, existing piping, or property. Unless otherwise approved or indicated on the Drawings or in the Specification, all sheeting and bracing shall be removed after completion of the piping or structure, care being taken not to disturb or otherwise injure the pipeline or finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools specifically made for that purpose, by watering, or as may otherwise be directed.
  - 4. The Contractor shall construct, to the extent he deems it desirable for his method of operation, the cofferdams and sheeting outside the neat lines of the pipeline trench or foundation unless otherwise indicated on the Drawings or directed by the

County. Sheeting shall be plumb and securely braced and tied in position. Sheeting, bracing and cofferdams shall be adequate to withstand all pressures to which the pipeline or structure will be subjected. Pumping, bracing and other work within the cofferdam shall be done in a manner to avoid disturbing any construction of the pipeline or the enclosed masonry. Any movement or bulging which may occur shall be corrected by the Contractor at his own expense so as to provide the necessary clearances and dimensions.

5. Drawings of the cofferdams and design computations shall be submitted to the County and approved prior to any construction. However, approval of these drawings shall not relieve the Contractor of the responsibility for the cofferdams. The drawings and computations shall be prepared and stamped by a Registered Professional Engineer in the State of Florida and shall be in sufficient detail to disclose the method of operation for each of the various stages of construction, if required, for the completion of the pipeline and substructures.

#### B. Dewatering, Drainage and Flotation

1. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding rock and limerock base course, in-the-dry. In addition, the Contractor shall make the final 24" of excavation for this work in-the-dry and not until the water level is a minimum of 6" below proposed bottom of excavation.
2. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavation and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
3. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
4. Wellpoints may be required for dewatering the soil prior to final excavation for deeper in-ground structures or piping and for maintaining the lowered groundwater level until construction has been completed to avoid the structure, pipeline, or fill from becoming floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.
5. The Contractor shall furnish all materials and equipment to perform all work required to install and maintain the proposed drainage systems for handling groundwater and surface water encountered during construction of structures, pipelines and compacted fills.
6. Where required, the Contractor shall provide a minimum of two operating groundwater observation wells at each structure to determine the water level during construction of the pipeline or structure. Locations of the observation wells shall be at structures and along pipelines as approved by the County prior to their installation. The observation wells shall be extended to 6 inches above finished grade, capped with screw-on caps protected by 24" x 24" wide concrete base and left in place at the completion of this Project.
7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the County for approval. Such approval shall not relieve the Contractor of the responsibility for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance of natural bearing soils for damage to pipeline or structures caused by an inadequate

dewatering system or by interruption of the continuous operation of the system as specified.

8. As part of his request for approval of a dewatering system, the Contractor shall demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil particles in a one quart sample. Discharge water shall not flow directly into wetlands or Waters of the State as defined by FDEP and SWFWMD.
9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the County.
10. Continuous pumping will be required as long as water levels are required to be below natural levels.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

#### **A. General**

1. Materials for use as fill and backfill shall be described below. For each material, the Contractor shall notify the County of the source of the material and shall furnish the County, for approval, a representative sample weighing approximately 50 pounds, at least ten calendar days prior to the date of anticipated use of such material.
2. Additional materials shall be furnished as required from off-site sources and hauled to the site.

#### **B. Structural Fill**

1. Structural fill in trenches shall be used below spread footing foundations, slab-on-grade floors and other structures as backfill within three feet of the below grade portions of structures.
2. Structural fill material shall be a minimum of 60 percent clean sand, free of organic, deleterious and/or compressible material. Minimum acceptable density shall be 98 percent of the maximum density as determined by AASHTO T-180. Rock in excess of 2-1/2" in diameter shall not be used in the fill material. If the moisture content is improper for attaining the specified density, either water shall be added or material shall be permitted to dry until the proper moisture content for compaction is reached.

#### **C. Common Fill**

1. Common fill material shall be free from organic matter, muck or marl and rock exceeding 2-1/2" in diameter. Common fill shall not contain broken concrete, masonry, rubble or other similar materials. Existing soil may be used to adjust grades over the site with the exception of the construction area.
2. Material falling within the above specification, encountered during the excavation, may be stored in segregated stockpiles for reuse. All material which, in the opinion of the County, is not suitable for reuse shall be spoiled as specified herein for disposal of unsuitable materials by the Contractor.

D. Crushed Stone

1. Crushed stone may be used for pipe bedding, manhole bases, as a drainage layer below structures with underdrains and at other locations indicated on the Drawings.
2. Crushed stone shall be size No. 57 with gradation as noted in Table 1 of Section 901 of Florida Department of Transportation, Construction of Roads and Bridges.

**PART 3 EXECUTION**

**3.01 TRENCH EXCAVATION AND BACKFILLING**

- A. Excavation for all trenches required for the installation of pipes and electrical ducts shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe or installing the ducts within the trenches.
- B. Rock shall be removed to a minimum 6" clearance around the bottom and sides of all the pipe or ducts being laid.
- C. Where pipes or ducts are to be laid in limerock bedding or encased in concrete, the trench may be excavated by machinery to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.
- D. Where the pipes or ducts are to be laid directly on the trench bottom, the lower part of the trenches shall not be excavated to grade by machinery. The last of the material being excavated manually, shall be done in such a manner that will give a flat bottom true to grade so that pipe or duct can be evenly supported on undisturbed material. Bell holes shall be made as required.
- E. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed and inspected and the trench filled with suitable compacted material to the mid-diameter of the pipe.
- F. Backfilling over ducts shall begin not less than three days after placing concrete encasement.
- G. All backfilling shall be prosecuted expeditiously and as detailed on the Drawings.
- H. Any space remaining between the pipe and sides of the trench shall be packed full by hand shovel with selected earth, free from stones having a diameter greater than 2" and thoroughly compacted with a tamper as fast as placed, up to a level of one foot above the top of the pipe.
- I. The filling shall be carried up evenly on both sides with at least one man tamping for each man shoveling material into the trench.
- J. The remainder of the trench above the compacted backfill, as just described above, shall be filled and thoroughly compacted by rolling, ramming, or puddling, as the County may direct, sufficiently to prevent subsequent settling.

**END OF SECTION**

**SECTION 02223 EXCAVATION BELOW GRADE AND CRUSHED STONE OR SHELL  
REFILL**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. If in the opinion of the County, the material at or below the normal grade of the bottom of the trench is unsuitable for pipe or structure foundation, it shall be removed to the depth directed by the County and replaced by crushed stone or washed shell.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 MATERIALS**

**3.01 EXCAVATION AND DRAINAGE**

- A. Whatever the nature of unstable material encountered or the groundwater conditions, trench stabilization shall be complete and effective.
- B. Should the Contractor excavate below the grade shown on the Contract drawings because of negligence or for his own convenience; due to failure in properly dewatering the trench; disturbs the subgrade before dewatering is sufficiently complete; he shall be directed by the County to excavate below grade. The work of excavating below grade and furnishing and placing the approved refill material shall be performed at the Contractor's expense.

**3.02 REFILL**

- A. Should the material at the level of trench bottom consist of fine sand, sand and silt or soft earth, the subgrade material shall be removed as directed by the County and the excavation shall be refilled with crushed stone or washed shell.

**END OF SECTION**

## SECTION 02260 FINISH GRADING

### PART 1 GENERAL

#### 1.01 WORK INCLUDED

- A. The Contractor shall finish grade sub-soil.
- B. The Contractor shall cut out areas to receive stabilizing base course materials for paving and sidewalks.
- C. The Contractor shall place, finish grade and compact top soil.

#### 1.02 PROTECTION

The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement and utility lines. Damage shall be corrected at no cost to the County.

### PART 2 PRODUCTS

- A. Topsoil: Shall be friable loam free from subsoil, roots, grass, excessive amount of weeds or other organics, stones, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter. The Contractor may use topsoil stockpiles on site if they conform to these requirements.

### PART 3 EXECUTION

#### 3.01 SUB-SOIL PREPARATION

- A. The Contractor shall rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Uneven areas and low spots shall be eliminated. Debris, roots, branches or other organics, stones, and sub-soil shall be removed by the Contractor and disposed of in a manner consistent with the latest Manatee County Standards as well as any affected regulatory agency. Should contaminated soil be found, the Contractor shall notify the County.
- B. The Contractor shall cut out areas to sub-grade elevation to stabilize base material for paving and sidewalks.
- C. The Contractor shall bring sub-soil to required profiles and contour grades gradually; and blend slopes into level areas.
- D. The Contractor shall slope the structure grade a minimum of two (2) inches in ten (10) feet unless indicated otherwise on the Drawings.
- E. The Contractor shall cultivate sub-grade to a depth of 3 inches where the topsoil is to be placed. He shall repeat cultivation in areas where equipment use has compacted sub-soil.
- F. The Contractor shall not make grade changes which causes water to flow onto adjacent lands.

### **3.02 PLACING TOPSOIL**

- A. The Contractor shall place topsoil in areas where seeding, sodding and planting is to be performed. He shall place from the following minimum depths, up to finished grade elevations:
  - 1. 6 inches for seeded areas
  - 2. 4-1/2 inches for sodded areas
  - 3. 24 inches for shrub beds
  - 4. 18 inches for flower beds
- B. The Contractor shall use topsoil in a dry state as determined by the County. He shall place the material during dry weather.
- C. The Contractor shall use fine grade topsoil eliminating rough and low areas to ensure positive drainage. He shall maintain levels, profiles and contours of the sub-grades.
- D. The Contractor shall remove stone, roots, grass, weeds, debris, and other organics or foreign material while spreading the material.
- E. The Contractor shall manually spread topsoil around trees, plants and structures to prevent damage which may be caused by grading equipment.
- F. The Contractor shall lightly compact and place the topsoil.

### **3.03 SURPLUS MATERIAL**

- A. The Contractor shall remove surplus sub-soil and topsoil from site at his expense.
- B. The Contractor shall leave stockpile areas and entire job site clean and raked, ready for landscaping operations.

**END OF SECTION**



## **SECTION 02276 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

### **PART 1 GENERAL**

#### **1.01 DESCRIPTION**

- A. The work specified in this Section consists of the design, provision, maintenance and removal of temporary erosion and sedimentation controls as necessary.
- B. Temporary erosion controls include, but are not limited to: grassing, mulching, netting, watering, and the reseeding of on-site surfaces and spoil and borrow area surfaces, interceptor ditches at ends of berms and other such work at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the County.
- C. Temporary sedimentation controls include, but are not limited to: silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which shall ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the County.
- D. The Contractor is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

#### **1.02 REFERENCE DOCUMENTS**

- A. Florida Building Code.
- B. FDEP/COE Dredge and Fill Regulations and/or Permit as applicable.
- C. SWFWMD Permit Regulations and/or Permit as applicable.
- D. Florida Stormwater, Erosion and Sedimentation Control Inspector's Manual.

### **PART 2 PRODUCTS**

#### **2.01 EROSION CONTROL**

- A. Netting - fabricated of material acceptable to the County.
- B. Seed and sod.

#### **2.02 SEDIMENTATION CONTROL**

- A. Bales - clean, seed free cereal hay type.
- B. Netting - fabricated of material acceptable to the County.
- C. Filter stone - crushed stone conforming to Florida Dept of Transportation specifications.
- D. Concrete block - hollow, non-load-bearing type.
- E. Concrete - exterior grade not less than one inch thick.

**PART 3 EXECUTION**

**3.01 EROSION CONTROL**

- A. Minimum procedures for grassing shall be:
1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than 1/2 inch in diameter and debris.
  2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.
  3. Apply mulch loosely and to a thickness of between 3/4-inch and 1-1/2 inches.
  4. Apply netting over mulched areas on sloped surfaces.
  5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

**3.02 SEDIMENTATION CONTROL**

- A. The Contractor shall install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings. Deteriorated hay bales and dislodged filter stone shall be replaced by the Contractor at his expense.

**3.03 PERFORMANCE**

- A. The Contractor, at his own expense, shall immediately take whatever steps are necessary to correct any deficiencies of the temporary erosion and sediment control measures employed if they fail to produce results or do not comply with the requirements of the State of Florida or any other federal, governmental or regulatory agency.

**END OF SECTION**

## SECTION 02444 FENCING

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals necessary for complete installation of chain link fence systems. The fencing shall be installed according to manufacturer's specifications unless otherwise directed or authorized by the County.
- B. The Contractor's security fencing is at his expense and option and is not covered in this Section.

#### 1.02 QUALITY ASSURANCE

- A. Standards of Manufacture shall comply with the standards of the Chain Link Fence Manufacturer's Institute for "Galvanized Steel Chain Link Fence Fabric" and as herein specified.
- B. Provide each type of steel fence and gates as a complete unit produced by a single manufacturer, including, but not limited to accessories, fittings, fasteners and appurtenances complete and ready for use.
- C. Acceptable Manufacturers: Anchor, Cyclone, or approved equal
- D. Erector Qualifications: The Contractor or approved subcontractor, must have a minimum of two years experience in similar fence installation.

#### 1.03 SUBMITTALS

- A. Product Data:

For Steel Fences and Gates, the Contractor shall submit for review and approval to the County, five (5) copies of the manufacturer's technical data, details of fabrication, installation instructions and procedures for steel fences and gates. The Contractor shall be responsible for a copy of each instruction to be given to the Installer.

- B. Samples:

The Contractor shall submit two samples approximate size 6-inches long, or 6-inches square of fabric material, framework members and typical accessories to the County for review and approval.

- C. Certificates:

The Contractor shall provide manufacturer's certification that materials meet or exceed the Contract Document requirements.

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

- A. The pipe sizes indicated are commercial pipe sizes.
- B. The tube sizes indicated are nominal outside dimension.
- C. Framework and appurtenances shall be finished with not less than minimum weight of zinc per sq. ft. and shall comply with the following:
  - 1. Pipe: ASTM A53 (1.8 oz. zinc psf)
  - 2. Square tubing: ASTM A 123 (2.0 oz. zinc psf)
  - 3. Hardware and Accessories: ASTM A 153 (zinc weight per Table I).
- D. All fence components shall be galvanically compatible.
- E. Vinyl coatings for fabric, posts, rails, gates, and all other fittings and components shall be thermally fused polyvinyl chloride; heavy mil coating per ASTM F 668.

### **2.02 FABRIC**

Fabric shall be 0.148 inch (9 gage) steel wire, 2-inch diamond mesh and both top and bottom salvages shall be twisted and barbed for fabric over 60-inches high. Finish shall be hot dipped galvanized, ASTM A 392, Class II.

### **2.03 POSTS, RAILS AND BRACES**

- A. End, Corner and Pull Posts:
  - 1. The Contractor shall furnish end, corner and pull posts of the minimum size and weight as follows:
    - a. Up to 5 foot fabric height
      - (1) 2.375-inch OD pipe weighing 3.65 pounds per linear ft.
      - (2) 2.50-inch square tubing weighing 5.59 pounds per linear foot.
    - b. Over 5 foot fabric height
      - (1) 2.875-inch OD pipe weighing 5.79 pounds per linear foot.
      - (2) 2.50-inch square tubing weighing 5.59 lbs. per linear foot.
- B. Line Post:
  - 1. The Contractor shall furnish line posts of the minimum sizes and weight as follows. Post shall be spaced 10 foot o.c. maximum, unless otherwise indicated:
    - a. Up to 5 foot fabric height.
      - (1) 1.90-inch OD pipe weighing 2.72 pounds per linear foot.
    - b. Over 5 foot fabric height.
      - (1) 2.375-inch OD pipe weighing 3.65 pounds per linear foot.
- C. Gate Posts:
  - 1. The Contractor shall furnish gate posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
    - a. Up to 6 feet wide.

- (1) 2.875-inch OD pipe weighing 5.79 pounds per linear foot.
- (2) 2-1/2 inch square tubing weighing 5.59 pounds per linear foot.
- b. Over 6 feet and up to 13 feet wide.
  - (1) 4-inch OD pipe weighing 9.11 pounds per linear foot.
- c. Over 13 feet and up to 18 feet wide.
  - (1) 6.625 inches OD weighing 18.97 pounds per linear foot.
- d. Over 18 feet.
  - (1) 8.625 inches OD weighing 28.55 pounds per linear foot.

D. Top Rails:

- 1. The Contractor shall furnish the following top rails unless otherwise indicated:
  - a. 1.660-inch OD pipe weighing 2.27 pounds per linear foot.

E. Post Brace Assembly:

- 1. The Contractor shall furnish bracing assemblies at the end, gate, at both sides of corner and pull posts, with the horizontal brace located at mid-height of the fabric.
- 2. Use 1.660-inch OD pipe weighing 2.27 pounds per linear foot for horizontal brace and 3/8-inch diameter rod with turnbuckles for diagonal truss.

F. Tension Wire:

- 1. The Contractor shall furnish tension wire consisting of galvanized 0.177 inch (7 gage) coiled spring wire as per ASTM A824 at the bottom of the fabric only.

G. Barbed Wire Supporting Arms:

- 1. The Contractor shall furnish pressed steel, wrought iron, or malleable iron barbed wire supporting arms, complete with provisions for anchorage to posts and attaching three rows of barbed wire to each arm. Supporting arms may be attached either to posts or integral with post top weather cap. The Contractor shall provide a single 45 degree arm for each post where indicated.

H. Barbed Wire:

- 1. The Contractor shall furnish barbed wire. It shall be 2 strand, 12-1/2 gauge wire with 14 gauge, 4-point barbs spaced 5-inch o.c., galvanized, complying with ASTM A121, Class 3.

I. Post Tops:

- 1. The Contractor shall furnish post tops. Tops shall be pressed steel, wrought iron, or malleable iron of ASTM F626 designed as a weathertight closure cap (for tubular posts). The Contractor shall furnish one cap for each post unless equal protection is afforded by a combination of post top cap and barbed wire supporting arm. The Contractor shall furnish caps with openings to permit through passage of the top rail.

J. Stretcher Bars:

- 1. The Contractor shall furnish stretcher bars. Bars shall be one piece lengths equal to the full height of the fabric, with a minimum cross-section of 3/16-inch x 3/4-inch.

The Contractor shall provide one stretcher bar for each gate and end post and two bars for each corner and pull post, except where fabric is integrally woven into the post.

K. Stretcher Bar Bands:

1. The Contractor shall furnish stretcher bar bands. Bands shall be steel, wrought iron, or malleable iron, a maximum space of 15-inch o.c. to secure stretcher bars to end, corner, pull and gate posts.

## 2.04 GATES

A. The Contractor shall provide fabricated gate perimeter frames of tubular members. Additional horizontal and vertical members shall ensure proper gate operation and attachment of fabric, hardware and accessories. The maximum space of the frame members shall not be more than 8-inches apart. Fabrication is as follows:

1. Up to 5 feet high, or leaf width 8 feet or less.
  - a. 1.660-inch OD pipe weighing 2.27 pounds per linear foot.
  - b. 1.5 inch sq. tubing weighing 2.27 pounds per linear foot.
2. Over 5 feet high, or leaf width exceeding 8 feet.
  - a. 1.90 inch OD pipe weighing 2.72 pounds per linear foot.
  - b. 2-inch square tubing weighing 2.60 pounds per linear foot.

B. The Contractor shall assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. He shall use the same fabric width as for the fence, unless otherwise indicated in the Contract Documents or authorized by the County. He shall install the fabric with stretcher bars at vertical edges. The bars may also be used at the top and bottom edges. The contractor shall attach stretchers to the gate frame at a maximum spacing of 15-inch o.c. He shall attach the hardware with rivets or by other means which will prevent removal or breakage.

C. The Contractor shall install diagonal cross-bracing consisting of 3/8-inch diameter adjustable length truss rods on gates as necessary to ensure frame rigidity without sag or twist.

D. The Contractor shall install barbed wire above the gates. He shall extend the end members of gate frames 12-inches above the top member which will be prepared for three strands of wire. The Contractor shall provide necessary clips for securing wire to extensions.

E. Gate Hardware:

1. The Contractor shall furnish the following hardware and accessories for each gate.
  - a. Hinges: Pressed or forged steel or malleable iron to suit gate size, non-lift-off type, offset to permit 180 degrees gate opening. Provide 1-1/2 pair of hinges for each leaf over six feet nominal height.
  - b. Latch: Forked type of plunger-bar type to permit operation from either side of gate with padlock eye as integral part of latch.
  - c. Keeper: Provide keeper for all vehicle gates, which automatically engages the gate leaf and holds it in the open position until manually released.
  - d. Double Gates: Provide gate stops for double gates, consisting of mushroom type of flush plate with anchors. Set in concrete to engage the

center drip drop rod or plunger bar. Include locking device and padlock eyes as an integral part of the latch, using one padlock for locking both gate leaves.

- e. Where gates are between masonry piers, provide "J" with 4-inch square anchor plate to masonry contractor for building in.

## **2.05 MISCELLANEOUS MATERIALS AND ACCESSORIES**

- A. Wire Ties: The Contractor shall tie fabric to line posts. He shall use 9 gauge wire ties spaced 12-inches o.c. For tying fabric to rails and braces, he shall use 9 gauge wire ties spaced 24-inches o.c. For tying fabric to tension wire, he shall use 11 gauge hog rings spaced 24-inches o.c. The finish of ties shall match the fabric finish.
- B. Concrete: The Contractor shall provide portland cement concrete in compliance with ASTM C-150 and the Contract Documents. Aggregates shall comply with ASTM C-33. The Contractor shall mix the materials to obtain a minimum 28-day compressive strength of 2500 psi, using a minimum of 4 sacks of cement per cubic yard, a maximum size aggregate of 1-inch, a maximum 3-inch slump and air entrainment of 2 percent to 4 percent.
- C. Privacy Decorative Slating (PDS) shall be PVC, bottom locking, non-fin type, sized to match the fabric height and color in both the fence and gates.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. The Contractor shall not start the fence installation prior to the final grade completion, and the finish elevations established, unless otherwise authorized by the County.
- B. The Contractor shall repair damaged coatings in the shop or in the field by recoating utilizing manufacturers recommended repair compounds and as applied per manufacturer's recommendations.
- C. Excavation:
  - 1. For post footings, the Contractor shall drill holes in firm, undisturbed or compacted soil of the diameters and spacings shown or called out in the Contract Documents.
    - a. For holes not shown or called out on the Contract Documents, the Contractor shall excavate minimum diameters recommended by the fence manufacturer.
    - b. Post holes shall be in true alignment and of sufficient size to provide a permanent concrete foundation. Concrete shall be poured against undisturbed earth sides and bottom. All holes shall be 48-inches deep with posts and corner posts placed in the concrete to a depth of 36-inches. The gate posts shall be set in the concrete to a depth of 42-inches below the surface in firm, undisturbed soil. Holes shall be well centered on the posts. A minimum diameter of 12-inches shall be required for all post holes.
    - c. Excavated soil shall be removed from the County's property.
    - d. If solid rock is encountered near the surface, the Contractor shall drill into rock at least 12-inches for line posts and at least 18-inches for end, pull, corner or gate posts. Hole shall be drilled to at least 1-inch greater diameter than the largest dimension of the post to be place.

- e. If the Contractor encounters solid rock below solid overburden, he shall drill to the full depth required; however, rock penetration need not exceed the minimum depths specified.

D. Setting Posts:

1. The Contractor shall remove loose and foreign materials from the sides and bottoms of holes, and moisten soil prior to placing concrete.
  - a. Center and align posts in holes above bottom of excavation.
  - b. Place concrete around posts in a continuous pour and vibrate or tamp for consolidation. Check each post for vertical and top alignment and hold in position during placement and finishing operations. The top of concrete shall extend 2-inches above finish grade.
  - c. Trowel finish tops of footings and slope or dome to direct water away from posts. Extend footings for gate posts to the underside of bottom hinge. Set keeps, stops, sleeves and other accessories into concrete as required.
  - d. Keep exposed concrete surfaces moist for at least 7 days after placement, or cure with membrane curing materials, or other acceptable curing method.
  - e. Grout-in posts set into sleeved holes, concrete constructions, or rock excavations with non-shrink portland cement grout, or other acceptable grouting material.

E. Concrete Strength:

The Contractor shall allow the concrete to attain at least 75% of its minimum 28-day compressive strength no sooner than 7 days after placement, before rails, tension wires, barbed wire, or fabric is installed. The Contractor shall not stretch and tension fabric or wires and shall not hang gates until the concrete has attained its full design strength.

F. Top Rails:

The Contractor shall run the rail continuously through post caps or extension arms and bend to radius for curved runs. He shall provide expansion coupling as recommended by fencing manufacturer.

G. Brace Assemblies:

The Contractor shall install braces so that posts are plumb when diagonal rod is under proper tension.

H. Tension Wire:

The Contractor shall install tension wires by weaving through the fabric and tying to each post with not less than 0.170 inch galvanized wire, or by securing the wire to the fabric.

I. Fabric:

The Contractor shall leave approximately 3-inches between finish grade and bottom salvage, except where the bottom of the fabric extends into the concrete. He shall pull the fabric taut and tie it to posts, rails and tension wires. He shall install fabric on the security side of the fence and anchor it to the framework so that the fabric remains in tension after the pulling force is released.



J. Stretcher Bars:

The Contractor shall thread through or clamp the bars to the fabric 4-inches o.c. and secure them to posts with metal bands spaced 15-inches o.c.

K. Barbed Wire:

The Contractor shall install 3 parallel wires on each extension arm on the security side of fence, unless otherwise indicated. He shall pull the wire taut and fasten securely to each extension arm.

L. Gate:

The Contractor shall install gates plumb, level and secure for full opening without interference. He shall install ground-set items in concrete for anchorage, as recommended by the fence manufacturer. He shall adjust hardware for smooth operation and lubricate where necessary.

M. Tie Wires:

The Contractor shall use U-shaped wire, conforming to the diameter of the attached pipe, and shall clasp the pipe and fabric firmly with twisted ends of at least 2 full turns. He shall bend the end of the wire to minimize hazard to persons or clothing.

N. Fasteners:

The Contractor shall install nuts for tension band and hardware bolts on the side of fence opposite the fabric side. Pen ends of bolts or score threads to prevent removal of nuts.

**3.02 INSTALLATION**

Fence shall be constructed such that each run of fence between corner posts or gate posts has equal spacing between the line posts. Spacing shall not exceed 10 feet, and shall not exceed 8 feet for fabric with privacy decorative slatting.

**END OF SECTION**

## SECTION 02480 LANDSCAPING

### PART 1 GENERAL

#### 1.10 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment, and incidentals required to install trees, ground cover, and shrubs, to place accessory planting materials, to maintain and guarantee all planted areas. All work shall be in strict accordance with sound nursery practice and shall include maintenance and watering of all of the work of this Contract until final completion and acceptance by the County.
- B. The landscaping shall be performed by a contractor or subcontractor who specializes in landscaping and who is fully familiar and experienced in projects of this type and scope. The landscaping contractor or subcontractor shall be subject to the approval of the County.
- C. The Contractor shall provide all landscaping complete and ready for use as specified in the Contract Documents and as shown on the Drawings.

#### 1.02 SUBMITTALS

- A. The Contractor shall submit to the County for review and approval, shop drawings and complete written maintenance instructions for each type of plant furnished under this Contract.
- B. The Contractor shall submit representative samples of any or all of required accessory planting materials as requested by the County.

#### 1.03 OBSTRUCTIONS BELOW GROUND

- A. The County may change the location of plant material if underground construction, utilities or obstructions are encountered in excavation of planting areas or pits.
- B. The Contractor shall make such changes without additional compensation from the County.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Plant species and size shall conform to those indicated in the Plant List and in plan locations shown on the Drawings. Nomenclature shall conform to the Florida Department of Agriculture: "Grades and Standards for Nursery Plants". The designated authority for identification of plants shall be in conformance with FDOT Standard Specification Section 580-2.1.1 Plants.
- B. Plants shall be sound, healthy, vigorous, free from plant diseases, insects, pests, or their eggs and shall have healthy normal root systems. Plants shall be nursery grown stock, freshly dug. No heeled in, cold storage, or collected stock shall be accepted.
- C. Shape and Form

1. Plant material shall be symmetrical, typical for the variety and species, and shall conform to the measurements specified in the Plant List.
  2. Plants used where symmetry is required shall be matched as nearly as possible.
  3. Plants shall not be pruned prior to delivery except as authorized by the County.
  4. All plants shall have been transplanted or root pruned at least once in the past three years.
  5. Unless otherwise noted, street trees shall be free of branches up to six feet, with the single leader well branched, and with straight trunks.
  6. Shrubs shall have been transplanted twice, have fully developed root systems, be heavily canned with foliage to base, fulfill dimensions required, and be typical of species.
  7. Ground covers shall have sturdy fibrous root systems and shall be heavily leafed.
- D. Measurement: The height and/or width of trees shall be measured from the ground or across the normal spread of branches with the plants in their normal position. This measurement shall not include the immediate terminal growth.
- E. Substitutions in plant species or size shall be made only with the written approval of the County.
- F. Ground cover plants shall be planted in beds of four inches of approved topsoil. The beds shall be thoroughly disked into the soil. The compacted and settled finished surface shall be set to the required grade. Plants shall be spaced as described in the Contract Documents or shown on the Contract Drawings, or otherwise directed by the County in accordance with the best practices of the trade.
- G. Planting Soil
1. Soil for backfilling around plants and planting beds shall be a good grade of garden loam as approved by the County. Soil shall be free of heavy clay, coarse sand, stones, lumps, sticks, or other foreign material. The soil shall not be delivered or used in a muddy condition.
  2. The soil shall be taken from ground that has never been stripped. There shall be a slight acid reaction to the soil with no excess of calcium or carbonate. The soil shall be free from excess weeds or other objectionable material.
  3. Soil for trees and shrubs shall be delivered in a loose, friable condition. All trees shall average approximately one cubic yard per tree, except Sabal Palmetto, which shall be planted with clean sand. There shall be a minimum of 4-inches of planting soil in ground cover areas and 1/8 cubic yard per shrub or vine.
  4. No marl shall be allowed in ground cover planting beds.
- H. Before plants are backfilled with planting soil, fertilizer tablets, Agriform 20-10-5 or equal, shall be placed in each pit. The Contractor shall provide three tablets for each tree and one for each shrub or vine.
- I. Tree Staking: All tree staking and bracing shall be included herein in accordance with sound nursery practice and shall be in accordance with the Contract Documents. The Contractor shall furnish all materials required for staking and bracing as approved.
- J. Landscaping stones shall be inert and nonleaching. The Contractor shall provide physical samples for approval prior to installation. Crushed limerock shall not be acceptable.

## PART 3 EXECUTION

### 3.01 PLANTING PROCEDURES

- A. Plant Locations: All plants shall be located as shown on the Drawings, to dimensions if shown, to scale if not dimensioned. Large areas or beds shall be scaled and the plants spaced evenly. Approval by the County is required before any plants may be installed.
- B. Tree Pits: Pits for trees shall be at least two feet greater in diameter than the specified diameter of the ball. Pits shall be of sufficient depth to allow a 12-inch layer of planting soil under the ball when it is set to grade. Bottom of pit shall be loosened prior to backfilling.
- C. Digging and Handling
  1. Plants shall be handled at all times so that roots or balls are adequately protected from sun or drying winds. Tops or roots of plant allowed to dry out will be rejected.
  2. Balled and burlapped plants shall be moved with firm, natural balls of soil, not less than one foot diameter of ball to every one inch caliper of trunk, and a depth of not less than 2/3 of ball diameter. No plant shall be accepted when the ball of earth surrounding its roots has been cracked or broken. All trees, except palms, shall be dug with ball and burlapped. Root pruning shall have been done at minimum of four weeks before planting at the job.
  3. Bare root plants shall be dug with spread of root and of sufficient depth to insure full recovery of plant.
- D. Cabbage Palms (Sable Palmetto):
  1. Cabbage Palms shall be taken from moist black sand areas. Only a minimum of fronds shall be removed from the crown to facilitate moving and handling. Clear trunk or overall height shall be as specified after the minimum of fronds have been removed.
  2. Cabbage Palms buds shall be tied to a suitable support with a burlap strip, to be left in place until the tree is well established in its new location.
  3. Cabbage Palms shall be planted in sand, thoroughly washed in during planting operations, and with a dished or saucer depression left at the soil line for future waterings. Palms with marred or burned trunks will be accepted at the discretion of the County only.
  4. Trees moved by winch or crane shall be thoroughly protected from chain marks, girdling or bark slippage by means of burlap, wood battens, or other approved method.
- E. When balled or burlapped plants are set, planting soil shall be carefully tamped under and around the base of the balls to prevent voids. All burlap, rope, wires, etc., shall be removed from the sides and tops of balls, but no burlap shall be pulled from underneath. Roots of bare rooted plants shall be properly spread out and planting soil carefully worked in among them.
- F. All plants shall be set straight or plumb, in locations shown on the Drawings. Except as otherwise specified, plants shall be planted in pits which shall be set at such level that, after settlement, they bear the same relation to the finished grade or the surrounding ground as they bore to the grade of the soil from which they are taken.

- G. Pruning shall be carefully done by experienced plantsmen. Prune immediately upon acceptance by the County, including any broken branches, thinning small branches and tipping back main branches (except main leaders).
- H. Excess soil and debris shall be disposed of off the project site unless ordered stockpiled by the County.

**3.02 NORMAL MAINTENANCE OF PLANT MATERIALS**

- A. Plant material maintenance shall begin when planting operations start and shall extend until final acceptance of work.
- B. Maintain all plant materials under this Contract to the satisfaction of the County. Maintenance shall include necessary watering, cultivation, weeding, pruning, spraying, tightening and repair to guy wires, removal of dead material, resetting, and other work required to conform with referenced standards and accepted nursery standards as approved.
- C. Plant materials which are in a tilted or in a leaning position shall be properly righted.
- D. After final acceptance by the County and until one calendar year after acceptance of all plantings, the landscaping contractor or subcontractor shall make monthly inspections of materials and report in writing to the County the conditions of the plants and the necessary requirements to keep the plants in a healthy growing condition.

**3.03 TREE AND PLANT PROTECTION**

- A. The Contractor shall remove all trees (if any) within the limit of landscaping shown on the detail sheet except those designated to be salvaged (if any). Prior to removal of said trees, the Contractor shall obtain a tree removal permit, if required. All other trees in the vicinity of the work shall be protected against damage by the Contractor until all work under the Contract has been completed.
- B. Consult with the County, and remove agreed-on roots and branches which interfere with construction. Employ qualified tree surgeon to remove, and to treat cuts.
- C. Provide temporary barriers to a height of six feet around each group of trees and plants.
- D. Protect root zones of trees and plants
  - 1. Do not allow vehicular traffic or parking.
  - 2. Do not store materials or products.
  - 3. Prevent dumping or refuse or chemically injurious materials or liquids.
  - 4. Prevent puddling or continuous running water.
- E. Carefully supervise excavating, grading, and filling, and subsequent construction operations, to prevent damage.
- F. In case of inadvertent damage to any tree or plant by the Contractor or any of his subcontractors or employees, the Contractor shall provide replacement of each such damaged tree or plant with a new one of acceptable type, size and quality.

- G. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by the County.
- H. Clean and repair damage caused by installation, fill and grade the areas of the site to required elevations and slopes, and clean the area.

**3.04 GUARANTEE**

The life and satisfactory condition of all plant material planted shall be guaranteed by the Contractor for a minimum of one calendar year. Guarantee shall include complete replacement with material of the same kind and size as in the original work if not in a healthy condition, as determined by the County, at the end of the guarantee period.

**3.05 REPLACEMENT**

- A. At the end of the guarantee period, any plant required under this Contract that is dead or not in satisfactory growth as determined by the County, shall be removed. Plants replaced shall be guaranteed for 90 days after date of replacement.
- B. Replacement of plants necessary during guarantee period shall be the responsibility of the Contractor, except for possible replacements of plants resulting from removal, vandalism, acts of neglect on the part of others, or acts of God.
- C. All replacements shall be plants of the same kind and size as specified in the Drawings. They shall be furnished and planted as herein specified. The cost shall be the responsibility of the Contractor.

**END OF SECTION**

## **SECTION 02485 SEEDING AND SODDING**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

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

#### **1.02 RELATED WORK NOT INCLUDED**

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

#### **1.03 QUALITY ASSURANCE**

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

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Fertilizer: The fertilizer shall be of the slow-release type meeting the following minimum requirements: 12 percent nitrogen, 8 percent phosphorus, 8 percent potassium; 40 percent other available materials derived from organic sources. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container. Fertilizer shall be uniform in composition, dry and free flowing delivered to sites in original unopened containers bearing manufacturer's statement or guarantee.
- B. Seeding/Grassing: The Contractor shall grass all unpaved areas disturbed during construction which do not require sod. All grassing shall be completed in conformance with FDOT Specifications, Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications, except that no additional payment will be made for mulching, fertilizing and/or watering.
- C. Sodding: Sod shall be provided as required on the construction drawings or at locations as directed by the County in accordance with Florida Department of Transportation, Specifications Section 575 and 981. The Contractor shall furnish bahia grass sod or

match existing sod. Placement and watering requirements shall be in accordance with FDOT Specifications Section 575, except that no additional payment will be made for placement and/or watering. This cost shall be included in the Contract price bid for sodding.

- D. Topsoil: Topsoil stockpiled during excavation may be used as necessary. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the County. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants and grassing specified herein.
- E. Water: It is the Contractor's responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements that may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

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

#### **3.02 CLEANUP**

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

#### **3.03 LANDSCAPE MAINTENANCE**

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



**3.04**

**REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATORS**

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

**END OF SECTION**

## SECTION 02513 ASPHALT CONCRETE PAVING

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials and equipment necessary to complete all milling asphalt pavement and asphalt concrete paving (including restoration of driveways) as called out on the Contract Documents or as shown on the Drawings.

#### 1.02 QUALITY ASSURANCE

- A. Qualifications of Asphalt Concrete Producer: The only materials permitted shall be furnished by a bulk asphalt concrete producer exclusively engaged in the production of hot-mix, hot-laid asphalt concrete.
- B. Qualification of Testing Agency: The County may employ a commercial testing laboratory to conduct tests and evaluations of asphalt concrete materials and design. The Contractor shall:
  - 1. Provide asphalt concrete testing and inspection service acceptable to County.
  - 2. Include sampling and testing asphalt concrete materials proposed, and tests and calculations for asphalt concrete mixtures.
  - 3. Provide field testing facilities for quality control testing during paving operations.
- C. Requirements of Regulatory Agencies: The Contractor shall comply with the applicable requirements of:
  - 1. Manatee County Utility Operations Department
  - 2. Manatee County Transportation Department
  - 3. State of Florida Dept. of Transportation

#### 1.03 PAVING QUALITY REQUIREMENTS

- A. General: In addition to other specified conditions, the Contractor shall comply with the following minimum requirements:
  - 1. In-place asphalt concrete course shall be tested for compliance with requirements for density, thickness and surface smoothness.
  - 2. Final surface shall be provided of uniform texture, conforming to required grades and cross sections.
  - 3. A minimum of four inch diameter pavement specimens for each completed course shall be taken from locations as directed by the County.
  - 4. Holes from test specimens shall be repaved as specified for patching defective work.
- B. Density:
  - 1. When subjected to 50 blows of standard Marshall hammer on each side of an in place material specimen, densities shall be comparable to a laboratory specimen of same asphalt concrete mixture.
  - 2. The minimum acceptable density of in-place course material shall be 98% of the recorded laboratory specimen density.

- C. Thickness: In-place compacted thicknesses shall not be acceptable if less than the minimum thicknesses shown on the Drawings.
- D. Surface Smoothness:
  - 1. Finished surface of each asphalt concrete course shall be tested for smoothness, using a 10 ft. straightedge applied parallel to and at right angles to centerline of paved areas.
  - 2. Surface areas shall be checked at intervals directed by County.
  - 3. Surfaces shall not be acceptable if they exceed the following:
    - a. Base Course: 1/4 in. in 10 ft.
    - b. Surface Course: 3/16 in. in 10 ft.
    - c. Crowned Surfaces:
      - (1) Test crowned surfaces with a crown template, centered and at right angles to the crown.
      - (2) Surfaces will not be acceptable if varying more than 1/4 in. from the template.

#### 1.04 SUBMITTALS

- A. Samples: The Contractor may be required to provide samples of materials for laboratory testing and job-mix design.
- B. Test Reports: The Contractor shall submit laboratory reports for following materials tests:
  - 1. Coarse and fine aggregates from each material source and each required grading:
    - a. Sieve Analysis: ASTM C 136 (AASHTO T 27).
    - b. Unit Weight of Slag: ASTM C29 (AASHTO T 19).
    - c. Soundness: ASTM C 88 (AASHTO T 104) for surface course aggregates only.
    - d. Sand Equivalent: ASTM D 2419 (AASHTO T 176).
    - e. Abrasion of Coarse Aggregate: ASTM C131 (AASHTO T 96), for surface course aggregates only.
  - 2. Asphalt cement for each penetration grade:
    - a. Penetration: ASTM D5 (AASHTO T49).
    - b. Viscosity (Kinematic): ASTM D2170 (AASHTO T 201).
    - c. Flash Point: ASTM D92 (AASHTO T 48).
    - d. Ductility: ASTM D 113 (AASHTO T 51).
    - e. Solubility: ASTM D 4 (AASHTO T 44).
    - f. Specific Gravity: ASTM D 70 (AASHTO T 43).
  - 3. Job-mix design mixtures for each material or grade:
    - a. Bulk Specific Gravity for Coarse Aggregate: ASTM C 117(AASHTO T 85).
    - b. Bulk Specific Gravity for Fine Aggregate: ASTM C 128(AASHTO T 84).
  - 4. Uncompacted asphalt concrete mix: Maximum Specific Gravity: ASTM D 2041 (AASHTO T 209).
  - 5. Compacted asphalt concrete mix:
    - a. Bulk Density: ASTM D 1188 (AASHTO T 166).
    - b. Marshall Stability and Flow: ASTM D 1559.
  - 6. Density and voids analysis:
    - a. Provide each series of asphalt concrete mixture test specimens, in accordance with A.I. MS-2 "Mix Design Methods for Asphalt Concrete".
    - b. Use Marshall method of mix design unless otherwise directed or

- acceptable to the County.
    - c. Report the quantity of absorbed asphalt cement in pounds of dry aggregate, percent air voids, and percent voids in mineral aggregate.
  - 7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations:
    - a. Uncompacted asphalt concrete mix.
      - (1) Asphalt Cement Content: ASTM D 2172 (AASHTO T 164).
      - (2) Penetration of Recovered Asphalt Cement: ASTM D 5(AASHTO T 49).
      - (3) Ductibility of Recovered Asphalt Cement: ASTM D 113(AASHTO T 51).
    - b. Compacted asphalt concrete mix:
      - (1) Bulk Density: ASTM D 1188 (AASHTO T 166).
      - Marshall Stability and Flow: ASTM D1559).
    - c. Perform at least one test for each day's paving.
  - 8. Asphalt plant inspection: ASTM D 290.
  - 9. Additional testing:
    - a. Retesting shall be required if previous tests indicate insufficient values, or if directed by the County.
    - b. Testing shall continue until specified values have been attained.
  - 10. Asphalt concrete materials which do not comply with specified requirements shall not be permitted in the work.

**1.05 JOB CONDITIONS**

- A. Weather Limitations:
  - 1. Apply bituminous prime and tack coats only when the ambient temperature in the shade is 50 degrees F. and when the temperature has not been below 35 degrees F. for 12 hours immediately prior to application.
  - 2. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
  - 3. Construct asphalt concrete surface course only when atmospheric temperature is above 40 degrees F., when the underlying base is dry, and when weather is not rainy.
  - 4. Base course may be placed when air temperature is not below 30 degrees F. and rising, when acceptable to the County.
- B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.
- C. Traffic Control: Maintain vehicular and pedestrian traffic during paving operations, as required for other construction activities.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Soil Cement or Shell Base Course: as specified in FDOT Section 270, "Material for Base and Stabilized Base", and as called for in the Contract Documents.

- B. Aggregate for Asphalt Concrete, General:
  - 1. Sound, angular crushed stone, crushed gravel, or crushed slag: ASTM D 692.
  - 2. Sand, stone, or slag screening: ASTM D 1073.
  - 3. Provide aggregate in gradations for various courses to comply with local highway standards.
- C. Surface Course Aggregates:
  - 1. Provide natural sand, unless sand prepared from stone, slag, or gravel or combinations are required to suit local conditions.
- D. Asphalt Cement: Comply with ASTM D 946 for 85-100 penetration grade.
- E. Prime Coat:
  - 1. Cut-back liquid asphalt.
  - 2. Medium-Curing type: ASTM D 2027, Grade MC-70.

## **2.02 ASPHALT-AGGREGATE MIXTURES**

- A. Job-mix criteria:
  - 1. Provide job-mix formulas for each required asphalt-aggregate mixture.
  - 2. Establish a single percentage of aggregate passing each required sieve size, a single percentage of asphalt cement to be added to aggregate, and a single temperature at which asphalt concrete is to be produced.
  - 3. Comply with the mix requirements of local governing highway standards.
  - 4. Maintain material quantities within allowable tolerances of the governing standards.

## **2.03 TRAFFIC AND PARKING MARKING MATERIALS**

- A. Traffic lane marking paint with chlorinated rubber base.
- B. Factory mixed, quick drying and non bleeding, FS TT-P-115C, Type III.
- C. Color: Driving Lane Dividers - White  
No Parking Zone - Yellow  
Parking Dividers - White

## **PART 3 EXECUTION**

### **3.01 SURFACE PREPARATION**

- A. Subbase Preparation:
  - 1. The Contractor shall remove from the area all organic substance encountered to a depth of six or eight inches (6" or 8"), or to such depth and width as directed by the County. The entire area shall be plowed and dragged prior to placing a stabilizing additive, if required to meet minimum bearing value.
  - 2. Subbase shall be compacted to a minimum density of 98 percent of the maximum as determined by the Modified Proctor Density AASHTO T180, and shall have a

minimum bearing value of 40 pounds per square inch as determined by the Florida Bearing Test.

**B. Base Course:**

1. Check subgrade for conformity with elevations and section immediately before placing base material.
2. Place base material in compacted layers not more than 6 inches thick, unless continuing tests indicate the required results are being obtained with thicker layers.
3. In no case will more than 8-inches of compacted base be placed in one lift.
4. Spread, shape, and compact all base material deposited on the subgrade during the same day.
5. Compact base course material to be not less than 95% of maximum density: ASTM D 1557, Method D (98 percent maximum density: AASHTO T-180).
6. Test density of compacted base course: ASTM D 2167.
7. Conduct one test for each 250 sq. yds. of in-place material, but in no case not less than one daily for each layer.

**C. Loose and Foreign Material:**

1. Remove loose and foreign material from compacted subbase surface immediately before application of paving.
2. Use power brooms or blowers, and brooming as required.
3. Do not displace subbase material.

**D. Prime Coat:**

1. Uniformly apply at rate of 0.20 to 0.5 gal. per sq. yd. over compacted and cleaned subbase surface.
2. Apply enough material to penetrate and seal, but not flood the surface.
3. Allow to cure and dry as long as required to attain penetration and evaporation of volatile, and in no case less than 24 hours unless otherwise acceptable to the County.
4. Blot excess asphalt with just enough sand to prevent pick-up under traffic.
5. Remove loose sand before paving.

**E. Tack Coat:**

1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or portland cement concrete and similar surfaces.
2. Apply at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
3. Apply tack coat by brush to contact surfaces of structures projecting into or abutting asphalt concrete pavement.
4. Allow surfaces to dry until material is at condition of tackiness to receive pavement.

**3.02 MANHOLE FRAME / VALVE BOX ADJUSTMENTS (IF APPLICABLE)**

**A. Placing Manhole frames:**

1. Surround manhole frames set to elevation with a ring of compacted asphalt concrete base prior to paving.
2. Place asphalt concrete mixture up to 1 in. below top of frame, slope to grade, and compact by hand tamping.

- B. Adjust manhole frames to proper position to meet paving.
- C. If permanent covers are not in place, provide temporary covers over openings until completion of rolling operations.
- D. Set cover manhole frames to grade, flush with surface of adjacent pavement.

### 3.03 PREPARING THE MIXTURE

- A. Comply with ASTM D 995 for material storage, control, and mixing, and for plant equipment and operation.
- B. Stockpiles:
  - 1. Keep each component of the various-sized combined aggregates in separate stockpiles.
  - 2. Maintain stockpiles so that separate aggregate sizes shall not be intermixed.
- C. Heating:
  - 1. Heat the asphalt cement at the mixing plant to viscosity at which it can be uniformly distributed throughout mixture
  - 2. Use lowest possible temperature to suit temperature-viscosity characteristics of asphalt.
  - 3. Do not exceed 350 degrees F. (176.6 degrees C.).
- D. Aggregate:
  - 1. Heat-dry aggregates to reduce moisture content to not more than 2.0%.
  - 2. Deliver dry aggregate to mixer at recommended temperature to suit penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
  - 3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.
- E. Mix aggregate and asphalt cement to achieve 90-95% of coated particles for base mixtures and 85-90% of coated particles for surface mixture, when tested in accordance with ASTM D 2489.
- F. Transporting:
  - 1. Transport asphalt concrete mixtures from mixing site in trucks having tight, clean compartments.
  - 2. Coat hauling compartments with a lime-water mixture to prevent asphalt concrete mixture from sticking.
  - 3. Elevate and drain compartment of excess solution before loading mix.
  - 4. Provide covers over asphalt concrete mixture when transporting to protect from weather and to prevent loss of heat.
  - 5. During periods of cold weather or for long-distance deliveries, provide insulation around entire truck bed surfaces.

### 3.04 EQUIPMENT

- A. Provide size and quantity of equipment to complete the work specified within project time schedule.
- B. Bituminous Pavers: Self-propelled that spread hot asphalt concrete mixtures without tearing, shoving or gouging surfaces, and control pavement edges to true lines without use of stationary forms.
- C. Rolling Equipment:
  - 1. Self-propelled, steel-wheeled and pneumatic-tired rollers that can reverse direction without backlash.
  - 2. Other type rollers may be used if acceptable to the County.
- D. Hand Tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools to complete the work specified.

### 3.05 PLACING THE MIX

- A. Place asphalt concrete mixture on prepared surface, spread and strike-off using paving machine.
- B. Spread mixture at a minimum temperature of 225 degrees F. (107.2 degrees C.).
- C. Inaccessible and small areas may be placed by hand.
- D. Place each course at thickness so that when compacted, it will conform to the indicated grade, cross-section, finish thickness, and density indicated.
- E. Paver Placing:
  - 1. Unless otherwise directed, begin placing along centerline of areas to be paved on crowned section, and at high side of sections on one-way slope, and in direction of traffic flow.
  - 2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
  - 3. Complete base courses for a section before placing surface courses.
  - 4. Place mixture in continuous operation as practicable.
- F. Hand Placing:
  - 1. Spread, tamp, and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to County.
  - 2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.
- G. Joints:
  - 1. Carefully make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work.
  - 2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
  - 3. Clean contact surfaces free of sand, dirt, or other objectionable material and apply



- tack coat.
- 4. Offset transverse joints in succeeding courses not less than 24 inches.
- 5. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
- 6. Offset longitudinal joints in succeeding courses not less than 6 inches.
- 7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

### 3.06 COMPACTING THE MIX

- A. Provide sufficient rollers to obtain the required pavement density.
- B. Begin rolling operations as soon after placing when the mixture will bear weight of roller without excessive displacement.
- C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.
- D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.
- F. Do not roll centers of sections first under any circumstances.
- G. Breakdown Rolling:
  - 1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
  - 2. Operate rollers as close as possible to paver without causing pavement displacement.
  - 3. Check crown, grade, and smoothness after breakdown rolling.
  - 4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.
- H. Second Rolling:
  - 1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
  - 2. Continue second rolling until mixture has been thoroughly compacted.
- I. Finish Rolling:
  - 1. Perform finish rolling while mixture is still warm enough for removal of roller marks.
  - 2. Continue rolling until roller marks are eliminated and course has attained specified density.
- J. Patching:
  - 1. Remove and replace defective areas.
  - 2. Cut-out and fill with fresh, hot asphalt concrete.

3. Compact by rolling to specified surface density and smoothness.
4. Remove deficient areas for full depth of course.
5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

**3.07 MARKING ASPHALT CONCRETE PAVEMENT**

A. Cleaning:

1. Sweep surface with power broom supplemented by hand brooms to remove loose material and dirt.
2. Do not begin marking asphalt concrete pavement until acceptable to the County.

B. Apply paint with mechanical equipment.

1. Provide uniform straight edges.
2. Not less than two separate coats in accordance with manufacturer's recommended rates.

**3.08 CLEANING AND PROTECTION**

A. Cleaning: After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the County.

B. Protection:

1. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened, and in no case sooner than 6 hours.
2. Provide barricades and warning devices as required to protect pavement.
3. Cover openings of structures in the area of paving until permanent coverings are placed (if applicable).

**END OF SECTION**

## SECTION 02575 PAVEMENT REPAIR AND RESTORATION

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, obtain County or State right-of-way permits and incidentals required and remove and replace pavements over trenches excavated for installation of water or sewer lines and appurtenances as shown on the Contract Drawings.

#### 1.02 GENERAL

- A. The Contractor shall take before and after photographs.
- B. The Contractor shall repair in a manner satisfactory to the County or State, all damage done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basin, flagstones, or stabilized areas or driveways and including all obstructions not specifically named herein, which results from this Project.
- C. The Contractor shall keep the surface of the backfilled area of excavation in a safe traffic bearing condition and firm and level with the remaining pavement until the pavement is restored in the manner specified herein. All surface irregularities that are dangerous or obstructive to traffic are to be removed. The repair shall conform to applicable requirements of Manatee County Transportation Department requirements for pavement repair and as described herein, including all base, subbase and asphalt replacement.
- D. All materials and workmanship shall meet or exceed the County requirements and as called for in the Contract Documents and nothing herein shall be construed as to relieve the Contractor from this responsibility.
- E. All street, road and highway repair shall be made in accordance with the FDOT and County details indicated on the Drawings and in accordance with the applicable requirements and approval of affected County and State agencies.

### PART 2 PRODUCTS

#### 2.01 PAVEMENT SECTION

- A. Asphaltic concrete shall consist of asphalt cement, coarse aggregate, fine aggregate and mineral filler conforming to FDOT Type S-III Asphalt. Pavement replacement thickness shall match that removed but in no case shall be less than 1-1/2" compacted thickness. All asphalt concrete pavement shall be furnished, installed and tested in accordance with FDOT Specifications for Road and Bridge Construction.
- B. Asphalt or crushed concrete or approved equal base material shall be furnished and installed under all pavement sections restored under this Contract. Asphalt base shall have a minimum 6" compacted thickness, meet requirements for FDOT ABC III (Minimum Marshall Stability of 1000) and be furnished, installed and tested in accordance with the requirements of the FDOT Standards. Crushed concrete base shall be 10" minimum compacted thickness. Crushed concrete aggregate material shall have a minimum LBR of

140 compacted to 99% T-180 AASHTO density. Asphalt base and crushed concrete base are acceptable. Other bases shall be submitted for approval.

- C. Prime and tack will be required and applied in accordance with Section 300 - FDOT Specifications: Prime and Tack Coat for Base Courses.

## **PART 3 EXECUTION**

### **3.01 CUTTING PAVEMENT**

- A. The Contractor shall saw cut in straight lines and remove pavement as necessary to install the new pipelines and appurtenances and for making connections to existing pipelines.
- B. Prior to pavement removal, the Contractor shall mark the pavement for cuts nearly paralleling pipe lines and existing street lines. Asphalt pavement shall be cut along the markings with a rotary saw or other suitable tool. Concrete pavement shall be scored to a depth of approximately two (2) inches below the surface of the concrete along the marked cuts. Scoring shall be done by use of a rotary saw, after which the pavement may be broken below the scoring with a jackhammer or other suitable equipment.
- C. The Contractor shall not machine pull the pavement until it is completely broken and separated along the marked cuts.
- D. The pavement adjacent to pipe line trenches shall neither be disturbed or damaged. If the adjacent pavement is disturbed or damaged, irrespective of cause, the Contractor shall remove and replace the pavement. In addition, the base and sub-base shall be restored in accordance with these Specifications, Florida Dept. of Transportation Standard Specifications and as directed by the County.

### **3.02 PAVEMENT REPAIR AND REPLACEMENT**

- A. The Contractor shall repair, to meet or exceed original surface material, all existing concrete or asphaltic pavement, driveways, or sidewalks cut or damaged by construction under this Contract. He shall match the original grade unless otherwise specified or shown on the Drawings. Materials and construction procedures for base course and pavement repair shall conform to those of the Florida Dept. of Transportation.
- B. The Contractor's repair shall include the preparation of the subbase and base, place and maintain the roadway surface, any special requirements whether specifically called for or implied and all work necessary for a satisfactory completion of this work. Stabilized roads and drives shall be finished to match the existing grade. Dirt roads and drives shall have the required depth of backfill material as shown on the Contract Drawings.
- C. The width of all asphaltic concrete repairs shall extend the full width and length of the excavation or to the limits of any damaged section. The edge of the pavement to be left in place shall be cut to a true edge with a saw or other approved method so as to provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities.

### **3.03 MISCELLANEOUS RESTORATION**

Sidewalks or driveways cut or damaged by construction shall be restored in full sections or blocks to a minimum thickness of four inches. Concrete curb or curb and gutter shall be

restored to the existing height and cross section in full sections or lengths between joints. RCP pipe shall be repaired or installed in accordance with manufacturer's specifications. Grassed yards, shoulders and parkways shall be restored to match the existing sections with grass sod of a type matching the existing grass.

#### **3.04 SPECIAL REQUIREMENTS**

The restoration of all surfaces, as described herein, disturbed by the installation of pipelines shall be completed as soon as is reasonable and practical. The complete and final restoration of both paved and shell stabilized roads within a reasonable time frame is of paramount importance. To this end, the Contractor shall, as part of his work schedule, complete the restoration of any area of road within five weeks after removing the original surface. Successful leak testing shall be performed prior to restoring any area of road. All restoration and replacement or repairs are the responsibility of the Contractor.

#### **3.05 CLEANUP**

After all repair and restoration or paving has been completed, all excess asphalt, dirt and other debris shall be removed from the roadways. All existing storm sewers and inlets shall be checked and cleaned of any construction debris.

#### **3.06 MAINTENANCE OR REPAIR**

All wearing surfaces shall be maintained by the Contractor in good order suitable for traffic prior to completion and acceptance of the work.

**END OF SECTION**

## SECTION 02615 DUCTILE IRON PIPE AND FITTINGS

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install ductile iron pipe and restrained joint ductile iron pipe and cast iron or ductile iron restrained joint fittings, complete, as shown on the Drawings and specified in these Standards.
- B. Fittings are noted on the drawings for the Contractor's convenience and do not relieve him from laying and jointing different or additional items where required.
- C. The Contractor shall furnish all labor, materials, equipment and incidentals required to install push-on joint or restrained joint ductile iron pipe, complete as shown on the Drawings and Specifications.
- D. Newly installed pipe shall be kept clean and free of all foreign matter. All DI pipe installed underground shall be poly wrapped unless noted otherwise on the plans.

#### 1.02 SUBMITTALS

- A. The Contractor shall submit to the County, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all ductile iron pipe and fittings.
- B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Ductile iron pipe shall conform to ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51. Thickness of pipe shall be Class 50 or pressure Class 350. All pipe not buried shall be Class 53. All ductile iron pipe shall be clearly marked on the outside of the barrel to readily identify it from cast iron.
- B. Unrestrained joint pipe shall be supplied in lengths not to exceed 21 feet. Unless otherwise called for in the Contract Documents, unrestrained joint pipe shall be either the rubber-ring type push-on joint or standard mechanical joint pipe as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, or approved equal.
- C. All fittings shall be pressure rated for 350 psi and meet the requirement of AWWA C110 or AWWA C153 except flanged fittings shall be rated for 250 psi. Rubber gaskets shall conform to ANSI A21.11 for mechanical and push-on type joints for diameters up to 14" diameter. Gaskets for 16" diameter and larger pipe shall be EPDM (Ethylene-Propylene Dine Monomer) such as the "Fastite Gasket" of American Ductile Iron Pipe Co., or approved equal.
- D. Water Mains: All ductile iron pipe and fittings shall have a standard thickness cement lining on the inside in accordance with AWWA/ANSI C104/A21.4 and a coal tar enamel

coating on the outside. The coal tar enamel shall be in accordance with ANSI A21.4. All interior linings shall be EPA/NSF approved.

- E. Force Main: All ductile iron pipe and fittings shall have a factory applied fusion bonded epoxy or epoxy and polyethylene lining on the inside in accordance with manufacturer's specifications and a coal tar enamel coating on the outside. The coal tar enamel shall be in accordance with ANSI A21.4. The interior lining is to be based on manufacturer's recommendation for long-term exposure to raw sewage. It shall have a minimum ten year warranty covering failure of the lining and bond failure between liner and pipe.
- F. Restrained joints shall be provided at all horizontal and vertical bends and fittings, at casings under roads and railroads and at other locations shown on the Contract Drawings. Restrained joint pipe fittings shall be designed and rated for the following pressures: 350 psi for pipe sizes up to and including 24" diameter; 250 psi for pipe sizes 30" diameter and above.

## 2.02 IDENTIFICATION

- A. Each length of pipe and each fitting shall be marked with the name of the manufacturer, size and class and shall be clearly identified as ductile iron pipe. All gaskets shall be marked with the name of the manufacturer, size and proper insertion direction.
- B. Pipe shall be poly wrapped blue for potable water mains, purple for reclaimed water mains and green for sewage force mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the County.
- C. All above ground potable water mains and appurtenances shall be painted safety blue.

**END OF SECTION**

## **SECTION 02616 DISINFECTING POTABLE WATER PIPE LINES**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials, equipment and incidentals required to clean and disinfect potable water pipe lines. This work is required to place all types of pipe into service as potable water lines.

#### **1.02 CLEANING WATER MAINS**

At the conclusion of the work, the Contractor shall thoroughly clean all of the new pipes to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period per Section 02618.

#### **1.03 DISINFECTING POTABLE WATER PIPE LINES**

- A. All record drawing requirements must be submitted to the County prior to starting the bacteriological testing of the water lines.
- B. Prior to being placed in service, all potable water pipe lines shall be chlorinated in accordance with AWWA 651, "Standard Procedure for Disinfecting Water Main". The procedure shall meet Health Department requirements. The location of the chlorination and sampling points shall be determined by the County. Taps for chlorination and sampling shall be uncovered and backfilled by the Contractor as required.
- C. The general procedure for chlorination shall be to flush all dirty or discolored water from the lines, then introduce chlorine in approved dosages through a tap at one end while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipe line for 24 hours.

Water for flushing, filling and disinfecting the new lines must be obtained without contaminating existing pipe lines. Water obtained from existing pipe lines for this purpose shall pass through an approved air gap or backflow prevention device.

- D. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. Bacteriological sampling and analysis of the replacement water shall then be made by an approved laboratory or the Health Department in full accordance with the AWWA Manual C651. The line shall not be placed in service until the requirements of the State and County Public Health Department are met. Results of the bacteriological tests together with certified record drawings must be submitted to the Health Department (FDEP) within 30 days of the tests.
- E. Special disinfecting procedures when approved by the County, may be used where the method outlined above is not practical.

**END OF SECTION**



## SECTION 02617 INSTALLATION AND TESTING OF PRESSURE PIPE

### PART 1 GENERAL

#### 1.01 INSTALLING PIPE AND FITTINGS

- A. The Contractor shall install all pipe in accordance with the recommendations of the pipe manufacturer and as specified herein.
- B. The Contractor shall take care in handling, storage and installation of pipe and fittings to prevent injury to the pipe or coatings. All pipe and fittings shall be examined before installation and pipe which is deemed to be defective by the County shall not be installed.
- C. The Contractor shall thoroughly clean and keep thoroughly clean, all pipe and fittings prior to during and after installation.
- D. The Contractor shall lay the pipe to the lines and grades shown on the Contract Drawings with bedding and backfill as shown on the Drawings or called out in the Contract Documents. Blocking under the pipe shall not be permitted except through casing sleeves.
- E. The Contractor shall keep the open ends of all pipe closed with a tightly fitting plug when installation is not in progress or the potential exists for dirt or debris to enter the pipe.
- F. The pipe or accessories shall not be dropped into the trench under any circumstances.
- G. The Contractor shall construct all water mains pursuant to the provisions of "Recommended Standards for Water Works", Part 8, incorporated by reference in Rule 17-555.330(3), F.A.C.
- H. As a marker for the Surveyor, a PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor on the top of pipe for potable water mains, reclaimed water mains and sanitary force mains at intervals no greater than 200 feet apart and at locations where there is a substantial grade change. The pipe markers shall indicate the pipe diameter and shall be labeled PWM in "safety" blue, RWM in purple, and FM in green, for potable water mains, reclaimed water mains and sanitary force mains, respectively. As a marker for the Surveyor, a PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor on the top of all pipe fittings (other than sanitary sewer service wyes, potable water saddles and reclaimed water saddles). The markers for fittings shall indicate the type of fitting and shall be labeled PWF in "safety" blue, RWF in purple, and FMF in green, for potable water fittings, reclaimed water fittings, and sanitary force main fittings, respectively. The Contractor is responsible for making the aforementioned markers available to the Surveyor. The Contractor shall field locate the mains and fittings when markers are not made available to the Surveyor.
- I. A PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor at the beginning and end of each horizontal directional drill (HDD). The HDD Contractor shall provide a certified report and bore log indicating the horizontal and vertical location every 25 linear feet or less along the pipe.
- J. A 2" PVC pipe marker with a painted end cap shall be inserted by the Contractor at the ROW line indicating each individual new service location or stub out. The marker shall be a 6 foot length of PVC pipe inserted 2 feet into the ground and shall be painted "safety"

blue for potable water, purple for reclaimed water, and green for sewer.

## 1.02 PROCEDURE FOR TESTING WATER LINES, FORCE MAINS AND RECLAIMED WATER LINES

- A. A 48-hour notice is needed prior to testing. A letter stating the reasons testing should be scheduled ahead of other jobs must accompany all emergency testing requests.
- B. County and Contractor must be present for all testing, except for testing tapping valves and sleeves.
- C. All pressure pipe lines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipe lines shall be subjected to a hydrostatic pressure test for two (2) hours at full working pressure, but not less than 180 psi for water/reclaimed (150 psi for force main). Maximum length of pipe to be tested at one time is 2,600 feet. If line is longer than 2,600 feet and cannot be sectioned in 2,600 feet (max.) lengths, the allowable leakage will be figured at 2,600 feet.
- D. Allowable leakage shall be determined by AWWA C600 table for hydrostatic tests. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof; to maintain the test pressure after the air in the pipe line has been expelled and the pipe has been filled with water.
- E. All digging on the job site in the right-of-way must be completed before any testing of water or sewer. Any digging or boring across water or sewer lines after they have been tested may result in a retest of the lines at the County's request.
- F. If any revisions or changes are made after initial testing, lines will be re-tested at the County's request.
- G. Disconnect water supply during test.
- H. All force mains will be tested from the valves in the valve vault at the lift station to the point of connection whether it be against a valve on another force main or into a manhole.
- I. All services to be aboveground during test. The services should be the correct length so they will be one (1) foot inside right-of-way line.
- J. All fire hydrant gate valves to be open during test.
- K. All visible leaks are to be repaired, regardless of the amount of leakage.
- L. Check gauge pressure periodically during test. If test pressure drops to 175 psi for water/reclaimed lines or to 145 psi for force mains during test, the line must be repumped back to 180 psi for water/reclaimed (150 psi force mains) and the amount of leakage measured. The test will continue on with the remaining time left. At the end of the test, the line must be repumped again back to 180 psi (150 psi for force main) and the amount of leakage measured and added to any previous leakage determined earlier in the test.
- M. After the line passes the test, the pressure will be blown off from the opposite end of line from the gauge location. Fire hydrants, services and end-of-line blow offs will be opened to demonstrate they were on line during the test.

- N. At end of test, the test gauge must return to zero. The pressure gauge must read 0 psi to a maximum of 300 psi in 5 psi increments.
- O. The section of line being tested must be identified on the charge sheet. The length and size of pipe, the exact area being tested and the valves being tested against, must be identified. Use Station numbers if available.
- P. A punch list must be made at the end of all tests.
- Q. A copy of the charge sheet will be given to the County and the Contractor at the end of the test.

**1.03**

**INSPECTION/TESTING PROCEDURE COVERING BORED PIPE LINES OR CASING AND CONDUITS INSTALLED ACROSS PREVIOUSLY TESTED AND/OR COUNTY ACCEPTED WATER AND SEWER PIPE WITHIN DEVELOPMENT PROJECTS UNDER ACTIVE CONSTRUCTION**

- A. Prior to testing water and sewer lines, every effort will be made to install sleeves for underground utilities that will cross these water and sewer lines or services.
- B. Where it has not been possible to pre-install sleeves prior to testing and bores or conduits are required, it is the responsibility of the utility company and/or their Contractor performing the work to provide Manatee County Utility Operations Department or the Engineer of Record with accurate horizontal and vertical as-built information of the sleeves, bores and conduits installed by said utility company. This applies to all bores and conduits crossing water and sewer lines.
- C. Procedures to be followed for installation of conduits, pipe lines and bores that will cross, or be closer than 5'-0" horizontally and 18 inches vertically to, previously tested water and sewer lines that are still under the ownership of the developer/contractor.
  - 1. Notify the County and obtain the best as-built information available. Allow sufficient time for the County to field locate the existing pipe lines.
  - 2. Submit drawings of proposed location to the County and Manatee County Utility Operations Dept. Utility Locations Section for review.
  - 3. Obtain a County Right-of-Way Use Permit if the work area is within a dedicated area of right-of-way.
  - 4. Perform installation in the presence of a County representative. Call (941) 792-8811, ext. 5061 or ext. 5069 with at least two (2) working days notice.
  - 5. Submit two (2) copies of as-built information to the County to incorporate into the record drawings to be submitted to the County.
  - 6. Failure to follow steps 2) thru 5) will result in additional charges for retesting the previously tested water and sewer lines.
- D. Procedures to be followed for installation of conduits, pipe lines and bores crossing or closer than 5'-0" horizontally and 18 inches vertically to previously tested water and sewer lines that have been previously accepted by Manatee County:
  - 1. Obtain record drawing information from the County.
  - 2. If roadway has been dedicated to Manatee County, obtain Right-of-Way Use Permit and copy the Project Management Department Locations Section with proposed location drawing.

3. Follow procedures in "Sunshine State One-Call", paying special attention to the requirements of Section VII.
- E. Should water or sewer lines be damaged during the bore pipe line or casing installation, the cost of any repairs and retesting will be paid for by the utility company that installed the bore. The actual clearance between a bored casing crossing a water or sewer pipe should not be less than 18 inches.

**1.04 DETECTION**

- A. Direct buried 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 non-metallic 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 or Manatee County approved equal.

**END OF SECTION**

## **SECTION 02618 PIPELINE CLEANING**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to clean all new lines 4" and larger, and existing pipelines as specified in this specification and as indicated on the Drawings.
- B. This work shall include the furnishing and installation of all pig launching and retrieval devices and the appropriate pigs for the cleaning procedure, and all necessary excavations, shutdowns, fittings and valves required.

#### **1.02 RELATED WORK**

- A. The contractor is responsible for all necessary supply water.
- B. The contractor is responsible for all necessary bypass pumping.
- C. The contractor is responsible for the proper disposal of any materials removed from the pipe lines as a result of the cleaning procedure.

#### **1.03 SUBMITTALS**

- A. The Contractor shall submit prior to construction, a cleaning plan, Shop Drawings, and layout diagram for approval to the County.
- B. The Contractor shall submit to the County a list of materials to be furnished, and the names of suppliers.

#### **1.04 QUALIFICATIONS**

- A. The Contractor performing this work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner.
- B. The Contractor shall also be capable of providing crews as needed to complete this work without undue delay.
- C. The County reserves the right to approve or disapprove the Contractor, based on the submitted qualifications.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL**

- A. The contractor shall be responsible for furnishing pigs in sufficient numbers and sizes, of appropriate densities, coatings and configurations to properly clean the piping systems.
- B. All pigs used for the cleaning of sewer or reclaimed water lines shall not be used in the cleaning of potable water lines.

## 2.02 MATERIALS

- A. The pig launching and retrieval equipment shall be of the latest design and construction and shall include the means to maintain constant monitoring of the in-line flows and pressures of the system being cleaned and the constant location of the cleaning pigs in the system. Launching and retrieval systems shall be fabricated, designed and manufactured according to ANSI standards and capable of withstanding working pressures of 150 psi. Launching and receiving devices shall be sized one diameter larger than the system to which it will be attached with a minimum length of 2.5 times the diameter.
- B. The contractor shall have available for immediate use an electronic pig detector for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage and other disparities in the system.
- C. The pig shall be constructed of elastomer polyurethane with an open cell construction and a density equal to or suitable for use in the piping system being cleaned. Pig configuration shall consist of a parabolic nose with a concave base and coated with a resilient surface material that will maintain a peripheral seal and will effectively clean the piping system without over abrading the interior pipe wall. Pig characteristics shall include the ability to navigate through 90 degree bends, 180 degree turns, bi-directional fittings, full port valves, reduce its cross sectional area and return to its original design configuration and be propelled by hydraulic pressure.

## PART 3 EXECUTION

### 3.01 PIPELINE CLEANING

- A. The cleaning of the pipe line shall be done by the controlled and pressurized passage of a polyurethane pig of varying dimensions, coatings and densities as determined by the County through the piping system.
- B. A series of pigs shall be entered into the system at a point as near to the beginning as is logistically and mechanically feasible.
- C. A launching assembly shall be used as the entrance point for the pig. This assembly shall allow for the following:
  - 1. The entering of pigs into the system by providing the means to induce flow from an external source, independent of the flows and pressures immediately available from the system, on the back of the pig to develop sufficient pressure to force the pig through the system.
  - 2. A means to control and regulate the flow.
  - 3. A means to monitor the flows and pressures.
  - 4. A means to connect and disconnect from the system without any disruption to the operation of the system.
- D. The pig shall be removed or discharged from the system at a point as near to the end as is logistically and mechanically feasible.
- E. The contractor shall be responsible for the retrieval of the pig at the discharge point. This may include setting a trap that will not disrupt normal flow and operations but will capture

the pig and any debris. A retrieval assembly may also be used but said assembly shall be able to connect and disconnect from the system without any disruption to the operation of the system.

- F. Alternative launching and retrieval methods shall be done with the prior approval of the County.
- G. Any pig that cannot progress through the piping system shall be located by the contractor and removed by excavation of the pipe in order to remove the blockage. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.
- H. Any increase in pressure that cannot be accounted for, i.e. fittings or valves or additional cleaning runs, shall be investigated, per the Engineers' approval, by locating the pig at the beginning of the increased pressure and excavating to determine the cause of the pressure increase. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.
- I. Final flushing of the cleansed lines shall be performed after the last successful run of the pig as determined by the County. The contractor shall be responsible for all applicable flushing and disinfection requirements for potable water lines.

### **3.02 ACCEPTANCE**

- A. The contractor shall maintain and provide a report at the end of the cleaning procedure containing the following:
  - 1. The pressures in the pipe during the pigging procedure.
  - 2. Any inline problems encountered during the procedure including all excavations with detailed locations, reason for the excavation and any corrective measures taken to the pipeline.
  - 3. A record of the pigs used, their sizes, styles and other pertinent information regarding what materials were used during the cleaning.
  - 4. An analysis of the condition of the pipeline before and after the cleaning procedure.

**END OF SECTION**

## 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 County.
- B. For "Navigable Waters of the U.S." reference 33 of the Code of Federal Regulations, Part 329.
- C. For "Waters of the U.S." reference 33 of the Code of Federal Regulations, Part 323.
- D. For "Waters of the State" reference Section 62-301 of the Florida Administrative Code.

#### 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.
- F. Each finished bore path shall be tested by a certified professional utilizing a mandrel equal to 95% of the diameter of the pipeline being tested or/and by video inspections to ensure the installed HDPE pipe inside diameter has not been reduced do to stretching or "necking" by excessive pull forces. Deflection testing shall be done not less than thirty days after installation. The pipe shall be checked to see if the internal diameter is not reduced by more than 5%. Pipe through which the mandrel does not pass or is visually seen to have a reduced internal diameter will be considered unacceptable, and shall be re-laid, and also re-tested at the Contractor's own expense.

#### 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 seven years 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 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 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. Pipe assembly procedure, details of support devices, and staging area layout including methods to avoid interference with local streets, driveways, and sidewalks.
  - 7. Details of pipe fusion procedures and copies of the fusion technician qualification certification or documentation.
  - 8. 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 Sun-light, 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 County within seven days of the completion of each bore path. Data collected by the County Representative 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.
- E. Furnish a Bore Path Mandrel Test Report or/and a TV Video Inspection report prepared by a certified professional to the County within thirty days of the completion of each bore path. Data collected by the County Representative 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. Mandrel Testing Log & description of the mandrel sized 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 mandrel tests. Include location of failed section of pipe 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 or Manatee County 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.
- C. 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 County.
- B. When required by the County, 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 County 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 County.

### 3.03 QUALIFICATIONS FOR REJECTION OF DIRECTIONAL BORE

- A. The County 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 County and investigate damage. The County may require a pressure and / or mandrel test at no additional cost to the County and shall have a County representative present during the test. Perform all testing within 24 hours unless otherwise approved by the County. Furnish a copy of the test results and all bore logs to the County for review and approval. The County 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 County.
  - 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 can not 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 can not 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 as specified by the County.
  - 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 County, 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 County. 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 County 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 County’s 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 a 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 County’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 County.
- 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 County immediately. Do not continue drilling without the County's approval.

- 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.
- D. 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 | Max. Defect Depth                       |
|-----------|---|
| In.       | 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 County.
- 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 after installation. For non-conductive installations, externally attach two (2) tracer wires; see Section 2.01 - Materials, Part I. above, to the product pipe.

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 County 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 County Representative. If the wire is broken, the Contractor shall repair or replace it at no additional cost to the County.

### **3.09 MANDREL DEFLECTION TESTING PROCESS**

- A. The deflection test for flexible pipe sewer systems shall be performed by pulling a mandrel through the pipe line. The mandrel shall have a diameter equal to 95 percent of the inside diameter of the pipe system being tested. When the mandrel cannot be pulled through the pipe line the Contractor shall locate and correct the defect to the satisfaction of the County. After the defect is corrected and trench backfilled, the section of line shall then be retested to compliance.
- B. Deflection tests shall be performed not sooner than 30 days after completion of placement and densification of backfill. The pipe shall be cleaned and inspected for offsets and obstructions prior to testing.
- C. The mandrel shall: (1) be a rigid, nonadjustable, odd number of legs (9 legs minimum), mandrel having an effective length not less than its nominal diameter; and (2) be fabricated of steel, fitted with pulling rings at each end, stamped or engraved on some segment other than a runner indicating the pipe material specification, nominal size and be furnished in a suitable carrying case labeled with the same data as stamped or engraved on the mandrel.
- D. The mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. Prior to use, the mandrel shall be certified by a Professional Engineer licensed in the state of Florida and a report thereof submitted to the County. Use of an uncertified mandrel or a mandrel altered or modified after certification will invalidate the test. If the mandrel fails to pass, the pipe will be deemed overdeflected.
- E. Overdeflected pipe shall be uncovered and, if not damaged, reinstalled within 45 calendar days of its removal. Damaged pipe shall not be reinstalled, but shall be removed from the work site. Any pipe subjected to any method or process other than removal, which attempts, even successfully, to reduce or cure overdeflection, shall be uncovered, removed from the work site and replaced with new pipe. The replaced pipe shall be tested for deflection not sooner than 30 days after installation.

### **3.10 TELEVISION INSPECTION TESTING PROCESS**

- A. TV inspection of the entire length of the inside of new gravity sewer mains shall be conducted by the Contractor. The County Inspector shall have been notified and shall be present during the TV inspection.
- B. The sewer pipelines shall be thoroughly cleaned of all dirt, debris or obstructions before the TV inspection. Water shall be added to the upstream manhole until it is seen flowing



from the most downstream point of the system to be inspected.

- C. The TV camera shall be a self-propelled, 360 degree pan-head, color type and shall have dual tape recording capability. The camera shall be equipped with a depth gauge calibrated to ¼-inch increments to accurately record the depth of the water in the pipeline. A calibration report shall be submitted with each digital video disk (DVD), which shall include a drawing of the depth gauge, indicating the marks on the gauge, and what depth each mark represents.
- D. The County Inspector shall be present and will observe the TV monitor along with the camera operator as the camera progresses through the pipe. All pipelines will be inspected with the camera progressing in an upstream direction when possible. The camera operator shall record the manhole numbers and the distance the camera has progressed from the downstream manhole as the inspection proceeds. The operator shall stop the progress of the camera and record the distance at all locations along the pipeline where unusual or defective features are encountered. The operator shall record the distance and depth of the water in the pipe at all locations where the depth is greater than or equal to ¾ inch. The Contractor shall make records where cracked, dented or deformed pipe is found, or at joints that are not properly installed, or where infiltration is observed, or at any other abnormality or where any other defective feature is encountered.
- E. At the end of the inspections, or at the end of the day, one original digital video disk (DVD) of the TV record shall be submitted to the County Inspector along with the written inspection report and depth gauge calibration for evaluation. The County's representative shall be the sole judge of whether any information imparted by the TV test DVD will cause the County to accept or reject the pipe test section.
- F. Pipe grade between manholes shall not deviate by more than 1 inch from the design grade line, as measured with the television (TV) camera's depth gauge during the TV inspection, provided that such deviation does not result in a level or a reverse slope. Joint deflection and longitudinal pipe deflection between manholes that exceeds 1 inch or more than two deflections that exceed ¾ inch, as measured with the television camera's depth gauge during the TV inspection, shall not be accepted.
- G. A written log shall accompany the recorded DVD. Including the following information shall accompany the recorded DVD:
  - 1) Date
  - 2) Project Number & DVD Number
  - 3) Location
  - 4) Pipe Material and Size
  - 5) Name of Equipment Operator
  - 6) Name of Firm Performing the Inspection
  - 7) All deficiencies in the sewer installation shall be noted and their location referenced to their on-screen footage readout
- H. The recorded DVD and accompanying report shall be delivered to the County not later than 24 hours after completion of the inspection. The DVD and report shall become the property of the County. The County will review the recorded television inspection and will notify the Contractor whether:
  - 1) The review revealed a satisfactory installation, or
  - 2) The review revealed deficiencies

- I. The Contractor may review the recorded television inspection by requesting and arranging the review with the County.
- J. The following deficiencies in sanitary force main installation shall be corrected by the Contractor at no cost to the City:
  - 1) Overdeflections
  - 2) Stretched or "Necked" Pipe
  - 3) Damaged Pipe
  - 4) Improper Pipe Welds
  - 5) Infiltration points
  - 6) Debris in the line
- K. The County 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 force main 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 County. In addition, should repairs of the force main be accomplished by the use of any unauthorized materials or procedure, the County will require replacement of those substandard portions or repairs made to conform to the requirements of these specifications.
- I. Upon completion of repairs the sewer main shall be TV inspected and the recorded TV inspection will be reviewed by the County. This process shall be repeated until the review of the recorded television inspection reveals a satisfactory installation.

### **3.11 MEASUREMENT AND PAYMENT**

The work specified in this section will not be separately measured for payment. Full compensation for the acceptance tests specified in this section shall be considered as included in the various contract unit prices paid for sewer pipe and no additional compensation will be allowed therefor.

**END OF SECTION**

**SECTION 02622 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (AWWA SPECIFICATIONS C-900 & C-905)**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials, equipment and incidentals required to install the plastic piping, fittings and appurtenances complete and ready for use as specified in the Contract Documents and these Standards.

**1.02 DESCRIPTION OF SYSTEM**

The Contractor shall install the piping in the locations as shown on the Drawings.

**1.03 QUALIFICATIONS**

All plastic pipe, fittings and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable, qualified and specializes in the manufacture of the items to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications.

**1.04 SUBMITTALS**

- A. The Contractor shall submit shop drawings to the County including, but not limited to, dimensions and technical specifications for all piping.
- B. The Contractor shall submit to the County, samples of all materials specified herein.
- C. The Contractor shall submit and shall comply with pipe manufacturer's recommendation for handling, storing and installing pipe and fittings.
- D. The Contractor shall submit pipe manufacturer's certification of compliance with these Specifications.

**1.05 TOOLS**

The Contractor shall supply special tools, solvents, lubricants, and caulking compounds required for proper installation.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Pressure Class-Rated Polyvinyl Chloride (PVC) Pipe
  - 1. Pressure class-rated PVC pipe and accessories four to twelve inches (4"-12") in diameter, shall meet the requirements of AWWA Specification C-900 "Polyvinyl Chloride (PVC) Pressure Pipe". Pipe shall be Class 150, meeting requirements of Dimension Ratio (DR) 18 and shall have the dimension of ductile iron outside diameters. Each length of pipe shall be hydrotested to four (4) times its class pressure by the manufacturer in accordance with AWWA C-900.

2. PVC pipe 14" through 36" shall meet the requirements of AWWA Standard C-905, Polyvinyl Chloride (PVC) Water Transmission Pipe. Pipe 14" thru 24" for potable and reclaim water shall meet the requirements for dimension ratio (DR) 18. Each length of pipe shall be tested at twice the pressure rating (PR 235 psi) for a minimum dwell of 5 seconds in accordance with AWWA C-905. Fourteen inch (14") thru 36" PVC pipe for sewer force mains shall meet AWWA C-905 requirements for dimension ratio (DR) 21. Each length of pipe shall be tested at twice the pressure rating (PR 200 psi) for a minimum dwell of five seconds in accordance with AWWA C-905.

Pipe shall be listed by Underwriters Laboratories. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring, and shall have an integral thickened bell as part of each joint. PVC Class pipe shall be installed as recommended by the manufacturer. Pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise directed by the County. Pipe and accessories shall bear the NSF mark indicating pipe size, manufacturer's names, AWWA and/or ASTM Specification number, working pressure, and production code.

3. Gaskets for 16" diameter and larger pipe used for potable water pipe shall be EPDM (Ethylene-Propylene Dine Monomer).
4. PVC pipe 3" and less in diameter may be constructed using pipe conforming to ASTM D2241 with push-on joints. Pipe shall be 200 psi pipe-SDR 21 unless otherwise specified by the County. This PVC pipe shall not be used for working pressures greater than 125 psi.
5. Pipe shall be blue for potable water mains, green for sewage force mains and purple for reclaimed water mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the County.
6. Where colored pipe is unavailable, white PVC color coded spiral wrapped pipe shall be installed.

#### B. Joints

1. The PVC joints for pipe shall be of the push-on type unless otherwise directed by the County so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single resilient gasket joint designed to be assembled by the positioning of a continuous, molded resilient ring gasket in an annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled.

The resilient ring joint shall be designed for thermal expansion or contraction with a total temperature change of at least 75 degrees F in each joint per length of pipe. The bell shall consist of an integral wall section with a solid cross section elastomeric ring which shall meet requirements of ASTM F-477. The thickened bell section shall be designed to be at least as strong as the pipe wall. Lubricant furnished for lubricating joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material, and shall not impart color, taste, or odor to the water. Gaskets shall be suitable for use with potable water, reclaimed water or sanitary sewer as applicable.

2. Restrained joints shall be provided at all horizontal and vertical bends and fittings, at casings under roads and railroads and at other locations shown on the Contract Drawings. PVC joints for pipe shall be restrained by the following methods: thrust blocks, restraining glands such as Certa-Lok Restraining Joint Municipal Water Pipe by the Certain Teed Corporation of Valley Forge, PA, or approved equal. All Grip, Star Grip by Star Products, MJR by Tyler Pipe, Tyler, Texas. Restrained joint PVC pipe shall be installed in strict accordance with the manufacturer's recommendation.

C. Fittings

1. All fittings for class-rated PVC pipe shall be ductile iron with mechanical joints and shall conform to the specifications for ductile iron fittings, unless otherwise directed. Class 200, C-900 PVC fittings are allowable for sewage force main applications up to and including 12" diameter only. DR ratio shall be the same as the pipe.
2. The manufacturer of the pipe shall supply all polyvinyl chloride accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

The Contractor shall install the plastic pipe in strict accordance with the manufacturer's technical data and printed instructions. Direct bury pipe shall have 3" detectable metallic tape of the proper color placed directly above the pipe 12" below finished grade or 6" detectable tape between 12" and 24" below grade.

**3.02 INSPECTION AND TESTING**

All pipe lines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipe lines shall be subjected to a hydrostatic pressure test for two (2) hours at full working pressure, but not less than 180 psi for water/reclaimed (150 psi for force main). All visible leaks shall be repaired and retested for approval by the County. Prior to testing, the pipe lines shall be supported in a manner approved by the County to prevent movement during tests.

**END OF SECTION**

## SECTION 02640 VALVES AND APPURTENANCES

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required and install complete and ready for operation all valves and appurtenances as shown on the Drawings and as specified herein.
- B. All valves and appurtenances shall be of the size shown on the Drawings and, to the extent possible, all equipment of the same type on the Project shall be from one manufacturer.
- C. All valves and appurtenances shall have the name of the manufacturer and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.
- D. All valves shall have a factory applied, fusion bonded epoxy coating on interior and exterior unless noted otherwise in the plans or this specification.
- E. The equipment shall include, but not be limited to, the following:
  - 1. Gate valves (Sec. 2.01)
  - 2. Pressure Sustaining and Check Valves (Sec. 2.02)
  - 3. Ball Valves for PVC Pipe (Sec. 2.03)
  - 4. Butterfly Valves (Sec. 2.04)
  - 5. Plug Valves (Sec. 2.05)
  - 6. Valve Actuators (Sec. 2.06)
  - 7. Air Release Valves (Sec. 2.07)
  - 8. Valves Boxes (Sec. 2.08)
  - 9. Corporation Cocks (Sec. 2.09)
  - 10. Flange Adapter Couplings (Sec. 2.10)
  - 11. Flexible Couplings (Sec. 2.11)
  - 12. Hose Bibs (Sec. 2.12)
  - 13. Slow Closing Air and Vacuum Valves (Sec. 2.13)
  - 14. Surge Anticipator Valve (Sec. 2.14)
  - 15. Check Valves (Sec. 2.15)
  - 16. Hydrants (Sec. 2.16)
  - 17. Restraining Clamps (Sec. 2.17)
  - 18. Tapping Sleeves and Tapping Valves (Sec. 2.18)
  - 19. Single Acting Altitude Valves (Sec. 2.19)

#### 1.02 DESCRIPTION OF SYSTEMS

All of the equipment and materials specified herein are intended to be standard for use in controlling the flow of potable water, reclaim water, wastewater, etc., depending on the applications.

#### 1.03 QUALIFICATIONS

All of the types of valves and appurtenances shall be products of well established reputable firms who are fully experienced and qualified in the manufacture of the particular

equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable. Valves shall be as covered under mechanical devices in Section 8 of ANSI/NSF Standard 61.

#### **1.04 SUBMITTALS**

- A. Submit to the County within 30 days after execution of the contract a list of materials to be furnished, the names of the suppliers and the date of delivery of materials to the site.
- B. Complete shop drawings of all valves and appurtenances shall be submitted to the County for approval in accordance with the Specifications.

#### **1.05 TOOLS**

Special tools, if required for normal operation and maintenance shall be supplied with the equipment.

### **PART 2 PRODUCTS**

#### **2.01 GATE VALVES**

- A. All buried valves shall have cast or ductile iron three (3) piece valve bodies.
- B. Where indicated on the drawings or necessary due to locations, size, or inaccessibility, chain wheel operators shall be furnished with the valves. Such operators shall be designed with adequate strength for the valves with which they are supplied and provide for easy operation of the valve. Chains for valve operators shall be galvanized.
- C. Where required, gate valves shall be provided with a box cast in a concrete slab and a box cover. Length of box shall include slab thickness. Box cover opening shall be for valve stem and nut. Valve wrenches and extension stems shall be provided by the manufacturer to actuate the valves. The floor box and cover shall be equal to those manufactured by Rodney Hunt Machine Company, Orange, Massachusetts, Clow, DeZurik or approved equal.
- D. Gate valves with 3"-20" diameters shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C509 or C515 and UL/FM of latest revision and in accordance with the following specifications. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.
- E. Wrench nut shall be provided for operating the valve.
- F. Valves shall be suitable for an operating pressure of 200 psi and shall be tested in accordance with AWWA C509 or C515. Mueller, Kennedy, M&H, and Clow are acceptable valves.
- G. All bonnet bolts, nuts and studs shall be stainless steel.

#### **2.02 PRESSURE SUSTAINING AND CHECK VALVE**

- A. Pressure sustaining and check valve shall be pilot operated diaphragm actuated valve with cast iron body, bronze trim, and 125-pound flanged ends. The valve shall be

hydraulically operated, diaphragm type globe valve. The main valve shall have a single removable seat and a resilient disc, of rectangular cross section, surrounded on three and a half sides. The stainless steel stem shall be fully guided at both ends by a bearing in the valve cover, and an integral bearing in the valve seat. It shall be sleeved at both ends with delrin. No external packing glands are permitted and there shall be no pistons operating the main valve or any controls. The valve shall be equipped with isolation cocks to service the pilot system while permitting flow if necessary. Main valve and all pilot controls shall be manufactured in the United States of America. Valve shall be single chamber type, with seat cut to 5 degrees taper.

- B. Valve shall maintain a minimum (adjustable) upstream pressure to a preset (adjustable) maximum. The pilot system shall consist of two direct acting, adjustable, spring loaded diaphragm valves.
- C. Valve shall be cast iron (ASTM A48) with main valve trim of brass (QQB-B-626) and bronze (ASTM B61). The pilot control valves shall be cast brass (ASTM B62) with 303 stainless steel trim. All ferrous surfaces inside and outside shall have a 2-part epoxy coating. Valve shall be similar in all respects to CLA-VAL Company, Model 692G-01ABKG, as manufactured by CLA-VAL Company, Winter Park, Florida, or similar pressure sustaining and check valve as manufactured by Golden Alderson; or approved equal.

### **2.03 BALL VALVES FOR PVC PIPE**

- A. Ball valves for PVC pipe shall be of PVC Type 1 with union, socket, threaded or flanged ends as required. Ball valves shall be full port, full flow, all plastic construction, 150 psi rated with teflon seat seals and T-handles. PVC ball valves shall be as manufactured by Celanese Piping Systems, Inc., Wallace and Tiernan, Inc., Plastiline, Inc., or approved equal.
- B. All valves shall be mounted in such a position that valve position indicators are plainly visible when standing on the floor.

### **2.04 BUTTERFLY VALVES**

- A. Butterfly valves shall conform to the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designated C504, except as hereinafter specified. Valves, except as specified hereinafter, shall be Class 150A or B, except that valves furnished downstream of the high service pumps shall be Class 250 and equal to those manufactured by Henry Pratt Company, DeZurik, Mueller, or approved equal. M&H/Kennedy/Clow are not generally approved equals. Ductile iron conforming to ASTM A536, Grade 65-45-12 shall be provided for all Class 250 valves. All valves shall be leak tested at 200 psi.
- B. The face-to-face dimensions of flanged end valves shall be in accordance with Table 1 of above mentioned AWWA Specification for short-body valve. Adequate two-way thrust bearings shall be provided. Flange drilling shall be in accordance with ANSI B16.1.
- C. Valve seats shall be an EPDM elastomer. Valve seats 24 inches and larger shall be field adjustable and replaceable without dismounting operator disc or shaft and without removing the valve from the line. All retaining segments and adjusting devices shall be of corrosion resistant material with stainless Nylock screws and be capable of the 1/8-inch adjustment. Valves 20 inches and smaller shall have bonded or mechanically restrained seats as outlined in AWWA C 504. Where the EPDM seat is mounted on the valve body,



the mating edge of the valve disc shall be 18-8 stainless steel or Nickel-Chrome, 80-20%. Where the EPDM seat is mounted on the valve disc, the valve body shall be fitted with an 18-8 stainless steel seat offset from the shaft, mechanically restrained and covering 360 degrees of the peripheral opening or seating surface.

- D. The valve body shall be constructed of ductile iron or close grain cast iron per ASTM A126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type. Butterfly valves of the "wafer" or "spool" type will not be accepted.
- E. The valve shaft shall be turned, ground, and polished constructed of 18-8, ASTM A-276, Type 304 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque. Shaft shall be of either a one piece unit extending full size through the valve disc and valve bearing or it may be of a stub shaft design. Shaft bearings shall be teflon or nylon, self-lubricated type.
- F. All valves shall be subject to hydrostatic and leakage tests at the point of manufacture. The hydrostatic test for Class 250 valves shall be performed with an internal hydrostatic pressure equal to 500 psi applied to the inside of the valve body of each valve for a period of five minutes. During the hydrostatic test, there shall be no leakage through the metal, the end joints or the valve shaft seal. The leakage test for the Class 250 valves shall be performed at a differential pressure of 230 psi and against both sides of the valve. No adjustment of the valve disc shall be necessary after pressure test for normal operation of valve. The Class 150 valves shall be tested in conformance with AWWA C-504.
- G. In general, the butterfly valve operators shall conform to the requirements of Section 3.8 of the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, insofar as applicable, and as herein specified.
- H. Gearing for the operators shall be totally enclosed in a gear case in accordance with paragraph 3.8.3 of the above mentioned AWWA Standard Specification.
- I. Operators shall be capable of seating and unseating the disc against the full design pressure of velocity, as specified for each class, into a dry system downstream and shall transmit a minimum torque to the valve. Operators shall be rigidly attached to the valve body.
- J. The manufacturer shall certify that the required tests on the various materials and on the completed valves have been satisfactory and that the valves conform with all requirements of this Specification and the AWWA standard.
- K. Where indicated on the Drawings, extension stems, floor stands, couplings, stem guides, and floor boxes as required shall be furnished and installed.

## 2.05 PLUG VALVES

- A. All plug valves shall be eccentric plug valves capable of sustaining 150 psi in either direction without leaking.

Exception: Single direction plug valves may be used if it is clearly demonstrated they will never be required to resist pressure in both directions either in service or during pipe line testing.

- B. Plug valves shall be tested in accordance with current AWWA Standard C-504-80 Section 5. Each valve shall be performance tested in accordance with paragraph 5.2 and shall be given a leakage test and hydrostatic test as described in paragraphs 5.3 and 5.4. Plug valves shall be Kennedy or Dezurik.
- C. Plug valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as shown on the Plans. Flanged valves shall be faced and drilled to the ANSI 150 lb. standard. Mechanical joint ends shall be to the AWWA Standard C111-72. Bell ends shall be to the AWWA Standard C100-55 Class B. Screwed ends shall be to the NPT standard.
- D. Plug valve bodies shall be of ASTM A126 Class B Semi-steel, 31,000 psi tensile strength minimum in compliance with AWWA Standard C507-73, Section 5.1 and AWWA Standard C504-70 Section 6.4. Port areas for valves 20-inches and smaller shall be 80 percent of full pipe area. Valves 24 inch and larger shall have a minimum port area between 80 and 100 percent of full nominal pipe area. All exposed nuts, bolts, springs, washers, etc. shall be zinc or cadmium plated. Resilient plug facings shall be of Hycar or Neoprene.
- E. Plug valves shall be furnished with permanently lubricated stainless steel or oil-impregnated bronze upper and lower plug stem bushings. These bearings shall comply with current AWWA Standards.

## 2.06

### VALVE ACTUATORS

- A. General
  - 1. All valve actuators shall conform to Section 3.8 of the AWWA Standard Specification and shall be either manual or motor operated.
  - 2. Actuators shall be capable of seating and unseating the disc against the full design pressure and velocity, as specified for each class, into a dry system downstream, and shall transmit a minimum torque to the valve. Actuators shall be rigidly attached to the valve body.
  - 3. Butterfly valve actuators shall conform to the requirements of Section 3.8 of the AWWA Standard specifications for Rubber Seated Butterfly Valves, Designated C504, insofar as applicable and as herein specified.
- B. Manual Actuators
  - 1. Manual actuators shall have permanently lubricated, totally enclosed gearing with handwheel and gear ratio sized on the basis of actual line pressure and velocities. Actuators shall be equipped with handwheel, position indicator, and mechanical stop-limiting locking devices to prevent over travel of the disc in the open and closed positions. They shall turn counter-clockwise to open valves. Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 pounds on the handwheel or chainwheel. Actuator components shall withstand an input of 450 foot pounds for 30" and smaller and 300 foot pounds for larger than 30" size valves at extreme actuator positions without damage. Valves located above grade shall have handwheel and position indicator, and valves located below grade shall be equipped with a two inch (2") square AWWA operating nut located at ground level and cast iron extension type valve box. Valve actuators shall conform to AWWA

C504, latest revision.

C. Motor Actuators (Modulating)

1. The motor actuated valve controller shall include the motor, actuator unit gearing, limit switch gearing, limit switches, position transmitter which shall transmit a 4-20 mA DC signal, control power transformer, electronic controller which will position the valve based on a remote 4-20 milliamp signal, torque switches, bored and key-wayed drive sleeve for non-rising stem valves, declutch lever and auxiliary handwheel as a self-contained unit.
2. The motor shall be specifically designed for valve actuator service using 480 volt, 60 Hertz, three phase power as shown, on the electrical drawings. The motor shall be sized to provide an output torque and shall be the totally enclosed, non-ventilated type. The power gearing shall consist of helical gears fabricated from heat treated alloy steel forming the first stage of reduction. The second reduction stage shall be a single stage worm gear. The worm shall be of alloy steel with carburized threads hardened and ground for high efficiency. The worm gear shall be of high tensile strength bronze with hobbed teeth. All power gearing shall be grease lubricated. Ball or roller bearings shall be used throughout. Preference will be given to units having a minimum number of gears and moving parts. Spur gear reduction shall be provided as required.
3. Limit switches and gearing shall be an integral part of the valve control. The limit switch gearing shall be made of bronze and shall be grease lubricated, intermittent type and totally enclosed to prevent dirt and foreign matter from entering the gear train. Limit switches shall be of the adjustable type capable of being adjusted to trip at any point between fully opened valve and fully closed valve.
4. The speed of the actuator shall be the responsibility of the system supplier with regard to hydraulic requirements and response compatibility with other components within the control loop. Each valve controller shall be provided with a minimum of two rotor type gear limit switches, one for opening and one for closing. The rotor type gear limit switch shall have two normally open and two normally closed contacts per rotor. Gear limit switches must be geared to the driving mechanism and in step at all times whether in motor or manual operation. Provision shall be made for two additional rotors as described above, each to have two normally open and two normally closed contacts. Each valve controller shall be equipped with a double torque switch. The torque switch shall be adjustable and will be responsive to load encountered in either direction of travel. It shall operate during the complete cycle without auxiliary relays or devices to protect the valve, should excessive load be met by obstructions in either direction of travel. The torque switch shall be provided with double-pole contacts.
5. A permanently mounted handwheel shall be provided for manual operation. The handwheel shall not rotate during electric operations, but must be responsive to manual operation at all times except when being electrically operated. The motor shall not rotate during hand operation nor shall a fused motor prevent manual operation. When in manual operating position, the unit will remain in this position until motor is energized at which time the valve operator will automatically return to electric operation and shall remain in motor position until handwheel operation is desired. This movement from motor operation to handwheel operation shall be accomplished by a positive declutching lever which will disengage the motor and motor gearing mechanically, but not electrically. Hand operation must be reasonably fast. It shall be impossible to place the unit in manual operation when the motor is running. The gear limit switches and torque switches shall be housed in a single easily accessible compartment integral with the power compartment of

the valve control. All wiring shall be accessible through this compartment. Stepping motor drives will not be acceptable.

6. The motor with its control module must be capable of continuously modulating over its entire range without interruption by heat protection devices. The system, including the operator and control module must be able to function, without override protection of any kind, down to zero dead zone.
7. All units shall have strip heaters in both the motor and limit switch compartments.
8. The actuator shall be equipped with open-stop-close push buttons, an auto-manual selector switch, and indicating lights, all mounted on the actuator or on a separate locally mounted power control station.
9. The electronics for the electric operator shall be protected against temporary submergence.
10. Actuators shall be Limitorque L120 with Modutronic Control System containing a position transmitter with a 4-20MA output signal or equal.

#### D. Motor Actuators (Open-Close)

1. The electronic motor-driven valve actuator shall include the motor, actuator gearing, limit switch gearing, limit switches, torque switches, fully machined drive sleeve, declutch lever, and auxiliary handwheel as a self-contained unit.
2. The motor shall be specifically designed for valve actuator service and shall be of high torque totally enclosed, nonventilated construction, with motor leads brought into the limit switch compartment without having external piping or conduit box.
  - (a) The motor shall be of sufficient size to open or close the valve against maximum differential pressure when voltage to motor terminals is 10% above or below nominal voltage.
  - (b) The motor shall be prelubricated and all bearings shall be of the anti-friction type.
3. The power gearing shall consist of helical gears fabricated from heat treated steel and worm gearing. The worm shall be carburized and hardened alloy steel with the threads ground after heat treating. The worm gear shall be of alloy bronze accurately cut with a hobbing machine. All power gearing shall be grease lubricated. Ball or roller bearings shall be used throughout.
4. Limit switches and gearing shall be an integral part of the valve actuator. The switches shall be of the adjustable rotor type capable of being adjusted to trip at any point between fully opened valve and fully closed valve. Each valve controller shall be provided with a minimum of two rotor type gear limit switches, one for opening and one for closing (influent valves require additional contacts to allow stopping at an intermediate position). The rotor type gear limit switch shall have two normally open and two normally closed contacts per rotor. Additional switches shall be provided if shown on the control and/or instrumentation diagrams. Limit switches shall be geared to the driving mechanism and in step at all times whether in motor or manual operation. Each valve actuator shall be equipped with a double torque switch. The torque switch shall be adjustable and will be responsive to load encountered in either direction of travel. It shall operate during the complete cycle without auxiliary relays or devices to protect the valve should excessive load be met by obstructions in either direction of travel. Travel and thrusts shall be independent of wear in valve disc or seat rings.
5. A permanently mounted handwheel shall be provided for manual operation. The handwheel shall not rotate during electric operation except when being electrically operated. The motor shall not rotate during hand operation, nor shall a fused motor prevent manual operation. When in manual operating position, the unit will remain in this position until motor is energized at which time the valve actuator will

automatically return to electric operation and shall remain in motor position until handwheel operation is desired. Movement from motor operation to handwheel operation shall be accomplished by a positive declutching lever which will disengage the motor and motor gearing mechanically, but not electrically. Hand operation must be reasonably fast. It shall be impossible to place the unit in manual operation when the motor is running.

6. Valve actuators shall be equipped with an integral reversing controller and three phase overload relays, Open-Stop-Close push buttons, local-remote-manual selector switch, control circuit transformer, three-phase thermal overload relays and two pilot lights in a NEMA 4X enclosure. In addition to the above, a close coupled air circuit breaker or disconnect switch shall be mounted and wired to the valve input power terminals for the purpose of disconnecting all underground phase conductors.
7. The valve actuator shall be capable of being controlled locally or remotely via a selector switch integral with the actuator. In addition, an auxiliary dry contact shall be provided for remote position feedback.
8. Valve A.C. motors shall be designed for operation on a 480 volt, 3-phase service. Valve control circuit shall operate from a fuse protected 120 volt power supply.
9. Motor operators shall be as manufactured by Limitorque Corporation, Type L120 or approved equal.

## **2.07 AIR RELEASE VALVES**

The air release valves for use in water or force mains shall be installed as shown on the Drawings. The valves shall have a cast iron body cover and baffle, stainless steel float, bronze water diffuser, Buna-N or Viton seat, and stainless steel trim. The fittings shall be threaded. The air release valves shall be Model 200A or 400A as manufactured by APCO Valve and Primer Corporation, Schaumburg, Illinois; or approved equal.

## **2.08 VALVE BOXES**

- A. Buried valves shall have cast-iron three piece valve boxes or HDPE adjustable valve boxes. Cast iron valve boxes shall be provided with suitable heavy bonnets and shall extend to such elevation at or slightly above the finished grade surface as directed by the County. The barrel shall be two-piece, screw type, having a 5-1/4 inch shaft. The upper section shall have a flange at the bottom with sufficient bearing area to prevent settling and shall be complete with cast iron covers. Covers shall have WATER, SEWER, or RECLAIM, as applicable, cast into the top. Lids will be painted "safety" blue for potable, purple for reclaimed, and green for sanitary sewer.
- B. All valves shall have actuating nuts extended to within four (4) feet of the top of the valve box. All valve extensions will have a centering guide plate two (2) inches maximum below the actuating nut. The valve extension shall be fastened to the existing nut with a set screw. Valve boxes shall be provided with a concrete base and a valve nameplate engraved with lettering 1/8-inch deep as shown on the Drawings.
- C. HDPE adjustable valve boxes shall be one complete assembled unit composed of the valve box and extension stem. All moving parts of the extension stem shall be enclosed in a housing to prevent contact with the soil. Valve box assembly shall be adjustable to accommodate variable trench depths.
- D. The entire assembly shall be made of heavy wall high density polyethylene. All exterior components shall be joined with stainless steel screws. The valve box top section shall be

adaptable to fit inside a valve box upper section.

- E. The stem assembly shall be of a telescoping design that allows for variable adjustment length. The stem material shall be of plated steel square tubing. The stem assembly shall have a built-in device that keeps the stem assembly from disengaging at its fully extended length. The extension stem must be torque tested to 1000 foot pounds. Covers shall have WATER, SEWER or RECLAIMED clearly and permanently impressed into the top surface.

## **2.09 CORPORATION COCKS**

Corporation cocks for connections to cast-iron, ductile iron or steel piping shall be all brass or bronze suitable for 180 psi operating pressure and similar to Mueller Co. H-10046 or approved equal by Clow Corp., and shall be of sizes required and/or noted on the Drawings.

## **2.10 FLANGE ADAPTER COUPLINGS**

Flange adapter couplings shall be of the size and pressure rating required for each installation and shall be suitable for use on either cast iron or ductile iron pipe. They shall be similar or approved equal to Dresser Company, Style 128. All couplings shall have a sufficient number of factory installed anchor studs to meet or exceed a minimum test pressure rating of 230 psi minimum.

## **2.11 FLEXIBLE COUPLINGS**

Flexible couplings shall be either the split type or the sleeve type as shown on the Drawings.

1. Split type coupling shall be used with all interior piping and with exterior pipings noted on the Drawings. The couplings shall be mechanical type for radius groove piping. The couplings shall mechanically engage and lock grooved pipe ends in a positive couple and allow for angular deflection and contracting and expansion.
2. Couplings shall consist of malleable iron, ASTM Specification A47, Grade 32510 housing clamps in two or more parts, a single chlorinated butyl composition sealing gasket with a "C" shaped cross-section and internal sealing lips projecting diagonally inward, and two or more oval track head type bolts with hexagonal heavy nuts conforming to ASTM Specification A 183 and A194 to assemble the housing clamps. Bolts and nuts shall be hot dipped galvanized after fabrication.
3. Victaulic type couplings and fittings may be used in lieu of flanged joints. Pipes shall be radius grooved as specified for use with the Victaulic couplings. Flanged adapter connections at fittings, valves, and equipment shall be Victaulic Vic Flange Style 741, equal by Gustin-Bacon Group, Division of Certain-Teed Products, Kansas City, Kansas, or approved equal.
4. Sleeve type couplings shall be used with all buried piping. The couplings shall be of steel and shall be Dresser Style 38 or 40, as shown on the Drawings, or equal. The coupling shall be provided with hot dipped galvanized steel bolts and nuts unless indicated otherwise.
5. All couplings shall be furnished with the pipe stop removed.
6. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.
7. If the Contractor decides to use victaulic couplings in lieu of flanged joints, he shall be responsible for supplying supports for the joints.

## 2.12 HOSE BIBS

Hose bibs shall be 3/4" or 1" brass, polished chromium plated brass, with vacuum breaker as noted on the drawings.

## 2.13 SLOW CLOSING AIR AND VACUUM VALVES

- A. The Contractor shall furnish and install slow closing air and vacuum valves as shown on the Drawings which shall have two (2) independent valves bolted together. The air and vacuum valve shall have all stainless steel float, guided on both ends with stainless shafts. The air and vacuum valve seat shall be Buna-N to insure drop tight closure. The Buna-N seat shall be fastened to the cover stainless shoulder screws in a manner to prevent distortion of the seat. The float shall be guided at both ends with stainless steel bushings.
- B. The valve cover shall have a male lip designed to fit into the body register for accurate alignment of the float into the Buna-N seat. The valve cover shall have 250-pound class flanged outlet connection.
- C. The surge check valve shall be bolted to the inlet of the air and vacuum valve and consist of a body, seat, disc, and compression spring. A surge check unit shall operate on the interphase between the kinetic energy and relative velocity flows of air and water, so that after air passes through, and water rushes into the surge check, the disc starts to close, reducing the rate of flow of water into the air valve by means of throttling orifices in the disc to prevent water hammer in the air valves. The surge check orifices must be adjustable type for regulation in the field to suit operating conditions. Valve shall be rated for 250-pound class working pressure.
- D. The complete slow closing air and vacuum valve with air release valve shall have been flow tested in the field, substantiated with test data to show reduction of surge pressure in the valve. Flow test data shall be submitted with initial shop drawings for approval.
- E. Valve exterior to be painted Red Oxide, Phenolic TT-P86, Primer or approved equal for high resistance to corrosion.
- F. All materials of construction shall be certified in writing to conform to ASTM specifications as follows:

|   |                 |                    |
|---|-----------------|--------------------|
| Air Valve Cover, Body, and Surge Check Body | Cast Iron       | ASTM A48, Class 30 |
| Float                                       | Stainless Steel | ASTM A240          |
| Surge Check Seat and Disc                   | Stainless Steel | ASTM A582          |
| Air Valve Seat                              | Buna-N          |                    |
| Spring                                      | Stainless Steel | T302               |

## 2.14 SURGE ANTICIPATOR VALVES

- A. Surge anticipator valves shall be furnished for the pumping systems as shown on the Drawings. The valve shall be hydraulically operated, pilot controlled, and diaphragm or piston actuated. The main valve shall be cast iron conforming to ASTM A48 with bronze trim conforming to ASTM B61 and flanged ends conforming to ANSI B161.1. The main valve shall be globe type with a single removable seat and a resilient disc.
- B. The diaphragm actuated valve shall have a stainless steel stem guided at both ends by a bearing in the valve cover and an integral bearing surface in the seat. No external packing glands shall be permitted. The valve shall be fully serviceable without removing it from the line. The pilot system shall be of noncorrosive construction and provided with isolation cocks.
- C. The piston actuated valve shall operate on the differential piston principle. The valve piston shall be guided on its outside diameter. The valve shall be able to operate in any position and shall be fully serviceable without removing it from the line. The pilot system shall be provided with isolation cocks, and be of noncorrosive materials of construction.
- D. The valve shall be designed specifically to minimize the effects of water hammer, resulting from power failure at the pumping station, or from normal stopping and starting of pumping operators. The valve shall open hydraulically on a down surge, or low pressure wave created when the pump stops, remain open during the low pressure cycle in order to be open when the high pressure wave returns. The high pressure pilot shall be adjustable over a 20 to 200 psi range and the low pressure pilot shall be adjustable over a 15 to 75 psi range. The valve shall be the 250 Class.

## 2.15 CHECK VALVES

- A. Check valves for cast iron and ductile iron pipe lines shall be swing type and shall meet the material requirements of AWWA Specification C508. The valves shall be iron body, bronze mounted, single disc, 175 psi working water pressure and nonshock. Valves shall be as manufactured by Mueller, Clow, Kennedy, or M&H. Valves 8" and larger shall be air cushioned to reduce valve slam.
- B. When there is no flow through the line, the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the waterway.
- C. Check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers. The interior and exterior of the valve body shall have a factory applied fusion bonded or 10 mil 2 part epoxy coating (Protecto 401 or approved equal).
- D. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and weight. Weights provided and approved by the County shall be installed.

## 2.16 HYDRANTS

Hydrants shall be AVK Series 2780 Barrel (nostalgic style with stainless steel bolts) American Darling B-84-B or Mueller Super Centurian 250, or approved equal and shall conform to the "Standard Specification for Fire Hydrants for Ordinary Water Works



Service", AWWA C502, and UL/FM certified, and shall in addition meet the specific requirements and exceptions which follow:

1. Hydrants shall be according to manufacturer's standard pattern and of standard size, and shall have one 4-1/2" steamer nozzle and two 2-1/2" hose nozzles.
2. Hydrant inlet connections shall have mechanical joints for 6" ductile-iron pipe.
3. Hydrant valve opening shall have an area at least equal to that area of a 5-1/4" minimum diameter circle and be obstructed only by the valve rod. Each hydrant shall be able to deliver 500 gallons minimum through its two 2-1/2" hose nozzles when opened together with a loss of not more than 2 psi in the hydrants.
4. Each hydrant shall be designed for installation in a trench that will provide 5-ft. cover.
5. Hydrants shall be hydrostatically tested as specified in AWWA C502.
6. Hydrants shall be rated at 200 psi.
7. All nozzle threads shall be American National Standard.
8. Each nozzle cap shall be provided with a Buna N rubber washer.
9. Hydrants shall be so arranged that the direction of outlets may be turned 90 degrees without interference with the drip mechanism and without the mechanism obstructing the discharge from any outlet.
10. Hydrants must be capable of being extended without removing any operating parts.
11. Hydrants shall have bronze-to-bronze seatings as per AWWA C502-85.
12. Hydrant main valve closure shall be of the compression type opening against the pressure and closing with the pressure. The resilient seat material shall meet the requirements of AWWA C-509 and shall preferably be EPDM Elastomer.
13. Internal and below ground iron parts (bonnet, nozzle section and base) shall have a fusion bonded epoxy coating per AWWA C550. Aboveground external hydrant parts (cap, bonnet and nozzle section) shall be either epoxy coated together with a UV resistant polyester coating or have two shop coats of paint per AWWA C502. The lower stand pipe or barrel shall be protected with asphaltic coatings per AWWA C502.
14. Exterior nuts, bolts and washer shall be stainless steel. Bronze nuts may be used below grade.
15. All internal operating parts shall be removable without requiring excavation.

## **2.17 RESTRAINING CLAMPS**

Restraining clamp assemblies as detailed in the drawings for use at hydrant connections to water mains, or at fittings where shown on the Drawings, shall be as manufactured by American Cast Iron Pipe, Star Pipe Products, U.S. Pipe; or approved equal.

## **2.18 TAPPING SLEEVES AND GATE VALVES**

- A. Tapping valves shall meet the requirement of AWWA C500. The valves shall be flanged, shall be mechanical joint outlet with nonrising stem, designed for vertical burial and shall open left or counterclockwise. Stuffing boxes shall be the "O-ring" type. Operating nut shall be AWWA Standard 2" square for valves 2" and up. The valves shall be provided with an overload seat to permit the use of full size cutters. Gaskets shall cover the entire area of flange surfaces and shall be supplied with EPDM wedges up to 30" diameter.
- B. Tapping sleeves and saddles shall seal to the pipe by the use of a confined "O" ring gasket, and shall be able to withstand a pressure test of 180 psi for one hour with no leakage in accordance with AWWA C110, latest edition. A stainless steel 3/4" NPT test

plug shall be provided for pressure testing. All bolts joining the two halves shall be stainless steel and shall be included with the sleeve or saddle. Sleeves and saddles shall be protected from corrosion by being fusion applied epoxy coated, or be made of 18-8 Type 304 stainless steel. Saddle straps shall be 18-8 Type 304 stainless steel.

## 2.19 SINGLE ACTING ALTITUDE VALVES

### A. Function

1. The altitude control valve shall be of the single acting type, closing off tightly when the water reaches the maximum predetermined level in the tank to prevent overflow; and opening to permit replenishing of the tank supply when the water level drops approximately 6" to 12" below the maximum level.
2. A hand operated valve in the power water line to the top of the piston shall permit adjustment of the speed of valve closing. The tank water level control shall be by means of a diaphragm operated, spring loaded, three way pilot which directs power water to or from the top of the main valve piston. The three way pilot shall be of bronze construction. The diaphragm surface exposed to the tank head shall be not less than 57 sq. inches. It shall be possible to adjust the spring above the diaphragm for water level control approximately 20% above or below the factory setting.

### B. Description

1. The main valve shall operate on the differential piston principle such that the area on the underside of the piston is no less than the pipe area on the upper surface of the piston is of a greater area than the underside of the piston.
2. The valve piston shall be guided on its outside diameter by long stroke stationary Vee ports which shall be downstream of the seating surface to minimize the consequences of throttling. Throttling shall be done by the valve Vee ports and not the valve seating surfaces.
3. The valve shall be capable of operating in any position and shall incorporate only one flanged cover at the valve top from which all internal parts shall be accessible. There shall be no stems, stem guides, or spokes within the waterway. There shall be no springs to assist the valve operation.

### C. Construction

1. The valve body shall be of cast iron ASTM A-126 with flanges conforming to the latest ANSI Standards. The valve shall be extra heavy construction throughout. The valve interior trim shall be bronze B-62 as well as the main valve operation.
2. The valve seals shall be easily renewable while no diaphragm shall be permitted within the main valve body.
3. All controls and piping shall be of non-corrosive construction.
4. A visual valve position indicator shall be provided for observing the valve piston position at any time.

### D. Figure Number

The valves shall be the 20" Globe type (Fig. 3200-D) as manufactured by GA Industries of Mars, Pennsylvania, or approved equal.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the location shown, true to alignment and rigidly supported. Any damage occurring to the above items before they are installed shall be repaired to the satisfaction of the County.
- B. After installation, all valves and appurtenances shall be tested at least two hours at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the County.
- C. Install all floor boxes, brackets, extension rods, guides, the various types of operators and appurtenances as shown on the Drawings that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the Contractor shall check all plans and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.
- D. Pipe for use with flexible couplings shall have plain ends as specified in the respective pipe sections.
- E. Flanged joints shall be made with high strength, low alloy Corten bolts, nuts and washers. Mechanical joints shall be made with mild corrosion resistant alloy steel bolts and nuts. All exposed bolts shall be painted the same color as the pipe. All buried bolts and nuts shall be heavily coated with two (2) coats of bituminous paint comparable to Inertol No. 66 Special Heavy.
- F. Prior to assembly of split couplings, the grooves as well as other parts shall be thoroughly cleaned. The ends of the pipes and outside of the gaskets shall be moderately coated with petroleum jelly, cup grease, soft soap or graphite paste, and the gasket shall be slipped over one pipe end. After the other pipe has been brought to the correct position, the gasket shall be centered properly over the pipe ends with the lips against the pipes. The housing sections then shall be placed. After the bolts have been inserted, the nuts shall be tightened until the housing sections are firmly in contact, metal-to-metal, without excessive bolt tension.
- G. Prior to the installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8". Soapy water may be used as a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6" from the end.
- H. Valve boxes with concrete bases shall be installed as shown on the Drawings. Mechanical joints shall be made in the standard manner. Valve stems shall be vertical in all cases. Place cast iron box over each stem with base bearing on compacted fill and the top flush with final grade. Boxes shall have sufficient bracing to maintain alignment during backfilling. Knobs on cover shall be parallel to pipe. Remove any sand or undesirable fill from valve box.

### 3.02 HYDRANTS

- A. Hydrants shall be set at the locations designated by the County and/or as shown on the Drawings and shall be bedded on a firm foundation. A drainage pit on crushed stone as shown on the Drawings shall be filled with gravel or crushed stone and satisfactorily compacted. During backfilling, additional gravel or crushed stone shall be brought up around and 6" over the drain port. Each hydrant shall be set in true vertical alignment and shall be properly braced. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the plans. Felt paper shall be placed around the hydrant elbow prior to placing concrete. **CARE MUST BE TAKEN TO INSURE THAT CONCRETE DOES NOT PLUG THE DRAIN PORTS.** Concrete used for backing shall be as specified herein.
- B. When installations are made under pressure, the flow of water through the existing main shall be maintained at all times. The diameter of the tap shall be a minimum of 2" less than the inside diameter of the branch line.
- C. The entire operation shall be conducted by workmen thoroughly experienced in the installation of tapping sleeves and valves, and under the supervision of qualified personnel furnished by the manufacturer. The tapping machine shall be furnished by the Contractor if tap is larger than 12" in diameter.
- D. The Contractor shall determine the locations of the existing main to be tapped to confirm the fact that the proposed position for the tapping sleeve will be satisfactory and no interference will be encountered such as the occurrence of existing utilities or of a joint or fitting at the location proposed for the connection. No tap will be made closer than 30" from a pipe joint.
- E. Tapping valves shall be set in vertical position and be supplied with a 2" square operating nut for valves 2" and larger. The valve shall be provided with an oversized seat to permit the use of full sized cutters.
- F. Tapping sleeves and valves with boxes shall be set vertically or horizontally as indicated on the Drawings and shall be squarely centered on the main to be tapped. Adequate support shall be provided under the sleeve and valve during the tapping operation. Sleeves shall be no closer than 30" from water main joints. Thrust blocks shall be provided behind all tapping sleeves. Proper tamping of supporting earth around and under the valve and sleeve is mandatory. After completing the tap, the valve shall be flushed to ensure that the valve seat is clean.

### 3.03 SHOP PAINTING

Ferrous surfaces of valves and appurtenances shall receive a coating of rust-inhibitive primer. All pipe connection openings shall be capped to prevent the entry of foreign matter prior to installation.

### 3.04 FIELD PAINTING

All metal valves and appurtenances specified herein and exposed to view shall be painted.

All above ground potable water main valves shall be painted safety blue.

**3.05****INSPECTION AND TESTING**

Completed pipe shall be subjected to hydrostatic pressure test for two hours at 180 psi. All leaks shall be repaired and lines retested as approved by the County. Prior to testing, the pipelines shall be supported in an approved manner to prevent movement during tests.

**END OF SECTION**

## SECTION 02720 SANITARY SEWER BYPASS PUMPING

### PART 1 GENERAL

#### 1.01 SCOPE

The Contractor shall furnish all labor, materials, equipment and incidentals required to maintain existing and anticipated flows within the affected portion of the collection system throughout the construction period.

#### 1.02 PUBLIC IMPACTS

The contractor shall not create a public nuisance due to excessive noise or dust, nor impact the public with flooding of adjacent lands, discharge of raw sewage, or release of other potential hazards, nor shall he encroach on or limit access to adjacent lands. No extra charge may be made for increased costs to the contractor due to any of the above.

#### 1.03 SUBMITTALS

A. The Contractor shall, within 30 days of the date of the Notice to Proceed, submit to the Project Manager a detailed Pumping Plan for each site by-pass pumping will be needed. The Pumping Plan shall address all measures and systems to prevent a sanitary sewer overflow (SSO) as defined by the EPA. The Plan shall include as a minimum:

1. Working drawings and sketches showing work location, pump location, piping layout & routing. Show all proposed encroachment and access impacts on adjacent properties or facilities.
2. Pump, control, alarm and pipe specifications or catalog cuts. Detailed sketch of controls and alarm system.
3. Power requirements and details on methods to provide by-pass power or fueling.
4. Calculation and determination of response times to prevent an SSO after a high water alarm. If anticipated peak flows are 750 G.P.M. or greater, an operator is required on site at all times pump is in service. If the anticipated peak flows are less than 750 G.P.M. an operator may not be required to be on site at all times; show operator on-site schedule.
5. Procedures to be taken in case of power, pump, or piping failures; including contact names and numbers for emergency notifications.
6. Frequency and specific responsibility for monitoring pump operation, fuel levels, pump maintenance and entire length of piping.

### PART 2 PRODUCTS

#### 2.01 EQUIPMENT

A. Pumps:

1. By-pass pumping system shall consist of at least a primary pump and a backup pump. Each pump shall have a minimum pumping capacity of 150% of the anticipated peak flows. If a lift station by-pass, 150% of the lift station capacity (G.P.M. & T.D.H) for the lift station being by-passed.
2. Pumps shall be low noise or sound attenuated. The noise level at any operating condition, in any direction, shall not exceed 70dBA at a distance of twenty three (23) feet (7 meters) from the pump and/or power source.

**B. Controls:**

The by-pass pump system shall be equipped with automatic controls and an alarm system. The automatic controls will automatically start the backup pump in the event of a high water condition or failure of the primary pump. The alarm system will immediately notify the Contractor of a pump failure or high water condition.

**C. Pipe:**

Pipe shall be of adequate size and capacity to match the pumps. Pipe type and materials will depend on the particulars of the site conditions, and shall be detailed in the Pumping Plan. Contractor will provide all connections.

**PART 3 EXECUTION**

**3.01 SITE CONDITIONS**

Site conditions will vary by site. Contractor is responsible to determine and address requirements such as traffic control, excavation, connections & fittings, impacts on access to adjacent properties, routing and support of by-pass piping, etc., in the Pumping Plan.

**3.02 ON-SITE MONITORING**

- A. All by-pass operations where the anticipated flow rates are 750 G.P.M or greater shall require an employee on-site at all times (full-time on-site monitoring attended by personnel experienced with the pumps and controls, with demonstrated ability to monitor, turn on & off, and switch between pumps while the by-pass pump system is in service.
- B. By-pass operations where the anticipated flow rates are less than 750 G.P.M may not require an employee on-site at all times while the by-pass pump system is in operation. The Contractor shall have personnel experienced with the pumps and controls on site within the calculated response time to prevent an SSO after a high water alarm.
- C. During by-pass operations, the Contractor shall have posted on site with the permit, a copy of the approved Plan and the name and 24 hour contact number of the primary response person, the job site superintendent, and the construction company owner.

**3.03 OPERATIONS**

- A. The Contractor is responsible for securing and providing power, fuel, site security, traffic control and all other supplies, materials and permits required for the by-pass pumping.
- B. Contractor shall demonstrate automatic pump switching and alarm system to the satisfaction of: the County inspector, Project Manager, or Lift Stations Superintendent prior to beginning by-pass pumping. Satisfactory demonstration shall be documented by the inspector's, PM's or Lift Station Superintendent's dated signature on the posted copy of the approved Pumping Plan.

**3.04 DAMAGE RESTORATION & REMEDIATION**

- A. The Contractor shall be responsible for any pre-pump notifications, all restoration of pre-pump conditions and any damage caused by by-pass operations.

- B. Should there be an SSO caused by or as a direct result of the by-pass pumping, the contractor is responsible for all immediate & long term response, notifications, clean up, mitigation, etc. Copies of all written response plans, notifications, documentation, mitigation plans, etc., shall be submitted to the County Project Manager.

**END OF SECTION**



## **SECTION 02999 MISCELLANEOUS WORK AND CLEANUP**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

- A. This Section includes items and operations which are not specified in detail as separate items, but may be sufficiently described as to the kind and extent of work involved. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to complete all work under this Section.
  
- B. The work of this Section may include, but is not limited to the following:
  - 1. Restoration of roads, sidewalks, driveways, curbing and gutters, fences, guardrails, lawns, shrubbery and any other existing items damaged or destroyed.
  - 2. Crossing utilities.
  - 3. Relocation of existing water, reclaim water, or sewer lines less than four inches diameter, water and sanitary sewer services, low pressure gas lines, telephone lines, electric lines, cable TV lines as shown on the Contract Drawings.
  - 4. Restoring easements (servitudes) and rights-of-way.
  - 5. Clean up.
  - 6. Incidental work (project photographs, testing, shop drawings, traffic control, record drawings, etc.).
  - 7. Excavation and Embankment - As defined in the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (1991 Edition or latest revision).
  - 8. Stormwater and erosion control devices.

#### **1.02 SUBMITTAL OF LUMP SUM BREAKDOWN**

Contractor shall submit to the County, a breakdown of the lump sum bid for Miscellaneous Work and Cleanup Item in the Proposal within 10 days after date of Notice to Proceed.

#### **1.03 WORK SPECIFIED UNDER OTHER SECTIONS**

All work shall be completed in a workmanlike manner by competent workmen in full compliance with all applicable sections of the Contract Documents.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

Materials required for this Section shall equal or exceed materials that are to be restored. The Contractor may remove and replace or reuse existing materials with the exception of paving.

### **PART 3 EXECUTION**

#### **3.01 RESTORING OF SIDEWALKS, ROADS, CURBING, FENCES AND GUARDRAILS**

- A. The Contractor shall protect existing sidewalks & curbing. If necessary, sidewalks & curbing shall be removed from joint to joint and replaced after backfilling. Curbing damaged during construction because of the Contractor's negligence or convenience,

shall be replaced with sidewalks & curbing of equal quality and dimension at no cost to the County.

- B. At the locations necessary for the Contractor to remove, store and replace existing fences and guardrails during construction, the sections removed shall be only at the direction of the County. If any section of fence is damaged due to the Contractor's negligence, it shall be replaced at no cost to the County with fencing equal to or better than that damaged and the work shall be satisfactory to the County.
- C. Guardrails in the vicinity of the work shall be protected from damage by the Contractor. Damaged guardrails shall be replaced in a condition equal to those existing
- D. Road crossings shall be restored in accordance with the Contract Documents and current FDOT Standards. Compensation for road restoration shall be included under the Road Restoration Bid Item if specified or under Miscellaneous Cleanup if it is not specified.

### **3.02 CROSSING UTILITIES**

This item shall include any extra work required in crossing culverts, water courses, drains, water mains and other utilities, including all sheeting and bracing, extra excavation and backfill, or any other work required or implied for the proposed crossing, whether or not shown on the Drawings.

### **3.03 RELOCATIONS OF EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES AND CABLE TV LINES**

The Contractor shall notify the proper utility involved when relocation of these utility lines is required. The Contractor shall coordinate all relocation work by the utility so that construction shall not be hindered.

### **3.04 RESTORING THE EASEMENTS AND RIGHTS-OF-WAY**

The Contractor shall be responsible for all damage to private property due to his operations. He shall protect from injury all walls, fences, cultivated shrubbery, pavement, underground facilities, including water, sewer and reclaimed water lines and services, or other utilities which may be encountered along the easement. If removal and replacement is required, it shall be done in a workmanlike manner, at his expense, so that the replacement are equivalent to that which existed prior to construction.

### **3.05 STORMWATER AND EROSION CONTROL DEVICES**

The Contractor shall be responsible for, provide, and install all stormwater and erosion control devices necessary to insure satisfactory compliance with the Florida Department of Environmental Protection Stormwater, Erosion, and Sedimentation Control Inspector's Manual.

**END OF SECTION**

## DIVISION 3 CONCRETE

### SECTION 03200 CONCRETE REINFORCEMENT

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Reinforcing steel bars and welded steel wire fabric for cast-in-place concrete, complete with tie wire.
- B. Support chairs, bolsters, bar supports and spacers, for reinforcing.

##### 1.02 QUALITY ASSURANCE

Perform concrete reinforcing work in accordance with ACI 318 unless specified otherwise in this Section.

##### 1.03 REFERENCES

- A. ACI 318 - Building Code Requirements for Reinforced Concrete.
- B. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- C. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- D. CRSI 63 - Recommended practice for placing reinforcing bars.
- E. CRSI 65 - Recommended practice for placing bar supports, specifications and nomenclature.
- F. ACI 315 - American Concrete Institute - Manual of Standard Practice.

##### 1.04 SHOP DRAWINGS

- A. Submit shop drawings in accordance with Contract Documents.
- B. Indicate bar sizes, spacings, locations and quantities of reinforcing steel and wire fabric, bending and cutting schedules and supporting and spacing devices.
- C. Manufacturer's Literature: Manufacturer's specifications and installation instructions for splice devices.

#### PART 2 PRODUCTS

##### 2.01 REINFORCING

- A. Reinforcing steel: Grade 60, Minimum Yield Strength 60,000 psi, deformed billet steel bars, ASTM A615; plain finish.

- B. Welded steel wire fabric: Deformed wire, ASTM A497; smooth wire ASTM A185 in flat sheets; plain finish.

## 2.02 ACCESSORY MATERIALS

- A. Tie wire: Minimum 16 gauge annealed type, or patented system accepted by County.
- B. Chairs, bolsters, bar supports, spacers: Sized and shaped for strength and support of reinforcing during construction conditions.
- C. Special chairs, bolsters, bar supports, spacers (where adjacent to architectural concrete surfaces): Stainless steel type sized and shaped as required.

## 2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 315.
- B. Locate reinforcing splices, not indicated on Drawings, at points of minimum stress. Location of splices shall be reviewed by County.
- C. Where indicated, weld reinforcing bars in accordance with AWS D12.1.

## PART 3 EXECUTION

### 3.01 PLACEMENT

- A. Reinforcing shall be supported and secured against displacement. Do not deviate from true alignment.
- B. Before placing concrete, ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings which would reduce bond to concrete.

### 3.02 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Regularly engaged in manufacture of steel bar and welded wire fabric reinforcing.
- B. Installer Qualifications: Three years experience in installation of steel bar and welded wire fabric reinforcing.
- C. Allowable Tolerances:
  - 1. Fabrication:
    - a. Sheared length: +1 in.
    - b. Depth of truss bars: +0, -1/2 in.
    - c. Stirrups, ties and spirals:  $\pm 1/4$  in.
    - d. All other bends:  $\pm 1$  in.
  - 2. Placement:
    - a. Concrete cover to form surfaces:  $\pm 1/4$  in.
    - b. Minimum spacing between bars: 1 in.
    - c. Top bars in slabs and beams:
      - (1) Members 8 in. deep or less:  $\pm 1/4$  in.
      - (2) Members more than 8 in.:  $\pm 1/2$  in.

- d. Crosswise of members: Spaced evenly within 2 in. of stated separation.
- e. Lengthwise of members: Plus or minus 2 in.
- 3. Maximum bar movement to avoid interference with other reinforcing steel, conduits, or embedded items: 1 bar diameter.

### **3.04 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.
- B. Handle and store materials to prevent contamination.

### **3.05 INSTALLATION**

- A. Placement:
  - 1. Bar Supports: CRSI 65.
  - 2. Reinforcing Bars: CRSI 63.
- B. Steel Adjustment:
  - 1. Move within allowable tolerances to avoid interference with other reinforcing steel, conduits, or embedded items.
  - 2. Do not move bars beyond allowable tolerances without concurrence of County.
  - 3. Do not heat, bend, or cut bars without concurrence of County.
- C. Splices:
  - 1. Lap splices: Tie securely with wire to prevent displacement of splices during placement of concrete.
  - 2. Splice devices: Install in accordance with manufacturer's written instructions.
  - 3. Do not splice bars without concurrency of County, except at locations shown on Drawings.
- D. Wire Fabric:
  - 1. Install in longest practicable length.
  - 2. Lap adjoining pieces one full mesh minimum, and lay splices with 16 gauge wire.
  - 3. Do not make end laps midway between supporting beams, or directly over beams of continuous structures.
  - 4. Offset end laps in adjacent widths to prevent continuous laps.
- E. Cleaning: Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that will reduce bond with concrete.
- F. Protection During Concreting: Keep reinforcing steel in proper position during concrete placement.

**END OF SECTION**

## SECTION 03300 CAST-IN-PLACE CONCRETE

### PART 1 GENERAL

#### 1.01 WORK INCLUDED

Poured-in-place concrete slabs, thrust blocks, pile caps and pipe support cradles.

#### 1.02 QUALITY ASSURANCE

Perform cast-in-place concrete work in accordance with ACI 318, unless specified otherwise in this Section.

#### 1.03 TESTING LABORATORY SERVICES

- A. Inspection and testing will be performed by the testing laboratory currently under contract to Manatee County in accordance with the Contract Documents.
- B. Provide free access to work and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of work.
- D. Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.
- E. Three concrete test cylinders will be taken for every 100 cu. yds. or part thereof of each class of concrete placed each day. Smaller pours shall have cylinders taken as directed by the County.
- F. One slump test will be taken for each set of test cylinders taken.

#### 1.04 REFERENCES

- A. ASTM C33 - Concrete Aggregates
- B. ASTM C150 - Portland Cement
- C. ACI 318 - Building Code Requirements for Reinforced Concrete
- D. ASTM C260 - Air Entraining Admixtures for Concrete
- E. ASTM C94 - Ready-Mixed Concrete
- F. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
- G. ACI 305 - Recommended Practice for Hot Weather Concreting

## **PART 2 PRODUCTS**

### **2.01 CONCRETE MATERIALS**

- A. Cement: Moderate-Type II, High early strength-Type III, Portland type, ASTM C150.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: Clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious material.

### **2.02 ADMIXTURES**

- A. Air Entrainment: ASTM C260.
- B. Chemical: ASTM C494 Type A - water reducing admixture.

### **2.03 ACCEPTABLE MANUFACTURERS**

Acceptable Products:

- 1. Pozzolith
- 2. WRDA

### **2.04 ACCESSORIES**

Non-shrink grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2400 psi in 2 days and 7000 psi in 28 days.

### **2.05 CONCRETE MIXES**

- A. Mix concrete in accordance with ASTM C94.
- B. Provide concrete of following strength:
  - 1. Required concrete strengths as determined by 28 day cylinders shall be as shown on the Drawings, but shall not be less than 3000 psi.
  - 2. Select proportions for normal weight concrete in accordance with ACI 301 3.8 Method 1, Method 2, or Method 3. Add air entraining agent to concrete to entrain air as indicated in ACI 301 Table 3.4.1.
  - 3. All mixes shall be in accordance with FDOT Specifications.
- C. Use set-retarding admixtures during hot weather only when accepted by County.
- D. Add air entraining agent to concrete mix for concrete work exposed to exterior.

### **2.06 FORMS**

- A. Forms shall be used for all concrete masonry, including footings. Form shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions, appearance and to the elevations indicated on the Drawings.

- B. Forms shall be made of wood, metal, or other approved material. Wood forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots; where used for expose surfaces, boards shall be dressed and matched. Plywood shall be sanded smooth and fitted with tight joints between panels. Metal forms shall be of an approved type for the class of work involved and of the thickness and design required for rigid construction.
- C. Edges of all form panels in contact with concrete shall be flush within 1/32-inch and forms for plane surfaces shall be such that the concrete will be plane within 1/16-inch in four feet. Forms shall be tight to prevent the passage of mortar and water and grout.
- D. Forms for walls shall have removable panels at the bottom for cleaning, inspection and scrubbing-in of bonding paste. Forms for walls of considerable height shall be arranged with tremies and hoppers for placing concrete in a manner that will prevent segregation and accumulation of hardened concrete on the forms or reinforcement above the fresh concrete.
- E. Molding or bevels shall be placed to produce a 3/4-inch chamfer on all exposed projecting corners, unless otherwise shown on the Drawings. Similar chamfer strips shall be provided at horizontal and vertical extremities of all wall placements to produce "clean" separation between successive placements as called for on the Plans.
- F. Forms shall be sufficiently rigid to withstand vibration, to prevent displacement or sagging between supports and constructed so the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- G. Forms, including new pre-oiled forms, shall be oiled before reinforcement is placed, with an approved nonstaining oil or liquid form coating having a non-paraffin base.
- H. Before form material is re-used, all surfaces in contact with concrete shall be thoroughly cleaned, all damaged places repaired, all projecting nails withdrawn, all protrusions smoothed and in the case of wood forms pre-oiled.
- I. Form ties encased in concrete shall be designed so that after removal of the projecting part, no metal shall be within 1-inch of the face of the concrete. That part of the tie to be removed shall be at least 1/2-inch diameter or be provided with a wood or metal cone at least 1/2-inch in diameter and 1-inch long. Form ties in concrete exposed to view shall be the cone-washer type equal to the Richmond "Tyscru". Throughbolts or common wire shall not be used for form ties.

## **PART 3 EXECUTION**

### **3.01 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304.
- B. Notify County minimum 24 hours prior to commencement of concreting operations.
- C. Verify anchors, seats, plates and other items to be cast into concrete are placed, held securely and will not cause hardship in placing concrete. Rectify same and proceed with work.



- D. Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.
- E. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- F. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's recommendations.
- G. Pour concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.
- H. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solidly with non-shrink grout.
- I. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify County upon discovery.
- J. Conform to ACI 305 when concreting during hot weather.

**3.02 SCREEDING**

Screed surfaces level, maintaining flatness within a maximum deviation of 1/8" in 10 feet.

**3.03 PATCHING**

Allow County to inspect concrete surfaces immediately upon removal of forms. Patch imperfections as directed. All patching procedures shall be submitted to and approved by the County prior to use.

**3.04 DEFECTIVE CONCRETE**

- A. Modify or replace concrete not conforming to required lines, details and elevations.
- B. Repair or replace concrete not properly placed resulting in excessive honeycomb and other defects. Do not patch, fill, touch-up, repair, or replace exposed architectural concrete except upon express direction of County for each individual area.

**3.05 CONCRETE FINISHING**

Provide concrete surfaces to be left exposed, columns, beams and joists with smooth rubbed finish.

**3.06 CURING AND PROTECTION**

Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for a period of 7 days or until concrete strengths reaches 75% of the 28 day design strength.

Protection against moisture loss may be obtained with spray on curing compounds or plastic sheets. Protection against heat or cold may be obtained with insulated curing blankets or forms.

### **3.07 CONCRETE DRIVEWAY RESTORATION**

Concrete driveways shall be restored with 6 inches of 3,000 psi concrete with W2.5 X W2.5, 6X6 wire mesh. Place ½ inch expansion joint between back of curb and new concrete. Area beneath restoration shall be mechanically tamped prior to placing concrete.

### **3.08 CONCRETE SIDEWALK RESTORATION**

Concrete sidewalks across driveways shall be restored with 6 inches of 3,000 psi concrete with W2.5 X W2.5, 6X6 wire mesh. Place ½ inch expansion joint between back of curb and new concrete. Area beneath restoration shall be mechanically tamped prior to placing concrete.

Concrete sidewalks outside of driveways shall be restored with 4 inches of 3,000 psi concrete per FDOT Design Standards, Sections 522 & 310

**END OF SECTION**

## SECTION 03350 CONCRETE FINISHES

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals required to finish cast-in-place concrete surfaces as specified herein.

#### 1.02 SUBMITTALS

Submit to the County as provided in the Contract Documents, the proposed chemical hardener manufacturer's surface preparation and application procedures.

#### 1.03 SCHEDULE OF FINISHES

- A. Concrete for the Project shall be finished in the various specified manners either to remain as natural concrete or to receive an additional applied finish or material under another Section.
- B. The base concrete for the following conditions shall be finished as noted and as further specified herein:
  - 1. Exterior, exposed concrete slabs and stairs - broomed finish.
  - 2. Interior, exposed concrete slabs - steel trowel finish.
  - 3. Concrete on which process liquids flow or in contact with sludge - steel trowel finish.
  - 4. Concrete where not exposed in the finished work and not scheduled to receive an additional applied finish or material - off-form finish.
  - 5. Provide concrete surfaces to be left exposed such as walls, columns, beams and joists with smooth rubbed finish.

#### 1.04 RESPONSIBILITY FOR CHANGING FINISHES

- A. The surface finishes specified for concrete to receive additional applied finishes or materials are the finishes required for the proper application of the actual products specified under other Sections. Where different products are approved for use, it shall be the Contractor's responsibility to determine if changes in finishes are required and to provide the proper finishes to receive these products.
- B. Changes in finishes made to accommodate product different from those specified shall be performed at no additional cost to the County. Submit the proposed new finishes and their construction methods to the County for approval.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Portland cement and component materials required for finishing the concrete surfaces shall be as specified in the Contract Documents.
- B. Hardener shall be Lapidolith as manufactured by Sonneborn Building Products or approved equal. Hardener shall be used on all floors, stair treads and platforms.

## **PART 3 EXECUTION**

### **3.01 FORMED SURFACES**

- A. Forms shall not be stripped before the concrete has attained a strength of at least 50 percent of the ultimate design strength. This is equivalent to approximately five "100 day-degrees" of moist curing.
- B. Care shall be exercised to prevent damaging edges or obliterating the lines of chamfers, rustications, or corners when removing the forms or doing any work adjacent thereto.
- C. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to the satisfaction of the County.
- D. Off-form finish. Fins and other projections shall be removed as approved. Tie cone holes and other minor defects shall be filled with non-shrink grout specified under the Contract Documents.

### **3.02 FLOORS AND SLABS**

- A. Floors and slabs shall be screeded to the established grades and shall be level with a tolerance of 1/8-inch when checked with a 10 foot straight edge, except where drains occur, in which case floors shall be pitched to drains as indicated. Failure to meet either of above shall be cause for removal, grinding, or other correction as approved by the County.
- B. Following screeding as specified above, power steel trowel as follows:
  - 1. Immediately after final screeding, a dry cement/sand shake in the proportion of 2-sacks of portland cement to 350-pounds of coarse natural concrete sand shall be sprinkled evenly over the surface at the rate of approximately 500 pounds per 1,000 square feet of floor. Neat, dry cement shall not be sprinkled on the surface. This shake shall be thoroughly floated into the surface with an approved disc type power compacting machine weighing at least 200 pounds if a 20-inch disc is used or 300 pounds if a 24-inch disc is used (such as a "Kelly Float" as manufactured by the Weisner-Rapp Corporation of Buffalo, New York). A mechanical blade-type float or trowel is not acceptable for this work.  
NOTE: This operation (application of the cement/sand shake) may be eliminated at the discretion of the County if the base slab concrete exhibits adequate fattiness and homogeneity.
  - 2. In lieu of power steel troweling, small areas as defined by the County shall be compacted by hand steel troweling with the dry cement/sand shake as ordered.
  - 3. The floor or slab shall be compacted to a smooth surface and the floating operation continued until sufficient mortar is brought to the surface to fill all voids. The surfaces shall be tested with a straight edge to detect high and low spots which shall be eliminated.
  - 4. Compaction shall be continued only until thorough densification is achieved and a small amount of mortar is brought to the surface. Excessive floating shall be avoided.
- C. After Paragraph 3.02 A and B procedures are accomplished, floors and slabs for particular conditions shall be completed as scheduled in one of the following finishes:

1. Wood float finish. Hand wood float, maintaining the surface tolerance to provide a grained, nonslip finish as approved.
  2. Broomed finish. Hand wood float maintaining the surface tolerance and then broom with a stiff bristle broom in the direction of drainage to provide a nonslip finish as approved.
  3. Steel trowel finish. Hand steel trowel to a perfectly smooth, hard even finish free from high or low spots or other defects as approved.
- D. Floors, stair treads and platforms shall be given a floor hardener. Application shall be according to manufacturer's instructions.

**3.03 APPROVAL OF FINISHES**

- A. All concrete surfaces will be inspected during the finishing process by the County.
- B. Surfaces which, in the opinion of the County, are unsatisfactory shall be refinished or reworked until approved by the County.

**END OF SECTION**

## SECTION 03410 PRECAST CONCRETE STRUCTURES

### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. The Contractor shall furnish all materials, labor and equipment and construct valve vaults, meter vaults, concrete pipe and accessory items, consisting of precast sections as shown on the Drawings and as specified herein.
- B. The forms, dimensions, concrete and construction methods shall be approved by the County in advance of construction.
- C. These Specifications are intended to give a general description of what is required, but do not purport to cover all of the structural design details which will vary in accordance with the requirements of the plans. It is, however, intended to cover the furnishing, shop testing, delivery and complete installation of all precast structures whether specifically mentioned in these Specifications or not.
- D. The supplier of the precast items shall coordinate his work with that of the Contractor to insure that the units will be delivered and installed in the excavation provided by the Contractor, in accordance with the Contractor's construction schedule.
- E. The Contractor will ensure coordination of the precast structures fabrication with the supplier to achieve the proper structural top slab openings, spacings and related dimensions for the selected equipment frames and covers. The top slabs, frames, covers, and subsurface structures outside of roadways shall be capable of live load of 300 pounds per square foot unless noted otherwise.
- F. All interior surfaces of valve vaults and meter vaults shall be painted with two coats of coal tar epoxy paint dry film thickness of 8 mils each coat, as approved by the County.

#### 1.02 SUBMITTALS

- A. Submit to the County in accordance with the Contract Documents, shop drawings showing details of construction, reinforcing, and joints.
- B. Shop Drawings
  - 1. Content
    - a. Dimensions and finishes.
    - b. Estimated camber.
    - c. Reinforcing and connection details.
    - d. Lifting and erection inserts.
    - e. Other items cast into members.
  - 2. Show location of unit by same identification mark placed on member.
  - 3. Include design calculations.
- C. Manufacturer's Literature: Manufacturer's recommended installation instructions.
- D. Manufacturer's certificates of material conformance with Specifications.

- E. Test Reports: Reports of tests on concrete. A minimum of three compression test cylinders will be required for each pour.

### 1.03 INSPECTION

- A. The quality of all materials, the process of manufacture and the finished sections shall be subject to inspection and approval by the County, or other representatives of the County. Such inspection may be made at the place of manufacture, or at the site after delivery, or at both places and the sections shall be subject to rejection at any time due to failure to meet any of the Specification requirements; even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the project site shall be marked for identification and shall be removed from the project site at once. All sections which have been damaged after delivery will be rejected and if already installed, shall be acceptably repaired, if permitted, or removed and replaced entirely at the Contractor's expense.
- B. At the time of inspection, the sections will be carefully examined for compliance with the applicable ASTM designation and these Specifications and with the approved manufacturer's drawings.
  - 1. All sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.
  - 2. All sections shall meet the manufacturing tolerance requirements of ASTM C-478 or the following casting tolerances, whichever are more severe:

|                  |            |
|------------------|------------|
| Wall Thickness   | $\pm 3/8"$ |
| Inside Diameter  | $\pm 3/8"$ |
| Outside Diameter | $\pm 1/2"$ |
| Height or Length | $\pm 3/8"$ |
- C. Imperfections may be repaired, subject to the approval of the County, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at the end of 7 days and 5,000 psi at the end of 28 days, when tested in 3-inch by 6-inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the County.

## PART 2 PRODUCTS

### 2.01 PRECAST CONCRETE SECTIONS

- A. Joints between precast concrete sections shall be set by plastic shims and filled with non-metallic non-shrink grout as specified in the Contract Documents and shown on the Drawings.
- B. The top slab sections shall be fitted with water tight hatches as specified in the Construction Drawings. The frames and covers will be sized for the openings shown on the Contract Drawings.
- C. The various precast sections shall have the inside dimensions and minimum thickness of concrete as indicated on the Drawings. All precast and cast-in-place concrete members shall conform to the Building Code Requirements for Reinforced Concrete ACI 318 and applicable ASTM Standards.

- D. Fillets shall be provided and installed in the wet wells as shown on the Drawings. They shall be constructed using concrete fill and shall conform to the Contract Documents.
- E. Precast structures shall be constructed to the dimensions as shown on the Drawings and as specified in these Specifications. Flow channels, inverts, and benches in manholes shall be precast, not constructed after installation. Provide a true curve of the largest radius possible for changes in direction of sewer and entering branch or branches.
- F. Type II cement shall be used, typically at a compressive strength of 4,000 psi, except as otherwise approved.
- G. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of each precast section.
- H. Sections shall be cured by an approved method and shall not be shipped until at least seven (7) days after having been fabricated.
- I. Each precast section manufactured in accordance with the Drawings shall be clearly marked to indicate the intended installation location. The Contractor shall be responsible for the installation of the correct precast sections in their designated locations.
- J. Wet wells, and manholes receiving flow from lift stations shall be precast with a cast in place PVC protective liner.
  - 1. The prefabricated wetwell or manhole liner shall be a non-load bearing component installed and adequately anchored inside a new precast concrete wetwell or manhole riser during the concrete casting process at the concrete precaster's manufacturing facility. The liner must be fully supported during the casting process.
  - 2. The liners shall be resistant to the chemical environment normally found in the gravity wastewater transmission systems to which they will be exposed.
  - 3. The liner shall have a warranty against defect in material and workmanship for a period of three years.
  - 4. After assembly and installation, in the field, all internal seams are to be sealed by bonding or welding per the manufacturer's standard method and details.
  - 5. Any repairs or other modifications to the liner, such as patching or sealing PVC sleeves used for pipe penetrations of the structure, shall sealed by bonding or welding per the PVC liner manufacturer's standard methods and details.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. The Contractor shall be responsible for handling ground water to provide firm, dry subgrade for the structure, shall prevent water rising on new poured-in-place concrete or grouted joint sections within 24 hours after placing and shall guard against flotation or other damage resulting from ground water or flooding.
- B. A minimum of an 8-inch shell base compacted layer of washed shell or crushed stone shall be placed as a foundation for the wet well base slabs and valve and/or meter vault pits.



- C. Backfill materials around the wet well and above the pipe bedding shall be select material as specified in the Contract Documents.
- D. Precast bases, conforming to all requirements of ASTM C478 and above listed requirements for precast sections, may be used.
- E. The structure shall not be set into the excavation until the installation procedure and excavation have been approved by the County.
- F. The base may be cast-in-place concrete placed on a thoroughly compacted crushed rock subbase. The tops of the cast-in-place bases shall be shaped to mate with the precast barrel section and shall be adjusted in grade so that the top slab section is at the approximately correct elevation.
- G. Precast concrete structure sections shall be set so as to be vertical and with sections in true alignment with a 1/4-inch maximum tolerance to be allowed. The outside and inside joint shall be filled with a non-shrink grout and finished flush with the adjoining surfaces. Allow joints to set for 24 hours before backfilling. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides. The Contractor shall install the precast sections in a manner that will result in a watertight joint. Leaking joints are not acceptable.
- H. Holes in the concrete sections required for handling or other purposes shall be plugged with a non-shrink grout or by grout in combination with concrete plugs.
- I. Where holes must be cut in the precast sections to accommodate pipes, cutting shall be done prior to setting them in place to prevent any subsequent jarring which may loosen the mortar joints.
- J. Frames and hatches specified and furnished shall be cast in the cover slab prior to setting. Normal installation shall include 6" to 12" of concrete grade rings between the top of the cone section and the cover plate ring slab.

ASTM A48-74, or most recent revision, Specification for Gray Iron Castings, Class 30 or Grade 60-45-10 Ductile Iron meeting the requirements of ASTM A536-72, or most recent revision, Specification for Ductile Iron Castings. Cast in a true symmetrical pattern of tough, dense and even grained iron, free from warping, scales, lumps, blisters, sandholes, or any defects of any kind. Provide indented pattern lids with lettering as shown on the Drawings. Machine or grind frames and lids at touching surfaces to provide firm seats and prevent rocking. Remove and replace any set not matching perfectly. All frames and covers shall be designed to withstand an HS20-44 wheel loading as defined by AASHTO specifications.

- K. Manhole inserts: Watertight manhole inserts shall be required for all sanitary sewer manholes installed. Inserts shall be as manufactured by FRW Industries, Conroe, Texas, or approved equal. Inserts shall be complete with a self-cleaning relief valve. Relief valves shall operate on a pressure differential of 1/2 psi. Neoprene gaskets shall be installed under the insert lip to insure a leakproof seal.
- L. Penetrations and connections into precast or existing structures shall be accomplished by rotary core boring.
- M. Cast in place liners shall be repaired, fitted around penetrations, sealed at joints, etc. in accordance with the manufacturer's recommendations for that liner. As a general rule,

repairs, sleeves and patches shall be welded in place, glues and sealants shall not be used unless approved by the manufacturer.

### 3.04 TESTING

- A. After constructed to its finished height and before being backfilled, each manhole shall be tested for water tightness.
1. Plug pipe lines and perform vacuum test. Observing all recommended safety measures induce a backpressure of 5.0 p.s.i. equivalent to 10" Hg (mercury). The manhole assembly is considered satisfactory if the vacuum loss is less than 1" Hg for the length of time listed in the following table:

| Time of Test in Seconds |                          |     |    |
|-------------------------|--------------------------|-----|----|
| Depth<br>Feet           | Manhole Diameter in Feet |     |    |
|                         | 4                        | 5   | 6  |
| 4                       | 10                       | 13  | 16 |
| 8                       | 20                       | 26  | 32 |
| 12                      | 30                       | 39  | 48 |
| 16                      | 40                       | 52  | 64 |
| 20                      | 50                       | 65  | 80 |
| 24                      | 60                       | 78  | 96 |
| T                       | 5                        | 6.5 | 8  |

Note: Add "T" seconds for each additional 2'- of depth.

- B. Failure to pass this test requires the Contractor to correct the problems and retest. The Contractor will replace leaking gaskets and/or concrete sections and retest the completed manhole. No manhole will be accepted without successfully passing this test.

**END OF SECTION**

## SECTION 03500 LIFT STATION SPECIFICATION

### PART 1 GENERAL

Furnish all labor, materials, equipment and incidentals required to install complete automatic, underground lift stations with all required equipment installed in a concrete wet well and adjacent concrete valve vault (and meter vault). The principal items of equipment shall include two submersible motor-driven sewage pumps, valves, internal piping, automatic pumping level controls, control panel and telemetry. All materials shall be new, without defects and of the best quality. All materials furnished and all work done shall be in strict accordance with the National Electrical Code and all local requirements and codes.

All lift stations that re-pump sewage from other lift stations shall have an on-site generator equipped with an automatic power transfer switch, transducer level controls with backup float switches, submersible inline magnetic flow meter, and a force main pressure transducer, along with an onsite fuel tank of no more than 540 gallons.

### 1.01 STRUCTURES AND EQUIPMENT

#### A. Lift Station Wet Well

All wet wells 6 feet diameter and larger shall be precast concrete with a full protective liner designed to accommodate the peak hour developmental flow from all contributing areas. The wet well shall have a minimum of 4 feet from the lowest invert to the wet well bottom. The lift station wet well size shall be determined using the following formula to determine the minimum volume between the off-level elevation and the influent invert elevation:

$$\text{MIN. VOLUME (GALS.)} = \text{PUMP CAPACITY (G.P.M.)} \times 4$$

Wet well diameters shall be 6 feet or larger. 4-foot and 5-foot diameter wet wells shall be used only for special grinder pump applications as approved by the County. The minimum wall thicknesses for concrete wet wells with liners shall be as follows:

| <u>DIAMETER</u> | <u>WALL THICKNESS</u> |
|-----------------|-----------------------|
| 4' through 8'   | 8"                    |
| 8' through 10'  | 10"                   |
| 12' & larger    | 12"                   |

The lift station wet well size and control equipment shall be designed to limit the pumping cycles of each pump to a maximum of 5 starts per hour for duplex stations and 3 starts per hour for triplex stations. The pump cycle off level shall be no lower than the top of the sewage pumps. The lead pump on level shall be no higher than 18 inches below the invert elevation of the influent pipe for duplex stations, and no higher than 24 inches below the invert for triplex stations.

All lift stations shall have a single gravity-flow influent pipe discharging into the wet well. Multiple gravity pipelines and force mains upstream shall all terminate at a separate manhole before flowing into the lift station wet well.

#### B. Valve and Meter Vaults

1. A precast valve vault for three gate valves, two check valves, and a pump-out connection shall be constructed adjacent to the wet well for each duplex station.

Tryplex stations have four gate valves and three check valves. The valve vault shall have a 3-inch PVC drain installed at a 2 percent slope and with a P-trap installed inside the wet well. The pump-out connection shall be equipped with a gate valve and a 6-inch male aluminum quick-coupler. The valve vault shall be of adequate size to allow a minimum 18 inches clearance between all flange fittings and any concrete surfaces. All valves shall have factory applied, fusion bonded epoxy coating on interior and exterior. Valve vaults designed with exit pipe turning 90 degrees either way to exit to the side rather than straight through shall have two braces from the elbow to the walls to hold the assembly solidly in place. All bolt, nuts & washers in or on the wet well or valve vault shall be 316 stainless steel

2. A precast meter vault for a single submersible magnetic flow meter may be required following the valve vault. It shall also have a 2-inch PVC drain installed at a 2 percent slope and with a P-trap installed inside the wet well. The meter vault shall be of adequate size to allow a minimum 18 inches clearance between all flange fittings and any concrete surfaces.

#### C. Entrance Hatches

The lift station wet well valve and meter vaults shall be equipped with an aluminum access cover of adequate size to permit easy removal and installation of sewage pumps and equipment. The wet well and meter vault access cover shall be a minimum 30" x 48" single or double door. The valve pit access cover shall be a minimum 48" x 48" double door. All access covers shall be constructed of aluminum with a minimum load rating of 300 lbs/sq. ft. and equipped with stainless steel hinges, a recessed lifting handle which lies flush with the door surface, and a stainless steel staple which may be used to secure the door with a padlock when closed. The doors shall have a raised diamond thread pattern to provide a skid-resistant surface and shall open to 90 degrees and lock automatically in that position, with a handle to release the doors for closing. The hatch assemblies shall be as manufactured by Bilco, Halliday, or an approved equal.

Entrance hatches for duplex stations with 4" BPIU Base Ells shall be minimum 36" x 48" and with 6" BPIU Base Ells shall be minimum 42" x 60".

#### D. Sewage Pump Assemblies

Each pumping station shall have a minimum of two identical, totally submersible sewage pump assemblies which are rated and suitable for continuous duty, underwater operation. These units and their associated power and signal cables shall have watertight integrity to a depth of 65 feet. The pump, pump motor and associated components shall all be the products of the same manufacturer. Pump assemblies shall be painted after assembly with an approved air dry enamel which will adequately protect the exterior housings from the corrosive environment in the wastewater sewer system. Coating thickness shall be a minimum of 4 mils.

Factory testing of the pump assemblies shall be required and as a minimum, shall include:

1. All tests recommended by the manufacturer.
2. Verify the integrity of assembly and connections (no leaks, tightness of hardware, proper alignment, assembly, etc.) and that the nameplate and specified pump and pump motor (HP, Voltage, Phase and HZ) correspond.
3. The motor windings and seal housing chambers shall be hi-potted to test for insulation defects and moisture content. Check the resistance of the stator windings with a bridge to verify that the readings of all three phases are basically

- equal and within tolerance.
4. Energize pump motor, verify direction of rotation and that it corresponds to the nameplate.
  5. Provide a written report of all testing with the shipped pump.

All pumps assemblies shall be warranted against defects in workmanship and materials for whichever is the greater of: a minimum period of 18 months from the date of purchase or as provided in the Defect Security Agreement with the County.

Pump motors shall have the following electrical characteristics: 230 volt for 20 HP and lower or 460 volt for greater than 20 HP, 3 phase, 60 hertz, minimum service factor of 1.20, continuous duty, maximum NEMA LRA/HP code of J, and NEMA Design B. Pump motors shall be non-overloading throughout the entire range of operation. The pump motors are to be induction motors which are built with moisture resistant Class F insulation. Each motor shall be capable of a minimum of 10 starts per hour without degradation of the windings. The pump motor shaft shall be made from a single, solid, forging of 303 (or better grade) stainless steel, tapered, keyed, and supported by a minimum of one heavy duty upper radial ball bearing and a minimum of one heavy duty lower thrust bearing. The bearings shall have a minimum B-10 life rating of 60,000 hours. The shaft and shaft extension shall be of minimum length and maximum diameter to reduce shaft deflection and prolong bearing life. The pump motor shall be designed for pumping at a maximum sump ambient of 40 degrees C (104 degrees F). The stator of the pump motor shall be copper wound (aluminum stator windings are not permitted) and equipped with at least two heat sensors (klixons installed in the stator end turns) which will shut the motor off in case of excessive heat built up. The heat sensors shall be connected in series with the motor starter coil so the starter is tripped if the heat sensor opens. The pump motor housing shall be oil or air filled type for cooling purposes. Oil filled motors shall use pure dielectric insulating oil. The pump motor shall be capable of operating at +/- 10% of rated voltage and +/- 5% of rated frequency without excessive heating. The pump motor shall not exceed a rise by resistance of 90 degrees C at full load over the entire performance curve. It shall be able to operate intermittently a full load while unsubmerged without damage. Power cables and signal cables shall be continuous (without splices from the pump motor to the power supply). Power cables shall be sized for operation at the rated service factor. The power cable shall be a single, multi-conductor, SO type that is epoxy potted and compression fitted for water tight sealing into the pump cable entry. As a minimum, the nameplate for the pump motor shall include: MODEL/SERIAL NUMBER, HORSEPOWER, VOLTAGE, FULL LOAD AMPS, FULL LOAD RPM, PHASES, FREQUENCY, NEMA LRA CODE, NEMA DESIGN, INSULATION CLASS, AMBIENT TEMPERATURE, LEAD CONNECTIONS FOR DIRECTION OF ROTATION, TYPE OF DUTY, TYPE OF BEARINGS, PUMP IMPELLER SIZE. All electrical components used in or in conjunction with the sewage pump assembly shall be UL approved when UL approval is available for that type component.

The pumps shall be capable of pumping raw, unscreened sewage and able to pass a minimum 3-inch solid. Each pump shall have an enclosed cast iron or ductile iron impeller and shall be equipped with a bronze wear ring. The pump lifting cover, stator housing, and volute casing shall be gray cast iron, ASTM A 48, Class 30. Castings shall have smooth surfaces that are devoid of blow holes or other casting defects. The pump lifting bail shall have a minimum of 4" diameter clear opening and shall be cast as part of the motor cover or fabricated from 316 stainless steel. All fasteners exposed to raw sewage shall be series 300 stainless steel. The backside of the impeller shall have pump-out vanes to keep contaminants out of the seal area. The impeller shall be dynamically balanced, and shall be single - or multi-vaned, with an enclosed or recessed, non-clogging design. There shall

be a maximum clearance of .125" between the seal housing and the top of the impeller. The pump shall have a minimum of two mechanical seals mounted in tandem with an oil chamber between the two seals. The oil chamber of each pump shall be equipped with an electric seal fail sensor which shall be connected to an indicating light at the control panel to annunciate a seal failure and a set of relay contacts for purposes of remote notification via the County RTU system. The unit shall be designed so that when the outer seal fails, the contaminates that enter shall not enter the bearing housing and cause damage to the bearings. The inner seal shall be replaceable without disassembly of the motor housing and without the need for special tools. The rotating seal faces shall be carbon and the stationary seal faces shall be ceramic.

All pumps shall be center-line discharge type constructed so that the discharge flange supports the full weight of the pump. Pump assemblies shall be complete with ductile iron or gray cast iron discharge base elbows that are bolted directly to the wetwell floor, guide flange adapter and guide rails. The discharge elbow shall have an automatic coupling end facing the pump and an ANSI Class 125 flanged end ready for connection to the Van Stone style PVC flange of the riser pipe. The design of the pump assembly installation shall be such that the pump will be automatically connected to the discharge piping when lowered into place along the guide rails, and shall seal leak-tight to the discharge base elbow by the weight of the pump assembly resting in the installed position. The pump guide rails for each pump shall be constructed of two sections of 2 inch Schedule 40 stainless steel pipe set 4 inches on center.

The pump assemblies shall be easily removed for inspections or service, requiring no fasteners to be removed or disconnected, and no need for personnel to enter the confined space of the wetwell, by simply hauling up on the lift chains. The lifting chains shall be type 316 stainless steel, and shall be 1/4-inch for pumps less than 10 HP and 3/8-inch for pumps 10 HP and greater, or as required by the pump assembly weight. Chains shall be attached to the pump lifting bails using stainless steel shackles and shall extend to the inside top of the wetwell. All rails and mounting hardware shall be stainless steel.

#### E. Riser and Fittings

1. All flanged fittings inside the wet well and valve vault shall use stainless steel bolts, nuts and washers. All threads shall be treated with Bostik Never-Seez anti-seizing compound or approved equal. All bolts on the flange connection at the pump base elbows shall have two nuts with a lock washer between them. All bolts on the pipe support system shall use SS nylon lock nuts.

All stainless steel fasteners shall be treated with Never-Seez prior to assembly and torque according to the fitting manufacturer's recommendation. The bands around the piping shall be constructed from a minimum of 1 ½ inch wide by 12 gauge stainless steel strap stock, shaped to fit the piping and sized to grip the piping without deforming the pipe when bolted to the braces.

2. HDPE shall be used as a riser pipe material unless noted otherwise on the plans. HDPE riser pipes shall have shop butt fused flanges (backed by stainless steel backer rings) at each end for connecting to DI flanged fittings. The top elbow and any other fittings shall be shop butt fused. A field electro-fused coupler may be needed, either in the wet well riser or between the wet well and the valve vault, if the entire riser pipe from base elbow to check valve is too large to install as a single piece.

When HDPE riser pipes are used, a ¾" base plate shall be installed in the wet well. This base plate shall be at minimum of 16" x 20", with SS threaded rod welded in place to match the mounting bolt holes for the pump base ell. The base plate shall be bolted to the base of the wet well with ¾" SS threaded rod with at least 6" embedment using Hilti Epoxy Anchor.

F. Hardware

A multi hook stainless steel hanger shall be installed inside the wet well access opening for supporting the float switches and pump electric cables. The multi hook hanger shall be constructed from ¼" x 2" type 316 stainless steel flat stock with individual hooks constructed of ¼" type 316 stainless steel rod stock. Individual hangers shall be installed on each side of the upper guide rail bracket for each pump to support the pump lifting chain and power cable. The lifting chain hook shall be constructed from ¼" type 316 stainless steel rod stock. The pump power cable hook shall be constructed from ¼" x 1" type 316 stainless steel flat stock.

G. Painting and Coating

All paint and other coatings shall be applied in accordance with the product manufacturer's specifications for the surfaces being coated. All iron body valves inside the valve vault and wet well shall have a factory applied fusion bonded epoxy coating inside and outside. All ductile iron fittings shall have a factory applied fusion bonded epoxy or epoxy and polyethylene lining on the inside in accordance with manufacturer's specifications and a coal tar enamel coating on the outside. No field-applied paintings or coatings shall be applied to the valves or fittings.

H. Stilling Well

A stilling well may be required, and if so, shall be a 6" PVC stilling well mounted such that the top is available to an open hatch cover. The bottom of the stilling well shall have a SS bolt all the way through both sides, passing through the center of the pipe, approximately 4" from the base of the pipe. It shall have ½" diameter holes drilled around the circumference at a rate of one hole per inch of length for at least the full wetted height.

I. Magnetic Flow Meter

A flow meter may be required, and if so, flow meters installed in a separate meter vault shall be rated for continuous submergence, 0.05% accuracy with a polyurethane liner, flush electrodes, FM Class 1, Division 2, Groups A,B,C&D and shall be constructed for a flanged mount. Meter shall be supplied with a like size spool piece. The exterior control module/transmitter shall be mounted either inside or adjacent to the lift station control panel on the same support structure per the Lift Station Supervisor.

2.01 ELECTRICAL

A. Service and Metering

The Contractor shall be responsible and shall pay for any permits, fees, and inspections required by the local power company for service installations. Three phase power shall be used unless otherwise approved by the County. Service for pump motors of 20 horsepower or smaller shall be 230 volts. For motors greater than 20 horsepower, the service voltage shall be 460. No phase converters will be accepted. All lift stations shall be equipped with a knife-type fused safety switch in a NEMA 4X stainless steel enclosure,

lockable in the ON and OFF position, between the service meter and the control panel to permit servicing of the main breaker without removing the service meter. All meter bases shall be aluminum. Minimum service size shall be 100 amp. Conduit connections to the disconnect shall be sealed using Myers conduit hub connectors (disconnect side).

B. Conductors

All power conductors shall be single conductor, 600 volt, type THW or THHN stranded copper. Minimum conductor size shall be #12 AWG. ALUMINUM WIRE IS NOT PERMITTED. All control wiring shall be single conductor #14 AWG, 600 volt, type THHN stranded copper. All terminations and interconnections of control wiring shall be by means of compression-type lugs of the nylon self insulated type with an inner bronze insulation grip sleeve on identified terminal strips. All control wiring shall be color coded as indicated on the standard details.

C. Conduit

All power conductors from the utility source to the service meter shall be enclosed in PVC Schedule 80 conduit below ground and aluminum rigid conduit aboveground (NO I.M.C. ALLOWED). All lift stations shall be equipped with one conduit to the wet well for each pump power cables and a separate conduit to the wet well for the control (floatball) and signal cables. In lift stations with large horsepower pumps and pumps equipped with sensor cables, the conduit size and quantity shall be determined by the County. All conduit to the lift station wet well shall be minimum 2" Schedule 80 PVC and shall be run by the shortest route possible. All terminations shall be made inside the electrical control panel. No junction boxes mounted under control panel for pump and float cables will be accepted. All flexible conduit shall be non-metallic.

D. Control Panel

All lift stations shall have one automatic control panel. The control panel enclosure shall be NEMA 3RSS/12 and shall be made of 304 stainless steel. It shall be continuously welded at the seams and the welds are to be ground smooth. The enclosure shall be equipped with a rain shield and the door shall be sealed with a closed-cell neoprene door gasket. The outer door shall be held in the closed position with a 1/4-turn handle that has a minimum of three latching points. The door shall be padlock lockable in the closed position. The inner swing panel (dead front door) shall be stainless steel or aluminum with a continuous stainless steel piano type hinge, and shall have 1/4-turn handles at the top and bottom with single latch contact points each. Both doors shall be hinged on the same side. The enclosure backplate shall be 12 gage or thicker aluminum or stainless steel.

The control panel, along with the safety switch box and electric utility power meter, shall be attached to horizontal support channels with stainless steel fastening systems designed for use with the support channel. The horizontal channels shall be minimum 1-5/8 inch, 12 gage (or thicker) aluminum or stainless channels sized to carry the total load (Unistrut, B-Line or County approved equal), attached with stainless steel two piece pipe clamps or stainless steel U-bolts to two vertical 3 inch diameter stainless steel, schedule 40 pipes. The pipe clamp or U-bolt ends shall be covered with plastic caps to prevent injury to personnel. The 3 inch vertical pipe shall have plastic end caps or stainless steel end caps at the top and shall be anchored in concrete adjacent to the lift station wet well. See County Standard US-20C. No fittings shall enter from the top or back of the control panel. All fittings shall enter the side or bottom of the control panel and shall penetrate the control panel with either sealing locknuts or Myers Hubs.



The overall control panel shall be a minimum of 30"x36"x12" deep and of adequate size to completely cover (without crowding) all wiring and components mounted inside it. It shall have provisions for the mounting of all basic and optional controls and instrumentation. Install engraved nameplates defining door mounted hardware. The electrical control panel shall have a complete wiring schematic which is laminated in plastic and attached to the inside of the outer control panel door.

All components shall be installed per the most current NEMA and NEC regulations and standards. The components shall be industrial NEMA rated (I.E.C. is not acceptable) and UL approved when UL approval is available for that particular type component. The components of the panel shall be held in place with stainless steel, slotted, plan head machine screws with star type washers. The panel shall be tapped to accept the mounting screws of the components and no self-tapping type screws shall be used. The control panel shall have the following items installed on the back plane or on aluminum high hats attached to the back plane, so the body of the component is flush with the dead front door to allow operation and reset of the components without opening the dead front door: main power breaker, emergency power circuit breaker, individual pump circuit breakers, control circuit breaker, G.F.I. duplex receptacle circuit breaker, and TAC-Pack telemetry/motor controller. The control panel shall have the following items installed directly to the back plane: individual motor starters, power distribution blocks, neutral bar assembly, grounding bar/lugs, terminal strips, RTU battery case, 2 inch PVC conduit for control and telemetry wiring and fuses, surge suppressor, and resistors for telemetry/controller. The control panel shall have one G.F.I. duplex receptacle installed on the dead front door. The exterior of the control panel shall have one emergency generator receptacle, one flashing red light, and one audible alarm with reset button. The individual placement of all the components of the control panel shall be installed as indicated in the standard details.

E. Ratings

The controls shall be rated for the supply voltage (230 or 460 volts), 3 phase, 60 hertz. In the event that three phase power is not available at the location of the control panel, the lift station shall be connected for capacitor start/run motors. The capacitors shall be installed in a separate NEMA 4X enclosure that shall be mounted adjacent to the control panel. All control voltage to the wet well shall not exceed 24 volts d.c.

F. Wiring Method

All power conductors from the main circuit breaker to all other circuit breakers shall be connected via a Square D model LBA363206 power distribution block. All electrical panel components shall have individual neutral wires. All neutral wiring shall be connected via a Square D model SN12-125 neutral assembly. Wiring is to be continuous with no splices between connections. Provide a Square D model PK9GTA grounding bar at the bottom of the backplate. This grounding bar will be the central connection point of all ground wires for the system with the exception of the pump power cords and surge arresters. The pump power cords and surge arresters shall be grounded via individual ground lugs that are to be attached to the control panel back plane. Provide two 12 terminal, Ideal model 6YH68 terminal strips to make electrical connections in the control panel. One terminal strip shall be used exclusively for 24 volt connections (TB-1) and the other shall be used exclusively for 120 volt connections (TB-2). The power distribution block, neutral assembly, grounding bar and terminal strips shall be located as indicated in the standard details. Use stainless steel screws and fasteners for all wiring connections.

#### G. Circuit Breakers

The panels shall be equipped with main and emergency circuit breakers for a minimum size of service of 100 amps. The main and emergency circuit breakers shall be interlocked so that when one is in the open position, the other circuit breaker must be in the closed position. There shall also be an individual circuit breaker for each pump, a control circuit breaker, a 20 amp circuit breaker for site lighting, a 20 amp circuit breaker for the flow meter (re-pump lift stations only) and a minimum 20 amp circuit breaker for the 120 volt GFI protected convenience outlet that is mounted on the inner control panel door. All circuit breakers shall be mounted in the control panel per the standard details. The circuit breakers shall be of the heavy duty thermal magnetic trip variety. For circuit breakers up to 100 amps, use Square D series QOU or County approved equal. For circuit breakers greater than 100 amps, use Square D Mag Guard series with adjustable trip.

#### H. Motor Starters

Pump motors shall each have a NEMA-rated, magnetic starter sized as called for on the construction plans. No starter smaller than NEMA size 1 shall be used. Starters shall be solid state, full voltage, non-reversing type. These starters shall be Frunus series ESP-100 or County approved equal with special phase loss protection and a special factory coating of the solid state circuit boards which prevents hydrogen sulfide damage. The starters shall be equipped with under voltage release and overload protection on all three phases. The motor starter contacts shall be constructed so that they may be easily replaced without removing the starter unit from its mounted position. The overload reset device shall be operable without having to open the inner swing panel.

#### I. Lightning Arresters

There shall be a Ditek DTK Series, Category B lightning arrester/surge suppressor installed on the incoming power source. It shall be mounted on the bottom exterior of the safety switch enclosure and connected to the LOAD SIDE of the safety switch and overload reset.

The main circuit breaker and the RTU circuit breaker shall also each have a Ditek CM+Series lightning arrester/surge suppressor connected to the load side of the breaker wiring. These lightning arresters/surge suppressors shall be mounted with the supplied adhesive strip on the back of the high hat supporting the breakers. The exact model lightning arresters/surge suppressors shall be based on the voltage and number of phases of the protected circuits.

#### J. Liquid Level Switches and Sensors

A minimum of four float switches are to be installed in the wetwell to monitor and control liquid level height. The switches shall be a single pole mercury switch (as manufactured by Anchor Scientific Inc. or County approved equal). They shall be designed to actuate when the longitudinal axis of the float is horizontal, and deactuate when the liquid level falls one inch below the actuation elevation. The switching arrangement shall be normally open when deactivated. The output leads shall be connected in the control panel as shown in the standard details. The control voltage to the level switches shall be 24 volts d.c. and the switches shall be sized to operate at that voltage. In addition to the above, lift stations that re-pump sewage flows from other lift stations shall have a Senex model GSX3-PP100-A49-B49-XX-CO1-D49 pressure transmitter mounted inside a stilling well as the primary level sensor.

The wiring connecting the control panel to the wet well floats, pressure transducer, and flow meter shall be a continuous length (no splices) of flexible rate 600 volt, minimum diameter of #18, type S.O. cable for each instrument or switch point. The float switches shall have all connections made inside the control panel. The wiring shall be installed so there is a minimum of four feet, and a maximum of 6 feet, of excess cable in the wetwell for relocation of the float switches. Wiring into the valve vault for the pressure transducer and into the meter vault for the flow meter shall be of adequate length to connect the meter and route the remaining wire along the outside wall of the vault.

K. Alarms

Each lift station shall have one flashing red light and one audible alarm with silence button to signal high level conditions. An automatic shutoff timer for the horn (variable setting 0-20 minutes) is to be installed in the control panel. A flasher unit shall be installed in the control panel to operate the flashing light. These components shall be mounted to the control panel as illustrated in the standard details.

L. Generator Receptacle

A generator receptacle to permit the installation of a portable emergency generator as the power source when the local utility power company power supply is lost shall be installed on the outside of the control panel as indicated on the standard details. It shall be directly connected to the emergency circuit breaker inside the control panel. The emergency and main circuit breakers shall have a mechanical interlink between them which shall allow only one source to supply power to the control panel at any given period of time. The generator receptacles shall be:

| Power Supply          | Required Receptacle      |
|-----------------------|--------------------------|
| 0-100 Amp, 230 Volt   | Russell Stoll JRSB1044FR |
| 100-200 Amp, 230 Volt | Russell Stoll JRSB2044FR |
| 0-200 Amp, 460 Volt   | Russell Stoll JRSB2034HR |

M. Seal Leak Moisture Detector

Provide for each pump a moisture sensing sensor which will detect when moisture has penetrated the seal chamber. The moisture seal detector shall be connected to the County RTU system to notify lift station maintenance personnel when a seal has allowed moisture to enter the oil chamber of the pump. An indicating lamp is to be mounted in the control panel as illustrated in the standard details to also signal the seal failure.

N. Remote Terminal Unit

The remote terminal/pump control unit shall be a complete TAC Pack TCU system as manufactured by Data Flow Systems, Inc. The unit is to be a fully programmable, dual function device. It shall be used to monitor and control SCADA equipment and it shall have all the necessary hardware and software to control three pump motor starters. Its operation is based on level inputs from a minimum of four float ball switches in the wet well. It shall have the ability to control pump alternation, activate and deactivate remote and local alarms, and communicate with the TAC II SCADA System. It shall be equipped with RTU surge protection and a transient filter shield. The unit shall have an Uninterruptible Power Source and contain all the components and be electrically

connected as indicated in the standard details. It shall be equipped with an antenna with supporting mast and coaxial cable that is required by the manufacturer for that particular system. The installation shall include the required FCC licensing. The antenna and mast shall be rated for 150 MPH winds. Lift stations that re-pump sewage flows from other lift stations will also require an Analog Monitor Module to receive input from the force main pressure transducer and flow meter.

O.       Grounding

Install a 5/8" x 10' copper-clad ground rod for each electrical service. Connect to the ground rod with a ground clamp and run a #6 bare copper wire to connect with the electrical panel grounding bar. Provide another, separate ground rod, clamp and #6 bare copper wire to connect directly to the antenna mast.

P.       Site Lighting

A minimum 300 watt halogen light or equal shall be mounted on the RTU system tower for illumination of the lift station area. The light shall be a Regent Model EQ300M1 or equal, mounted on 3/4" galvanized rigid conduit connected to the RTU tower using 90 degree korns clamps.

**3.01       REMOTE TERMINAL/PUMP CONTROL UNIT**

The remote terminal/pump control unit shall be TAC PAC (TAC II plus PCU 001) as manufactured by Data Flow Systems, Inc.

**4.01       WATER SERVICE**

All lift stations shall be equipped with a 3/4" lock shield and loose key water service (hose bib) adjacent to the valve vault. Each water service shall be equipped with a 5/8" water meter, a reduced-pressure principle backflow preventer (Watts Model 909 or Equal) and a 3/4" brass hose bib. The water meter and backflow preventer shall be located within two feet of the lift station easement (or property) line. All water meters shall be obtained from the Manatee County Meter Department.

**5.01       PERMITS**

The Contractor shall be responsible for obtaining and shall pay for any permits and/or inspections required.

**6.01       SHOP DRAWINGS AND INSPECTIONS**

When calling for inspection, the Contractor shall have these approved shop drawings available on-site for review by the inspectors. The Contractor shall also deliver to the Lift Station Section inspector, the pump manufacturer's technical manual with the model number, serial number, and certified pump curve, for each pump prior to acceptance by Manatee County for maintenance.

**7.01       EASEMENTS**

An easement for ingress and egress to the lift station and an easement for the lift station must be granted and recorded before the lift station can be accepted by MC for operation and maintenance.

**8.01 LANDSCAPING**

The Contractor shall be responsible for providing a landscaped screening or buffer with irrigation and shall maintain the lift station site in accordance with the Manatee County Land Development Code Section 715 unless a waiver is requested and approved by the Department of Public Works Director or his designee.

**9.01 FLOODING**

Wastewater pumping station structures and electrical and mechanical equipment shall be fully protected from physical damage and flood water intrusion by the 100 year flood. Wastewater pumping stations should remain fully operational and accessible during the 25 year flood. Regulations of state and federal agencies regarding flood plain obstructions shall be considered.

**10.01 ACCESSIBILITY AND SECURITY**

The pumping station shall be readily accessible by maintenance vehicles during all weather conditions. The facility shall be located off the traffic way of streets and alleys. Security fencing and access hatches with locks shall be provided.

**END OF SECTION**

## DIVISION 5 METALS

### SECTION 05500 MISCELLANEOUS METAL

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. Furnish all labor, equipment and incidentals required and install covers, grates, frames and other miscellaneous metals as shown on the Drawings and specified herein. The miscellaneous metal items include but are not limited to the following:
1. All metal frames, ladders, stairs, stair rails, floor opening frames including gratings and supports.
  2. Prefabricated access hatches and frames.
  3. Anchors and anchor bolts except those specified to be furnished with all equipment.
  4. Railings, posts and supports both interior and exterior.
  5. Cast iron frames, covers, grates, drain leaders and drains.
  6. Bridge crane track supports.
  7. Stair nosings, steel plates, overhead steel door frames, angle frames, plates and channels.
  8. Exterior H.V.A.C. hoods.
  9. Pump guide rail system.

##### 1.02 COORDINATION

- A. The work in this Section shall be completely coordinated with the work of other Sections. Verify at the site both the dimensions and work of other trades adjoining items of work in this Section before fabrication and installation of items herein specified.
- B. Furnish to the pertinent trades all items included under this Section that are to be built into the work of other Sections.

##### 1.03 SHOP DRAWINGS AND SAMPLES

- A. Detail drawings, as provided for in the Contract Documents, showing sizes of members, method of assembly, anchorage, and connection to other members shall be submitted to the County for approval before fabrication.
- B. Samples shall be submitted at the request of the County for concurrent review with Shop Drawings.

##### 1.04 FIELD MEASUREMENTS

- A. Field measurements shall be taken at the site to verify or supplement indicated dimensions and to insure proper fitting of all items.

## 1.05 REFERENCED SPECIFICATIONS

A. Unless otherwise specified, materials shall conform to the following:

|                                       |                           |
|---------------------------------------|---------------------------|
| Structural Steel                      | ASTM A36                  |
| Welded & Seamless Steel Pipe          | ASTM A53                  |
| Gray Iron Castings                    | ASTM A48, Class 30        |
| Galvanizing, general                  | ASTM A123                 |
| Galvanizing, hardware                 | ASTM A153                 |
| Galvanizing, assemblies               | ASTM A386                 |
| Aluminum (Extruded Shapes)            | 6061-T6 (Alum. alloy)     |
| Aluminum (Extruded Pipe)              | 6061-T6 (Alum. alloy)     |
| Aluminum Bar Structural               | 6061-T6 (Alum. alloy)     |
| Bolts and Nuts                        | ASTM, A307                |
| Stainless Steel Bolts, Fasteners      | AISI, Type 316            |
| Stainless Steel Plate and Sheet, Wire | AISI, Type 316            |
| Welding Rods for Steel                | AWS Spec. for Arc Welding |

## PART 2 PRODUCTS

### 2.01 ANCHORS, BOLTS AND FASTENING DEVICES

- A. Anchors, bolts, etc., shall be furnished as necessary for installation of the work of this Section.
- B. Compound masonry anchors shall be of the type shown or required and shall be equal to Star Slug in compounded masonry anchors manufactured by Star Expansion Industries, equal by Phillips Drill Co., Rawlplug, or equal. Anchors shall be minimum "two unit" type.
- C. The bolts used to attach the various members to the anchors shall be the sizes shown or required. Stainless steel shall be attached to concrete or masonry by means of stainless steel machine bolts and iron or steel shall be attached with steel machine bolts unless otherwise specifically noted.
- D. For structural purposes, unless otherwise noted, expansion bolts shall be Wej-it "Ankr-Tite", Phillips Drill Co. "Wedge Anchors", or Hilti "Kwik-Bolt". When length of bolt is not called for on the Drawings, the length of bolt provided shall be sufficient to place the wedge portion of the bolt a minimum of 1-inch behind the reinforcing steel within the concrete. Material shall be as noted on the Drawings. If not listed, all materials shall be stainless steel.

### 2.02 ALUMINUM ITEMS

- A. Aluminum gratings shall be of serrated I-Bar Aluminum Alloy 6061-T6, fabricated to the depths and thicknesses shown on the Drawings and shall be Reliance Steel Products Company, I-Lok Type 7/8 R4 Aluminum Grating; IKG Industries, "Galok" Aluminum I-Bar Grating Type S194-I, or equal. All openings 2 inches and greater in diameter shall be banded with a bar of the same depth and thickness as the main bearing bars of the grating, or furnished with continuous cross bridges. Each cut bar shall be welded to the band if banding is utilized. The ends of all grating sections shall be likewise banded. Clamps and bolts used for attaching grating to supporting members shall be stainless steel. All grating shall be clamped unless noted otherwise. Clamps shall be as recommended by the manufacturer.

- B. Stair treads shall be as specified above for grating and shall have abrasive nonslip nosing.
- C. Aluminum nosing at concrete stairs shall be an extrusion of 4-inch minimum width with abrasive filled and shall be Wooster Products, Inc., Alumogrit Treads, Type 116; equal by Barry Pattern and Foundry Co.; Andco; or equal. Embedded anchors shall be furnished with a minimum of three anchors per tread.
- D. Aluminum ladders shall be fabricated to the dimensions and details and installed as shown on the Drawings. Treads to be of cast aluminum by Dixie Metals, Inc. of Fort Lauderdale, Florida or equal.
- E. Aluminum Handrails, Mechanically Fastened Type:
1. All aluminum mechanically fastened type pipe handrails and guardrails shall be clear anodized aluminum finish and installed as specified herein and indicated on the Drawings. Handrails shall be made of nominal 1-1/2 inches inside diameter pipe (Schedule 40) fabricated or seamless 6063-T6 alloy. The supplier of the handrail system shall supply all necessary fittings, rackets, transition, corner and connector pieces, toeboards, protective gaskets, etc., for a complete job at the locations, indicated on the Drawings. All mounting hardware including bolts, studs, nuts, etc., shall be stainless steel Type 316. Bends shall be smooth and accurate to the details shown. Railings shall be the "Rigid Rail System" as manufactured by Reynolds Aluminum of Reynolds Metal Company as Reynolds II pipe railing system or the "Connectorail System" as manufactured by Julius Blum & Co., Inc., Carlstadt, New Jersey. The handrail systems shall comply with all OSHA and D Section 1208.2 of the Standard Building Code.
  2. Spacing of posts where posts are required shall be as noted on shop drawings, but in all cases, shall be uniform and shall not exceed the requirements of OSHA and Section 1208.2 of the Standard Building Code. Shorter spacing may be used where required to maintain the maximum spacing. The fabricator of the aluminum handrail and guardrail system shall be responsible for the design and preparation of shop drawings and design calculations (signed and sealed by Florida Registered Engineer) to meet OSHA requirements and Section 1208.2 of Standard Building Code.
  3. All railings shall be erected in line and plumb. Field splicing and expansion compensation shall be accomplished using internal splice sleeves. Make provisions for removable railing sections as detailed and where shown on the Drawings.
  4. Where handrail or guardrail posts are set in concrete as per the manufacturer's requirements the posts shall be set into aluminum sheeves cast in the concrete and firmly cemented with 1651 epoxy resin by E-Bond Epoxies, Oakland Park, Florida, Moulded Reinforced Plastics, Inc., Fort Lauderdale, Florida or equal. Collars shall be placed on the posts and fastened in place, as shown and as detailed on approved shop drawings.
  5. Where handrail is supported from structural members, it shall be done by the use of approved sockets, flanges, brackets, or other approved means which will provide neat and substantial support for the pipe railing.
  6. All railing shall be properly protected by paper, or by an approved coating or by both against scratching, splashes or mortar, paint, or other defacements during transportation and erection and until adjacent work by other trades has been completed.



- F. Toeboards: Contractor shall furnish and install aluminum toeboards conforming to latest OSHA requirements on all railings and other locations where indicated on the Drawings.
  - 1. Toeboards shall consist of an extruded 6063-T6 aluminum shape bolted by means of a pipe clamp to the railing posts without requiring any drilling or welding of the toeboard to the railing posts as manufactured by Reynolds Aluminum, Julies Blum & Company, Thompson Fabricating Company or equal. Toeboards shall have pitched top and tear drop bottom to prevent accumulation of dirt, or other material.
  - 2. All fastening hardware shall be Type 316 stainless steel.
- G. Kickplates, if required, shall be fabricated and installed as shown on the Drawings.
- H. Aluminum safety gate shall be fabricated of extruded aluminum.
- I. Prefabricated checkerplate aluminum floor hatches shall be Type "JD", or "KD" as manufactured by Bilco Co., Babcock-Davis Associates, Inc.; Type "AM" Inland-Ryerson Construction Products Co., Milcor Division; or equal, sized as shown. Hatches with either dimension over 3 feet-6 inches shall be double leaf type. Hatches shall be designed for a live load of 300 pounds per square foot. Hatches shall be watertight.
- J. Ship ladders shall be of all aluminum construction as detailed. Treads shall have abrasive nosing as manufactured by Reliance Steel Products Co., IKG Industries, or equal.
- K. Checkplate aluminum cover plates shall be fabricated to the details shown and installed at the locations shown.
- L. Structural aluminum angle and channel door frames shall be provided as shown on the Drawings and shall be anodized. Frames shall be fabricated with not less than three anchors on each jamb.
- M. Miscellaneous aluminum shapes and plates shall be fabricated as shown. Angle frames for hatches, beams, grates, etc., shall be furnished complete with welded strap anchors attached. Furnish all miscellaneous aluminum shown, but not otherwise detailed. Structural shapes and extruded items shall conform to the detail dimensions on the Plans within the tolerances published by the American Aluminum Association.

## **2.03 STEEL ITEMS**

- A. Sleeves shall be steel or cast iron pipe in walls and floors with end joints as shown on the Drawings. All pipe sleeves shall have center anchor around circumference as shown.
- B. Miscellaneous steel pipe for sleeves and lifting attachments and other uses as required shall be Schedule 40 pipe fabricated according to the details as shown on the Drawings.
- C. Miscellaneous steel shall be fabricated and installed in accordance with the Drawings and shall include: beams, angles, support brackets, closure angles in roof at edge of T-beams; base plates to support ends of T-beams; door frames; splice plates, anchor bolts; lintels and any other miscellaneous steel called for on the Drawings and not otherwise specified.

## **2.04**

### **CAST IRON ITEMS**

- A. Outside pipe clean-out frames and covers shall be heavy duty, R-6013-R-6099 series as manufactured by Neenah Foundry Co., or equal. All outside pipe clean-outs shall be 6-inch diameter.
- B. Frames and covers for valve vaults and manholes shall be of a good quality, strong, tough even grained cast iron except as otherwise specified below. Castings shall be as manufactured by the U. S. Foundry, Neenah Foundry, Mechanics Iron Foundry, or equal. Covers to have letters "WATER", "SEWER" or "DRAIN", as applicable, embossed on top.

## **PART 3**

### **EXECUTION**

## **3.01**

### **FABRICATION**

- A. All miscellaneous metal work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability.
- B. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Steel accessories and connection to steel or cast iron shall be steel, unless otherwise specified. Threaded connections shall be made so that the threads are concealed by fitting.
- C. Welded joints shall be rigid and continuously welded or spot welded as specified or shown. The face of welds shall be dressed flush and smooth. Exposed joints shall be close fitting and jointed where least conspicuous.
- D. Welding of parts shall be in accordance with the Standard Code of Arc and Gas Welding in Building Construction of the AWS and shall only be done where shown, specified, or permitted by the County. All welding shall be done only by welders certified as to their ability to perform welding in accordance with the requirements of the AWS Code. Component parts of built-up members to be welded shall be adequately supported and clamped or held by other adequate means to hold the parts in proper relation for welding.
- E. Welding of aluminum work shall be on the unexposed side as much as possible in order to prevent pitting or discoloration.
- F. All aluminum finish exposed surfaces, except as specified below, shall have manufacturer's standard mill finish. Aluminum handrails shall be given an anodic oxide treatment in accordance with the Aluminum Association Specification AA-C22-A41. A coating of methacrylate lacquer shall be applied to all aluminum shipment from the factory.
- G. Castings shall be of good quality, strong, tough, even-grained, smooth, free from scale, lumps, blisters, sand holes, and defects of any kind which render them unfit for the service for which they are intended. Castings shall be thoroughly cleaned and will be subjected to a hammer inspection in the field by the County. All finished surfaces shown on the Drawings and/or specified shall be machined to a true plane surface and shall be true and seat at all points without rocking. Allowances shall be made in the patterns so that the thickness specified or shown shall not be reduced in obtaining finished surfaces. Castings will not be acceptable if the actual weight is less than 95 percent of the theoretical weight computed from the dimensions shown. The Contractor shall provide facilities for weighing castings in the presence of the County showing true weights, certified by the supplier.

- H. All steel finish work shall be thoroughly cleaned, in accordance with the Contract Documents, of all loose mill scale, rust, and foreign matter before shipment and shall be given one shop coat of primer compatible with finish coats specified in Painting Section after fabrication but before shipping. Paint shall be applied to dry surfaces and shall be thoroughly and evenly spread and well worked into joints and other open spaces. Abrasions in the field shall be touched up with primer immediately after erection. Final painting is specified in the Contract Documents.
- I. Galvanizing, where required, shall be the hot-dip zinc process after fabrication. Following all manufacturing operations, all items to be galvanized shall be thoroughly cleaned, pickled, fluxed, and completely immersed in a bath of molten zinc. The resulting coating shall be adherent and shall be the normal coating to be obtained by immersing the items in a bath of molten zinc and allowing them to remain in the bath until their temperature becomes the same as the bath. Coating shall be not less than 2 oz. per sq. ft. of surface.

### **3.02 INSTALLATION**

- A. Install all furnished items imbedded in concrete or other masonry. Items to be attached to concrete or masonry after such work is completed shall be installed in accordance with the details shown. Fastening to wood plugs in masonry will not be permitted. All dimensions shall be verified at the site before fabrication is started.
- B. All steel surfaces to come in contact with exposed concrete or masonry shall receive a protective coating of an approved heavy bitumastic troweling mastic applied in accordance with the manufacturer's instructions prior to installation or provide a 1/32-inch neophrene gasket between the steel surface and the concrete or masonry.
- C. Where aluminum is embedded in concrete, apply a heavy coat of approved bitumastic troweling mastic in accordance with the manufacturer's instructions prior to installation.
- D. Where aluminum contacts masonry or concrete, provide a 1/32-inch neophrene gasket between the aluminum and the concrete or masonry.
- E. Where aluminum contacts a dissimilar metal, apply a heavy brush coat of zinc-chromate primer and provide a 1/32-inch neoprene gasket between the aluminum and the dissimilar metal.

Where aluminum contacts wood, apply two coats of aluminum metal and masonry paint to the wood.

**END OF SECTION**

## **SECTION 05550 AIR RELEASE ENCLOSURE**

### **PART 1 GENERAL**

#### **1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials, equipment and incidentals required to install the above ground air release enclosure as listed in the specifications and as shown on the Drawings.

#### **1.02 RELATED WORK**

The contractor shall be responsible for any related work necessary for the proper installation of enclosure. This shall include, but is not limited to, any required bypass pumping, any required earthwork and any required concrete work.

#### **1.03 SUBMITTALS**

- A. Submit to the County shop drawings and schedules of all enclosure systems and appurtenances required. Submit design data and specification data sheets listing all parameters used in the enclosure system design.
- B. Submit to the County the name of the enclosure supplier and a list of materials to be furnished.

#### **1.04 REFERENCE STANDARDS**

- A. American Water Works Association (AWWA).
- B. American Society for Testing and Materials (ASTM).
- C. Where reference is made to the above standard, the revision in effect at the time of bid opening shall apply.

#### **1.05 QUALITY ASSURANCE**

The enclosure manufacturer shall be a company specializing in the manufacture of such enclosures with at least five (5) years of successful field experience and being lab certified as meeting A.S.S.E 1060 requirements.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Care shall be taken in shipping, handling and placing to avoid damaging. Any material damaged in shipment shall be replaced as directed by the County.
- B. Any material showing deterioration, or which has been exposed to any other adverse storage condition that may have caused damage, even though no such damage can be seen, shall be marked as rejected and removed at once from the work.

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

All enclosures shall comply with the standard detail for shape and size and shall include a 24"W x 30"H access door with a hasp for a padlock. The enclosure shall be securely attached to a concrete base with anchor brackets installed on the interior of the enclosure, through the flange base of the enclosure itself or through a stainless steel anchor hinge.

### **2.02 ALUMINUM ENCLOSURE**

- A. The roof, walls and access panels shall be constructed of mill finish aluminum, ASTM B209, solid sheet construction, with a wall thickness of one eighth inch.
- B. All structural members shall be aluminum. No wood or "particle board" shall be allowed in assembly.
- C. Multi-sectional enclosures shall fit together with overlapping "tongue and groove" joints and be secured internally with mechanical fasteners.
- D. All assembly fasteners shall be stainless steel or aluminum.

### **2.03 STAINLESS STEEL ENCLOSURE**

- A. The roof, walls and access panels shall be constructed stainless steel, type 316, solid sheet construction, with a wall thickness of one eighth inch.
- B. All structural members shall be stainless steel. No wood or "particle board" shall be allowed in assembly.
- C. Multi-sectional enclosures shall fit together with overlapping "tongue and groove" joints and be secured internally with mechanical fasteners.
- D. All assembly fasteners shall be stainless steel.

### **2.04 FIBERGLASS ENCLOSURE**

- A. Enclosure shall be a 1 piece molded fiberglass enclosure with a base flange for mounting to the concrete slab and a full recessed door opening with a lip. Enclosure shall be by Allied Molded Products, or approved equal. Color shall be as directed by the County.
- B. Full length piano style hinge, door latch, padlock hasp and all bolts and other hardware shall be of stainless steel.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

Enclosure shall be assembled and mounted plumb, level and square on the concrete pad according to the manufacturer's instructions and the contract drawings.

**END OF SECTION**

## DIVISION 6 WOOD AND PLASTIC

### SECTION 06100 ROUGH CARPENTRY

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals necessary and install all items of carpentry work complete as shown on the Drawings and as specified herein including nailers, grounds and cants.
- B. The following list of work items is intended only as a guide to that required, the full scope being determined by the actual job conditions.
  - 1. Rough carpentry and framing, as indicated or required, including grounds, blocking, rough frames, nailing strips and strapping.
  - 2. Rough hardware, anchors and bolts, not specifically included elsewhere.
  - 3. Temporary closures.
  - 4. Installation of metal doors.
  - 5. Installation of metal wall frames and louvers.

##### 1.02 JOB CONDITIONS

Deliver, handle and store lumber and plywood to prevent damage. Stack lumber off the ground in a manner to ensure ventilation and protection from the weather.

##### 1.03 QUALITY ASSURANCE

Grade and Treatment Markings shall appear on lumber with seal and stamp of the inspection agency or bureau having jurisdiction.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. All lumber shall be of sound stock, delivered dry, and shall be fully protected at all times from injury and dampness. Split, broken, or otherwise damaged pieces will not be allowed in the work.
- B. Lumber for Blocking, Grounds and Nailers shall be S4S, either No. 2 Southern Pine, or standard grade Douglas fir, with moisture content of not more than 19%.
- C. Wood members that will contact masonry or concrete, or any wood framing or blocking member shown on the Drawings and labeled "P.T." shall be pressure treated with chromated copper arsenate or flouchrome arsenate phenol. Minimum net retention of solids preservation shall be 0.35 lbs. per cu. ft. All other permanent wood in place shall be pressure treated with any of the following: Celcure, Wolman Salts, Copperized Chromated Zinc Arsenate or Pentachlorophenol dissolved in a volatile mineral spirits solvent and bear an approved AWP1-LP-2 or LP-3 quality mark. Clear heart Redwood may be substituted for pressure treated lumber.

- D. All treatment shall be performed in accordance with the requirements of the Standard Specifications of the American Wood Preservers Association for treating wood. Apply a heavy coat of the same preservation used in treating to all surfaces cut after treatment.
- E. Nails and spikes, where sizes are not indicated or specified, shall be of suitable size and number to securely fasten and hold members in place.
- F. Plywood for project sign shall be A-A EXT-APA grade and 1-inch thick. Posts shall be same as for nailers specified in subparagraph B above.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. All carpentry shall be accurately cut, fitted and installed as detailed on the Drawings.
- B. Anchors shall be installed, where indicated or required, to anchor carpentry or other items securely to masonry or concrete.
- C. Forms for structural concrete work shall be as shown on the Drawings. Provide all other miscellaneous wood form work as may be required for the completion of the Work.
- D. Temporary wood doors and cloth or transparent plastic covered framed shall be provided for exterior wall openings during winter constructions.
- E. Provide wood members in lengths as long as practicable.
- F. For bolted work, bore holes of same diameter as bolts and drive bolts into place with snug fit with washers between bolt head and wood surface. Make tight at time of installation bolts and lag screws and retighten just before being enclosed by other work or at completion of work. Length of bolts shall be length to suit the condition. Embed bolts in concrete and solid masonry where possible and use expansion shields in drilled holes where not possible.
- G. Use number and size of nails to achieve rigid connections and prevent splitting. Bore holes at least one drill size smaller than nails to prevent splitting if necessary.
- H. Anchor nailers to adjacent construction with bolts 6 inches from ends and at intervals not more than 48 inches o.c. between.
- I. Install project sign where directed by the County. Sign shall remain in position for the duration of construction.
- J. Install, maintain and remove all staging for all trades required to reach all work.
- K. At completion, remove all excess materials and all resultant debris from the operations of work of this section. Leave work in neat, clean condition satisfactory for receipt of other related items of work which are to be installed under other sections.

**END OF SECTION**

**APPENDIX A**

**FDEP WASTEWATER PERMIT, FDOT UTILITY PERMIT, &  
GEOTECHNICAL REPORT**



CENTER IS NOTIFIED 48 HRS IN ADVANCE OF STARTING WORK

RULE PHONE (941) 359-7300 VERIFICATION NO.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

UTILITY PERMIT

ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH PERMITTED MOT PLAN.

710-010-85 UTILITIES OGC - 08/10

PERMIT NO.: 2013-H-194-53 SECTION NO.: 13040000 STATE ROAD 684 COUNTY Manatee
FDOT construction is proposed or underway. [ ] Yes [X] No Financial Project ID: N/a
Is this work related to an approved Utility Work Schedule? [ ] Yes [X] No If yes, Document Number: N/a
PERMITTEE: Manatee County Utility Operations Department
ADDRESS: 4410 66th Street West TELEPHONE NUMBER: (941) 792 - 8811
CITY/STATE/ZIP: Bradenton, FL 34210
The above PERMITTEE requests permission from the State of Florida Department of Transportation, hereinafter called the FDOT, to construct, operate and maintain the following: Install a 16" HDPE DR-11 force main utilizing horizontal directional drilling under and crossing Cortez Rd (SR 684) at the intersection of 26th St. W. See attached drawings for approx. location.
FROM: Approx. MP 7.0000 north side TO: Approx. MP 7.000 south side
Submitted for the PERMITTEE by: Name and Company (Typed or Printed Legibly) Contact Information Address/Telephone/E-Mail (if applicable) Signature Date
J. Shea Shoun, P.E. 1022 26th Avenue East Bradenton, FL 34208 (941) 708-7450 x7661 shea.shoun@mymanatee.org [Signature] 4/2/13

- 1. The Permittee declares that prior to filing this application, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans and a letter of notification was mailed on 03/06/2013 to the following utilities known to be involved or potentially impacted in the area of the proposed installation: Bright House Networks, TECO Gas, Florida Power & Light, Verizon Florida, Peace River Electric, Florida Gas Transmission, MC TMS, and City of Bradenton
2. The local Maintenance or Resident Engineer, hereafter referred to as the FDOT Engineer, shall be notified a minimum of forty eight (48) hours in advance prior to starting work and again immediately upon completion of work. The FDOT's Engineer is LANCE GRACE, P.E., located at Sarasota, FL. Telephone Number (941) 359-7300. The Permittee's employee responsible for MOT is Contractor TBD. Telephone Number unknown. (This name may be provided at the time of the forty eight (48) hour advance-notice prior to starting work).
3. All work, materials, and equipment shall be subject to inspection and approval by the FDOT Engineer.
4. All plans and installations shall conform to the requirements of the FDOT's UAM in effect as of the date this permit is approved by FDOT, and shall be made a part of this permit. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
5. This Permittee shall commence actual construction in good faith within 180 150 days after issuance of permit, and shall be completed within 365 515 days after the permitted work has begun. If the beginning date is more than sixty (60) days from the date of permit approval, the Permittee must review the permit with the FDOT Engineer to make sure no changes have occurred to the Transportation Facility that would affect the permitted construction.
6. The construction and maintenance of such utility shall not interfere with the property and rights of a prior Permittee.
7. It is expressly stipulated that this permit is a license for permissive use only and that the placing of utilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder, except as provided in executed subordination and Railroad Utility Agreements.
8. Pursuant to Section 337.403, Florida Statutes, any utility placed upon, under, over, or along any public road or publicly owned rail corridor that is found by FDOT to be unreasonably interfering in any way with the convenient, safe, or continuous use, or maintenance, improvement, extension, or expansion, of such public road or publicly owned rail corridor shall, upon thirty (30) days written notice to the utility or its agent by FDOT, be removed or relocated by such utility at its own expense except as provided in Section 337.403(1), Florida Statutes, and except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements, and shall apply to all successors and assigns for the permitted facility.
9. It is agreed that in the event the relocation of said utilities are scheduled to be done simultaneously with the FDOT's construction work, the Permittee will coordinate with the FDOT before proceeding and shall cooperate with the FDOT's contractor to arrange the sequence of work so as not to delay the work of the FDOT's contractor, defend any legal claims of the FDOT's contractor due to delays caused by the Permittee's failure to comply with the approved schedule, and shall comply with all provisions of the law and the FDOT's current UAM. The Permittee shall not be responsible for delay beyond its control.
10. In the case of non-compliance with the FDOT's requirements in effect as of the date this permit is approved, this permit is void and the facility will have to be brought into compliance or removed from the R/W at no cost to the FDOT, except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
11. It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the Permittee, and the Permittee will, at all times, and to the extent permitted by law, assume all risk of and indemnify, defend, and save harmless the State of Florida and the FDOT from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said Permittee of the aforesaid rights and privileges.
12. During construction, all safety regulations of the FDOT shall be observed and the Permittee must take measures, including placing and the display of safety devices that may be necessary in order to safely conduct the public through the project area in accordance with the Federal MUTCD, as amended by the UAM.
13. Should the Permittee be desirous of keeping its utilities in place and out of service, the Permittee, by execution of this permit acknowledges its present and continuing ownership of its utilities located between MP 7.000 and MP 7.000 within the FDOT's R/W as set forth above. Whenever the Permittee removes its facilities, it shall be at the Permittee's sole cost and expense. The Permittee, at its sole expense, shall promptly remove said out of service utilities whenever the FDOT determines said removal is in the public interest.
14. In the event contaminated soil is encountered by the Permittee or anyone within the permitted construction limits, the Permittee shall immediately cease work and notify the FDOT. The FDOT shall notify the Permittee of any suspension or revocation of the permit to allow contamination assessment and remediation. Said suspension or revocation shall remain in effect until otherwise notified by FDOT.
15. For any excavation, construction, maintenance, or support activities performed by or on behalf of the FDOT, within its R/W, the Permittee may be required by the FDOT or its agents to perform the following activities with respect to a Permittee's facilities: physically expose or direct exposure of underground facilities, provide any necessary support to facilities and/or cover, de-energize or alter aerial facilities as deemed necessary for protection and safety.

NOTE: ALL ABOVE GROUND APPURTENANCES ARE TO BE



CALL BEFORE YOU DIG 1-800-432-4770



**UTILITY PERMIT**

- 16. Pursuant to Section 337.401(2), Florida Statutes, the permit shall require the permit holder to be responsible for damage resulting from the issuance of the permit. The FDOT may initiate injunctive proceedings as provided in s.120.69 to enforce provisions of this subsection or any rule or order issued or entered into pursuant thereto.
- 17. Pursuant to Section 337.402, Florida Statutes, when any public road or publicly owned rail corridor is damaged or impaired in any way because of the installation, inspection, or repair of a utility located on such road or publicly owned rail corridor, the owner of the utility shall, at his or her own expense, restore the road or publicly owned rail corridor to its original condition before such damage. If the owner fails to make such restoration, the authority is authorized to do so and charge the cost thereof against the owner under the provisions of s.337.404.
- 18. The Permittee shall comply with all provisions of Chapter 556, Florida Statutes, Underground Facilities Damage Prevention and Safety Act.
- 19. Special FDOT instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

It is understood and agreed that commencement by the Permittee is acknowledgment and acceptance of the binding nature of all the above listed permit conditions and special instructions.

- 20. By receipt of this permit, the Permittee acknowledges responsibility to comply with Section 119.07, Florida Statutes.
- 21. By the below signature, the Permittee hereby represents that no change to the FDOT's standard Utility Permit form, as incorporated by reference into Rule 14-46.001, for this Utility Permit has been made which has not been previously called to the attention of the FDOT (and signified to by checking the appropriate box below) by a separate attached written document showing all changes and the written and dated approval of the FDOT Engineer. Are there attachments reflecting change/s to the standard form?  NO  YES If Yes, \_\_\_\_\_ pages are attached.

|                     |   |                  |  |                    |         |
|---------------------|---|------------------|--|--------------------|---------|
| <b>PERMITTEE</b>    | Sia Mollanazar, P.E., Deputy Director, Engr.  | <b>SIGNATURE</b> |  | <b>DATE:</b>       | 4-4-13  |
|                     | <b>Name &amp; Title of Authorized Permittee or Agent<br/>(Typed or Printed Legibly)</b> |                  |  |                    |         |
| <b>APPROVED BY:</b> |   |                  |  | <b>ISSUE DATE:</b> | 4.15.13 |
|                     | <b>District Maintenance Engineer or Designee</b>  |                  |  |                    |         |

**UTILITY PERMIT FINAL INSPECTION CERTIFICATION**

|  |              |
|--|--------------|
| <b>DATE:</b>                                     |              |
| <b>DATE WORK STARTED:</b>                        |              |
| <b>DATE WORK COMPLETED:</b>                      |              |
| <b>INSPECTED BY:</b>                             |              |
| (Permittee or Agent)                             |              |
| <b>CHANGE APPROVED BY:</b>                       | <b>DATE:</b> |
| <b>District Maintenance Engineer or Designee</b> |              |

I the undersigned Permittee do hereby CERTIFY that the utility construction approved by the above numbered permit was inspected and installed in accordance with the approved plans made a part of this permit and in accordance with the FDOT's current UAM. All plan changes have been approved by the FDOT's Engineer and are attached to this permit. I also certify that the work area has been left in as good or better condition than when the work was begun.

|   |                   |              |
|---|-------------------|--------------|
| <b>PERMITTEE:</b>   | <b>SIGNATURE:</b> | <b>DATE:</b> |
| <b>Name &amp; Title of Authorized Permittee or Agent<br/>(Typed or Printed Legibly)</b> |                   |              |

CC: District Permit Office  
Permittee



FORM: D-1-93 REV.  
DATASHT

DATA SHEET FOR D.O.T. PERMIT APPLICATION

A DEPARTMENT OF TRANSPORTATION PERMIT IS REQUIRED BEFORE ANY FACILITY IS INSTALLED ON THE RIGHT-OF-WAY WHETHER IT IS FOR AERIAL OR UNDERGROUND INSTALLATIONS, SPECIAL PROVISIONS FOR EXCEPTIONS ARE OUTLINED IN THE UTILITY ACCOMMODATION MANUAL.

PERMITTEE: Manatee County Utility Operations Dept

PERMITTEES ENGINEER: J. Shea Shoun, P.E.

PHONE:(941) 708-7450 Ext.7661

1. S.R.# 684 U.S.# N/a S.R. Section# 13040000  
Local name of road or street: Cortez Rd
2. Proposed: Force Main To, parallel, cross or both in the Right-of-Way of a state road within the cities of N/a And N/a In the county of Manatee.
3. Submit a plan and cross section view of the proposed construction. Separate cross sections are required at each change in lateral alignment.
4. Proposed utility to be in the Right-of-Way for a distance of 185+/- Feet, at Cortez Rd (MP.7.000) and at 26<sup>th</sup> ST W (MP 7.000), (give location such as, how many feet from dedicated street or crossroad intersections).
5. Distance from proposed utility to the edge of pavement 0.0' +/- under roadway
6. Distance from utility to the Right-of-Way line 0 feet +/- crosses FDOT right-of-way
7. Width of Right-of-Way on each side of centerline of pavement 92.5'+/- Feet on N. and 92.5'+/- Feet on S.
8. Width of pavement 92.5'+/- on each side of center median.
9. Width of median N/a
10. Width of sidewalk N/a
11. Does the proposed utility include an above ground appurtenance?  
Yes \_\_\_\_\_ No X Type N/a Size N/a
12. Is the appurtenance located at the Right-of-Way line? Yes \_\_\_\_\_ No X Where is the location N/a.
13. Will conduit or casing be utilized in the placement of the proposed utility? Yes \_\_\_\_\_ No X  
Length N/a Type N/a Wall thickness N/a
14. Will the existing utility be removed? Yes \_\_\_\_\_ No X If so, how much? N/a
15. Will any existing utilities be used to place the proposed utility? Yes \_\_\_\_\_ No X If so, which ones? N/a.
16. If the utility is a natural gas line, give maximum operating pressure N/a Psi.
17. Submit all other utilities on cross section plans. Make separate cross sections details for each change in location and repeat items #5 and #10.
18. Will any highway pavement be cut? Yes \_\_\_\_\_ No X
19. Indicate approximate location, depth and sizes of all utilities with-in the Right-of-Way limits. Submit name of owners, cities or towns from which they operate. The locations of all existing utilities have been shown in plan view in the vicinity of the horizontal direction drill force main installation.

Submitted by: J. Shea Shoun  
Permittee Representative: J. Shea Shoun, P.E.

Date: 3/26/13



# MEMORANDUM



Public Works Department  
Utility Engineering Division  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208

## MANATEE COUNTY FLORIDA

Phone: 941.708.7540  
Fax: 941.708.7431  
[www.mymanatee.org](http://www.mymanatee.org)

### LETTER OF TRANSMITTAL

DATE: April 8, 2013

TO: Mr. Ed Giddens  
Florida Department of Transportation  
1838 61<sup>st</sup> Street  
Sarasota, Florida 3424

SUBJECT: Utility Permit for Force Main Crossing, 26<sup>th</sup> St W & Cortez Rd (SR 684) MP 7.000, Manatee County, FL




| COPIES | DESCRIPTION                           |
|--------|---------------------------------------|
| 4      | Utility Permit Applications (Revised) |
|        |                                       |
|        |                                       |

COPIES ARE TRANSMITTED FOR REASON(S) CHECKED BELOW:

|                          |                           |                                     |                      |
|--------------------------|---------------------------|-------------------------------------|----------------------|
| <input type="checkbox"/> | For Your Records          | <input type="checkbox"/>            | For Your Information |
| <input type="checkbox"/> | As Per Your Request       | <input type="checkbox"/>            | Sign & Return        |
| <input type="checkbox"/> | For Your Review & Comment | <input checked="" type="checkbox"/> | For Your Approval    |

REMARKS: Attached are the current permit application forms. I apologize for the oversight..

  
\_\_\_\_\_  
J. Shea Shoun, P.E. Sr. Project Engineer  
Utility Engineering Division (941) 708-7540 ext. 7661  
[shea.shoun@mymanatee.org](mailto:shea.shoun@mymanatee.org)

LARRY BUSTLE \* MICHAEL GALLEN \* JOHN R. CHAPPIE \* ROBIN DISABATINO \* VANESSA BAUGH \* CAROL WHITMORE \* BETSY BENAC  
District 1      District 2      District 3      District 4      District 5      District 6      District 7



# MEMORANDUM



Public Works Department  
Utility Engineering Division  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208

## MANATEE COUNTY FLORIDA

Phone: 941.708.7540  
Fax: 941.708.7431  
[www.mymanatee.org](http://www.mymanatee.org)

### LETTER OF TRANSMITTAL

DATE: April 1, 2013

TO: Mr. Ed Giddens  
Florida Department of Transportation  
1838 61<sup>st</sup> Street  
Sarasota, Florida 3424

SUBJECT: Utility Permit for Force Main Crossing, 26<sup>th</sup> St W & Cortez Rd (SR 684) MP 7.000, Manatee County, FL




| COPIES | DESCRIPTION                              |
|--------|--|
| 4      | Utility Permit Applications, Data Sheets |
| 4      | Signed & Sealed Plans                    |
| 4      | Geotechnical Reports                     |

COPIES ARE TRANSMITTED FOR REASON(S) CHECKED BELOW:

|                          |                           |                                     |                      |
|--------------------------|---------------------------|-------------------------------------|----------------------|
| <input type="checkbox"/> | For Your Records          | <input type="checkbox"/>            | For Your Information |
| <input type="checkbox"/> | As Per Your Request       | <input type="checkbox"/>            | Sign & Return        |
| <input type="checkbox"/> | For Your Review & Comment | <input checked="" type="checkbox"/> | For Your Approval    |

REMARKS: Proposing to install a 16" HDPE DR-11 force main crossing under Cortez Rd (SR 684) at the intersection of 26<sup>th</sup> St W by means of horizontal directional drill. If you have any questions please feel free to call me.

  
J. Shea Shoun, P.E. Sr. Project Engineer  
Utility Engineering Division (941) 708-7540 ext. 7661  
[shea.shoun@mymanatee.org](mailto:shea.shoun@mymanatee.org)

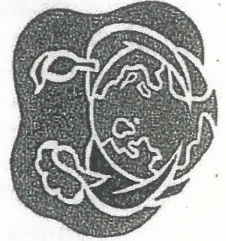
LARRY BUSTLE \* MICHAEL GALLEN \* JOHN R. CHAPPIE \* ROBIN DiSABATINO \* VANESSA BAUGH \* CAROL WHITMORE \* BETSY BENAC  
District 1      District 2      District 3      District 4      District 5      District 6      District 7

FLORIDA DEPARTMENT OF TRANSPORTATION  
Stormwater Pollution Control Reminder

- *Stormwater Management*  
Contact your local municipality and/or the Southwest Florida Management District.  
Bartow (863) 534-1448  
Venice (Sarasota) (941) 278-7396  
Fort Myers (Sarasota) (941) 278-7396  
-Fort Myers is also part of South Florida Water Management District (800) 432-2045.
- *Used Oil recycling*  
Contact the Florida Department of Environmental Protection at (813) 744-6100 or your local automotive parts store.
- *Hazardous Waste Disposal*  
Contact the Florida Department of Environmental Protection at (813) 744-6100.
- *Spill Reporting*  
State Warning Point (800) 320-0519  
Federal Response Center (800) 424-8802
- *Pesticides & Fertilizers*  
Contact your Local County Agricultural Extension Service.  
Charlotte (941) 764-4340  
Collier (239) 353-4244  
Desoto (863) 993-4846  
Glades (863) 946-0244  
Hardee (863) 773-2164  
Hendry (863) 674-4094  
Highlands (863) 402-6540  
Lee (239) 461-7500  
Manatee (941) 722-4524  
Okeechobee (863) 763-6469  
Polk (863) 519-8677  
Sarasota (941) 316-1000

LET'S WORK TOGETHER TO KEEP OUR ENVIRONMENT CLEAN...

AND INVEST IN FLORIDA'S FUTURE





PERMIT VOID UNLESS DOT SARASOTA OPERATIONS OFFICE NOTIFIED 48 HOURS IN ADVANCE OF STARTING WORK.  
PHONE: (941) 359-7300

IF A LANE CLOSURE IS WITHIN THE PROJECT LIMITS, THE PERMITTEE MUST NOTIFY THE DEPARTMENT 14 DAYS PRIOR TO A LANE CLOSURE TO ALLOW THE DEPARTMENT TO INFORM THE MOTORING PUBLIC. FAILURE TO CALL MAY RESULT IN A DELAY TO BEGIN WORK.

IF NO CLOSURES ARE REQUIRED THE SARASOTA OPERATIONS OFFICE MUST BE NOTIFIED 48 HOURS IN ADVANCE OF STARTING WORK. FAILURE TO CALL MAY RESULT IN A DELAY TO BEGIN WORK.

LANE CLOSURES AND OTHER WORK MAY BE RESTRICTED BY THE FDOT DUE TO HEAVY TRAFFIC AND POTENTIAL BACKUPS CAUSED BY THIS CONSTRUCTION. NIGHT WORK MAY BE REQUIRED.

DISTRICT ONE LANE CLOSURE POLICY MAY REQUIRE WORK TO BE PERFORMED DURING NIGHT TIME HOURS DUE TO LANE ANALYSIS AND/OR LANE RESTRICTIONS.

APPLICANT IS RESPONSIBLE FOR NOTIFYING OWNERS OF ALL EXISTING AERIAL AND BURIED UTILITIES OF PROPOSED DRIVEWAY AND RESOLVING ANY CONFLICTS BEFORE CONSTRUCTION BEGINS.

IN ACCORDANCE WITH FLORIDA STATUS 335.18 PERMITTEE SHALL BE REQUIRED TO BEAR THE COST OF FUTURE ACCESS MODIFICATIONS, TRAFFIC CONTROL DEVICES OR OTHER IMPROVEMENTS, WHEN DETERMINED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION TO BE IN CONJUNCTION WITH ACCEPTED ENGINEERING PRACTICES.

ALL CONSTRUCTION AND/OR MAINTENANCE ON THE DEPARTMENT'S RIGHT-OF-WAY SHALL CONFORM TO THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) THE DEPARTMENT'S ROADWAY AND TRAFFIC DESIGN STANDARDS AND BRIDGE CONSTRUCTION.

PERMITTEE/CONTRACTOR MUST WAIT 30 DAYS TO ALLOW ASPHALT FRICTION COURSE TO CURE BEFORE PLACING THERMOPLASTIC STRIPING.

OUR REVIEW COMMENTS ARE NOT INCLUDED TO BE INCLUSIVE OF ALL ERRORS AND OMISSIONS. OUR COMMENTS ARE ALSO NOT INTENDED TO AFFECT THE SCOPE OF WORK OR TO BE CONTRARY TO FHWA POLICY, FDOT DESIGN CRITERIA OR SOUND ENGINEERING PRACTICE. THE CONSULTANT/ENGINEER IS SOLELY RESPONSIBLE FOR THE TECHNICAL ACCURACY, ENGINEERING JUDGEMENT, AND QUALITY OF HIS WORK.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH PERMITTED M.O.T. PLAN.

SOD ALL PORTIONS OF DISTURBED RIGHT-OF-WAY.

NOTE: ALL ABOVE GROUND APPURTENANCES TO BE LOCATED AT RIGHT-OF-WAY LINE.

DENSITY REPORTS ARE TO BE SUBMITTED PRIOR TO PLACEMENT OF PAVEMENT.

"PRIOR TO EXCAVATING CONTACT THE CLERK OF THE CIRCUIT COURT FOR POSSIBLE GASOLINE CONFLICT."

THE APPLICANT SHALL NOT, DURING AND AFTER COMPLETION OF PERMITTED CONSTRUCTION, INTRODUCE ANY FORM OR METHOD OF SITE DRAINAGE DISCHARGE INTO THE DRAINAGE FACILITIES ON THE DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY OR EASEMENT. ANY DISCHARGE SHALL BE IN VIOLATION OF THIS PERMIT.

"PERMITTEE IS CAUTIONED THAT UTILITIES MAY BE LOCATED WITHIN THE CONSTRUCTION AREA."

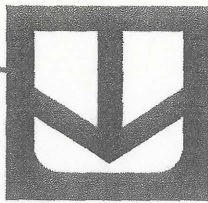
IT IS THE RESPONSIBILITY OF THE PERMITTEE TO DETERMINE AND COMPLY WITH ALL COUNTY AND MUNICIPAL ORDINANCES THAT ARE RELATIVE TO THE CONSTRUCTION OR OTHER ACTIVITY DESCRIBED ON THIS PERMIT AND ARE MORE STRINGENT THAN DEPARTMENT OF TRANSPORTATION REQUIREMENTS.

N.P.D.E.S. REQUIRES THAT STORM WATER CONTROL MEASURES BE IMPLEMENTED ON ANY PROJECT ON PUBLIC TRANSPORTATION FACILITY RIGHTS-OF-WAY INCLUDING, BUT NOT LIMITED TO MEASURES DESCRIBED IN F.D.O.T. STANDARD DESIGN INDEX DRAWING NUMBERS 102, 103 AND 104.

"IF CONSTRUCTION, RECONSTRUCTION, REPAIR OR MAINTENANCE ACTIVITY NECESSITATES THE CLOSING OF ONE OR MORE TRAVEL LANES OF ANY ROAD ON THE STATE PRIMARY, COUNTY ROAD OR CITY STREET SYSTEM, FOR A PERIOD OF TIME EXCEEDING TWO HOURS, THE PARTY PERFORMING SUCH WORK WILL BE RESPONSIBLE TO GIVE NOTICE TO THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WHICH HAS JURISDICTION WHERE SUCH ROAD IS LOCATED PRIOR TO COMMENCING WORK ON THIS PROJECT"  
335.15 F.S.91, 336.048 F.S.91







**UNIVERSAL  
ENGINEERING SCIENCES**

**GEOTECHNICAL EXPLORATION  
FM 34A REPLACEMENT  
26<sup>TH</sup> STREET WEST  
BRADENTON, FLORIDA**

**Project No.: 1130.1100112  
Report No: 9648**

**Prepared For:  
Manatee County Florida  
Public Works Department  
1022 26<sup>th</sup> Ave East  
Bradenton, FL 34208**

**Prepared By:  
Universal Engineering Sciences, Inc.  
1748 Independence Boulevard, Suite B-1  
Sarasota, FL 34234  
941-358-7410**

**January 20, 2012**

Consultants in: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing • Offices in: Atlanta • Daytona • Fort Myers •  
Fort Pierce • Gainesville • Jacksonville • Miami • Ocala • Orlando • Palm Coast • Panama City • Pensacola • Rockledge • Sarasota • Tampa • West  
Palm Beach





# UNIVERSAL ENGINEERING SCIENCES

Consultants in: Geotechnical Engineering • Environmental Sciences  
Construction Materials Testing • Threshold Inspection • Private Provider Inspection

## OFFICES IN:

- Atlanta
- Daytona Bch
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Leesburg
- Miami
- Ocala
- Orange City
- Orlando
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Augustine
- Tampa
- West Palm Bch

January 20, 2012

Manatee County Government  
Public Works Department  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208

Attention: Mr. Anthony Benitez, P.E., Project Engineer II

Reference: GEOTECHNICAL EXPLORATION  
53<sup>rd</sup> Ave W to 26<sup>th</sup> St W  
Bradenton, Florida  
UES Project No.: 1130.1100112  
UES Report No.: 9648

Dear Mr. Benitez:

Universal Engineering Sciences, Inc. (UES) has completed the geotechnical exploration and engineering evaluation for the proposed 26th Street West FMA Replacement project, from 26<sup>th</sup> Street West Heron Way to 53<sup>rd</sup> Avenue West in Bradenton, Florida.

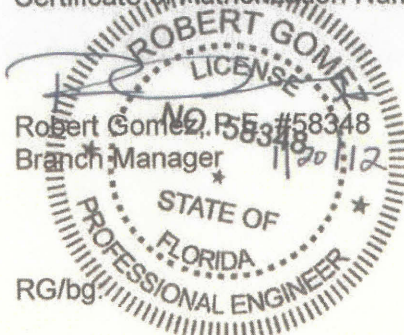
In this report, we present the results of our field and laboratory explorations for the water main project, recommendations, and engineering evaluation of the subsurface conditions with respect to the proposed construction elements.

If you have any questions concerning this report or if we can be of any further assistance in the interim, please do not hesitate to contact this office.

Respectfully submitted,

### UNIVERSAL ENGINEERING SCIENCES, INC.

Certificate of Authorization Number 549



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## **1.0 INTRODUCTION**

### **1.1 GENERAL**

In this report, we present the results of the subsurface exploration for the proposed force main project on 26<sup>th</sup> Street West between 26<sup>th</sup> Street W Heron Way and 53<sup>rd</sup> Avenue West in Bradenton, Florida. A general location plan of the project area appears in Appendix A: Site Location Plan. We have divided this report into the following sections.

- 1.0 Introduction** - Defines what we did
  - 2.0 Exploration Procedures** - Describes how we did it
  - 3.0 Findings** - Describes what we encountered
  - 4.0 Recommendations** - Describes what we encourage you to do
  - 5.0 Limitations** - Describes the restrictions inherent in this report
- Appendices** - Presents support materials referenced in this report

### **1.2 PROJECT DESCRIPTION**

A set of project plans was provided for this report showing the plan and profiles of the existing grades for 26<sup>th</sup> Street West for the force main construction. The project under consideration will involve the installation of a new force main pipe along the east side of 26<sup>th</sup> Street West, between 26<sup>th</sup> Street W Heron Way and 53<sup>rd</sup> Avenue East in Bradenton, Florida. We understand that the force main will include horizontal directional drilling and open trench excavation.

Our recommendations are based upon the above considerations and the results of our explorations. If any of this information is incorrect or if you anticipate any changes inform Universal Engineering Sciences so that we may review our recommendations.

### **1.3 PURPOSE AND SCOPE**

The purposes of this exploration were:

- To explore the general subsurface conditions along the roadway.
- To interpret and review the subsurface conditions with respect to the proposed construction, and soil classification.
- To provide geotechnical recommendations for the proposed FM construction.

This study was generally conducted according to the guidelines set forth in the Florida Department of Transportation Soil and Foundation Manual.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered soil samples were not examined, either visually or analytically for chemical composition or environmental hazards.

## **2.0 EXPLORATION PROCEDURES**

### **2.1 FIELD EXPLORATION**

We explored the subsurface conditions along the east side of the existing roadway with nine (9) SPT soil test borings to a depth of 15 to 40 feet.

We performed the Standard Penetration Test in each of the borings according to the procedures of ASTM D-1586. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1-foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

We also performed one (1) hand auger soil boring at a location where existing utility conflict was present and accessibility of our drill rig was limited. This boring was performed according to the procedures of ASTM D 1452 by manually advancing a bucket auger into the soil to the required depth. We evaluated the soil type by visually inspecting the cutting recovered from the bucket auger as it periodically removed and emptied of soil.

Jar samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

The borings were field located by Universal Engineering Sciences, Inc. based on the project plans with stationing information, measured and estimated distances, and relationships to obvious landmarks.

### **2.2 LABORATORY INVESTIGATION**

The soil samples recovered from the soil test borings were returned to our office and then a geotechnical engineering staff member visually examined and reviewed the field descriptions. We selected representative soil samples for laboratory testing consisting of 20 Sieve Analysis 200-wash and 20 Moisture Content tests. We performed these tests to aid in classifying the soils and to help evaluate the general engineering characteristics of the site soils.

The results of the laboratory investigation program completed are enclosed in Appendix B.

## **3.0 FINDINGS**

### **3.1 SURFACE CONDITIONS**

A Universal Engineering Sciences representative performed a visual site inspection of the property to gain a "hands-on" familiarity with the project area.

The overall roadway alignment along the shoulders where the new force main will be installed is

relatively flat. Based on topographic information from the plans, the existing ground surface elevation along the alignment generally ranges from around +18.8 to +26.50 feet at the boring locations. Note that not all the existing grade elevations were available on the plans. Further, the overall average ground surface elevation generally increases gradually from the south to the north end of the alignment.

In general, 26<sup>th</sup> Street West consists of sidewalk and grassed areas along the road shoulders and crosses a drainage canal south of 49<sup>th</sup> Avenue West.

### 3.2 SOIL SURVEY INFORMATION

We examined the U.S.D.A. Soil Conservation Service (SCS) Soil Survey of Manatee County for relevant information about the roadway project. The Manatee County Soil Survey identifies nine (9) soil types along the general roadway alignment, as further described in Table 1 (USDA Soil Conservation Service, 1983).

| <b>Name and Soil No.</b>                              | <b>Drainage Characteristics</b>        | <b>Hydrologic Group</b> | <b>Predicted Seasonal High Water Table</b> | <b>Notable Feature</b>                      |
|---|--|-------------------------|--|---|
| EauGallie fine sand (#20)                             | Poorly drained                         | B/D                     | 0 – 1.0'                                   | -   |
| Cassia fine sand (#11)                                | Somewhat poorly drained                | C                       | 1.5 – 3.5                                  | -   |
| Delray-EauGallie complex (#17)                        | -                                      | B/D                     | 0 – 1.0                                    | -   |
| Palmetto fine sand (#38)                              | Poorly drained                         | B/D                     | 0 – 1.0                                    | -   |
| Parkwood variant – Chobee, limestone substratum (#39) | Poorly drained and very poorly drained | B/D                     | 0 – 1.0                                    | Unweathered bedrock, 37 inches to 41 inches |
| Chobee loamy fine sand (#13)                          | Very poorly drained                    | B/D                     | 0 – 1.0                                    | -   |
| Wabasso Variant (#50)                                 | Poorly drained                         | B/D                     | 0 – 1.0                                    | Unweathered bedrock, 36 inches to 56 inches |
| Broward Variant fine sand (# 6)                       | Poorly drained                         | B/D                     | 0 – 1.0                                    | Unweathered bedrock, 34 inches to 55 inches |
| Hallendale fine sand (#28)                            | Poorly drained                         | A/D                     | 0 – 1.0                                    | Unweathered bedrock, 15 inches to 19 inches |

As indicated in the above table, notable soils from the Manatee County Soil Survey (#39, #50, #6 and #28) consist of unweathered bedrock which may be encountered between depths of 1.25 feet to 4.7 feet below existing grade. These soil types are considered very hard, very



dense and may be difficult to excavate if encountered. We have included an aerial plan in Appendix A from the Manatee Soil Survey with the areas of these soil types marked along 26<sup>th</sup> Street West.

### 3.3 SUBSURFACE CONDITIONS

The detailed subsurface conditions encountered during our field explorations are illustrated in Appendix C: Boring Logs. The location of borings has been identified by station number on the individual boring logs. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soils samples and a limited number of laboratory tests.

Variations in the depth thickness, classification, and consistency of the subsurface soils occurred along the alignment at the individual test boring locations. The following generalized soil profile is intended to provide an overview of the soil conditions encountered. The individual Boring Logs should be consulted for specific soil and groundwater related information along the alignment.

Table 2: Generalized Soil Profile, summarizes the soil strata encountered.

| <b>TABLE 2<br/>Generalized Soil Profile</b>   |  |
|---|--|
| <b>Typical Depth (ft)</b>   | <b>Soil Descriptions</b>   |
| 0 – 2.5 to 4  | Loose, very loose, and medium dense brown, dark gray and light brown fine SAND [SP]                                  |
| 2.5 to 4 – 7  | Medium dense, loose and very loose yellowish-brown, dark brown fine SAND with trace silt and clayey sand [SC, SP-SM] |
| 7 – 13  | Medium dense and loose fine SAND and fine SAND with varying amounts of silt and trace shell fragments [SP-SM, SP]    |
| 13 – 20   | Medium dense, dense and loose brown, grayish fine SAND with trace of silt and fine SAND [SP-SM, SP]                  |
| 20 - 28   | Loose to dense gray and dark brown silty sand and fine sand with trace silt [SP-SM, SM]                              |
| 28 – 33   | Very dense cemented gray silty sand with trace phosphate [SC, SM]  |
| 33 – 40*  | Very hard cemented gray clay and silt [CL, ML]   |
| * Termination of Deepest Boring<br>[ ] Bracketed Text Indicates AASHTO Classification |  |

We encountered groundwater at depths varying from 5 to 8 feet below existing grade at the boring locations at the time of our exploration. The water table can be expected to fluctuate with seasonal rainfall.

As noted earlier in this report, the Manatee County Soil Survey indicated that a portion of the 26<sup>th</sup> Street West alignment is located within soils that consist of “unweathered bedrock”

formations ranging between 1.25 feet and 4.7 feet depths. The aerial extent of these soils are indicated on a Soil Survey Plan in Appendix A of this report. The locations are from 53<sup>rd</sup> Avenue to 51<sup>st</sup> Avenue, and from Live Oak Circle to the Drainage Canal. Boring B-1 at Sta. 104+00 and B-2 at Sta. 11+30 were performed within these soil types and encountered loose to medium dense fine and clayey sand to 5 feet. Although, the two test borings did not encounter the “unweathered bedrock or limestone substratum”, it may be located sporadically along the road alignment during construction. The “unweathered bedrock or limestone” substratum would be difficult to excavated or drill through. Another notable feature is the presence of very dense, very hard cemented clay and silt at the boring B-3 location encountered from a depth of 25 feet to 40 feet.

#### **4.0 RECOMMENDATIONS**

The following recommendations are based upon a review of the attached soil tests data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the roadway alignment or grading plans change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

Additionally, if subsurface conditions are encountered during construction, which were not encountered in the borings, report those conditions immediately to us for observation and recommendations.

In this section of the report, we present our detailed recommendations for:

- **Groundwater Control**
- **Roadway Embankment**
- **Force Main Construction**

#### **4.1 GROUNDWATER CONTROL**

The groundwater table will fluctuate seasonally depending upon local rainfall. The rainy season in Southwest Florida is normally between June and September. Based on our review of USGS data, Manatee County Soil Survey and regional hydrogeology and our boring data, our best estimate is the seasonal high water table along the alignment would generally be one to 2.5 to 3 feet below average existing ground surface elevation at the test boring location. Water will likely be ponded above the existing ground surface in the low lying depression and slough areas along the alignment for extended periods of time during the wet season or periods of heavy rainfall.

It should be noted that the estimated seasonal high groundwater levels do not provide any assurance that groundwater levels will not exceed those estimated levels during any given year in the future. Should impediments to surface water drainage exist on site, or should rainfall intensity and duration, or total rainfall quantities exceed normally anticipated rainfall quantities, groundwater levels may exceed our seasonal high estimates. Also, on-site and/or off-site surface water alterations and improvements can cause variations in seasonal high groundwater levels.

Temporary dewatering may be required during site preparation, initial embankment and fill placement in the lower lying slough or depressional areas along the alignment, particularly if



construction takes place during the rainy season. Temporary dewatering will also likely be a construction consideration during drainage, and utility excavations. In general, we recommend that the water surface be maintained at least 24 inches below all earthwork and compaction surfaces.

## **4.2 ROADWAY EMBANKMENT**

We offer the following recommendations for site preparation and embankment construction for the roadway alignment were needed during construction if needed.

### **4.2.1 Site Preparation**

The following procedures should be followed to properly prepare the alignment area for roadway embankment construction.

1. If required, perform remedial dewatering prior to any earthwork operations.
2. Strip the proposed construction limits of all vegetation, roots, topsoil, existing improvements, debris and other deleterious materials within the limits of the pavement, shoulder, sidewalk, and other structural areas.
3. Proof-roll the subgrade with a heavily loaded, rubber-tired vehicle under the observation of a Universal Engineering Sciences' geotechnical engineer or his representative. Proof-rolling will help locate any zones of especially loose or soft soils not encountered in the soil test borings. Then undercut, or otherwise treat these zones as recommended by the engineer.
4. Proof-compact the subgrade from the surface by a vibratory roller until you obtain a minimum density of 100 percent of the standard Proctor maximum dry density (AASHTO T-99) to a depth of 1 foot below the existing site grade.
5. Test the subgrade for compaction at a frequency of not less than one test every 500 feet for each lane, shoulder, bike path, sidewalk, curb or other structural area per foot of depth of improvement.

### **4.2.2 Embankment Materials and Construction**

We recommend the construction of the roadway and associated embankments proceed according to F.D.O.T. Section 120 (FDOT Standard Specification for roadway and Bridge Construction 2010). The fill material utilized should consist of clean sand with less than 5 percent soil fines. Fill materials with soil fines between 5 and 12 percent may be used when above the water table, so long as strict moisture control is applied (within 2% of optimum moisture). The fill material should be placed in uniform 10 to 12 inch loose lifts and compacted to 100 percent of the standard Proctor maximum dry density (AASHTO T-99). Field density tests should be performed on each layer of fill material at a frequency of one test for every 500 linear feet of construction for each lane or associated area.

The surficial soils at the site would generally be suitable for use in embankment construction. However, fill from off-site borrow sources will generally be required above existing grades along

the majority of the alignment. The borrow soil placed within the stabilized subgrade layer must meet an LBR of 40 or will need to be stabilized after placement to achieve the minimum LBR value.

### **4.3 FORCE MAIN CONSTRUCTION**

In general, the soils encountered are loose to medium dense fine sands and fine sands with trace of silt and medium dense clayey sands with trace of shell fragments from surface to 15 feet. These soils should be suitable for support of the planned utility improvements and for reuse as backfill. The fine sand with silt, when excavated from below the water table, may require spreading and drying prior to reuse to achieve moisture content sufficient to obtain the recommended degree of compaction. Further, the clayey sand at borings B-1 and B-2 will require extensive aeration and drying prior to reuse.

The Manatee Soil Survey indicated "unweathered bedrock and limestone substratum" soils between depths of 1.25 and 4.7 feet along 26<sup>th</sup> Street between 53<sup>rd</sup> Avenue and the drainage canal. These soils may require specialized equipment for excavation if encountered during construction. Furthermore, Horizontal Drilling should be below the anticipated depth of these very hard materials. The two sections below discuss trench excavation and backfill and Horizontal Directional Drilling.

#### **4.3.1 Trench Excavation and Backfill Recommendations**

The following are our recommendations for trench and excavation construction of the proposed utility improvements.

1. If deemed necessary by the contractor, install a dewatering system capable of maintaining a groundwater level at least 2 feet below bottom of pipe level.
2. After excavation to design invert elevations, the in-situ bedding soils should be compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557) to a depth of 12 inches below the bedding level. Compaction in confined areas can probably be achieved using jumping jacks or light weight walk-behind vibratory sleds and/or rollers.
3. After constructing the utility lines, backfill with suitable sand fill placed in 6 to 8 inch loose lifts. Each lift should be compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557) to a depth of 3 feet within subgrade level, and 98 percent to subgrade level. Beneath pavement areas, the top 12 inches of backfill should be compacted to at least 98 percent. Additionally, when/where applicable local jurisdictional compaction requirements should be followed when stricter than the recommendations herein.
4. If difficult compaction operations are encountered beneath the utilities due to excessive fines and/or wet conditions, saturated soils could be over-excavated and replaced with FDOT No. 57 stone.

5. Excavation work will be required to meet OSHA Excavation Standard Subpart P regulations, Type C Soils. Either a trench box, braced sheet pile structure or an excavation with temporary side slopes cut back at 1.5 horizontal to 1.0 vertical can be implemented. The side slope of 1.5 horizontal to 1.0 vertical is contingent upon the dewatering system adequately controlling slope seepage. Sheet piling should be designed according to OSHA sheeting and bracing requirements. We recommend a Florida registered Professional Engineer design any required sheeting/bracing system.
  
6. Within Right-of-Way driveways connecting to FDOT or county roads, the local county authority criteria and requirements for trench backfill and compaction should govern the testing procedures.

Based on the SPT test results and soils encountered with the borings along 26<sup>th</sup> Street West, soil design parameters of angle of internal friction, earth pressure coefficient and unit weights were estimated and are presented in Table 3.

| Table 3<br>Estimated Soil Design Parameters |    |                             |                          |   |              |               |
|---|----|-----------------------------|--------------------------|---|--------------|---------------|
| Typical Depth (Ft)                          |    | Effective Unit Weight (pcf) | Friction Angel (degrees) | Recommended Earth Pressure Coefficients |              |               |
| From  | To |                             |                          | At Rest $K_0$                           | Active $K_A$ | Passive $K_P$ |
| 0   | 3  | 48                          | 30                       | 0.6                                     | 0.33         | 3.03          |
| 3   | 7  | 52                          | 32                       | 0.6                                     | 0.31         | 3.23          |
| 7   | 15 | 52                          | 34                       | 0.4                                     | 0.28         | 3.57          |

\* We recommend the groundwater level be assumed at the ground surface for design purposes.

#### 4.3.2 Directional Drilling Discussion

It is our understanding that the proposed construction includes the installation of a Force Main along the east side of the road alignment. Pipe will be installed utilizing Horizontal Directional Drilling (HDD).

UES performed soil test borings along the road alignment to evaluate the soil conditions and develop soil design parameters for the force main pipe installation and the HDD program. Based on the SPT soil test boring, the following Table 4 outlines the soil design parameters at different depths to aid in the construction/design of the HDD program. Based on the soil test borings, it is our recommendation that the force main be installed at a minimum depth of 7 feet.

| Depth (feet) | Saturated Unit Weight (pcf) | Buoyant Unit Weight (pcf) | Friction Angle (Phi) | Average SPT N-Value (ASTM D 1586) | Overburden Pressure (psf) | Cohesion (psf) |
|--------------|-----------------------------|---------------------------|----------------------|-----------------------------------|---------------------------|----------------|
| 3            | 110                         | 48                        | 30                   | 7                                 | 350                       | 0              |
| 7            | 115                         | 52                        | 32                   | 8                                 | 800                       | 0              |
| 15           | 115                         | 52                        | 34                   | 12                                | 1600                      | 0              |

The HDD installation should be performed in accordance with FDOT Section 555, Directional Bore of the Florida Department of Transportation, and Standard Specifications for Road and Bridge Construction, 2007. Per the FDOT specification, the back reamer or pilot bit should be a maximum of the pipe outer diameter plus 6-inches. Further, the drilling fluid for stabilizing the borehole should be bentonite clay or approved equal mixed with potable water which has a minimum pH of 6.0. If water other than potable water is used, we recommend it to be tested for pH levels. The source of water should be identified prior to construction and any other sources such as lakes, ponds and streams may require a permit from local authorities. As outlined in the FDOT specifications, the equipment used should be suitable for a boring length of up to 1,000 feet for 16 inch pipes and greater than 1,000 feet for 18 inch diameter. The equipment torque should be up to 1,900 to 9,999 ft-lbs for 16 inch pipes and greater than 10,000 ft-lbs for the 18 inch or greater diameter pipes. Also, the equipment thrust should range between 20,000 to 69,999 lbs for 16 inch pipes and greater than 70,000 lbs for 18 inch or greater diameter pipes.

Successful HDD program depends much on the soils type, depth/cover of pipe, control of the drilling fluid pressures and contractor's operator experience. The fluid pressures should be limited to the overburden soil pressure with an appropriate safety factor to avoid heaving along the road alignment and pavements. The soil borings did not encounter any fractured soil material or very hard rock or cemented material which would provide a readily apparent pathway for the escape of drilling fluid or an obstruction to the drilling process at the boring locations. However, as noted earlier in this report the areas between 53<sup>rd</sup> Ave and the Drainage Canal may consist of "unweathered bedrock and limestone substratum" between 1.25 and 4.7 feet, based on the Manatee County Soil Survey. Typically, sandy soils and sandy soils with trace of silt and clayey sands were encountered in the borings to 15 feet. Some trace of shell fragments and shell were encountered below 7 feet in the borings. The medium dense sand material with shell fragments may slow the drilling. It should be noted that the soil conditions between borings may vary.

The HDD contractor bidding this project should provide written confirmation that the drilling equipment proposed for use and the anticipated drilling fluid pressures are suitable for the soil conditions and planned depths indicated.

### **5.0 LIMITATIONS**

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is

not possible for a geotechnical engineer to predict and address all possible problems. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information About Your Geotechnical Engineering Report" appears in Appendix E, and will help explain the nature of geotechnical issues.

Further, we present documents in Appendix D: Constraints and Restrictions, to bring to your attention the potential concerns and development and the basic limitations of a typical geotechnical report.

### 6.0 SUMMARY

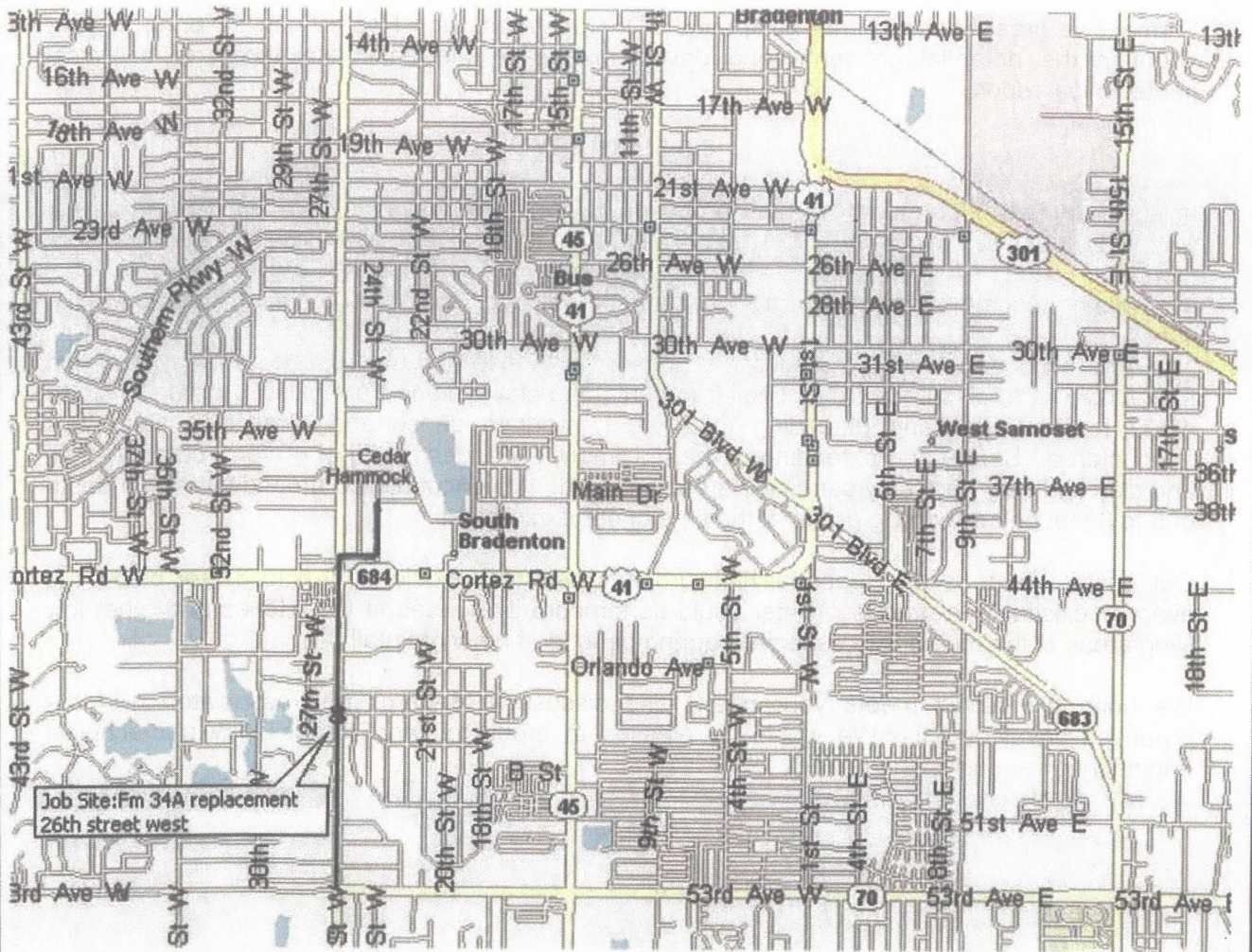
In summary, we understand that you proposed to construct a new force main along the east side of 26<sup>th</sup> Street West from 26<sup>th</sup> Street West Heron Way to 53<sup>rd</sup> Avenue West in Bradenton, Florida. We have performed field and laboratory exploration to provide geotechnical engineering recommendations for groundwater consideration and water main construction.

The soils encountered generally consist of loose, very loose and medium dense fine sand and fine sand with trace silt and trace shell fragments and clayey sand from existing grade to depth of 13 feet. Below and extending to 20 feet, medium dense and loose fine sand was encountered. Below and extending to the maximum expanded depth of 40 feet, cemented silt and clay and very hard clay sands were encountered. We encountered groundwater at a depth of 5 to 8 feet below existing grade at the time of our exploration.

Our best estimate is the seasonal high groundwater table would be 2.5 to 3 feet below the average existing site grades. Water could be temporarily ponded in the ditches and other low lying areas of the overall site especially during periods of heavy rainfall.

We hope this report meets your needs and discusses the problems associated with the proposed development. We would be pleased to meet you and discuss any geotechnical engineering aspects of the project.





Job Site: Fm 34A replacement  
26th street west



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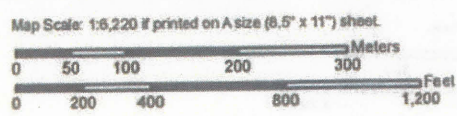
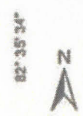
**FM 34A REPLACEMENT 26TH STREET WEST  
26TH STREET WEST.  
BRADENTON, FLORIDA**

**SITE LOCATION PLAN**

|                     |                               |                       |                 |
|---------------------|-------------------------------|-----------------------|-----------------|
| DRAWN BY: Sandra.C  | DATE: DEC. 2011               | CHECKED BY: Robert G. | DATE: DEC. 2011 |
| SCALE: NOT TO SCALE | PROJECT NO: 1130.1100112.0000 | REPORT NO: 9648       | APPENDIX:       |

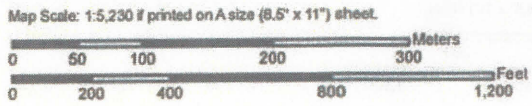


Soil Map—Manatee County, Florida

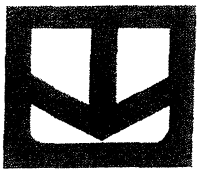




Soil Map—Manatee County, Florida







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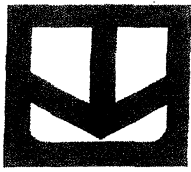
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## SUMMARY OF LABORATORY RESULTS

|                 |   |                     |                  |
|-----------------|---|---------------------|------------------|
| <b>Project:</b> | FM 34A Replacement 26th Street West<br>Bradenton, Florida | <b>Project No.:</b> | 1130.1000112.000 |
| <b>Client:</b>  | Manatee County  | <b>Report No.:</b>  | 9648             |

| Boring No. | Sample No. | Sample Description  | No. 200, % | Water Content, % | LL | PL | PI | USCS Classification | Sampling Method (ASTM) |
|------------|------------|---|------------|------------------|----|----|----|---------------------|------------------------|
| B-1        | 3          | Yellowish brown clayey sand (SC)  | 12.1       | 11.0             |    |    |    | SP-SM               | ASTM1586               |
| B-1        | 6          | Brown fine sand with shell fragmetns (SP)                                   | 4.4        | 23.6             |    |    |    | SP                  | ASTM1586               |
| B-2        | 3          | Yellowish brown and gray clayey sand (SC)                                   | 15.3       | 13.9             |    |    |    | SM                  | ASTM1586               |
| B-2        | 4          | Dark brown clayey sand (SC)   | 14.4       | 9.5              |    |    |    | SM                  | ASTM1586               |
| B-3        | 3          | Dark brown fine sand with trace of silt (SP-SM)                             | 9.6        | 16.6             |    |    |    | SP-SM               | ASTM1586               |
| B-3        | 8          | Brown fine sand with trace of silt (SP-SM)                                  | 6.4        | 28.5             |    |    |    | SP-SM               | ASTM1586               |
| B-3        | 12         | Light gray clay and silt (CL-ML)  | 74.6       | 34.4             |    |    |    | ML                  | ASTM1586               |
| B-4        | 2          | Light brown fine sand and yellowish brown fine sand with trace silt (SP-SM) | 6.1        | 4.5              |    |    |    | SP-SM               | ASTM1586               |
| B-4        | 3          | Dark brown fine sand with trace of silt and dark gray silty sand (SP-SM,SM) | 8.2        | 34.0             |    |    |    | SP-SM               | ASTM1586               |
| B-4        | 6          | Dark gray fine sand (SP)  | 4.9        | 24.9             |    |    |    | SP                  | ASTM1586               |
| B-5        | 3          | Dark gray and yellowish brown fine sand with trace of silt (SP-SM)          | 6.4        | 24.5             |    |    |    | SP-SM               | ASTM1586               |
| B-5        | 5          | Dark brown fine sand with trace of silt (SP-SM)                             | 11.9       | 24.4             |    |    |    | SP-SM               | ASTM1586               |
| B-6        | 2          | Black fine sand with trace silt (SP-SM)                                     | 10.4       | 15.0             |    |    |    | SP-SM               | ASTM1586               |
| B-6        | 6          | Dark brown fine sand (SP)   | 2.6        | 21.6             |    |    |    | SP                  | ASTM1586               |
| B-7        | 3          | Dark brown fine sand (SP)   | 4.1        | 18.8             |    |    |    | SP                  | ASTM1586               |
| B-7        | 5          | Dark brown fine sand with trace of silt (SP-SM)                             | 7.8        | 22.0             |    |    |    | SP-SM               | ASTM1586               |
| B-8        | 3          | Yellowish brown fine sand with trace of silt (SP-SM)                        | 3.7        | 13.0             |    |    |    | SP                  | ASTM1586               |



# UNIVERSAL ENGINEERING SCIENCES

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## SUMMARY OF LABORATORY RESULTS

| <b>Project:</b> |            | FM 34A Replacement 26th Street West<br>Bradenton, Florida          | <b>Project No.:</b> |                  | 1130.1000112.000 |    |    |                     |                        |
|-----------------|------------|--|---------------------|------------------|------------------|----|----|---------------------|------------------------|
| <b>Client:</b>  |            | Manatee County   | <b>Report No.:</b>  |                  | 9648             |    |    |                     |                        |
| Boring No.      | Sample No. | Sample Description   | No. 200, %          | Water Content, % | LL               | PL | PI | USCS Classification | Sampling Method (ASTM) |
| B-8             | 5          | Dark brown fine sand with trace of silt (SP-SM)                    | 6.1                 | 26.9             |                  |    |    | SP-SM               | ASTM1586               |
| B-9             | 1          | Brown fine sand (SP)   | 4.4                 | 3.1              |                  |    |    | SP                  | ASTM1586               |
| B-9             | 2          | Dark grayish brown fine sand with trace of silt and gravel (SP-SM) | 6.6                 | 14.8             |                  |    |    | SP-SM               | ASTM1586               |
|                 |            |  |                     |                  |                  |    |    |                     |                        |



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 1

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-1**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 104 + 00, N.B

G.S. ELEVATION (ft): 20.50      DATE STARTED: 1/10/12  
WATER TABLE (ft): 8.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 2.5      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | S A M P L E | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | S Y M B O L | DESCRIPTION   | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|-------------|------------------------|----------------|------|-------------|---|----------|--------|------------------|----|--------------|----------------|
|             |             |                        |                |      |             |   |          |        | LL               | PI |              |                |
| 0           |             |                        |                |      |             | Loose light brown and gray fine sand (SP)   |          |        |                  |    |              |                |
| 2-2-3       |             | 5                      |                | ▽    |             | Loose light brown clayey (SC)   |          |        |                  |    |              |                |
| 2-3-3       |             | 6                      |                |      |             | Medium dense yellowish brown clayey sand (SC)                                     |          |        |                  |    |              |                |
| 4-8-9       |             | 17                     |                |      |             | Medium dense light brown clayey sand (SC)   | 12.1     | 11.0   |                  |    |              |                |
| 5-6-10      |             | 16                     |                |      |             | Medium dense light brown fine sand with trace of silt and shell fragmetns (SP-SM) |          |        |                  |    |              |                |
| 12-13-15    |             | 28                     |                | ▽    |             | Loose brown fine sand with shell fragmetns (SP)                                   |          |        |                  |    |              |                |
| 8-5-3       |             | 8                      |                |      |             | Loose brown fine sand with shell fragmetns (SP)                                   | 4.4      | 23.6   |                  |    |              |                |
|             |             |                        |                |      |             | Loose grayish brown fine sand (SP)  |          |        |                  |    |              |                |
| 4-2-3       |             | 5                      |                |      |             | Boring Terminated at 15 Feet.   |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGSC.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

|              |                   |
|--------------|-------------------|
| PROJECT NO.: | 1130.1100112.0000 |
| REPORT NO.:  | 9648              |
| PAGE:        | 2                 |

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-2**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 111 + 30, N.B

G.S. ELEVATION (ft): 19.80      DATE STARTED: 1/10/12  
WATER TABLE (ft): 8.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 2.5      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLING | BLOWS PER 6" INCREMENT | N (BLOWS/FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./DAY) | ORG. CONT. (%) |
|-------------|----------|------------------------|---------------|------|--------|--|----------|--------|------------------|----|-------------|----------------|
|             |          |                        |               |      |        |  |          |        | LL               | PI |             |                |
| 0           |          |                        |               |      |        | Loose dark gray fine sand with trace roots, trace shell fragments (SP) |          |        |                  |    |             |                |
|             |          | 2-3-2                  | 5             | ▽    |        | Loose brown fine sand (SP)   |          |        |                  |    |             |                |
|             |          | 3-3-3                  | 6             |      |        | Medium dense yellowish brown and gray clayey sand (SC)                 |          |        |                  |    |             |                |
| 5           |          | 5-4-7                  | 11            |      |        | Medium dense dark brown clayey sand (SC)                               | 13.9     | 15.3   |                  |    |             |                |
|             |          | 6-8-9                  | 17            |      |        | Medium dense light brown fine sand (SP)                                | 14.4     | 9.5    |                  |    |             |                |
|             |          | 8-14-14                | 28            | ▽    |        | Medium dense brown fine sand with trace of silt (SP-SM)                |          |        |                  |    |             |                |
| 10          |          | 11-8-6                 | 14            |      |        |  |          |        |                  |    |             |                |
|             |          |                        |               |      |        | Loose dark brown fine sand (SP)  |          |        |                  |    |             |                |
| 15          |          | 4-4-5                  | 9             |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |             |                |
| 20          |          |                        |               |      |        |  |          |        |                  |    |             |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNENGS.C.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 3

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-3**  
SECTION: TOWNSHIP:

SHEET: **1 of 2**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 124 + 60, S.B

G.S. ELEVATION (ft): 21.00      DATE STARTED: 1/10/12  
WATER TABLE (ft): 6.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 2.5      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLE | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|--------|------------------------|----------------|------|--------|--|----------|--------|------------------|----|--------------|----------------|
|             |        |                        |                |      |        |  |          |        | LL               | PI |              |                |
| 0           |        |                        |                |      |        | Dark brown fine sand with trace roots, trace shell fragments (SP)                |          |        |                  |    |              |                |
|             |        |                        |                |      | ▽      | Grayish brown fine sand with trace shell (SP)                                    |          |        |                  |    |              |                |
|             |        |                        |                |      |        | Dark brown fine sand with trace of silt (SP-SM)                                  |          |        |                  |    |              |                |
| 5           |        |                        |                |      | ▽      | Loose light brown fine sand with trace of silt and trace shell fragmnets (SP-SM) | 9.6      | 16.6   |                  |    |              |                |
|             |        | 2-3-3                  | 6              |      |        | Medium dense browish yellow fine sand with trace of silt (SP-SM)                 |          |        |                  |    |              |                |
|             |        | 5-7-6                  | 13             |      |        | Loose brown fine sand with trace of silt (SP-SM)                                 |          |        |                  |    |              |                |
| 10          |        | 4-2-1                  | 3              |      |        |  |          |        |                  |    |              |                |
|             |        |                        |                |      |        | Medium dense dark brown fine sand (SP)   |          |        |                  |    |              |                |
| 15          |        | 3-7-6                  | 13             |      |        |  |          |        |                  |    |              |                |
|             |        |                        |                |      |        | Loose gray silty sand / dark brown fine sand with trace of silt (SM / SP-SM)     | 6.4      | 28.5   |                  |    |              |                |
| 20          |        | 2-3-5                  | 8              |      |        |  |          |        |                  |    |              |                |
|             |        |                        |                |      |        | Dense grayish brown silty sand with shell fragments (SM)                         |          |        |                  |    |              |                |
| 25          |        | 11-21-9                | 30             |      |        |  |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNENIGSC.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 4

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-3**  
SECTION: TOWNSHIP:

SHEET: **2 of 2**  
RANGE:

| DEPTH (FT.) | S A M P L E | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | S Y M B O L | DESCRIPTION   | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|-------------|------------------------|----------------|------|-------------|---|----------|--------|------------------|----|--------------|----------------|
|             |             |                        |                |      |             |   |          |        | LL               | PI |              |                |
| 25          |             |                        |                |      |             |   |          |        |                  |    |              |                |
| 30          | X           | 27-50/2"               | 50/2"          |      |             | Very dense gray silty sand and clayey sand with trace phosphate (SM,SC) |          |        |                  |    |              |                |
| 35          | X           | 14-19-50/2"            | 50/2"          |      |             | Very hard cemented olive gray clay (CL)                                 |          |        |                  |    |              |                |
| 40          | X           | 26-31-30               | 61             |      |             | Very hard light gray clay and silt (CL-ML)                              | 74.6     | 34.4   |                  |    |              |                |
| 45          |             |                        |                |      |             | Boring Terminated at 40 Feet.   |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNENEGSC.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 5

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-4**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 135 + 00, N.B

G.S. ELEVATION (ft): 18.80      DATE STARTED: 1/10/12  
WATER TABLE (ft): 5.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 2.5      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLER | BLOWS PER 6" INCREMENT | N (BLOWS/FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./DAY) | ORG. CONT. (%) |
|-------------|---------|------------------------|---------------|------|--------|--|----------|--------|------------------|----|-------------|----------------|
|             |         |                        |               |      |        |  |          |        | LL               | PI |             |                |
| 0           |         |                        |               |      |        | Loose dark gray fine sand with trace roots (SP)  |          |        |                  |    |             |                |
|             |         | 2-2-3                  | 5             | ▽    |        | Very loose light brown fine sand and yellowish brown fine sand with trace silt (SP-SM) |          |        |                  |    |             |                |
|             |         | 3-2-1                  | 3             |      |        | Very loose dark brown fine sand with trace of silt and dark gray silty sand (SP-SM,SM) | 6.1      | 4.5    |                  |    |             |                |
| 5           |         | 1-1-1                  | 2             | ▽    |        | Loose and very loose dark brown fine sand with trace of silt (SP-SM)                   | 8.2      | 34.0   |                  |    |             |                |
|             |         | 1-2-1                  | 3             |      |        | Loose dark gray fine sand (SP)   |          |        |                  |    |             |                |
|             |         | 3-4-3                  | 7             |      |        |  |          |        |                  |    |             |                |
| 10          |         | 2-3-3                  | 6             |      |        |  | 4.9      | 24.9   |                  |    |             |                |
|             |         |                        |               |      |        | Dense dark brown fine sand with trace of silt (SP-SM)                                  |          |        |                  |    |             |                |
| 15          |         | 12-14-17               | 31            |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |             |                |
| 20          |         |                        |               |      |        |  |          |        |                  |    |             |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGS.C.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

|              |                   |
|--------------|-------------------|
| PROJECT NO.: | 1130.1100112.0000 |
| REPORT NO.:  | 9648              |
| PAGE:        | 1                 |

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-5**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 149 + 90, N.B

G.S. ELEVATION (ft): 26.50      DATE STARTED: 1/10/12  
WATER TABLE (ft): 5.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 3.0      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLER | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|---------|------------------------|----------------|------|--------|--|----------|--------|------------------|----|--------------|----------------|
|             |         |                        |                |      |        |  |          |        | LL               | PI |              |                |
| 0           |         |                        |                |      |        | Very loose grayish brown fine sand (SP)                                  |          |        |                  |    |              |                |
|             |         | 2-2-2                  | 4              |      |        | Loose brown fine sand and dark gray fine sand with trace silt (SP,SP-SM) | 6.4      | 24.5   |                  |    |              |                |
|             |         | 2-2-3                  | 5              |      |        | Loose dark gray and yellowish brown fine sand with trace of silt (SP-SM) |          |        |                  |    |              |                |
| 5           |         | 2-3-2                  | 5              |      |        | Very loose dark brown fine sand with trace of silt (SP-SM)               |          |        |                  |    |              |                |
|             |         | 1-1-2                  | 3              |      |        | Loose dark brown silty sand (SM)   |          |        |                  |    |              |                |
|             |         | 2-2-3                  | 5              |      |        | Loose dark brown fine sand with trace of silt (SP-SM)                    | 11.9     | 24.4   |                  |    |              |                |
| 10          |         | 3-4-5                  | 9              |      |        |  |          |        |                  |    |              |                |
|             |         |                        |                |      |        | Medium dense dark brown fine sand with trace of silt (SP-SM)             |          |        |                  |    |              |                |
| 15          |         | 8-10-9                 | 19             |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |              |                |
| 20          |         |                        |                |      |        |  |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNENEGSC.GDT 1/17/12





# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 2

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-6**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 193 + 20, N.B

G.S. ELEVATION (ft): 26.00      DATE STARTED: 1/10/12  
WATER TABLE (ft): 7.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 3.0      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMP | BLOWS PER 6" INCREMENT | N (BLOWS/FT.) | W.T. | SYMBOL | DESCRIPTION   | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./DAY) | ORG. CONT. (%) |
|-------------|------|------------------------|---------------|------|--------|---|----------|--------|------------------|----|-------------|----------------|
|             |      |                        |               |      |        |   |          |        | LL               | PI |             |                |
| 0           |      |                        |               |      |        | Medium dense dark gray fine sand with trace of silt and trace roots (SP-SM)   |          |        |                  |    |             |                |
|             |      | 2-4-8                  | 12            | ▽    |        | Loose black fine sand with trace silt (SP-SM)                                 |          |        |                  |    |             |                |
|             |      | 4-3-3                  | 6             |      |        | Loose black fine sand with trace of silt and light brown fine sand (SP-SM,SP) | 10.4     | 15.0   |                  |    |             |                |
| 5           |      | 3-3-2                  | 5             |      |        | Very loose dark yellowish brown fine sand with trace of silt (SP-SM)          |          |        |                  |    |             |                |
|             |      | 2-2-2                  | 4             | ▽    |        | Loose dark brown fine sand (SP)   |          |        |                  |    |             |                |
|             |      | 2-3-5                  | 8             |      |        |   |          |        |                  |    |             |                |
| 10          |      | 3-4-5                  | 9             |      |        |   | 2.6      | 21.6   |                  |    |             |                |
|             |      |                        |               |      |        | Loose yellowish brown fine sand (SP)  |          |        |                  |    |             |                |
| 15          |      | 4-4-6                  | 10            |      |        |   |          |        |                  |    |             |                |
|             |      |                        |               |      |        | Medium dense brown fine sand (SP)   |          |        |                  |    |             |                |
| 20          |      | 5-6-11                 | 17            |      |        | Boring Terminated at 20 Feet.   |          |        |                  |    |             |                |
| 25          |      |                        |               |      |        |   |          |        |                  |    |             |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGSC.GDT 1/17/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

|              |                   |
|--------------|-------------------|
| PROJECT NO.: | 1130.1100112.0000 |
| REPORT NO.:  | 9648              |
| PAGE:        | 8                 |

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-7**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 201 + 50, 43rd Ave. W, N.B

G.S. ELEVATION (ft): N.A      DATE STARTED: 1/10/12  
WATER TABLE (ft): 6.0      DATE FINISHED: 1/10/12  
DATE OF READING: 1-10-2012      DRILLED BY: B.T/J.K  
EST. W.S.W.T. (ft): 2.5      TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLE | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|--------|------------------------|----------------|------|--------|--|----------|--------|------------------|----|--------------|----------------|
|             |        |                        |                |      |        |  |          |        | LL               | PI |              |                |
| 0           |        |                        |                |      |        | Loose dark gray fine sand with trace roots, trace shell fragments (SP) |          |        |                  |    |              |                |
|             |        | 3-3-5                  | 8              | ▽    |        | Loose dark yellowish brown fine sand with trace of silt (SP-SM)        |          |        |                  |    |              |                |
|             |        | 3-3-3                  | 6              |      |        | Loose dark brown fine sand (SP)  |          |        |                  |    |              |                |
| 5           |        | 3-2-3                  | 5              | ▽    |        |  | 4.1      | 18.8   |                  |    |              |                |
|             |        | 3-4-3                  | 7              |      |        |  |          |        |                  |    |              |                |
|             |        | 2-1-2                  | 3              |      |        | Very loose dark brown fine sand with trace of silt (SP-SM)             | 7.8      | 22.0   |                  |    |              |                |
| 10          |        | 3-4-7                  | 11             |      |        |  |          |        |                  |    |              |                |
|             |        |                        |                |      |        |  |          |        |                  |    |              |                |
| 15          |        | 4-5-7                  | 12             |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |              |                |
|             |        |                        |                |      |        |  |          |        |                  |    |              |                |
| 20          |        |                        |                |      |        |  |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGS.C.GDT 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

|              |                   |
|--------------|-------------------|
| PROJECT NO.: | 1130.1100112.0000 |
| REPORT NO.:  | 9648              |
| PAGE:        | 9                 |

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-8**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County

G.S. ELEVATION (ft): N.A

DATE STARTED: 1/10/12

LOCATION: See Boring Location Plan

WATER TABLE (ft): 7.0

DATE FINISHED: 1/10/12

REMARKS: Sta 301 + 30, 24th Street W, N.B

DATE OF READING: 1-10-2012

DRILLED BY: B.T/J.K

EST. W.S.W.T. (ft): 2.5

TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLING | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|----------|------------------------|----------------|------|--------|--|----------|--------|------------------|----|--------------|----------------|
|             |          |                        |                |      |        |  |          |        | LL               | PI |              |                |
| 0           |          |                        |                |      |        | Loose dark gray fine sand (SP)   |          |        |                  |    |              |                |
|             |          | 2-3-3                  | 6              | ▽    |        | Loose dark yellowish brown fine sand with trace of silt (SP-SM)        |          |        |                  |    |              |                |
|             |          | 3-4-3                  | 7              |      |        | Medium dense yellowish brown fine sand with trace of silt (SP-SM)      |          |        |                  |    |              |                |
| 5           |          | 2-3-8                  | 11             |      |        | Loose and medium dense dark brown fine sand with trace of silt (SP-SM) | 3.7      | 13.0   |                  |    |              |                |
|             |          | 5-4-4                  | 8              | ▽    |        |  |          |        |                  |    |              |                |
|             |          | 3-3-2                  | 5              |      |        |  | 6.1      | 26.9   |                  |    |              |                |
| 10          |          | 3-4-2                  | 6              |      |        |  |          |        |                  |    |              |                |
|             |          |                        |                |      |        |  |          |        |                  |    |              |                |
|             |          |                        |                |      |        |  |          |        |                  |    |              |                |
|             |          |                        |                |      |        |  |          |        |                  |    |              |                |
| 15          |          | 5-6-9                  | 15             |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |              |                |
|             |          |                        |                |      |        |  |          |        |                  |    |              |                |
|             |          |                        |                |      |        |  |          |        |                  |    |              |                |
| 20          |          |                        |                |      |        |  |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGS.CGD 1/16/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

|                                |
|--------------------------------|
| PROJECT NO.: 1130.1100112.0000 |
| REPORT NO.: 9648               |
| PAGE: 3                        |

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **B-9**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County

G.S. ELEVATION (ft): N.A

DATE STARTED: 1/10/12

LOCATION: See Boring Location Plan

WATER TABLE (ft): 6.0

DATE FINISHED: 1/10/12

REMARKS: Sta 308 + 60, 24th Street W, N.B

DATE OF READING: 1-10-2012

DRILLED BY: B.T/J.K

EST. W.S.W.T. (ft): 2.5

TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | SAMPLE | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | SYMBOL | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|--------|------------------------|----------------|------|--------|--|----------|--------|------------------|----|--------------|----------------|
|             |        |                        |                |      |        |  |          |        | LL               | PI |              |                |
| 0           |        |                        |                |      |        | Loose brown fine sand (SP)   |          |        |                  |    |              |                |
|             |        | 3-4-3                  | 7              | ▽    |        | Loose dark grayish brown fine sand with trace of silt and gravel (SP-SM) | 4.4      | 3.1    |                  |    |              |                |
|             |        | 4-4-5                  | 9              |      |        | Loose dark yellowish brown fine sand with trace of silt (SP-SM)          | 6.6      | 14.8   |                  |    |              |                |
| 5           |        | 5-6-4                  | 10             |      |        | Loose and medium dense dark brown fine sand with trace of silt (SP-SM)   |          |        |                  |    |              |                |
|             |        | 5-5-5                  | 10             | ▽    |        |  |          |        |                  |    |              |                |
|             |        | 4-3-3                  | 6              |      |        |  |          |        |                  |    |              |                |
| 10          |        | 3-2-2                  | 4              |      |        |  |          |        |                  |    |              |                |
|             |        |                        |                |      |        |  |          |        |                  |    |              |                |
| 15          |        | 7-6-9                  | 18             |      |        | Boring Terminated at 15 Feet.  |          |        |                  |    |              |                |
|             |        |                        |                |      |        |  |          |        |                  |    |              |                |
| 20          |        |                        |                |      |        |  |          |        |                  |    |              |                |

BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENGS.C.GDT. 1/17/12



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.1100112.0000

REPORT NO.: 9648

PAGE: 11

PROJECT: FM 34A Replacement 26th Street West  
26th Street West  
Bradenton, Florida

BORING DESIGNATION: **HA-1**  
SECTION: TOWNSHIP:

SHEET: **1 of 1**  
RANGE:

CLIENT: Manatee County  
LOCATION: See Boring Location Plan  
REMARKS: Sta 123 + 90, N.B

G.S. ELEVATION (ft):  
WATER TABLE (ft): 8.0  
DATE OF READING: 1-11-2010  
EST. W.S.W.T. (ft): 2.5  
DATE STARTED: 1/11/10  
DATE FINISHED: 1/11/10  
DRILLED BY: B.T/J.K  
TYPE OF SAMPLING: ASTM 1586

| DEPTH (FT.) | S A M P L E | BLOWS PER 6" INCREMENT | N (BLOWS/ FT.) | W.T. | S Y M B O L | DESCRIPTION  | -200 (%) | MC (%) | ATTERBERG LIMITS |    | K (FT./ DAY) | ORG. CONT. (%) |
|-------------|-------------|------------------------|----------------|------|-------------|--|----------|--------|------------------|----|--------------|----------------|
|             |             |                        |                |      |             |  |          |        | LL               | PI |              |                |
| 0           |             |                        |                |      |             | Brown fine sand with trace of silt and trace clayey sand (SP-SM,SC)  |          |        |                  |    |              |                |
|             |             |                        |                |      |             | Dark gray fine sand (SP)   |          |        |                  |    |              |                |
|             |             |                        |                | ▽    |             | Gray fine sand (SP)  |          |        |                  |    |              |                |
|             |             |                        |                |      |             | Grayish brown clayey sand (SC)                                       |          |        |                  |    |              |                |
|             |             |                        |                |      |             | Dark brown fine sand with trace of clay (SP-SC)                      |          |        |                  |    |              |                |
| 5           |             |                        |                |      |             | Light brown fine sand with trace of silt and shell fragments (SP-SM) |          |        |                  |    |              |                |
|             |             |                        |                |      |             | Light browish gray fine sand with trace of silt (SP-SM)              |          |        |                  |    |              |                |
|             |             |                        |                | ▽    |             |  |          |        |                  |    |              |                |
| 10          |             |                        |                |      |             |  |          |        |                  |    |              |                |

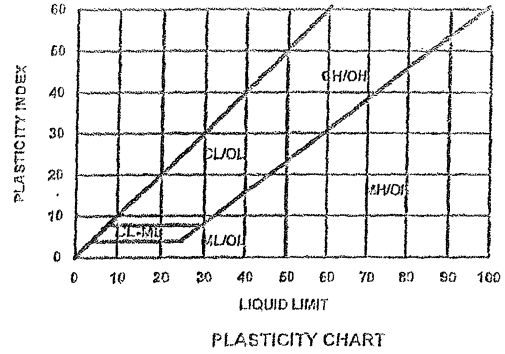
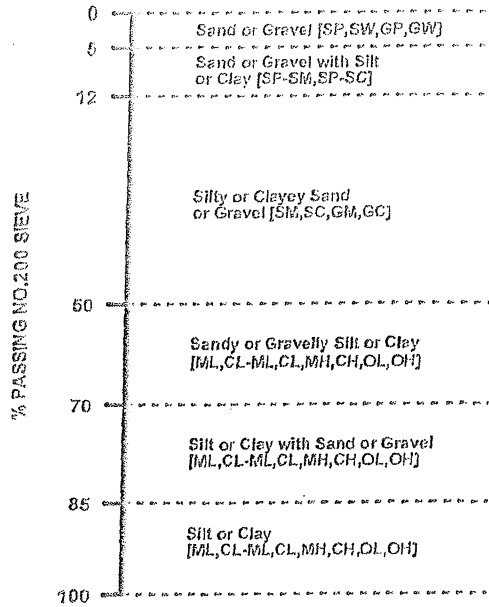
BORING LOG (9648) FM 34A REPLACEMENT 26TH STREET WEST.GPJ UNIENSC.GDT 1/16/12

# KEY TO BORING LOGS

## SOIL CLASSIFICATION CHART\*



UNIVERSAL  
ENGINEERING  
SCIENCES, INC.



### GROUP NAME AND SYMBOL

#### COARSE GRAINED SOILS

|  |                                       |  |   |
|--|---------------------------------------|--|---|
|  | WELL-GRADED SANDS [SW]                |  | WELL-GRADED GRAVELS [GW]                |
|  | POORLY-GRADED SANDS [SP]              |  | POORLY-GRADED GRAVELS [GP]              |
|  | POORLY-GRADED SANDS WITH SILT [SP-SM] |  | POORLY-GRADED GRAVELS WITH SILT [GP-GM] |
|  | POORLY-GRADED SANDS WITH CLAY [SP-SC] |  | POORLY-GRADED GRAVELS WITH CLAY [GP-GC] |
|  | SILTY SANDS [SM]                      |  | SILTY GRAVELS [GM]                      |
|  | CLAYEY SANDS [SC]                     |  | CLAYEY GRAVELS [GC]                     |
|  | SILTY CLAYEY SANDS [SC-SM]            |  |   |

#### FINE GRAINED SOILS

|  |   |
|--|---|
|  | INORGANIC SILTS SLIGHT PLASTICITY [ML]        |
|  | INORGANIC SILTY CLAY LOW PLASTICITY [CL-ML]   |
|  | INORGANIC CLAYS LOW TO MEDIUM PLASTICITY [CL] |
|  | INORGANIC SILTS HIGH PLASTICITY [MH]          |
|  | INORGANIC CLAYS HIGH PLASTICITY [CH]          |

#### HIGHLY ORGANIC SOILS

|  |  |
|--|--|
|  | ORGANIC SILTS/CLAYS LOW PLASTICITY [OL]**                  |
|  | ORGANIC SILTS/CLAYS MEDIUM TO HIGH PLASTICITY [OH]**       |
|  | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS [PT]** |

#### RELATIVE DENSITY (SAND AND GRAVEL)

VERY LOOSE - 0 to 4 Blows/ft.  
LOOSE - 5 to 10 Blows/ft.  
MEDIUM DENSE - 11 to 30 Blows/ft.  
DENSE - 31 to 50 Blows/ft.  
VERY DENSE - more than 50 Blows/ft.

#### CONSISTENCY (SILT AND CLAY)

VERY SOFT - 0 to 2 Blows/ft.  
SOFT - 3 to 4 Blows/ft.  
FIRM - 5 to 8 Blows/ft.  
STIFF - 9 to 16 Blows/ft.  
VERY STIFF - 17 to 30 Blows/ft.  
HARD - more than 30 Blows/ft.

\* IN ACCORDANCE WITH ASTM D 2487 - UNIFIED SOIL CLASSIFICATION SYSTEM.

\*\* LOCALLY MAY BE KNOWN AS MUCK.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

# Important Information About Your Geotechnical Engineering Report

*Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.*

*The following information is provided to help you manage your risks.*

## **Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects**

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

## **Read the Full Report**

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

## **A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors**

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

## **Subsurface Conditions Can Change**

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

## **Most Geotechnical Findings Are Professional Opinions**

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

## **A Report's Recommendations Are *Not* Final**

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

### **A Geotechnical Engineering Report Is Subject to Misinterpretation**

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

### **Do Not Redraw the Engineer's Logs**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

### **Give Contractors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

### **Read Responsibility Provisions Closely**

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### **Geoenvironmental Concerns Are Not Covered**

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

### **Obtain Professional Assistance To Deal with Mold**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention.* *Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

### **Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance**

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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## CONSTRAINTS AND RESTRICTIONS

### WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

### UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

### CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

### MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data related only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

### CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

## USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations. Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

## STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

## OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of drilling resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

## WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water level may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

## LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

## TIME

This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional review may be required.

**Universal Engineering Sciences, Inc.**  
**GENERAL CONDITIONS**

**SECTION 1: RESPONSIBILITIES**

- 1.1 *Universal Engineering Sciences, Inc.*, heretofore referred to as the Consultant, has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "Consultant" as used herein includes all of *Universal Engineering Sciences, Inc's* agents, employees, professional staff, and subcontractors.
- 1.2 The Client or a duly authorized representative is responsible for providing the Consultant with a clear understanding of the project nature and scope. The Client shall supply the Consultant with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow the Consultant to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.

**SECTION 2: STANDARD OF CARE**

- 2.1 Services performed by the Consultant under this Agreement are expected by the Client to be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Consultant's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.
- 2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by the Consultant will be based solely on information available to the Consultant at the time of service. The Consultant is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

**SECTION 3: SITE ACCESS AND SITE CONDITIONS**

- 3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for the Consultant to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted Consultant free access to the site. The Consultant will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.
- 3.2 The Client is responsible for the accuracy of locations for all subterranean structures and utilities. The Consultant will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against Consultant, and agrees to defend, indemnify, and hold Consultant harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate Consultant for any time spent or expenses incurred by Consultant in defense of any such claim with compensation to be based upon Consultant's prevailing fee schedule and expense reimbursement policy.

**SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL**

- 4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.
- 4.2 The Consultant will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.
- 4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

**SECTION 5: BILLING AND PAYMENT**

- 5.1 Consultant will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.
- 5.2 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.
- 5.3 If the Consultant incurs any expenses to collect overdue billings on invoices, the sums paid by the Consultant for reasonable attorneys' fees, court costs, Consultant's time, Consultant's expenses, and interest will be due and owing by the Client.

**SECTION 6: OWNERSHIP OF DOCUMENTS**

- 6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by the Consultant, as instruments of service, shall remain the property of the Consultant.
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- 6.3 The Consultant will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.

**SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS**

- 7.1 Client warrants that a reasonable effort has been made to inform Consultant of known or suspected hazardous materials on or near the project site.
- 7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.
- 7.3 Hazardous materials may exist at a site where there is no reason to believe they could or should be present. Consultant and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. Consultant and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for Consultant to take immediate measures to protect health and safety. Client agrees to compensate Consultant for any equipment decontamination or other costs incident to the discovery of

unanticipated hazardous waste.

- 7.4 Consultant agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold Consultant harmless for any and all consequences of disclosures made by Consultant which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.
- 7.5 Notwithstanding any other provision of the Agreement, Client waives any claim against Consultant, and to the maximum extent permitted by law, agrees to defend, indemnify, and save Consultant harmless from any claim, liability, and/or defense costs for injury or loss arising from Consultant's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by the Consultant which are found to be contaminated.

**SECTION 8: RISK ALLOCATION** (Must select a or b below if neither is selected a shall prevail)

- 8.1a Client agrees that Consultant's liability for any damage on account of any error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or Consultant's fee, whichever is greater. Client agrees that the foregoing limits of liability extend to all of consultant's employees and professionals who perform any services for Client. If Client prefers to have higher limits on professional liability, Consultant agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.
- 8.1b Client agrees that Consultant's liability for any damage on account of any error, omission or other professional negligence will be limited to a sum not to exceed \_\_\_\_\_ or Consultant's fee, whichever is greater. Client agrees that the foregoing limits of liability extend to all of consultant's employees and professionals who perform any services for Client.

**SECTION 9: INSURANCE**

- 9.1 The Consultant represents and warrants that it and its agents, staff and Consultants employed by it, is and are protected by worker's compensation insurance and that Consultant has such coverage under public liability and property damage insurance policies which the Consultant deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, Consultant agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by Consultant, its agents, staff, and consultants employed by it. The Consultant shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save Consultant harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other consultants employed by Client.

**SECTION 10: DISPUTE RESOLUTION**

- 10.1 All claims, disputes, and other matters in controversy between Consultant and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation and/or arbitration, before and as a condition precedent to other remedies provided by law.
- 10.2 If a dispute at law arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:
- (a) the claim will be brought and tried in judicial jurisdiction of the court of the county where Consultant's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and
  - (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

**SECTION 11: TERMINATION**

- 11.1 This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, Consultant shall be paid for services performed to the termination notice date plus reasonable termination expenses.
- 11.2 In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, Consultant may complete such analyses and records as are necessary to complete his files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of Consultant in completing such analyses, records and reports.

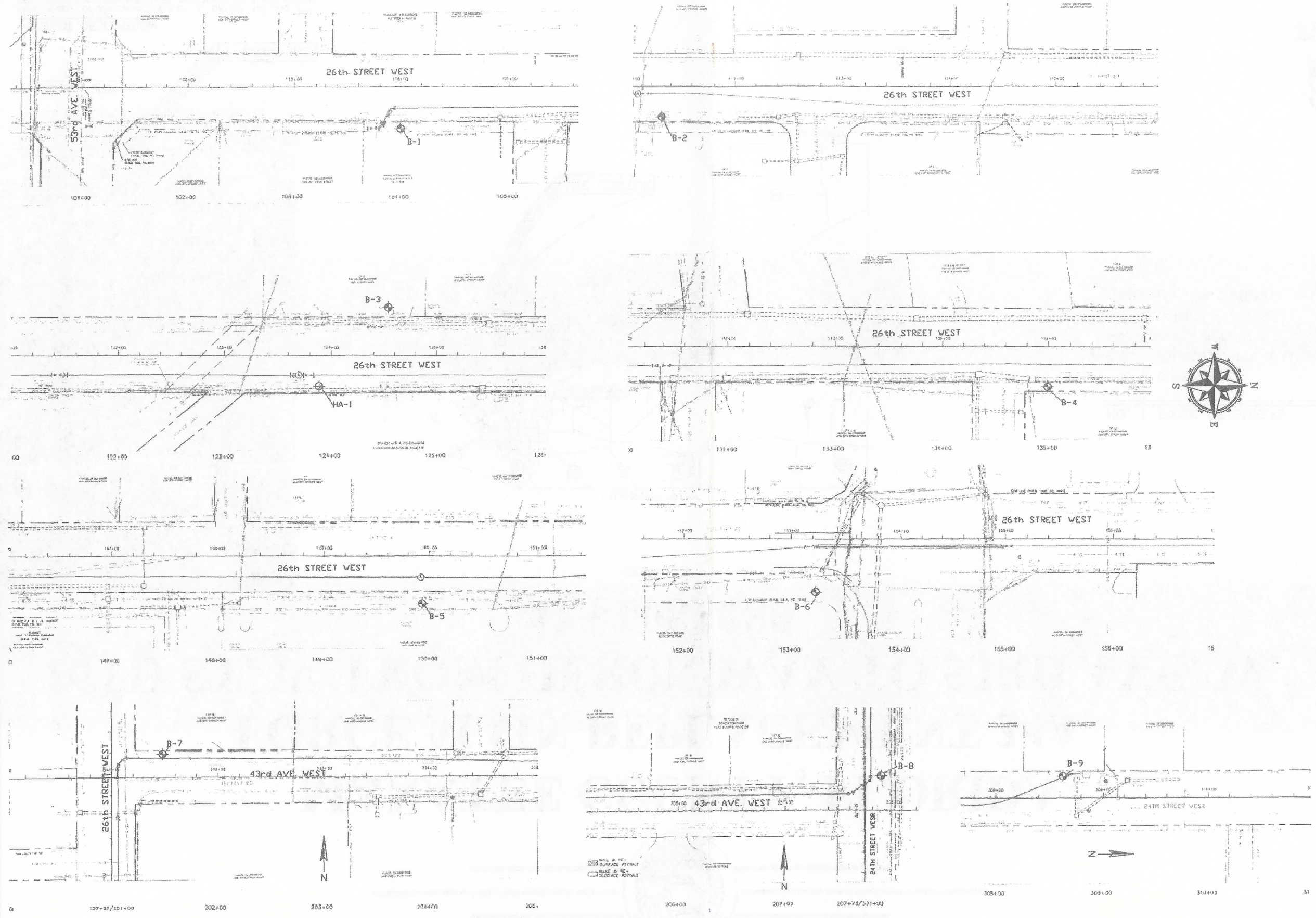
**SECTION 12: ASSIGNS**

- 12.1 Neither the Client nor the Consultant may delegate, assign, sublet or transfer his duties or interest in this Agreement without the written consent of the other party.

**SECTION 13. GOVERNING LAW AND SURVIVAL**


- 13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.
- 13.2 If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.





|             |                   |        |          |
|-------------|-------------------|--------|----------|
| DRAWN BY:   | S.C.              | DATE:  | JAN 2012 |
| CHECKED BY: | R.G.              | DATE:  |          |
| REPORT NO:  | 9648              | SCALE: |          |
| PROJECT NO: | 1150.1000112.0000 |        |          |

**FM 34A REPLACEMENT**  
**26TH STREET WEST**  
**MANATEE COUNTY, FLORIDA**  
**BORING LOCATION PLAN**



**UNIVERSAL**  
ENGINEERING SCIENCES

APPENDIX:





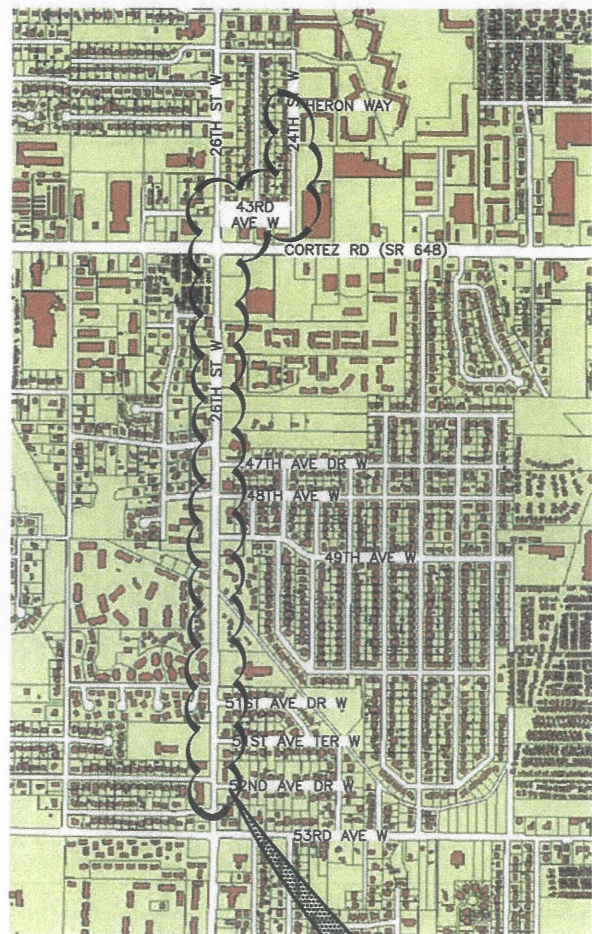
# MANATEE COUNTY, FLORIDA

## FORCE MAIN REPLACEMENT 34A

### 26TH ST. W. FROM HERON WAY TO 53RD AVE. W.

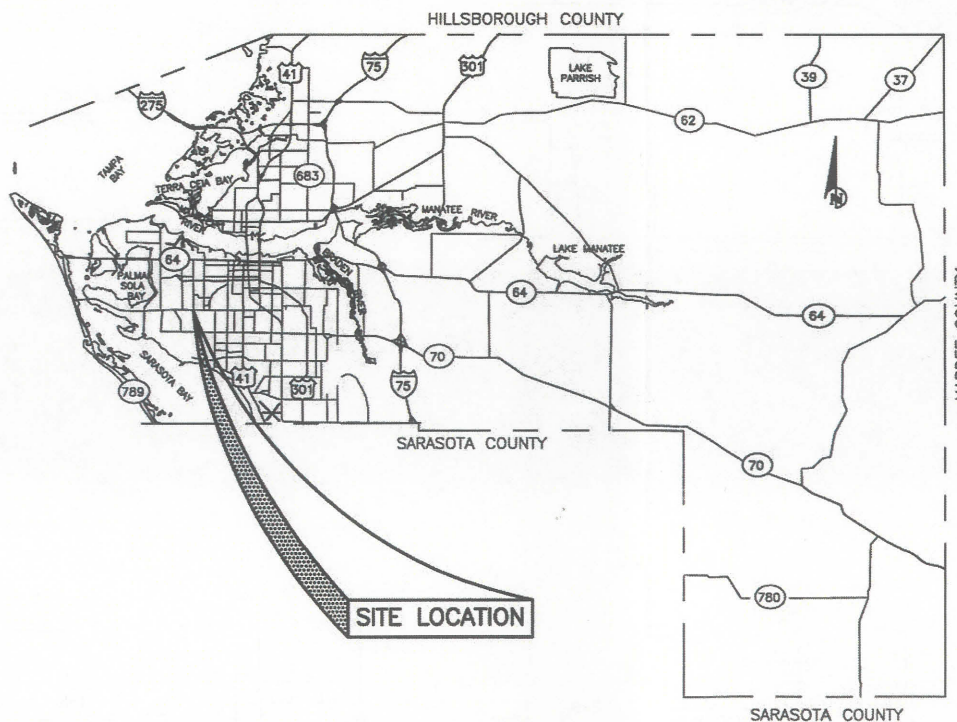
# 415-6081280

MAY 2013



VICINITY MAP  
N.T.S.

PROJECT SITE



SITE LOCATION

| NO.    | INDEX OF SHEETS        |
|--------|------------------------|
| 1.     | COVER SHEET            |
| 2.-2A. | GENERAL NOTES & LEGEND |
| 3.-4.  | PLAN & PROFILE         |
| 5.-6.  | DETAILS                |
| 7.     | EROSION CONTROL        |

**PROJECT DESCRIPTION**

REPLACEMENT OF APPROXIMATELY 7,200 LF OF 10", 16", AND 18" CAST IRON FORCE MAIN WITH HDPE DIRECTIONAL DRILL FORCE MAIN AND ALL ANCILLARY PIPING, VALVES, AND CONNECTION. A PORTION OF THE REPLACEMENT WILL REQUIRE A HORIZONTAL DIRECTIONAL DRILL UNDER THE FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY (CORTEZ RD).

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
26TH ST. W. FROM HERON WAY TO  
53RD AVE. W.  
COVER SHEET

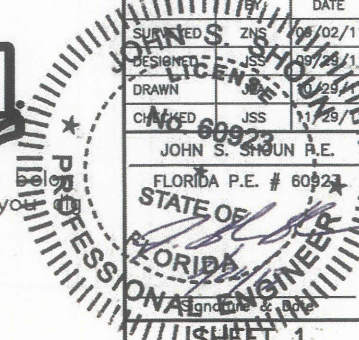
| NO. | REVISION DESCRIPTION | DATE | BY |
|-----|----------------------|------|----|
|     |                      |      |    |

|               |             |
|---------------|-------------|
| PROJECT #     | 415-6081280 |
| SURVEY #      | 0019606     |
| SEC./TWN./RGE | VARIES      |
| SCALE         |             |

| NO. | DATE |
|-----|------|
|     |      |



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S:\V\HD\_Engineering\Share\Util\_Eng\_Design\PROJ\34A\_SRM\_SRM\_Proj\34A\_Replacement\DWGS\Cover\_FH\_Replacement\_US\_34A.dwg, 1: FDOT Cover, 3/25/2013 10:39 AM Shin Shoun, 1:1, Ledger



- 1. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: ANTHONY BENITEZ, P.E. AND CAN BE REACHED AT (941) 708-7450 EXT. 7333
- 2. SITE VISITS ARE MANDATORY FOR ALL BIDDERS. THESE SITE VISITS CAN BE ARRANGED THROUGH THE PROJECT MANAGER.
- 3. ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
- 4. VERTICAL CONTROL FOR THIS PROJECT WAS ESTABLISHED BY A MINIMUM OF TWO REFERENCE BENCHMARKS DESCRIBED ON THE "THE NATIONAL GEODETIC VERTICAL DATUM OF 1929", (NGVD '29).
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
- 6. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED PRIOR TO BIDDING TO CONDUCT WHATEVER INVESTIGATION THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
- 7. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- 8. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
- 9. NO WORK, EXCEPT FOR EMERGENCY TYPE, SHALL BE PERFORMED AFTER 7:00 PM AND BEFORE 7:00 AM. FOR ADDITIONAL PROJECT RESTRAINTS, REFER TO SECTION 01310 OF THE SPECIFICATIONS.

**SAFETY**

- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
- 11. THE CONTRACTOR SHALL USE SHEET PILING, SHEETING, BRACING, ETC., AS REQUIRED IN ALL EXCAVATION AREAS AND CONFORM TO ALL OSHA REQUIREMENTS.
- 12. THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
- 13. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.

**ENVIRONMENTAL**

- 14. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION ALL SEDIMENT AND EROSION CONTROL (SEC) DEVICES (E.G., BARRIERS, SEDIMENT TRAPS/BASINS, VEGETATIVE BUFFERS, ETC.) AS SPECIFIED IN THE FINAL APPROVED PLANS FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SEC DEVICES UTILIZED DURING THE PROJECT, AS WELL AS INSTALLATION & MAINTENANCE OF ANY ADDITIONAL MEASURES DEEMED NECESSARY DURING PROJECT IMPLEMENTATION, TO PREVENT EROSION AND OFF-SITE SEDIMENT MIGRATION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL SEC DEVICES UPON COMPLETION OF THE PROJECT, AND UPON ADEQUATE STABILIZATION OF DISTURBED SOILS.
- 15. WHEN A BENTONITE SPILL OR FRACK-OUT OCCURS OR THERE IS A LOSS OF RETURN INDICATING EXCESSIVE SEEPAGE OR LOSS OF DRILLING FLUID, DRILLING MUST BE STOPPED UNTIL THE LOCATION OF THE SPILL IS IDENTIFIED. UNDER NO CIRCUMSTANCES WILL DRILLING CONTINUE WHEN A SPILL IS APPARENT.
- 16. ONCE LOCATED, THE BENTONITE SPILL MUST BE ISOLATED AND SEEPAGE INTO ANY NEARBY WATER BODIES WILL BE BLOCKED DEPENDING ON THE DEGREE OF THE SPILL, THE ISOLATED BENTONITE MUST BE REMOVED MANUALLY OR MECHANICALLY AND DISPOSED OF BY APPROPRIATE MEANS OR REUSED.
- 17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY STORM WATER, EROSION, AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE FDP "FLORIDA STORM WATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS AND TO DITCHES DURING CONSTRUCTION.
- 18. STOCKPILES SHALL BE PROTECTED AT ALL TIMES BY ON-SITE DRAINAGE CONTROLS WHICH PREVENT EROSION OF THE STOCKPILED MATERIAL. CONTROL OF DUST FROM SUCH STOCKPILES IS REQUIRED, DEPENDING UPON THEIR LOCATION AND THE EXPECTED LENGTH OF TIME THE STOCKPILES WILL BE PRESENT. IN NO CASE SHALL ANY STOCKPILED MATERIAL REMAIN AFTER THIRTY (30) CALENDAR DAYS.
- 19. STORM WATER INLETS IN THE VICINITY OF THE PROJECT SHALL BE PROTECTED BY SEDIMENT TRAPS SUCH AS SECURED HAY BALES, SOD, STONE, ETC., WHICH SHALL BE MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS, AND WHICH MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. THIS WILL BE MAINTAINED TO PREVENT DEGRADATION OF THE WATERS OF THE COUNTY AND STATE.
- 20. SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT ONTO ADJACENT PROPERTIES, OR INTO EXISTING BODIES OF WATER, MUST BE INSTALLED, CONSTRUCTED, OR IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS. SUCH SYSTEMS SHALL BE FULLY OPERATIVE BEFORE ANY OTHER DISTURBANCE OF THE SITE BEGINS. EARTHEN STRUCTURES INCLUDING BUT NOT LIMITED TO BERMS, EARTH FILTERS, DAMS OR DIKES SHALL BE STABILIZED AND PROTECTED FROM DRAINAGE DAMAGE OR EROSION WITHIN ONE (1) WEEK OF INSTALLATION.
- 21. ALL SWALES, DITCHES, AND CHANNELS LEADING FROM THE SITE SHALL BE PROTECTED FROM SILTATION AND EROSION DURING CONSTRUCTION AND BE SODDED WITHIN THREE (3) DAYS OF EXCAVATION.
- 22. SOIL DISPLACED BY CONSTRUCTION WILL BE REMOVED. EROSION CONTROL SHALL BE IMPLEMENTED IN AREAS WHICH ARE CONSIDERED ENVIRONMENTALLY SENSITIVE. EROSION CONTROL SYSTEMS SHALL BE REQUIRED FOR ALL WORK WITHIN JURISDICTIONAL AREAS. THESE SYSTEMS MAY INCLUDE STAKED HAY BALES, SILT SCREENS, FILTER FABRIC, AND TURBIDITY SCREENS.
- 23. ALL EROSION AND POLLUTION CONTROL DEVICES SHALL BE CHECKED REGULARLY, ESPECIALLY AFTER EACH RAINFALL AND SHALL BE CLEANED OUT AND/OR REPAIRED AS REQUIRED.
- 24. THE CONTRACTOR SHALL NOT ENTER UPON OR IN ANY WAY ALTER WETLAND AREAS THAT MAY BE ON OR NEAR THE CONSTRUCTION SITE. ALL WORK IN THE VICINITY OF OPEN WATER AND/OR WETLANDS IS TO BE PERFORMED IN COMPLIANCE WITH THE ENVIRONMENTAL REGULATIONS AND/OR PERMITS FOR THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES RESULTING FROM HIS VIOLATION OF ANY REGULATIONS OR PERMIT CONDITIONS.
- 25. FOR MORE INFORMATION, SEE THE EROSION CONTROL DETAIL SHEET INCLUDED IN THE PLANS.

**RIGHT-OF-WAY**

- 26. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO WITHIN THE MANATEE COUNTY/FDOT RIGHT-OF-WAY AND/OR EASEMENTS SHOWN ON THE DRAWINGS.
- 27. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO REFERENCE AND RESTORE PROPERTY CORNER MONUMENTS, PINS, AND LANDMARKS THAT MAY BE DISTURBED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- 28. THE CONTRACTOR, PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHTS-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- 29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED STORM WATER STRUCTURES, PIPING, ENTRANCE PIPE AND HEADWALLS WHETHER SHOWN ON THE PLANS OR NOT. THE HEADWALLS SHALL BE REPLACED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
- 30. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH IN THE FIELD THE RIGHT-OF-WAY LINES, BASE LINES, BENCH MARKS (ELEV.), CENTER LINES, AND STATIONING AS REQUIRED TO CONSTRUCT THIS PROJECT.

- 31. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF UTILITIES WITH THE PROPERTY OWNER PRIOR TO CUT. ALL UTILITIES WILL BE IN PASSABLE CONDITION AT THE END OF THE WORK DAY AND FULLY RESTORED PER SECTION 02575.
- 32. A RIGHT OF ENTRY AGREEMENT SHALL BE OBTAINED BY THE PROJECT MANAGER FROM THE PROPERTY OWNER BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS DONE OUTSIDE OF THE RIGHT-OF-WAY OR EASEMENT.
- 33. A PORTION OF THE WORK WILL TAKE PLACE ON AN ALIGNMENT THAT CROSSES CORTEZ RD (SR 684) RIGHT-OF-WAY. THE WORK WITHIN THIS AREA IS SUBJECT TO A FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) PERMIT WHICH IS INCLUDED IN THE SPECIFICATIONS FOR REFERENCE. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THIS PERMIT, AMONG OTHER SPECIFIC PERMIT REQUIREMENTS, THE CONTRACTOR IS CAUTIONED NOT TO ENTER OR EXIT THE WORK AREA BY DRIVING OVER CURBS OR THROUGH OR OVER OTHER NONE VEHICLE TRAFFIC LOADING PAVED OR NON-PAVED AREAS.

**UTILITIES**

- 34. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.
- 35. THE CONTRACT DOCUMENTS DEFINE THE REQUIRED PLAN LOCATION AND VERTICAL ALIGNMENT OF THE NEW FORCE MAIN PIPE REPLACEMENT. THE CONTRACTOR SHALL ESTABLISH A PIPE DRILLING OR LAYING PLAN FOR EACH PIPELINE SEGMENT PRIOR TO CONSTRUCTION. THE DRILLING OR LAYING PLAN SHALL TAKE INTO CONSIDERATION GEOTECHNICAL CONDITIONS AT THE SITE, GROUND WATER CONDITIONS AT THE SITE AT THE TIME OF CONSTRUCTION, THE ELEVATION OF CROSSING UTILITIES, CONTRACTOR SPECIFIC EQUIPMENT AND CONSTRUCTION SET-UP AND STAGING AREA REQUIREMENTS, PIPE PREFABRICATION AREA NEEDS AND OTHER FACTORS. THE CONTRACTOR DRILLING OR LAYING PLAN SHALL ESTABLISH THE FINAL FIELD LOCATION FOR ALL NEW PIPE, FITTINGS AND VALVES (INCLUDING ARV'S) PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE COUNTY, PRIOR TO CONSTRUCTION, FOR ANY PLANNED DEVIATION IN THE LOCATION OF THE NEW WORK.
- 36. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF UNDERGROUND UTILITIES PARALLELING AND CROSSING THE ALIGNMENT OF THE NEW PIPELINE SYSTEM PRIOR TO CONSTRUCTION. FOR HDD ENTRY LOCATIONS, CONDUCTOR CASING SHALL BE USED TO PROTECT EXISTING UTILITIES WHEN FIELD CONDITIONS INDICATE THAT THE INSTALLATION OF THE NEW PIPELINE MAY IMPACT EXISTING CROSSING UTILITIES. THE REQUIREMENT FOR THE USE OF CONDUCTOR CASING WILL BE ESTABLISHED IN THE FIELD ON A CASE BY CASE BASIS DURING HDD BORING INITIAL SET-UP AND CROSSING UTILITY ALIGNMENT VERIFICATION PROCESS AND SHALL BE APPROVED BY THE OWNER AND/OR COUNTY. HDD PULL BACK ENTRY POINTS AND ANGLES SHALL BE SELECTED TO PROVIDE ADEQUATE CLEARANCE BETWEEN ALL EXISTING UNDERGROUND UTILITIES THAT ARE CROSSING THE ALIGNMENT OF THE PULL BACK PATH AND TO PROTECT EXISTING UTILITIES. THE NEED FOR CONDUCTOR CASING AND PULL BACK ALIGNMENT DEFINITION SHALL BE INCLUDED AS A PART OF THE HDD DRILLING PLAN DEVELOPED FOR EACH HDD BORE AS INDICATED IN NOTE 36.
- 37. THE CONTRACTOR SHALL PROTECT 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. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
- 38. THE CONTRACTOR SHALL USE APPROPRIATE TECHNIQUES, AS APPROVED, RECOMMENDED OR OFFERED BY FLORIDA POWER AND LIGHT TO PREVENT UNDERMINING OF POWER POLES DURING CONSTRUCTION. IF HOLDING OF POWER POLES IS RECOMMENDED OR REQUIRED BY THE UTILITY, THE CONTRACTOR SHALL COORDINATE THIS ACTIVITY WITH THE UTILITY AND BEAR ALL RELATED COSTS.
- 39. ANY TEMPORARY SHUTDOWNS FOR MODIFICATIONS OF EXISTING UTILITY SYSTEMS THAT MUST REMAIN IN SERVICE DURING CONSTRUCTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH AND APPROVED BY THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IT IS NOTED THAT TEMPORARY SHUTDOWNS MAY BE RESTRICTED TO CERTAIN HOURS AT ANY TIME OF THE DAY OR NIGHT AND WILL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
- 40. FOR WORK BEING DONE ON EXISTING SANITARY SEWER LINES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE FLOW OF ALL SEWAGE DURING CONSTRUCTION, WHICH MAY REQUIRE BY-PASS PUMPING AND/OR PUMPER TRUCKS. THE CONTRACTOR SHALL SUBMIT A DETAILED BY-PASS PUMPING PLAN PER SECTION 02720.

**RESTORATION**

- 41. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS SHOWN OTHERWISE.
- 42. ALL DISTURBED GRASSED AREAS SHALL BE SODDED OR SEEDED UNLESS OTHERWISE INDICATED. THE TYPE OF SOD USED TO REPLACE OWNER MAINTAINED AREAS IN RIGHT-OF-WAY SHALL BE COORDINATED WITH THE PROPERTY OWNER.
- 43. ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE OPERATION OF THE PIPELINE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR, PRIOR TO FINAL ACCEPTANCE, AT NO ADDITIONAL COST TO THE OWNER.
- 44. ASPHALT DRIVES THAT ARE CUT SHALL BE RESTORED PER SECTION 02513.
- 45. CONCRETE DRIVEWAYS OR SIDEWALKS THAT ARE CUT SHALL BE RESTORED TO MATCH EXISTING ACCORDING TO THE CURRENT EDITIONS OF THE F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN, SECTION 522, AND SECTION 310 OF THE F.D.O.T. DESIGN STANDARDS.
- 46. WHENEVER A PERMANENT ROADWAY SURFACE IS NOT PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OF THE NEWLY INSTALLED PIPE LINE IN AREAS WHERE TRAFFIC MUST PASS, THE CONTRACTOR SHALL INSTALL A TEMPORARY SURFACE CONSISTING OF NINE INCHES OF COMPACTED LIME ROCK BASE AND A COAT OF ASPHALT EMULSION. PERMANENT ROADWAY REPAIR SHALL BE PERFORMED A MAXIMUM OF TWENTY-ONE CALENDAR DAYS AFTER THE INITIAL OPEN CUTTING.
- 47. RESTORATION OF CURBS, DRIVEWAYS, SIDEWALKS, AND PLACEMENT OF SOD SHALL BE COMPLETED WITHIN FORTY-FIVE CALENDAR DAYS OF INITIAL DISTURBANCE, OR TWENTY-ONE CALENDAR DAYS OF SUBSTANTIAL COMPLETION, WHICHEVER OCCURS FIRST.

**CONSTRUCTION**

- 48. THE EXHAUST SYSTEM OF ALL GASOLINE AND DIESEL ENGINES SHALL BE EQUIPPED WITH MUFFLERS THAT MEET THE EQUIPMENT MANUFACTURER'S REQUIREMENTS FOR NOISE SUPPRESSION. THE CONTRACTOR SHALL INSTALL NOISE ABATEMENT BARRIERS POSITIONED TO BREAK LINE-OF-SITE FROM THE NOISE SOURCE TO AFFECTED RESIDENCES, AS APPROVED BY THE ENGINEER.
- 49. NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEEPED DAILY AS PART OF DAILY CLEAN UP.
- 50. THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
- 51. INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.
- 52. PRIOR APPROVAL WILL BE REQUIRED FOR REMOVAL OF ANY TREE WITHIN THE CONSTRUCTION AREA.
- 53. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY. DEWATERING IS REQUIRED TO 18" BELOW TRENCH BOTTOM.
- 54. ALL PIPING AND FITTINGS USED ON THIS PROJECT SHALL BE AS NOTED ON THE PLANS AND IN THE CONTRACT DOCUMENT AND SHALL BE INSTALLED TO THE LINES AND GRADES SHOWN ON THE PLANS AND PROFILES.
- 55. ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS.
- 56. ALL PIPE AND FITTINGS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER AND ALL PIPE JOINTS SHALL BE RESTRAINED WHERE REQUIRED.
- 57. ALL FITTINGS FOR PRESSURE CLASS-RATED PIPE SHALL BE RESTRAINED DUCTILE IRON. RESTRAINED LENGTHS OF PIPE SHALL ADHERE TO THE REQUIREMENTS AS SHOWN ON THE DETAIL SHEETS.
- 58. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE RECOMMENDED DEFLECTION.
- 59. ALL PIPE LENGTHS ARE PLUS OR MINUS AND MAY BE ADJUSTED IN THE FIELD AS REQUIRED. PIPE MEASUREMENTS ARE TO CENTER OF STRUCTURES OR FITTINGS.
- 60. ALL ROCKS OR STONES LARGER THAN SIX INCH DIAMETER SHALL BE REMOVED FROM THE BACKFILL MATERIAL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN TWO INCH DIAMETER.

- 61. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND THE LOCATION OF EXISTING STRUCTURES AND OTHER FEATURES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND THE LOCATION OF EXISTING STRUCTURES AND OTHER FEATURES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND THE LOCATION OF EXISTING STRUCTURES AND OTHER FEATURES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND THE LOCATION OF EXISTING STRUCTURES AND OTHER FEATURES.
- 62. ALL PENETRATION OF EXISTING STRUCTURES SHALL BE BY THE MECHANICAL ROTARY CORE BORING METHOD.
- 63. ALL CONCRETE PENETRATED OR DISTURBED SHALL BE COATED WITH TWO COATS OF EPOXY.
- 64. THE CONTRACTOR, PRIOR TO ANY TEMPORARY WATER SHUT-OFFS DURING WATER MAIN TIE-IN, ETC., SHALL NOTIFY THE AFFECTED RESIDENTS BY POSTING INFORMATIONAL SIGNS IN THE NEIGHBORHOOD AT LEAST TWO DAYS (48 HRS) PRIOR TO THE WATER SHUT-OFF. REFERENCE SECTION 01580, PARAGRAPH 1.03 OF THE SPECIFICATIONS. WHEN FEASIBLE, "DOOR HANGERS" SHALL BE DELIVERED TO AFFECTED RESIDENCES AT LEAST TWO DAYS (48 HRS) PRIOR TO WATER SHUT-OFF. FOR LARGE PROJECTS WITH HUNDREDS OF HOMES AFFECTED, THE CONTRACTOR SHALL ALSO MAKE EXTENSIVE USE OF THE MEDIA AND SHALL HAVE PRIOR CONTACT WITH HOMEOWNER'S ASSOCIATIONS. WRITTEN NOTIFICATIONS SHALL ALSO BE FAXED TO THE TAMPA TRIBUNE, BRADENTON HERALD, SARASOTA HERALD TRIBUNE, WBRO RADIO, EMERGENCY COMMUNITY CENTERS, INSPECTIONS, WATER TREATMENT PLANT, WATER MANAGER, HELPLINE, CUSTOMER SERVICE, AND THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT.
- 65. ALL NEW PIPE LINES SHALL BE PIG CLEANED (4" AND LARGER), FLUSHED, PRESSURE TESTED, DISINFECTED AND CERTIFIED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PIG CLEANING AND PRESSURE TESTING.
- 66. ALL TEST POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. A CORPORATION STOP PLUG SHALL BE INSTALLED AND THE CORPORATION STOP SHALL REMAIN IN PLACE.
- 67. ALL EXISTING MAINS THAT ARE BEING REPLACED SHALL BE ABANDONED IN PLACE UPON ACCEPTANCE AND ACTIVATION OF THE NEW MAINS. ABANDONED MAINS SHALL BE CUT, FILLED WITH GROUT, AND CAPPED. REFER TO SECTION 02064 OF THE SPECIFICATIONS FOR GROUTING OF ABANDONED PIPE.
- 68. WATER MAINS CROSSING OVER OR UNDER SANITARY SEWERS, FORCE MAINS, AND RECLAIMED WATER LINES SHALL BE LAID PER CURRENT EDITION OF "10 STATE STANDARDS" AND MANATEE COUNTY UTILITY STANDARDS UNLESS NOTED OTHERWISE ON THE PLANS.
- 69. FIELD CONDITIONS MAY NECESSITATE MINOR ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER.
- 70. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS AT NO COST TO THE OWNER. RECORD DRAWINGS SHALL BE SIGNED & SEALED BY A SURVEYOR CURRENTLY LICENSED BY THE STATE OF FLORIDA. ALL RECORD DRAWING INFORMATION REQUIREMENTS IN SECTION 14 SHALL BE STRICTLY ENFORCED. A COPY OF SECTION 14 WILL BE PROVIDED UPON REQUEST.
- 71. THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF THE WORK AS CONSTRUCTED. AS-BUILT DRAWINGS SHALL INCLUDE THE LOCATION OF ABANDONED FORCE MAIN CUT AND PLUG POINTS. AS-BUILT DRAWINGS SHALL BE ANNOTATED EACH DAY AS THE WORK PROCEEDS AND SHALL BE AVAILABLE TO THE COUNTY PROJECT MANAGER AND/OR FIELD INSPECTOR FOR REVIEW ON AN ONGOING BASIS. AS-BUILT DRAWINGS SHALL PROVIDE THE HORIZONTAL AND VERTICAL INSTALLED LOCATION OF ALL NEW PIPELINE, FITTINGS, VALVES AND FORCE MAIN APPURTENANCES REFERENCED TO FIXED SURFACE FEATURES THAT ARE SHOWN ON THE CONSTRUCTION DRAWINGS AND/OR RIGHT-OF-WAY LINES, PROPERTY CORNERS OR OTHER SURVEYED POINTS. THE CONTRACTOR SHALL BE ABLE TO PRESENT THE RECORD DRAWINGS TO THE COUNTY PROJECT MANAGER AND/OR INSPECTOR ON DEMAND AS THE WORK PROCEEDS.

**MAINTENANCE OF TRAFFIC**

- 72. THE CONTRACTOR IS RESPONSIBLE FOR ANY TRAFFIC CONTROL PLAN IMPLEMENTED. THE TRAFFIC CONTROL PLAN SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D. LATEST EDITION) AND THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION (600 SERIES). ANY DEVIATIONS RECOMMENDED BY THE CONTRACTOR MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE FDOT AND THE COUNTY FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FDOT AND COUNTY APPROVAL (PRIOR TO IMPLEMENTATION) AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.
- 73. THE CONTRACTOR PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHT-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- 74. THE CONTRACTOR SHALL USE, BUT ARE NOT LIMITED TO, FDOT INDICES 415, 600, 615, 616, AND 621. THE RECOMMENDED FDOT DESIGN STANDARD INDICES ARE CONCEPTUAL. THE CONTRACTOR SHALL AT ALL TIMES ADHERE TO THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D. LATEST EDITION AND THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION (600 SERIES).
- 75. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TEMPORARY DRAINAGE. THERE WILL BE NO DIRECT PAY FOR THIS WORK. COSTS SHALL BE INCLUDED IN THE COST OF PIPE.
- 76. MOTORIZED AND MECHANICAL EQUIPMENT SHALL BE EFFECTIVELY SHIELDED, PADDED, OR LOCATED TO MINIMIZE NOISE.
- 77. THE CONTRACTOR WILL NOTIFY ALL EMERGENCY AND RESCUE AGENCIES LOCATED IN THE PROJECT VICINITY 24 HOURS IN ADVANCE OF ANY PROPOSED LANE CLOSURES OR DETOURS.
- 78. ACCESS TO ALL SIDE STREETS AND DRIVEWAYS MUST BE PROVIDED AND MAINTAINED DURING CONSTRUCTION.
- 79. USE FDOT INDEX NO. 619 FOR TRAFFIC CONTROL MEASURES WHEN CONSTRUCTION EQUIPMENT IS DRIVEN ON OPEN TRAVEL LANES. THE REGULATORY SPEED IN WORK ZONES SHOULD BE AS CLOSE TO NORMAL CONDITIONS AS POSSIBLE, UNLESS NOTED ON THE TRAFFIC CONTROL PLANS.
- 80. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO WORKING NEAR THEIR EXISTING FACILITIES.
- 81. CONSTRUCTION SEQUENCES SHALL BE COORDINATED TO PROVIDE POSITIVE DRAINAGE OF THE TRAVELWAYS AT ALL TIMES.
- 82. ANY MOT ITEM NOT SPECIFICALLY LISTED UNDER A PARTICULAR PAY ITEM SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS. THERE SHALL BE NO SEPARATE PAYMENT.
- 83. THE MAXIMUM SPACING BETWEEN WARNING DEVICES USED FOR DELINEATION BETWEEN THE TRAVELWAY(S) AND CONSTRUCTION AREA SHALL BE AS PER FDOT STANDARD INDEX 600.
- 84. ALL DETOURS, IF REQUIRED, SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D. LATEST EDITION) AND THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION (600 SERIES). ANY DETOUR RECOMMENDED BY THE CONTRACTOR MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE FDOT AND THE COUNTY FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COUNTY APPROVAL (PRIOR TO IMPLEMENTATION) AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.



MANATEE COUNTY  
PUBLIC WORKS DEPARTMENT  
ENGINEERING SERVICES

1022 26th Avenue East  
Bradenton, FL 34208

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**

**GENERAL NOTES & LEGEND**

| NO. | DATE | BY | REVISION DESCRIPTION |
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| PROJECT #             | 415-6081280 |
| SURVEY #              | 0019606     |
| SEC./TWN./RGE         | VARIES      |
| SCALE                 |             |
| DATE                  | 09/02/11    |
| SIGNED                | S. ZINS     |
| DESIGNED              |             |
| DRAWN                 |             |
| CHECKED               | J.S.S.      |
| NO.                   | 60923       |
| STATE OF              | FLORIDA     |
| PROFESSIONAL ENGINEER |             |

FLORIDA P.E. # 60923

PROFESSIONAL ENGINEER

SHEET 2

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THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**

**26TH ST. W. FROM HERON WAY TO**

**53RD AVE. W.**

**GENERAL NOTES & LEGEND**

**CONTACTS**

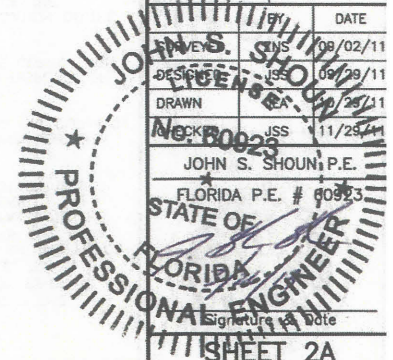
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|---|---|--|---|
| <p>MANATEE COUNTY<br/>PUBLIC WORKS DEPT.<br/>INFRASTRUCTURE ENGINEERING<br/>WAYNE TROXLER, P.E.<br/>1022 26TH AVENUE EAST<br/>BRADENTON, FL 34208<br/>(941) 708-7450 EXT. 7650<br/>FAX: (941) 708-7431</p> <p>TECO/PEOPLES GAS CO.<br/>DAN SHANAHAN<br/>8261 VICO COURT<br/>SARASOTA, FL 34240<br/>(941) 342-4030<br/>FAX: (941) 342-4011<br/>EMERGENCY: 1-877-832-6911<br/>dshanahan@tecoenergy.com</p> <p>SUNSHINE STATE ONE CALL OF<br/>FLORIDA<br/>1-(800) 432-4770</p> | <p>VERIZON FLORIDA INC.<br/>WAYNE SUMNER<br/>1701 RINGLING BLVD.<br/>SARASOTA, FL 34236<br/>(941) 330-9203<br/>WAYNE.SUMNER@verizon.com</p> <p>FLORIDA POWER &amp; LIGHT<br/>GREG COKER<br/>1253 12TH AVENUE EAST<br/>PALMETTO, FL 34221<br/>(941) 723-4430<br/>FAX: (941) 723-4444<br/>EMERGENCY: 1-800-4-OUTAGE<br/>Greg_Coker@fpl.com</p> <p>MANATEE COUNTY HEALTH DEPT.<br/>HARRY MESSICK<br/>410 6th AVENUE EAST<br/>BRADENTON, FL 34208(941)<br/>748-0747 EXT. 1355<br/>FAX: (941) 750-9364</p> | <p>SOUTHWEST FLORIDA WATER<br/>MANAGEMENT DISTRICT<br/>SARASOTA SERVICE OFFICE<br/>DARYL R. FLAIT, P.E.<br/>6750 FRUITVILLE ROAD<br/>SARASOTA, FL 34240<br/>(941) 377-3722<br/>FAX: (941) 373-7660</p> <p>FLORIDA GAS TRANSMISSION<br/>SAFETY HARBOR TEAM<br/>7804 ANDERSON RD.<br/>TAMPA, FL 33634<br/>CHRIS LEE<br/>(813) 466-3327<br/>CELL : (727) 639-7512<br/>christopher.lee@sug.com</p> <p>BRIGHT HOUSE NETWORKS<br/>TOM WRIGHT<br/>5413 E. STATE ROAD 64<br/>BRADENTON, FL 34208-5535<br/>(941) 748-3816 EXT. 21348<br/>TOM.WRIGHT@MYBRIGHTHOUSE.COM</p> | <p>DEPARTMENT OF<br/>ENVIRONMENTAL PROTECTION<br/>STEPHANIE BARIOS<br/>13051 N. TELECOM PKWY<br/>TEMPLE TERRACE, FL 33637<br/>PHONE: (813) 632-7600, EXT.<br/>408<br/>FAX: (813) 632-7662</p> <p>PEACE RIVER ELECTRIC<br/>COOPERATIVE, INC.<br/>P.O. BOX 1310<br/>WACHULA, FL 33873<br/>KENDELL COKER<br/>(863) 767-4660<br/>kendell.coker@preco.coop</p> <p>MANATEE COUNTY<br/>PUBLIC WORK DEPT.<br/>TRAFFIC ENGINEERING<br/>BOB AGRUSA, P.E.<br/>(941) 749-3500 EXT. 7812<br/>FAX: (941) 749-3571</p> |
|---|---|--|---|

**LEGEND**

- |   |   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
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| <p><b>EXISTING</b></p> <ul style="list-style-type: none"> <li>⊕ BENCH MARK</li> <li>• CONCRETE MONUMENT</li> <li>• IRON PIPE</li> <li>• IRON ROD</li> <li>• HUB</li> <li>• NAIL &amp; DISK</li> <li>• ELEVATION</li> <li>Ⓜ PARCEL ID NO.</li> <li>Ⓛ PARCEL ID NO.</li> <li>⑦ LOT NO.</li> <li>← GUY WIRE</li> <li>⊙ POWER POLE</li> <li>⊙ LIGHT POLE</li> <li>Ⓜ MAIL BOX</li> <li>Ⓜ SIGN</li> <li>• REFLECTOR</li> <li>• SPRINKLER</li> <li>• GAS MARKER</li> <li>• BACKFLOW PREVENTER</li> <li>• BLOW OFF VALVE</li> <li>• FIRE HYDRANT</li> <li>• WATER VALVE</li> <li>• AIR RELEASE VALVE</li> <li>• WATER METER</li> <li>• SANITARY SEWER MANHOLE</li> <li>• SANITARY SEWER CLEAN OUT</li> <li>• SOIL BORING LOCATION</li> <li>• TELEPHONE SERVICE BOX</li> <li>• FLOW DIRECTION</li> <li>• GRATE INLET</li> <li>• MITERED END SECTION</li> </ul> | <ul style="list-style-type: none"> <li>• BUSH</li> <li>• TREE</li> <li>• OAK TREE</li> <li>• PALM TREE</li> <li>• PINE TREE</li> <li>• EDGE OF VEGETATION</li> <li>• CHAIN LINK FENCE</li> <li>• WOOD FENCE</li> <li>• X BARBED WIRE FENCE</li> <li>• FORCE MAIN</li> <li>• POTABLE WATER</li> <li>• RECLAIMED WATER</li> <li>• SANITARY SEWER</li> <li>• STORM DRAIN</li> <li>• GAS LINE</li> <li>• OVERHEAD_CABLE_TV</li> <li>• BURIED_CABLE_TV</li> <li>• OVERHEAD ELECTRIC</li> <li>• BURIED ELECTRIC</li> <li>• OVERHEAD VERIZON</li> <li>• BURIED VERIZON</li> <li>• VERIZON</li> <li>• BURIED UTILITY</li> <li>• OVERHEAD UTILITY</li> <li>• RAIL ROAD TRACKS</li> <li>• EDGE OF CONCRETE</li> <li>• EDGE OF ROAD</li> <li>• TOE OF SLOPE</li> <li>• TOP OF BANK</li> <li>• PROPERTY LINE</li> <li>• RIGHT OF WAY</li> </ul> | <p><b>ABBREVIATIONS</b></p> <table border="0"> <tr><td>R/W</td><td>RIGHT OF WAY</td></tr> <tr><td>CONC</td><td>CONCRETE</td></tr> <tr><td>ASPH</td><td>ASPHALT</td></tr> <tr><td>DRWY</td><td>DRIVEWAY</td></tr> <tr><td>SNK</td><td>SIDEWALK</td></tr> <tr><td>EP</td><td>EDGE OF PAVEMENT</td></tr> <tr><td>BOC</td><td>BACK OF CURB</td></tr> </table> | R/W | RIGHT OF WAY | CONC | CONCRETE     | ASPH | ASPHALT           | DRWY | DRIVEWAY     | SNK | SIDEWALK | EP | EDGE OF PAVEMENT       | BOC | BACK OF CURB      |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| R/W   | RIGHT OF WAY  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| CONC  | CONCRETE  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| ASPH  | ASPHALT   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| DRWY  | DRIVEWAY  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| SNK   | SIDEWALK  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| EP  | EDGE OF PAVEMENT  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| BOC   | BACK OF CURB  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| <p><b>PROPOSED</b></p> <table border="0"> <tr><td>—</td><td>MAIN</td></tr> <tr><td>—</td><td>SERVICE LINE</td></tr> <tr><td>—</td><td>SANITARY EASEMENT</td></tr> <tr><td>•</td><td>FIRE HYDRANT</td></tr> <tr><td>•</td><td>VALVE</td></tr> <tr><td>•</td><td>SANITARY SEWER MANHOLE</td></tr> <tr><td>•</td><td>BLOW OFF ASSEMBLY</td></tr> <tr><td>•</td><td>REDUCER</td></tr> <tr><td>•</td><td>TEE</td></tr> <tr><td>•</td><td>HORIZONTAL BEND</td></tr> <tr><td>•</td><td>VERTICAL BEND</td></tr> <tr><td>•</td><td>PLUG</td></tr> <tr><td>•</td><td>MASTER METER ASSEMBLY</td></tr> <tr><td>•</td><td>SERVICE LINE &amp; METER</td></tr> <tr><td>•</td><td>DOUBLE SERVICE</td></tr> </table>   |   |   | —   | MAIN         | —    | SERVICE LINE | —    | SANITARY EASEMENT | •    | FIRE HYDRANT | •   | VALVE    | •  | SANITARY SEWER MANHOLE | •   | BLOW OFF ASSEMBLY | • | REDUCER | • | TEE | • | HORIZONTAL BEND | • | VERTICAL BEND | • | PLUG | • | MASTER METER ASSEMBLY | • | SERVICE LINE & METER | • | DOUBLE SERVICE |
| —   | MAIN  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| —   | SERVICE LINE  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| —   | SANITARY EASEMENT   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | FIRE HYDRANT  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | VALVE   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | SANITARY SEWER MANHOLE  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | BLOW OFF ASSEMBLY   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | REDUCER   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | TEE   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | HORIZONTAL BEND   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | VERTICAL BEND   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | PLUG  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | MASTER METER ASSEMBLY   |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | SERVICE LINE & METER  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |
| •   | DOUBLE SERVICE  |   |     |              |      |              |      |                   |      |              |     |          |    |                        |     |                   |   |         |   |     |   |                 |   |               |   |      |   |                       |   |                      |   |                |

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| PROJECT #             | 415-6081280         |
| SURVEY #              | 0019606             |
| SEC./TWN./RGE         | VARIES              |
| SCALE                 |                     |
| DATE                  | 08/02/11            |
| DESIGNED BY           | JSS 08/29/11        |
| DRAWN BY              | BA 08/29/11         |
| CHECKED BY            | JSS 11/25/11        |
| APPROVED BY           | JOHN S. SHOUN, P.E. |
| FLORIDA P.E. #        | 80893               |
| STATE OF FLORIDA      |                     |
| PROFESSIONAL ENGINEER |                     |
| SIGNATURE             |                     |
| DATE                  |                     |



I:\PWB\_Engineering\Shoun\US Eng Design\PROJ\34A Replacement\DWG\Cover Pl Replacement 15 34A.dwg, 2A DNL Utlr, 3/28/2013 10:40 AM Shou Shoun, 1:1, Ledger



THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

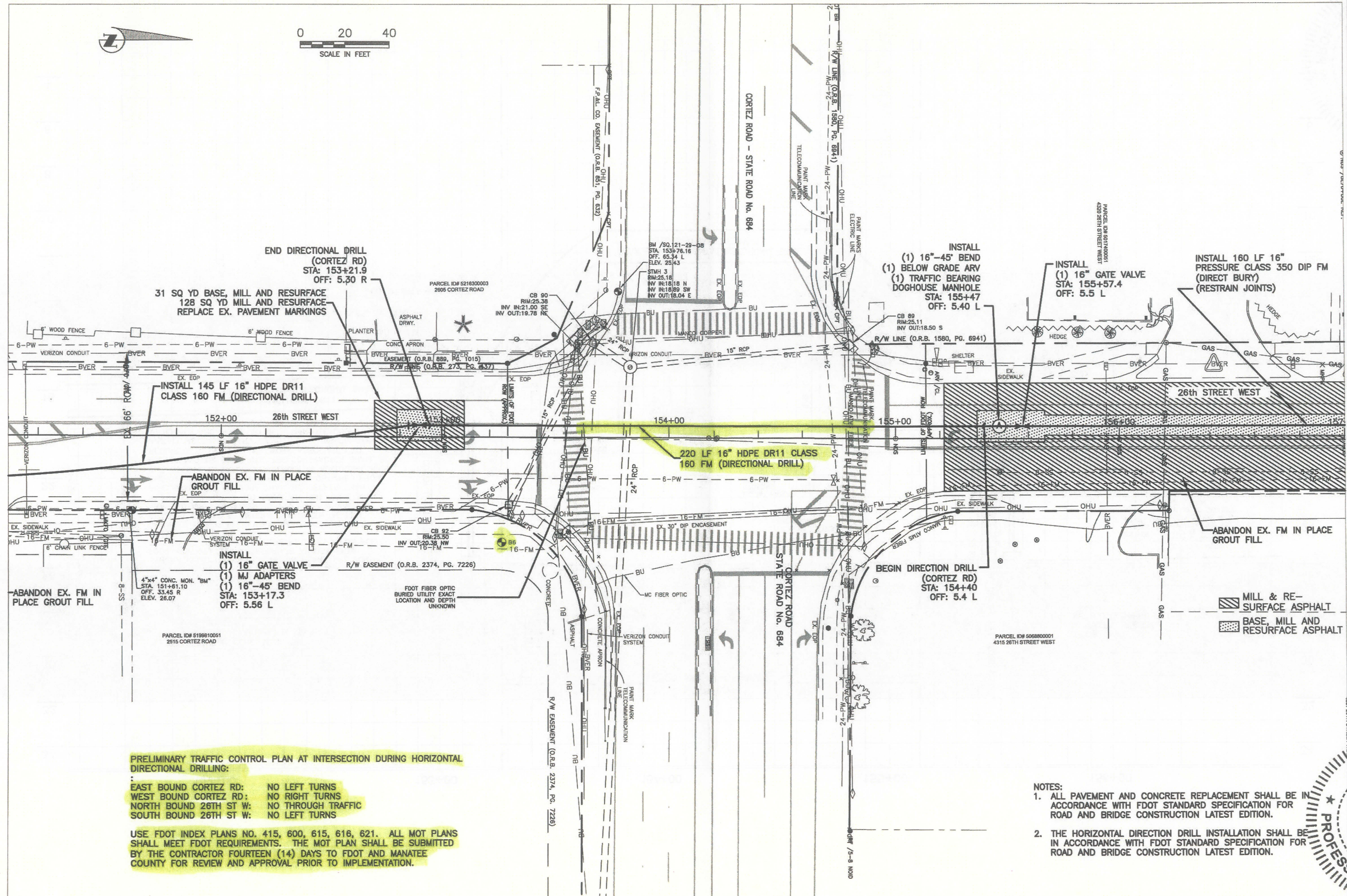
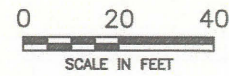
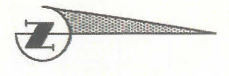
**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**

**PLAN & PROFILE STA. 151+50 TO 157+00**

| NO. | REVISION DESCRIPTION | BY | DATE |
|-----|----------------------|----|------|
|     |                      |    |      |
|     |                      |    |      |
|     |                      |    |      |
|     |                      |    |      |

|               |              |
|---------------|--------------|
| PROJECT #     | 415-6081280  |
| SURVEY #      | 0019606      |
| SEC./TWN./RGE | VARIES       |
| SCALE         | 1"=40'       |
| DATE          | 09/29/11     |
| DESIGNED      | JEA 10/20/11 |
| DRAWN         | JEA 11/29/11 |
| CHECKED       | 11/29/11     |

JOHN S. SHOUN P.E.  
STATE P.E. # 60923  
PROFESSIONAL ENGINEER  
SHEET 3



**PRELIMINARY TRAFFIC CONTROL PLAN AT INTERSECTION DURING HORIZONTAL DIRECTIONAL DRILLING:**

- EAST BOUND CORTEZ RD: NO LEFT TURNS
- WEST BOUND CORTEZ RD: NO RIGHT TURNS
- NORTH BOUND 26TH ST W: NO THROUGH TRAFFIC
- SOUTH BOUND 26TH ST W: NO LEFT TURNS

USE FDOT INDEX PLANS NO. 415, 600, 615, 616, 621. ALL MOT PLANS SHALL MEET FDOT REQUIREMENTS. THE MOT PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOURTEEN (14) DAYS TO FDOT AND MANATEE COUNTY FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.

- NOTES:**
- ALL PAVEMENT AND CONCRETE REPLACEMENT SHALL BE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION.
  - THE HORIZONTAL DIRECTION DRILL INSTALLATION SHALL BE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION.





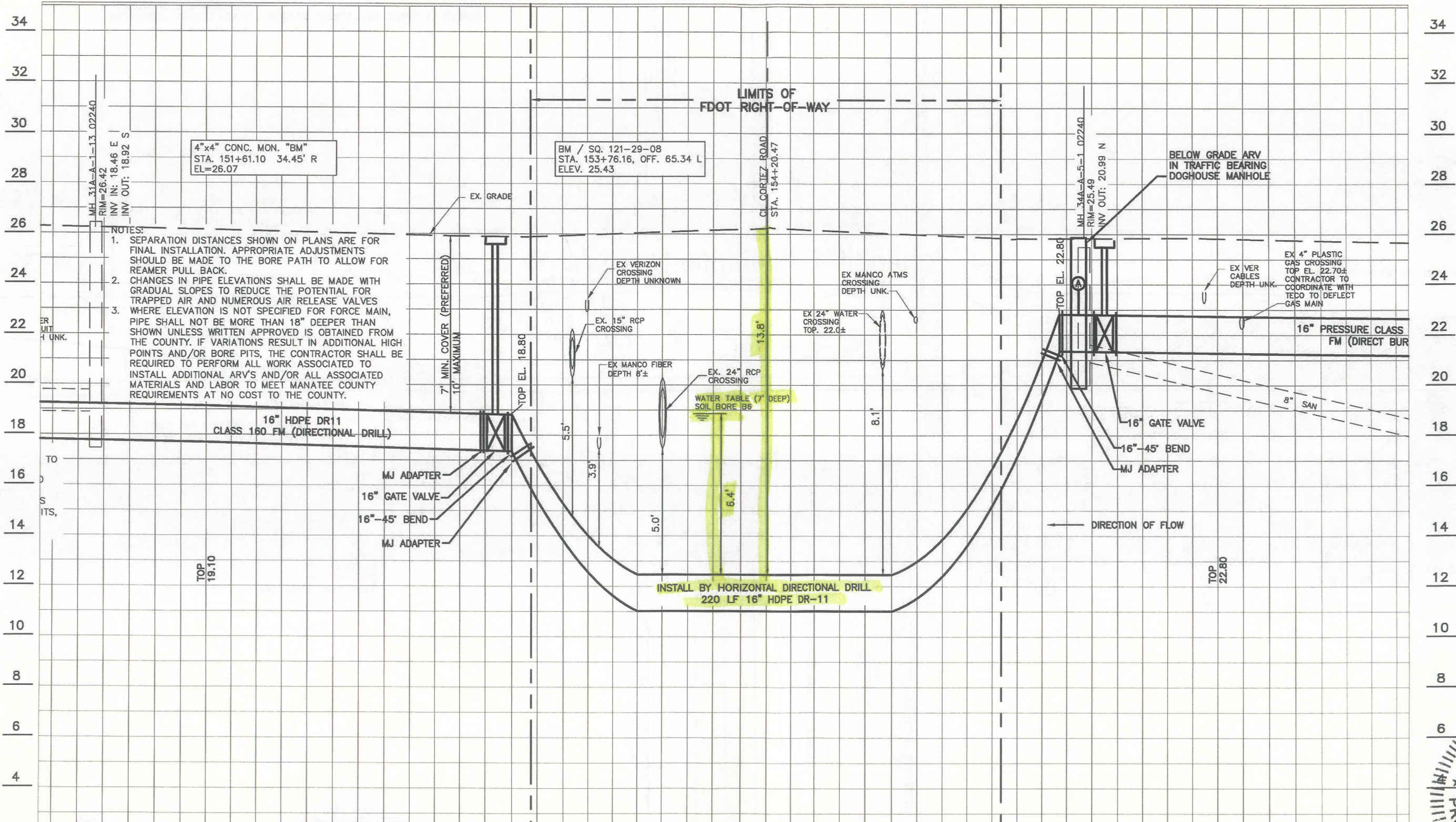
152+00

153+00

154+00

155+00

156+00



**NOTES:**

- SEPARATION DISTANCES SHOWN ON PLANS ARE FOR FINAL INSTALLATION. APPROPRIATE ADJUSTMENTS SHOULD BE MADE TO THE BORE PATH TO ALLOW FOR REAMER PULL BACK.
- CHANGES IN PIPE ELEVATIONS SHALL BE MADE WITH GRADUAL SLOPES TO REDUCE THE POTENTIAL FOR TRAPPED AIR AND NUMEROUS AIR RELEASE VALVES WHERE ELEVATION IS NOT SPECIFIED FOR FORCE MAIN, PIPE SHALL NOT BE MORE THAN 18" DEEPER THAN SHOWN UNLESS WRITTEN APPROVED IS OBTAINED FROM THE COUNTY. IF VARIATIONS RESULT IN ADDITIONAL HIGH POINTS AND/OR BORE PITS, THE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL WORK ASSOCIATED TO INSTALL ADDITIONAL ARV'S AND/OR ALL ASSOCIATED MATERIALS AND LABOR TO MEET MANATEE COUNTY REQUIREMENTS AT NO COST TO THE COUNTY.

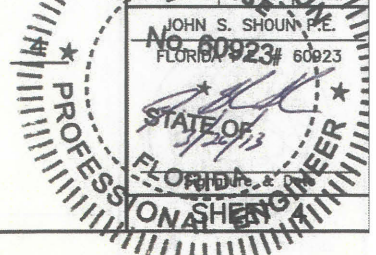
THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**PLAN & PROFILE STA. 151+50 TO 157+00**

| NO. | REVISION DESCRIPTION | BY | DATE |
|-----|----------------------|----|------|
|     |                      |    |      |
|     |                      |    |      |
|     |                      |    |      |

|               |             |
|---------------|-------------|
| PROJECT #     | 415-6081280 |
| SURVEY #      | 0019606     |
| SEC./TWN./RGE | VARIES      |
| SCALE         | 1"=40'      |

| DATE     | BY  | DESCRIPTION |
|----------|-----|-------------|
| 09/02/11 | ZNS | SURVEYED    |
| 09/29/11 | SS  | DESIGNED    |
| 10/29/11 | SS  | CHECKED     |





**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE**

| MAIN PIPE SIZE | HORIZ. BENDS |     |       | TEES        |     |     |     |     | REDUCERS    |    |    |    |     | PLUGS & VALVES |
|----------------|--------------|-----|-------|-------------|-----|-----|-----|-----|-------------|----|----|----|-----|----------------|
|                | 90°          | 45° | 22.5° | SIZE LENGTH |     |     |     |     | SIZE LENGTH |    |    |    |     |                |
| 24             | 90           | 38  | 18    | X24         | X20 | X16 | X12 | X10 | X8          | X6 | X4 | X2 | X1  | 214            |
| 20             | 78           | 32  | 16    | X20         | X16 | X12 | X10 | X8  | X6          | X4 | X2 | X1 | 184 |                |
| 16             | 66           | 27  | 13    | X16         | X12 | X10 | X8  | X6  | X4          | X2 | X1 |    | 151 |                |
| 12             | 52           | 22  | 10    | X12         | X10 | X8  | X6  | X4  | X2          | X1 |    |    | 118 |                |
| 10             | 44           | 18  | 9     | X10         | X8  | X6  | X4  | X2  | X1          |    |    |    | 100 |                |
| 8              | 37           | 15  | 7     | X8          | X6  | X4  | X2  | X1  |             |    |    |    | 83  |                |
| 6              | 29           | 12  | 6     | X6          | X4  | X2  | X1  |     |             |    |    |    | 63  |                |
| 4              | 21           | 8   | 4     | X4          | X2  | X1  |     |     |             |    |    |    | 45  |                |

**NOTES:**

- RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.
- ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
- ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
- PIPE SIZES ARE GIVEN IN INCHES.
- RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
- LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
- THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFETY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.
- RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL RESTRAINED LENGTHS FOR PIPE.

**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)**

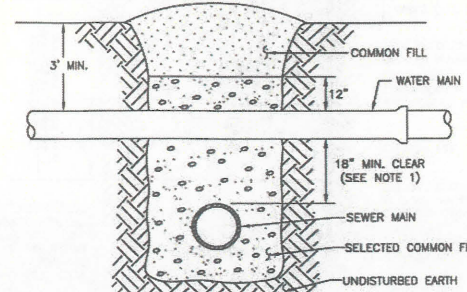
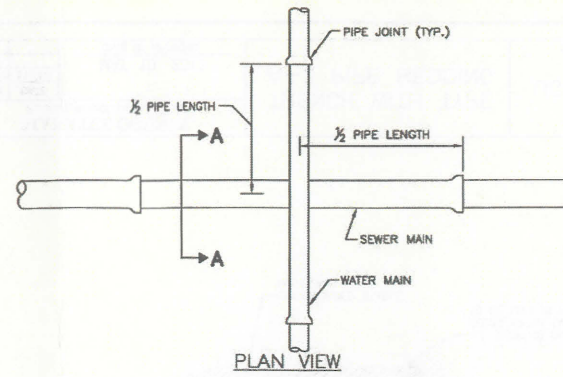
| MAIN PIPE SIZE | HORIZ. BENDS |     |       | TEES        |     |     |     |     | REDUCERS    |     |     |     |     | PLUGS & VALVES |
|----------------|--------------|-----|-------|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|----------------|
|                | 90°          | 45° | 22.5° | SIZE LENGTH |     |     |     |     | SIZE LENGTH |     |     |     |     |                |
| 36             | 142          | 59  | 28    | X36         | X30 | X24 | X20 | X18 | X16         | X14 | X12 | X10 | X8  | 453            |
| 30             | 124          | 51  | 25    | X30         | X24 | X20 | X18 | X16 | X14         | X12 | X10 | X8  | 391 |                |
| 24             | 108          | 44  | 21    | X24         | X20 | X18 | X16 | X14 | X12         | X10 | X8  | X6  | 327 |                |
| 20             | 92           | 38  | 18    | X20         | X18 | X16 | X14 | X12 | X10         | X8  | X6  | X4  | 280 |                |
| 16             | 77           | 32  | 15    | X16         | X14 | X12 | X10 | X8  | X6          | X4  | X2  | X1  | 231 |                |
| 12             | 61           | 25  | 12    | X12         | X10 | X8  | X6  | X4  | X2          | X1  |     |     | 181 |                |
| 10             | 52           | 22  | 10    | X10         | X8  | X6  | X4  | X2  | X1          |     |     |     | 153 |                |
| 8              | 44           | 18  | 9     | X8          | X6  | X4  | X2  | X1  |             |     |     |     | 128 |                |
| 6              | 34           | 14  | 7     | X6          | X4  | X2  | X1  |     |             |     |     |     | 98  |                |
| 4              | 24           | 10  | 5     | X4          | X2  | X1  |     |     |             |     |     |     | 69  |                |

**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)**

| MAIN PIPE SIZE | HORIZ. BENDS |     |       | TEES        |     |     |     |     | REDUCERS    |     |     |     |     | PLUGS & VALVES |
|----------------|--------------|-----|-------|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|----------------|
|                | 90°          | 45° | 22.5° | SIZE LENGTH |     |     |     |     | SIZE LENGTH |     |     |     |     |                |
| 36             | 100          | 42  | 20    | X36         | X30 | X24 | X20 | X18 | X16         | X14 | X12 | X10 | X8  | 188            |
| 30             | 88           | 37  | 18    | X30         | X24 | X20 | X18 | X16 | X14         | X12 | X10 | X8  | 162 |                |
| 24             | 75           | 31  | 15    | X24         | X20 | X18 | X16 | X14 | X12         | X10 | X8  | X6  | 135 |                |
| 20             | 65           | 27  | 13    | X20         | X18 | X16 | X14 | X12 | X10         | X8  | X6  | X4  | 116 |                |
| 16             | 54           | 22  | 11    | X16         | X14 | X12 | X10 | X8  | X6          | X4  | X2  | X1  | 96  |                |
| 12             | 43           | 18  | 8     | X12         | X10 | X8  | X6  | X4  | X2          | X1  |     |     | 75  |                |
| 10             | 37           | 15  | 7     | X10         | X8  | X6  | X4  | X2  | X1          |     |     |     | 63  |                |
| 8              | 30           | 13  | 6     | X8          | X6  | X4  | X2  | X1  |             |     |     |     | 53  |                |
| 6              | 24           | 10  | 5     | X6          | X4  | X2  | X1  |     |             |     |     |     | 41  |                |
| 4              | 17           | 7   | 3     | X4          | X2  | X1  |     |     |             |     |     |     | 29  |                |

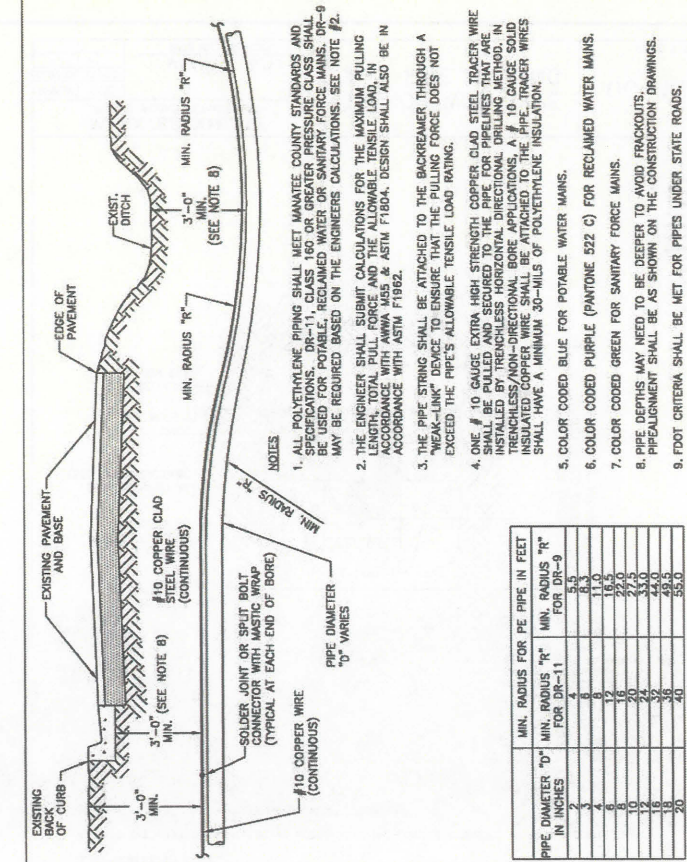
**NOTE:**

SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 8 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.



**NOTES:**

- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10" EACH SIDE OF CROSSING.
- WHERE NO ENCASEMENT IS REQUIRED, PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY SO THAT THE CROSSING IS AT EACH PIPE SECTION'S MIDPOINT REGARDLESS OF THE VERTICAL CLEARANCE.
- REFER TO THE JACK & BORE CROSSING DETAIL FOR CASING AND SPACER REQUIREMENTS.



| PIPE DIAMETER IN INCHES | MIN. RADIUS FOR DR-11 | MIN. RADIUS FOR DR-9 |
|-------------------------|-----------------------|----------------------|
| 4                       | 8                     | 8                    |
| 6                       | 12                    | 12                   |
| 8                       | 18                    | 18                   |
| 10                      | 24                    | 24                   |
| 12                      | 30                    | 30                   |
| 14                      | 36                    | 36                   |
| 16                      | 42                    | 42                   |
| 18                      | 48                    | 48                   |
| 20                      | 54                    | 54                   |

**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

RESTRAINED LENGTHS FOR PVC PIPE UG-8

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

RESTRAINED LENGTHS FOR DIP UG-9

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

TYPICAL NEW WATER & SEWER LINE CROSSING UG-2

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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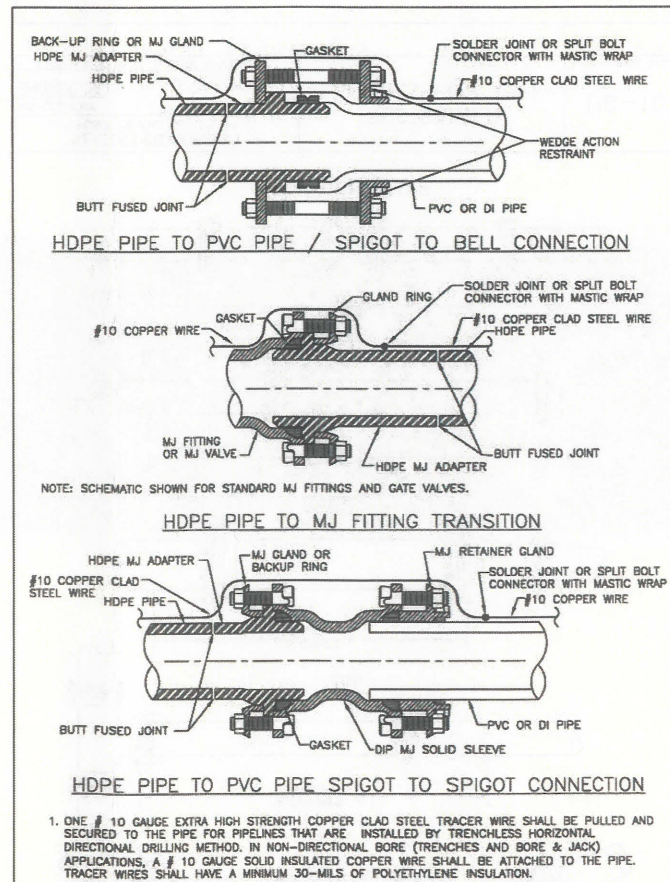
**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

DIRECTIONAL BORE ROADWAY CROSSING UG-4

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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- ONE # 10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE PULLED AND SECURED TO THE PIPE FOR PIPELINES THAT ARE INSTALLED BY TRENCHLESS HORIZONTAL DIRECTIONAL DRILLING METHOD. IN NON-DIRECTIONAL BORE (TRENCHES AND BORE & JACK) APPLICATIONS, A # 10 GAUGE SOLID INSULATED COPPER WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.

**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

HDPE TO PVC OR DI PIPE ADAPTER UG-6

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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| PIPE SIZE (IN.) | 90° BEND |        | 45° BEND |        | 22.5° BEND |        | 11.25° BEND |        | DEAD END & TEE |        | 45° WYE |        |
|-----------------|----------|--------|----------|--------|------------|--------|-------------|--------|----------------|--------|---------|--------|
|                 | B        | d      | B        | d      | B          | d      | B           | d      | B              | d      | B       | d      |
| 4               | 1.5      | 3 1/2  | 1.1      | 3 1/2  | 0.8        | 3 1/2  | 0.6         | 3 1/2  | 1.3            | 3 1/2  | 1.1     | 3 1/2  |
| 6               | 2.2      | 5 1/2  | 1.6      | 5 1/2  | 1.2        | 5 1/2  | 0.8         | 5 1/2  | 1.9            | 5 1/2  | 1.6     | 5 1/2  |
| 8               | 2.9      | 7      | 2.1      | 7      | 1.5        | 7      | 1.1         | 7      | 2.4            | 7      | 2.0     | 7      |
| 10              | 3.5      | 8 1/2  | 2.6      | 8 1/2  | 1.9        | 8 1/2  | 1.3         | 8 1/2  | 3.0            | 8 1/2  | 2.5     | 8 1/2  |
| 12              | 4.2      | 10     | 3.1      | 10     | 2.2        | 10     | 1.6         | 10     | 3.5            | 10     | 3.0     | 10     |
| 14              | 4.9      | 11 1/2 | 3.6      | 11 1/2 | 2.6        | 11 1/2 | 1.8         | 11 1/2 | 4.1            | 11 1/2 | 3.4     | 11 1/2 |
| 16              | 5.5      | 13 1/2 | 4.1      | 13 1/2 | 2.9        | 13 1/2 | 2.1         | 13 1/2 | 4.7            | 13 1/2 | 3.9     | 13 1/2 |
| 18              | 6.2      | 15     | 4.6      | 15     | 3.3        | 15     | 2.3         | 15     | 5.2            | 15     | 4.4     | 15     |
| 20              | 6.9      | 16 1/2 | 5.0      | 16 1/2 | 3.6        | 16 1/2 | 2.6         | 16 1/2 | 5.8            | 16 1/2 | 4.9     | 16 1/2 |
| 24              | 8.2      | 19 1/2 | 6.0      | 19 1/2 | 4.3        | 19 1/2 | 3.1         | 19 1/2 | 6.8            | 19 1/2 | 5.8     | 19 1/2 |
| 30              | 10.1     | 24 1/2 | 7.5      | 24 1/2 | 5.3        | 24 1/2 | 3.8         | 24 1/2 | 8.5            | 24 1/2 | 7.2     | 24 1/2 |
| 36              | 12.1     | 29     | 8.9      | 29     | 6.4        | 29     | 4.5         | 29     | 10.2           | 29     | 8.6     | 29     |

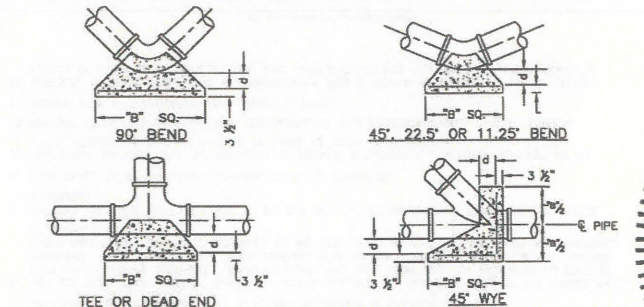
**REINFORCEMENT MAT SCHEDULE**

FOR DIM. "B" BETWEEN 6.75' & 12.5' USE #4 @ 8" EACH WAY

FOR DIM. "B" LESS THAN 5.75' USE #3 @ 8" EACH WAY

**NOTES:**

- ALL THRUST BLOCKS SHALL BE CAST IN PLACE. FITTINGS ADJACENT TO THRUST BLOCKS SHALL BE WRAPPED IN POLYETHYLENE.
- THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF. CONCRETE STRENGTH & REINFORCEMENT <math>f\_c</math> =60.0 KSI. THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
- FOR LARGER "B" DIMENSIONS IT IS NECESSARY TO CHECK THAT PIPE IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.
- RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS TO SAVE SPACE. THRUST BLOCKS SHALL BE USED IN SITUATIONS WHERE THRUST BLOCKS AND RESTRAINED JOINTS ARE BOTH REQUIRED.



**MANATEE COUNTY PUBLIC WORKS DEPARTMENT**

CONCRETE THRUST BLOCKS UG-7

REV. BY: DATE: MAY 10, 2011

CLB/BR: DATE OF APPROVAL

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THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**

**26TH ST. W. FROM HERON WAY TO 53RD AVE. W.**

**DETAILS**

NO. \_\_\_\_\_

PROJECT # 415-6081280

SURVEY # 0019606

SEC./TWN./RGE VARIES

SCALE \_\_\_\_\_

DATE 06/02/11

DESIGNED BY JSS 06/28/11

DRAWN BY JSS 06/28/11

CHECKED BY JSS 11/25/11

JOHN S. SHOUN P.E.

FLORIDA P.E. # 60923

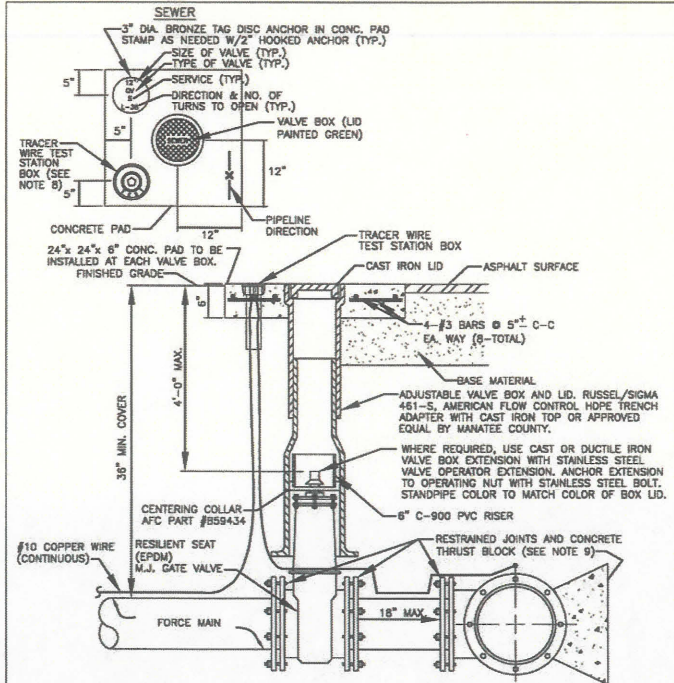
STATE OF FLORIDA

PROFESSIONAL ENGINEER

SHEET 5

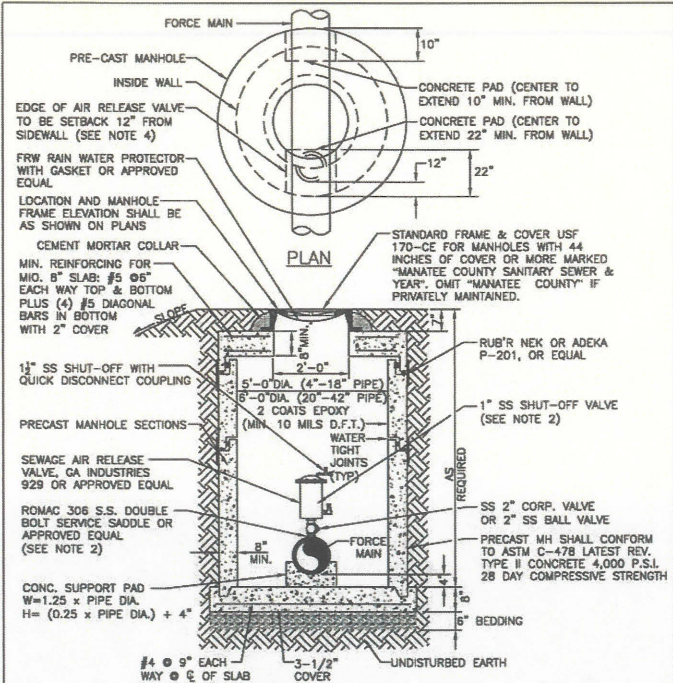
S:\PWD\_Engineering\_Shoum\Util\_Eng\_Design\PROJ\_34A\_SWR\_Proj\34A\_Replacement\DWGS\Cover\_FM\_Replacement\_LS\_34A.dwg, 3/26/2013 10:40 AM Shea Shoun, LT, Leader





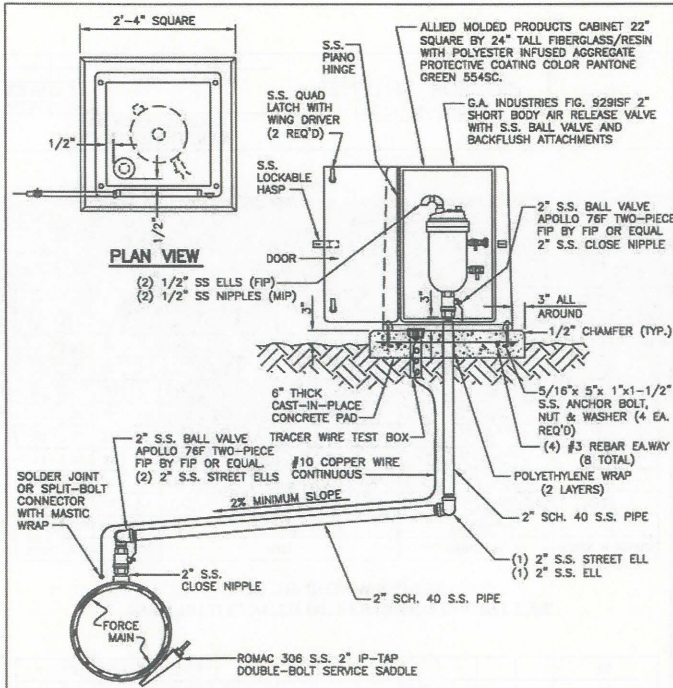
- NOTES:**
1. "S" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "S" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
  2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
  3. SEWER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
  4. PRECAST CONCRETE PADS & THRUST BLOCKS SHALL NOT BE USED.
  5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
  6. PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY POURED CONCRETE PAD.
  7. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM THE FULL LENGTH SPECIFIED FOR "TEES."
  8. TEST BOX TO BE BINGHAM & TAYLOR PROOFING FOR NORMAL YARD SERVICE, WHERE VALVE WILL BE IN STREET OR UNDER VEHICLE TRAFFIC, USE P5520 CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

|   |               |                                  |                  |
|---|---------------|----------------------------------|------------------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | GATE VALVE, BOX,<br>LID AND TAG  | UW-2<br>MODIFIED |
| REV. BY<br>CLB/KE                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL | PAGE 120         |



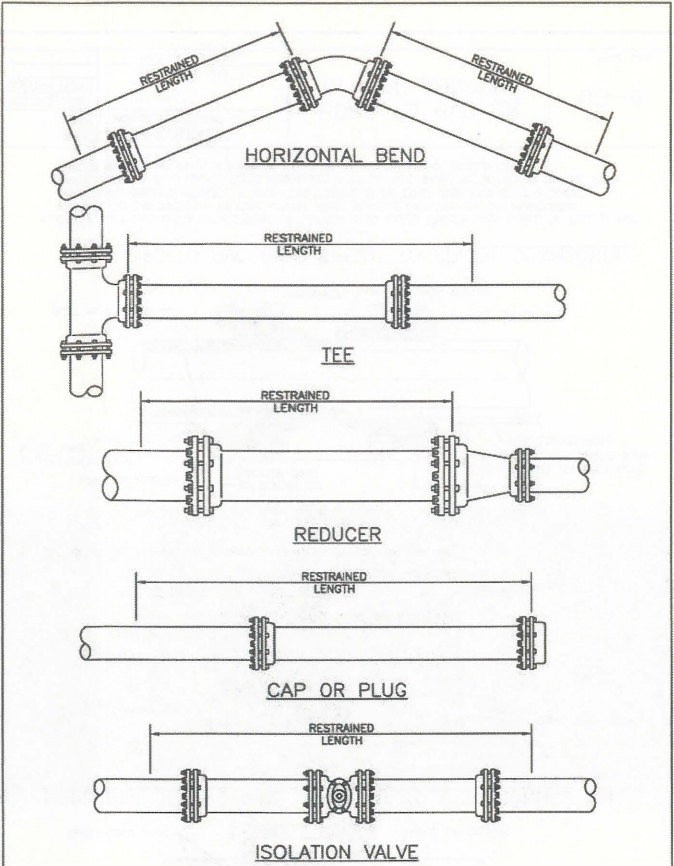
- NOTES:**
1. AIR RELEASE VALVES WHERE REQUIRED ON 4" AND LARGER FORCE MAINS.
  2. ARV TO BE SIZED ACCORDING TO MANUFACTURER'S RECOMMENDATION FOR FORCE MAIN SIZE.
  3. SERVICE SADDLE, NIPPLES AND CORPORATION BALL VALVE SHALL BE STAINLESS STEEL.
  4. FOR MANHOLES WITH LESS THAN 44 INCHES OF COVER FROM TOP-OF-PIPE TO TOP-OF-FRAME, FRAME & COVER TO BE 32-INCH PAMREX WITH 32 INCH OPENING. OFFSET ARV 7.5 INCHES FROM CENTER OF OPENING, MINIMUM ALLOWABLE COVER IS 36 INCHES.
  5. ALL PIPE PENETRATING MANHOLE SHALL HAVE RESILIENT PIPE TO MANHOLE SEALS PER ASTM-923.
  6. FINAL GRADE TO BE SLOPED AWAY FROM MANHOLE.

|   |               |   |          |
|---|---------------|---|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | BELOW-GRADE AIR<br>RELEASE VALVE FOR<br>FORCE MAINS | US-10    |
| REV. BY<br>CLB/KE                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL                    | PAGE 150 |

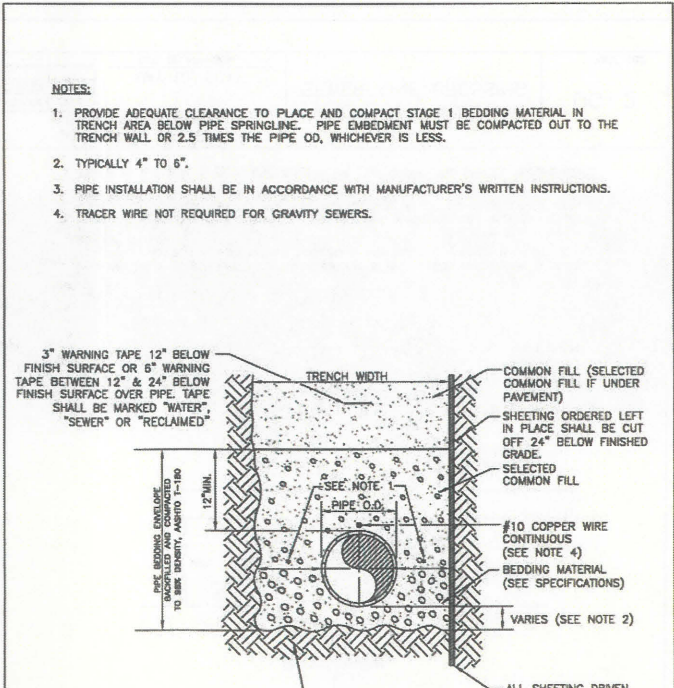


- NOTES:**
1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS, OR WHERE AIR WOULD BE ENTRAPPED, ALONG 4" AND LARGER FORCE MAINS.
  2. FORCE MAIN VERTICAL ALIGNMENT TO BE DESIGNED SUCH THAT THE MINIMUM NUMBER OF REQUIRED AIR RELEASE VALVES ARE INSTALLED.
  3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL.
  4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
  5. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
  6. AIR RELEASE VALVES TO BE IN BELOW-GRADE INSTALLATIONS UNLESS IMPRACTICAL. INSTALLATIONS MAY BE ABOVE-GROUND ONLY WHERE APPROVED AND SPECIFICALLY INDICATED ON THE PLAN.
  7. CONCRETE PAD SHALL BE TYPE I CONCRETE W/ 3,000 P.S.I., 28 DAY COMPRESSIVE STRENGTH.

|   |               |  |          |
|---|---------------|--|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | ABOVE-GROUND AIR<br>RELEASE VALVE ASSY.<br>FOR FORCE MAINS | US-25    |
| REV. BY<br>CLB/KE                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL                           | PAGE 165 |

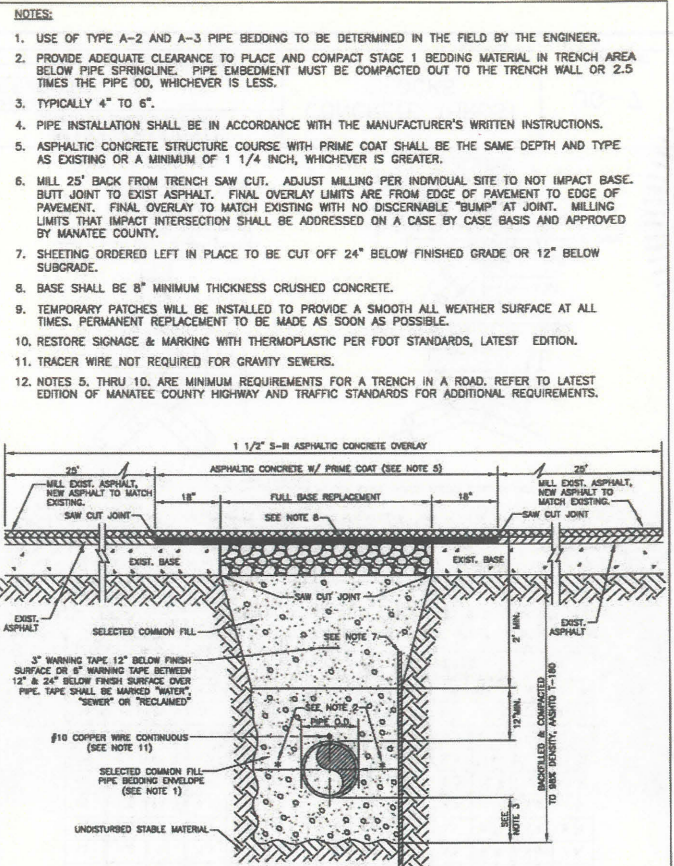


|   |               |                                  |          |
|---|---------------|----------------------------------|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | RESTRAINED<br>LENGTHS FOR PIPE   | UG-10    |
| REV. BY<br>CLB/BR                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL | PAGE 110 |

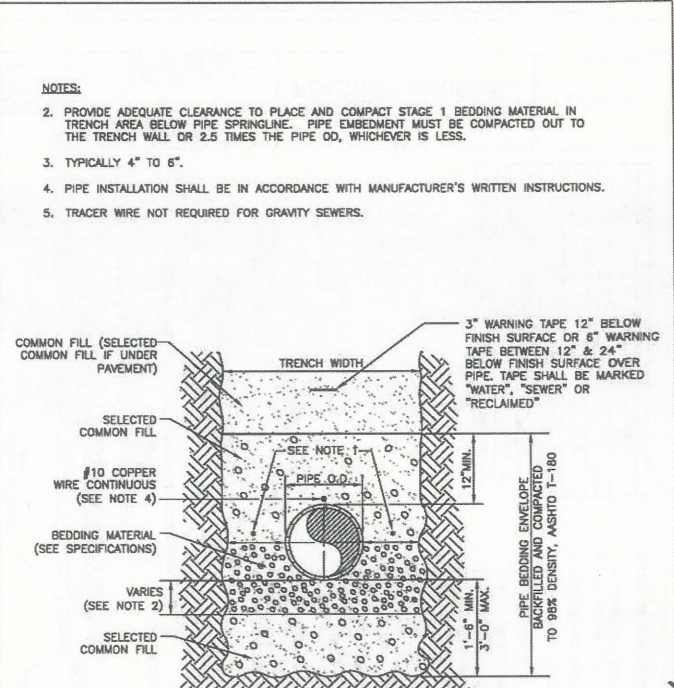


- NOTES:**
1. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
  2. TYPICALLY 4" TO 6".
  3. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
  4. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

|   |               |                                      |          |
|---|---------------|--------------------------------------|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | TRENCH WITH TYPE<br>A-2 PIPE BEDDING | UG-15    |
| REV. BY<br>CLB/BR                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL     | PAGE 115 |



|   |               |  |          |
|---|---------------|--|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | TRENCH WITH ASPHALT<br>PAVEMENT SURFACE TYPE<br>A-1 PIPE BEDDING | UG-12    |
| REV. BY<br>WRT/KE                         | DATE<br>03/11 | MAY 10, 2011<br>DATE OF APPROVAL                                 | PAGE 112 |



- NOTES:**
1. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
  2. TYPICALLY 4" TO 6".
  3. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
  4. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

|   |               |                                      |          |
|---|---------------|--------------------------------------|----------|
| MANATEE COUNTY<br>PUBLIC WORKS DEPARTMENT |               | TRENCH WITH TYPE<br>A-3 PIPE BEDDING | UG-16    |
| REV. BY<br>CLB/BR                         | DATE<br>11/10 | MAY 10, 2011<br>DATE OF APPROVAL     | PAGE 116 |

| NO. | DATE | BY | REVISION DESCRIPTION |
|-----|------|----|----------------------|
|     |      |    |                      |
|     |      |    |                      |
|     |      |    |                      |

|                |                    |
|----------------|--------------------|
| PROJECT #      | 415-6081280        |
| SURVEY #       | 0019606            |
| SEC./TWN./RGE  | VARIABLES          |
| SCALE          | AS SHOWN           |
| DATE           | 06/02/11           |
| DESIGNED       | JEA 09/25/11       |
| DRAWN          | JEA 11/23/11       |
| CHECKED        | JEA 11/29/11       |
| NO.            | 60925              |
| DATE           | 11/29/11           |
| SIGNATURE      | JOHN S. SHOUN P.E. |
| FLORIDA P.E. # | 60923              |
| DATE           | 11/29/11           |

STATE OF FLORIDA  
PROFESSIONAL ENGINEER

SHEET 6

S:\PWO\_Engineering\Shore\UHL Eng Design\PROJ-34A SWR Proj\VP-34A Replacement\DWGS\Cover FM Replacement US 34A.dwg, 3/26/2013 10:46 AM Shouh, J.T., Ledger







FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
Southwest District Office  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

April 12, 2012

Herschel T. Vinyard Jr.  
Secretary

Sia Mollanazar, P.E., Deputy Director, Engineering  
Manatee County  
1022 26<sup>th</sup> Ave East  
Bradenton, FL 34208  
[sia.mollanazar@mymanatee.org](mailto:sia.mollanazar@mymanatee.org)

Re: General Permit for Construction of a Domestic Wastewater Collection/Transmission System  
Project: Force Main Replacement 34A  
FDEP Permit No.: CS41-0182063-139 DWC/CG  
County: Manatee

Dear Mr. Mollanazar:

The Department has received your Notice of Intent to Use the General Permit to construct a domestic wastewater collection/transmission system to serve an existing system. This project consists of replacing an aging cast iron force main with approximately 7,200 linear feet of 10-inch, 16-inch, and 18-inch HDPE Directional Drill force main with ancillary piping, valves, and connections, including replacing the existing aerial crossing. No additional flow will be treated at the MC Southwest Regional Wastewater Treatment Facility. The Department received this Notice on March 28, 2012.

The Department has no objection to your use of a General Permit for the construction of a collection/transmission system that has been designed in accordance with the standards and criteria set forth in Rule 62-604.400, Florida Administrative Code (FAC). In accordance with Rules 62-4.530(1) and 62-604.600(6)(a)1., FAC, construction of this project shall not begin until at least 30 days after the receipt date (referenced above) of Application Form 62-604.300(8)(a). All General Permits are subject to the general conditions of Rule 62-4.540, FAC, (attached), and Rules 62-604.600 and 62-604.700, FAC. The construction activity must conform to the description contained in your Notice of Intent to Use the General Permit. Any deviation will subject the permittee to enforcement action and possible penalties.

If you have any questions, you may contact Bryant Facey at (813) 632-7600, extension 316 or via email at [bryant.facey@dep.state.fl.us](mailto:bryant.facey@dep.state.fl.us).

Sincerely,

Jeff Hilton, P.E.  
Manager  
Domestic Wastewater Program

JH/bjf

Attachments: General Conditions  
Location of Public Water System Mains

cc: John S. Shoun, P.E., Manatee County Public Works Dept., [shea.shoun@mymanatee.org](mailto:shea.shoun@mymanatee.org)  
Andy Fischer, Manatee County Public Works Dept., [andy.fischer@mymanatee.org](mailto:andy.fischer@mymanatee.org)

[www.dep.state.fl.us](http://www.dep.state.fl.us)

62-4.540 General Conditions for All General Permits.

(1) The terms, conditions, requirements, limitations, and restrictions set forth in this Part are "general permit conditions" and are binding upon the permittee. The conditions are enforceable under Chapter 403, F.S.

(2) The general permit is valid only for the specific activity indicated. Any deviation from the specified activity and the conditions for undertaking that activity shall constitute a violation of the permit. The permittee is placed on notice that violation of the permit may result in suspension or revocation of the permittee's use of the general permit and may cause the Department to begin legal proceedings.

(3) The general permit does not convey any vested rights or any exclusive privileges. It does not authorize any injury to public or private property nor any invasion of personal rights. It does not authorize any infringement of federal, state or local laws or regulations. It does not eliminate the necessity for obtaining any other federal, state or local permits that may be required, or allow the permittee to violate any more stringent standards established by federal or local law.

(4) The general permit does not relieve the permittee from liability and penalties when the construction or operation of the permitted activity causes harm or injury to human health or welfare; causes harm or injury to animal, plant or aquatic life; or causes harm or injury to property. It does not allow the permittee to cause pollution in contravention of Florida Statutes and Department rules.

(5) The general permit conveys no title to land or water, nor does it constitute State recognition or acknowledgment of title. It does not constitute authority for reclamation of submerged lands. Only the Board of Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

(6) No general permit shall authorize the use of state owned land without the prior consent of the Board of Trustees of the Internal Improvement Trust Fund pursuant to Section 253.77, F.S.

(7) The general permit may be modified, suspended or revoked in accordance with Chapter 120, Florida Statutes, if the Secretary determines that there has been a violation of any of the terms or conditions of the permit, there has been a violation of state water quality standards or state air quality standards, or the permittee has submitted false, incomplete or inaccurate data or information.

(8) The general permit shall not be transferred to a third party except pursuant to Fla. Admin. Code Rule 62-4.120.

(9) The general permit authorizes construction and where applicable operation of the permitted facility.

(10) The permittee agrees in using the general permit to make every reasonable effort to conduct the specific activity or construction authorized by the general permit in a manner that will minimize any adverse effects on adjacent property or on public use of the adjacent property, where applicable, and on the environment, including fish, wildlife, natural resources of the area, water quality or air quality.

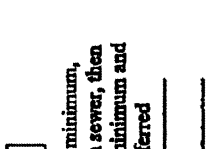
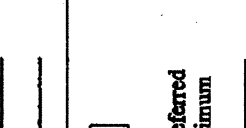
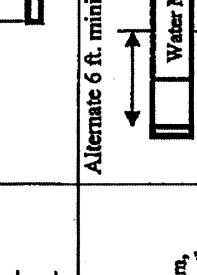
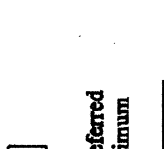
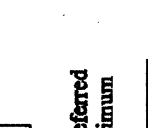
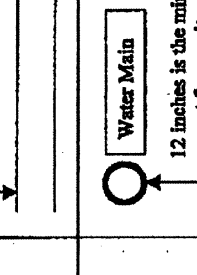
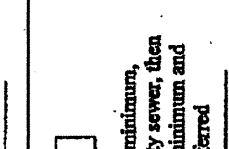
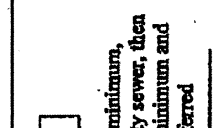
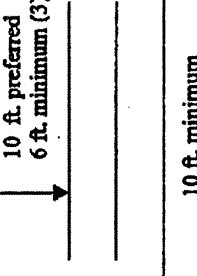
(11) The permittee agrees in using the general permit to allow a duly authorized representative of the Department access to the permitted facility or activity at reasonable times to inspect and test upon presentation of credentials or other documents as may be required by law to determine compliance with the permit and the Department rules.

(12) The permittee agrees to maintain any permitted facility, or activity in good condition and in accordance with the plans submitted to the department under Rule 62-4.530(1).

(13) A permittee's use of a general permit is limited to five years. However, the permittee may request continued use of the general permit by notifying the Department pursuant to Rule 62-4.530(1). However, the permittee shall give notice of continued use of a general permit thirty days before it expires.

Specific Authority 403.814(1) FS. Law Implemented 253.123, 253.124, 403.061, 403.087, 403.088, 403.702-403.73, 403.814, 403.851-403.864 FS. History - New 7-8-82, Formerly 17-5.54, Amended 8-31-88, Formerly 17-4.540.

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

| Other Pipe  | Horizontal Separation   | Crossings (1)  | Joint Spacing @ Crossings<br>(Full Joint Centered)   |
|---|---|--|--|
| Storm Sewer,<br>Stormwater Force Main,<br>Reclaimed Water (2)                               |  <p>Water Main<br/>3 ft. minimum</p>                           |  <p>Water Main<br/>12 inches is the minimum,<br/>except for storm sewer, then<br/>6 inches is the minimum and<br/>12 inches is preferred</p>    |  <p>Water Main<br/>Alternate 3 ft. minimum</p>    |
| Vacuum Sanitary Sewer   |  <p>Water Main<br/>10 ft. preferred<br/>3 ft. minimum</p>      |  <p>Water Main<br/>12 inches preferred<br/>6 inches minimum</p>   |  <p>Water Main<br/>Alternate 3 ft. minimum</p>   |
| Gravity or Pressure<br>Sanitary Sewer,<br>Sanitary Sewer Force Main,<br>Reclaimed Water (4) |  <p>Water Main<br/>10 ft. preferred<br/>6 ft. minimum (3)</p> |  <p>Water Main<br/>12 inches is the minimum,<br/>except for gravity sewer, then<br/>6 inches is the minimum and<br/>12 inches is preferred</p> |  <p>Water Main<br/>Alternate 6 ft. minimum</p> |
| On-Site Sewage Treatment &<br>Disposal System   | 10 ft. minimum  | ---  | ---  |

(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.

(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.

(3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.

(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.



# 26th STREET WEST

## SUBSURFACE UTILITY EXCAVATION (SUE) REPORT

| ID Name Location | Station  | Offset | Side | Northing*  | Easting*  | Surface Elevation | Measured Depth | Top of Pipe | Pipe Size | Pipe Material | Type    | Surface |
|------------------|----------|--------|------|------------|-----------|-------------------|----------------|-------------|-----------|---------------|---------|---------|
| VVH#1            | 103+74.0 | 40.0   | RT   | 1132672.92 | 465632.39 | 20.56             | 4.62           | 15.94       | 18"       | DUC IRON      | F. M.   | GROUND  |
| VVH#2            | 103+84.8 | 30.8   | RT   | 1132683.78 | 465623.24 | 20.25             | 1.47           | 18.78       | 16"x4"    | PVC           | VERIZON | GROUND  |
| VVH#3            | 113+93.4 | 26.5   | RT   | 1133692.39 | 465623.78 | 17.87             | 6.32           | 11.55       | 6"        | DUC IRON      | WATER   | GROUND  |
| VVH#4            | 131+25.5 | 36.3   | RT   | 1135424.47 | 465641.96 | 17.78             | 2.57           | 15.21       | 6"        | PVC           | WATER   | PAVING  |
| VVH#5            | 131+39.0 | 48.5   | RT   | 1135437.91 | 465654.27 | 18.33             | 3.18           | 15.15       | 14"       | DUC IRON      | F. M.   | PAVING  |
| VVH#6            | 151+53.8 | 20.9   | RT   | 1137452.83 | 465636.46 | 25.77             | 4.36           | 21.41       | 6"        | STEEL         | VERIZON | PAVING  |
| VVH#7            | 156+19.3 | 25.8   | RT   | 1137918.26 | 465643.64 | 25.36             | 2.66           | 22.70       | 4"        | PE            | GAS     | GROUND  |
| VVH#8            | 204+60.2 | 16.5   | LT   | 1138109.34 | 465978.99 | 22.80             | 6.01           | 16.79       | 4"        | DUC IRON      | WATER   | PAVING  |
| VVH#9            | 207+75.8 | 18.5   | LT   | 1138108.74 | 466294.61 | 23.21             | 3.24           | 19.97       | 16"       | DUC IRON      | F.M.    | PAVING  |
| VVH#10           | 306+51.4 | 8.1    | RT   | 1137641.67 | 466299.91 | 22.58             | 3.30           | 19.28       | 14"       | DUC IRON      | F. M.   | PAVING  |
| VVH#11           | 306+63.7 | 14.5   | RT   | 1138654.02 | 466306.29 | 22.97             | 3.04           | 19.93       | 6"        | AC            | WATER   | GROUND  |
| VVH#12           | 308+66.4 | 14.8   | LT   | 1138856.61 | 466276.90 | 22.30             | 2.62           | 19.68       | 6"10"     | CAST IRON     | F.M.    | GROUND  |

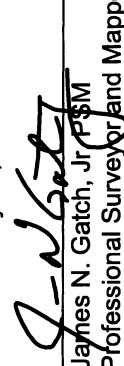
### SURVEYOR'S REPORT

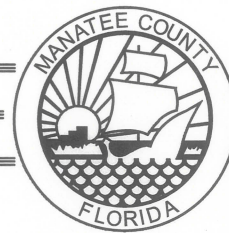
26th STREET WEST  
MANATEE COUNTY PROJECT NO. 6081280

I hereby certify that:

- I am a Professional Surveyor and Mapper, registered in the State of Florida, holding Certificate No. PSM 4295 and that I am acting on behalf of ZNS Engineering, L.C., a corporation authorized to offer services of registered Surveyors and Mappers in the State of Florida, holding L.B. No. 6982.
- This certificate is made to SUE Report of Subsurface Utility Location as shown hereon.
- Elevations shown are based on 1929 NGVD. The Benchmark these elevations are derived from are: Manatee County Benchmark White Ash, Elevation= 19.28' and #121-29-08, Elevation=25.43'.
- Coordinates are based on the Florida State Plane Coordinate System (West Zone) NAD 83 / 90,

Date: January 16, 2011

  
 James N. Gatch, Jr. PSM  
 Professional Surveyor and Mapper  
 Florida License No. 4295



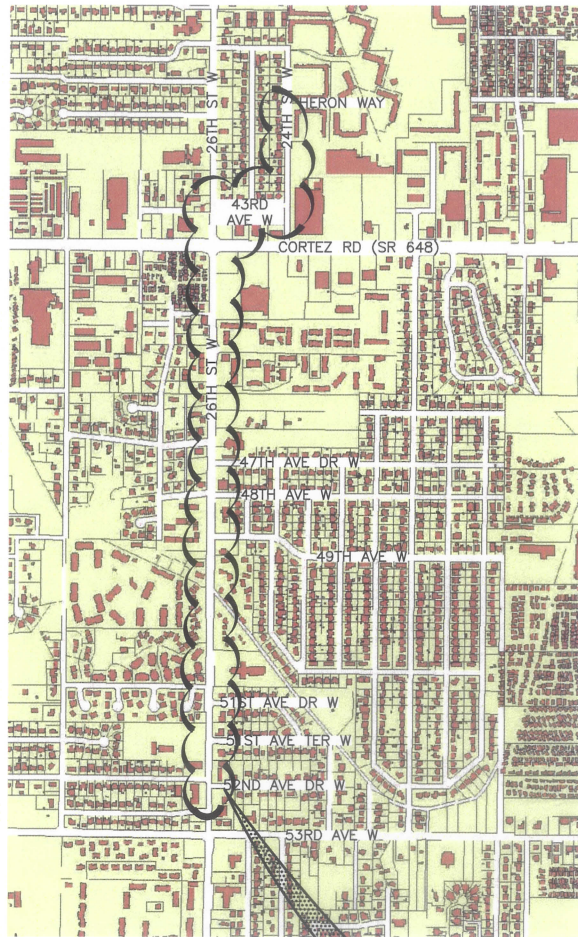
# MANATEE COUNTY, FLORIDA

## FORCE MAIN REPLACEMENT 34A

### 26TH ST. W. FROM HERON WAY TO 53RD AVE. W.

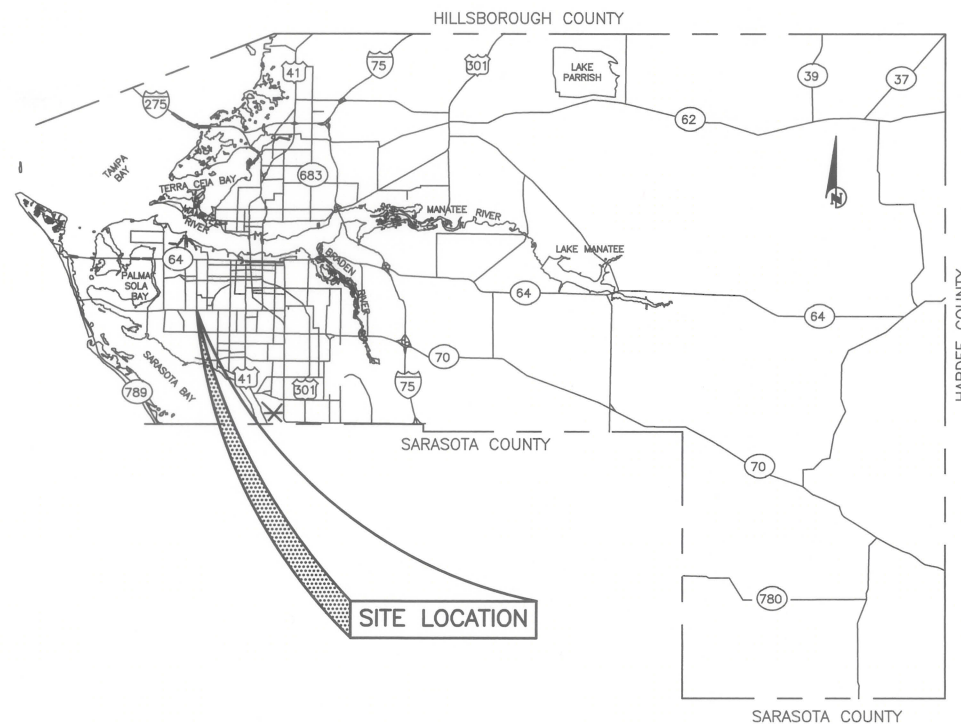
## 415-6081280

MAY 2013



VICINITY MAP  
N.T.S.

PROJECT SITE



SITE LOCATION

100% PLANS

| NO.     | INDEX OF SHEETS        |
|---------|------------------------|
| 1.      | COVER SHEET            |
| 2.-2A.  | GENERAL NOTES & LEGEND |
| 3.      | KEY SHEET              |
| 4.-19.  | PLAN & PROFILE         |
| 20.-22. | DETAILS                |
| 23.     | EROSION CONTROL        |
| 24.-25. | SURVEY CONTROL         |

**PROJECT DESCRIPTION**

REPLACEMENT OF APPROXIMATELY 7,200 LF OF 10", 16", AND 18" CAST IRON FORCE MAIN WITH HDPE DIRECTIONAL DRILL FORCE MAIN AND ALL ANCILLARY PIPING, VALVES, AND CONNECTION. A PORTION OF THE REPLACEMENT WILL REQUIRE A HORIZONTAL DIRECTIONAL DRILL UNDER THE FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY (CORTEZ RD).

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**COVER SHEET**

| REVISION DESCRIPTION | DATE | BY |
|----------------------|------|----|
|                      |      |    |
|                      |      |    |
|                      |      |    |
|                      |      |    |
|                      |      |    |

PROJECT # 415-6081280  
SURVEY # 0019606  
SEC./TWN./RGE VARIES  
DATE 09/02/11  
DESIGN JSS 09/29/11  
DRAWN JEA 10/29/11  
CHECKED JSS 11/29/11

Know what's below  
Call before you dig

JOHN S. SHOUN P.E.  
FLORIDA P.E. # 60923

*J. Shoun*  
4/24/13  
Signature & Date

S:\P\02\_Engineering\_Shoun\Eng\_Design\PROVA-SAN\_SWR\_Proj\FM-34A\_Replacement\JWCSS\Cover\_FM\_Replacement\_US\_34A.dwg, I\_Cover, 5/2/2013 10:19 AM Shee Shoun, 1:1, ANSI full bleed B (17.00 x 11.00 inches)



**GENERAL**

1. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: ANTHONY BENITEZ, P.E. AND CAN BE REACHED AT (941) 708-7450 EXT. 7333
2. SITE VISITS ARE MANDATORY FOR ALL BIDDERS. THESE SITE VISITS CAN BE ARRANGED THROUGH THE PROJECT MANAGER.
3. ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
4. VERTICAL CONTROL FOR THIS PROJECT WAS ESTABLISHED BY A MINIMUM OF TWO REFERENCE BENCHMARKS DESCRIBED ON THE "THE NATIONAL GEODETIC VERTICAL DATUM OF 1929", (NGVD '29).
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
6. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATION THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
7. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
8. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
9. NO WORK, EXCEPT FOR EMERGENCY TYPE, SHALL BE PERFORMED AFTER 7:00 PM AND BEFORE 7:00 AM. FOR ADDITIONAL PROJECT RESTRAINTS, REFER TO SECTION 01310 OF THE SPECIFICATIONS.

**SAFETY**

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
11. THE CONTRACTOR SHALL USE SHEET PILING, SHEETING, BRACING, ETC., AS REQUIRED IN ALL EXCAVATION AREAS AND CONFORM TO ALL OSHA REQUIREMENTS.
12. THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
13. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.

**ENVIRONMENTAL**

14. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION ALL SEDIMENT AND EROSION CONTROL (SEC) DEVICES (E.G., BARRIERS, SEDIMENT TRAPS/BASINS, VEGETATIVE BUFFERS, ETC.) AS SPECIFIED IN THE FINAL APPROVED PLANS FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SEC DEVICES UTILIZED DURING THE PROJECT, AS WELL AS INSTALLATION & MAINTENANCE OF ANY ADDITIONAL MEASURES DEEMED NECESSARY DURING PROJECT IMPLEMENTATION, TO PREVENT EROSION AND OFF-SITE SEDIMENT MIGRATION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL SEC DEVICES UPON COMPLETION OF THE PROJECT, AND UPON ADEQUATE STABILIZATION OF DISTURBED SOILS.
15. WHEN A BENTONITE SPILL OR FRACK-OUT OCCURS OR THERE IS A LOSS OF RETURN INDICATING EXCESSIVE SEEPAGE OR LOSS OF DRILLING FLUID, DRILLING MUST BE STOPPED UNTIL THE LOCATION OF THE SPILL IS IDENTIFIED. UNDER NO CIRCUMSTANCES WILL DRILLING CONTINUE WHEN A SPILL IS APPARENT.
16. ONCE LOCATED, THE BENTONITE SPILL MUST BE ISOLATED AND SEEPAGE INTO ANY NEARBY WATER BODIES WILL BE BLOCKED DEPENDING ON THE DEGREE OF THE SPILL, THE ISOLATED BENTONITE MUST BE REMOVED MANUALLY OR MECHANICALLY AND DISPOSED OF BY APPROPRIATE MEANS OR REUSED.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY STORM WATER, EROSION, AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE FDEP "FLORIDA STORM WATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS AND TO DITCHES DURING CONSTRUCTION.
18. STOCKPILES SHALL BE PROTECTED AT ALL TIMES BY ON-SITE DRAINAGE CONTROLS WHICH PREVENT EROSION OF THE STOCKPILED MATERIAL. CONTROL OF DUST FROM SUCH STOCKPILES IS REQUIRED, DEPENDING UPON THEIR LOCATION AND THE EXPECTED LENGTH OF TIME THE STOCKPILES WILL BE PRESENT. IN NO CASE SHALL ANY STOCKPILED MATERIAL REMAIN AFTER THIRTY (30) CALENDAR DAYS.
19. STORM WATER INLETS IN THE VICINITY OF THE PROJECT SHALL BE PROTECTED BY SEDIMENT TRAPS SUCH AS SECURED HAY BALES, SOD, STONE, ETC., WHICH SHALL BE MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS, AND WHICH MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. THIS WILL BE MAINTAINED TO PREVENT DEGRADATION OF THE WATERS OF THE COUNTY AND STATE.
20. SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT ONTO ADJACENT PROPERTIES, OR INTO EXISTING BODIES OF WATER, MUST BE INSTALLED, CONSTRUCTED, OR IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS. SUCH SYSTEMS SHALL BE FULLY OPERATIVE BEFORE ANY OTHER DISTURBANCE OF THE SITE BEGINS. EARTHEN STRUCTURES INCLUDING BUT NOT LIMITED TO BERMS, EARTH FILTERS, DAMS OR DIKES SHALL BE STABILIZED AND PROTECTED FROM DRAINAGE DAMAGE OR EROSION WITHIN ONE (1) WEEK OF INSTALLATION.
21. ALL SWALES, DITCHES, AND CHANNELS LEADING FROM THE SITE SHALL BE PROTECTED FROM SILTATION AND EROSION DURING CONSTRUCTION AND BE SODDED WITHIN THREE (3) DAYS OF EXCAVATION.
22. SOIL DISPLACED BY CONSTRUCTION WILL BE REMOVED. EROSION CONTROL SHALL BE IMPLEMENTED IN AREAS WHICH ARE CONSIDERED ENVIRONMENTALLY SENSITIVE. EROSION CONTROL SYSTEMS SHALL BE REQUIRED FOR ALL WORK WITHIN JURISDICTIONAL AREAS. THESE SYSTEMS MAY INCLUDE STAKED HAY BALES, SILT SCREENS, FILTER FABRIC, AND TURBIDITY SCREENS.
23. ALL EROSION AND POLLUTION CONTROL DEVICES SHALL BE CHECKED REGULARLY, ESPECIALLY AFTER EACH RAINFALL AND SHALL BE CLEANED OUT AND/OR REPAIRED AS REQUIRED.
24. THE CONTRACTOR SHALL NOT ENTER UPON OR IN ANY WAY ALTER WETLAND AREAS THAT MAY BE ON OR NEAR THE CONSTRUCTION SITE. ALL WORK IN THE VICINITY OF OPEN WATER AND/OR WETLANDS IS TO BE PERFORMED IN COMPLIANCE WITH THE ENVIRONMENTAL REGULATIONS AND/OR PERMITS FOR THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES RESULTING FROM HIS VIOLATION OF ANY REGULATIONS OR PERMIT CONDITIONS.
25. FOR MORE INFORMATION, SEE THE EROSION CONTROL DETAIL SHEET INCLUDED IN THE PLANS.

**RIGHT-OF-WAY**

26. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO WITHIN THE MANATEE COUNTY/FDOT RIGHT-OF-WAY AND/OR EASEMENTS SHOWN ON THE DRAWINGS.
27. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO REFERENCE AND RESTORE PROPERTY CORNER MONUMENTS, PINS, AND LANDMARKS THAT MAY BE DISTURBED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
28. THE CONTRACTOR, PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHTS-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED STORM WATER STRUCTURES, PIPING, ENTRANCE PIPE AND HEADWALLS WHETHER SHOWN ON THE PLANS OR NOT. THE HEADWALLS SHALL BE REPLACED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
30. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH IN THE FIELD THE RIGHT-OF-WAY LINES, BASE LINES, BENCH MARKS (ELEV.), CENTER LINES, AND STATIONING AS REQUIRED TO CONSTRUCT THIS PROJECT.

31. THE CONTRACTOR SHALL COORDINATE THE CUTTING OF DRIVEWAYS WITH THE PROPERTY OWNER PRIOR TO CUT. ALL DRIVEWAYS WILL BE IN PASSABLE CONDITION AT THE END OF THE WORK DAY AND FULLY RESTORED PER SECTION 02575.
32. A RIGHT OF ENTRY AGREEMENT SHALL BE OBTAINED BY THE PROJECT MANAGER FROM THE PROPERTY OWNER BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS DONE OUTSIDE OF THE RIGHT-OF-WAY OR EASEMENT.
33. A PORTION OF THE WORK WILL TAKE PLACE ON AN ALIGNMENT THAT CROSSES CORTEZ RD (SR 684) RIGHT-OF-WAY. THE WORK WITHIN THIS AREA IS SUBJECT TO A FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) PERMIT WHICH IS INCLUDED IN THE SPECIFICATIONS FOR REFERENCE. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THIS PERMIT. AMONG OTHER SPECIFIC PERMIT REQUIREMENTS, THE CONTRACTOR IS CAUTIONED NOT TO ENTER OR EXIT THE WORK AREA BY DRIVING OVER CURBS OR THROUGH OR OVER OTHER NONE VEHICLE TRAFFIC LOADING PAVED OR NON-PAVED AREAS.

**UTILITIES**

34. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.
35. THE CONTRACT DOCUMENTS DEFINE THE REQUIRED PLAN LOCATION AND VERTICAL ALIGNMENT OF THE NEW FORCE MAIN PIPE REPLACEMENT. THE CONTRACTOR SHALL ESTABLISH A PIPE DRILLING OR LAYING PLAN FOR EACH PIPELINE SEGMENT PRIOR TO CONSTRUCTION. THE DRILLING OR LAYING PLAN SHALL TAKE INTO CONSIDERATION GEOTECHNICAL CONDITIONS AT THE SITE, GROUND WATER CONDITIONS AT THE TIME OF CONSTRUCTION, THE ELEVATION OF CROSSING UTILITIES. CONTRACTOR SPECIFIC EQUIPMENT AND CONSTRUCTION SET-UP AND STAGING AREA REQUIREMENTS, PIPE PREFABRICATION AREA NEEDS AND OTHER FACTORS. THE CONTRACTOR DRILLING OR LAYING PLAN SHALL ESTABLISH THE FINAL FIELD LOCATION FOR ALL NEW PIPE, FITTINGS AND VALVES (INCLUDING ARV'S) PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE COUNTY, PRIOR TO CONSTRUCTION, FOR ANY PLANNED DEVIATION IN THE LOCATION OF THE NEW WORK.
36. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF UNDERGROUND UTILITIES PARALLELING AND CROSSING THE ALIGNMENT OF THE NEW PIPELINE SYSTEM PRIOR TO CONSTRUCTION. FOR HDD ENTRY LOCATIONS, CONDUCTOR CASING SHALL BE USED TO PROTECT EXISTING UTILITIES WHEN FIELD CONDITIONS INDICATE THAT THE INSTALLATION OF THE NEW PIPELINE MAY IMPACT EXISTING CROSSING UTILITIES. THE REQUIREMENT FOR THE USE OF CONDUCTOR CASING WILL BE ESTABLISHED IN THE FIELD ON A CASE BY CASE BASIS DURING HDD BORING INITIAL SET-UP AND CROSSING UTILITY ALIGNMENT VERIFICATION PROCESS AND SHALL BE APPROVED BY THE OWNER AND/OR COUNTY. HDD PULL BACK ENTRY POINTS AND ANGLES SHALL BE SELECTED TO PROVIDE ADEQUATE CLEARANCE BETWEEN ALL EXISTING UNDERGROUND UTILITIES THAT ARE CROSSING THE ALIGNMENT OF THE PULL BACK PATH AND TO PROTECT EXISTING UTILITIES. THE NEED FOR CONDUCTOR CASING AND PULL BACK ALIGNMENT DEFINITION SHALL BE INCLUDED AS A PART OF THE HDD DRILLING PLAN DEVELOPED FOR EACH HDD BORE AS INDICATED IN NOTE 36.
37. THE CONTRACTOR SHALL PROTECT 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. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
38. THE CONTRACTOR SHALL USE APPROPRIATE TECHNIQUES, AS APPROVED, RECOMMENDED OR OFFERED BY FLORIDA POWER AND LIGHT TO PREVENT UNDERMINING OF POWER POLES DURING CONSTRUCTION. IF HOLDING OF POWER POLES IS RECOMMENDED OR REQUIRED BY THE UTILITY, THE CONTRACTOR SHALL COORDINATE THIS ACTIVITY WITH THE UTILITY AND BEAR ALL RELATED COSTS.
39. ANY TEMPORARY SHUTDOWNS FOR MODIFICATIONS OF EXISTING UTILITY SYSTEMS THAT MUST REMAIN IN SERVICE DURING CONSTRUCTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH AND APPROVED BY THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IT IS NOTED THAT TEMPORARY SHUTDOWNS MAY BE RESTRICTED TO CERTAIN HOURS AT ANY TIME OF THE DAY OR NIGHT AND WILL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
40. FOR WORK BEING DONE ON EXISTING SANITARY SEWER LINES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE FLOW OF ALL SEWAGE DURING CONSTRUCTION, WHICH MAY REQUIRE BY-PASS PUMPING AND/OR PUMPER TRUCKS. THE CONTRACTOR SHALL SUBMIT A DETAILED BY-PASS PUMPING PLAN PER SECTION 02720.

**RESTORATION**

41. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS SHOWN OTHERWISE.
42. ALL DISTURBED GRASSED AREAS SHALL BE SODDED OR SEEDED UNLESS OTHERWISE INDICATED. THE TYPE OF SOD USED TO REPLACE OWNER MAINTAINED AREAS IN RIGHT-OF-WAY SHALL BE COORDINATED WITH THE PROPERTY OWNER.
43. ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE OPERATION OF THE PIPELINE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR, PRIOR TO FINAL ACCEPTANCE, AT NO ADDITIONAL COST TO THE OWNER.
44. ASPHALT DRIVES THAT ARE CUT SHALL BE RESTORED PER SECTION 02513.
45. CONCRETE DRIVEWAYS OR SIDEWALKS THAT ARE CUT SHALL BE RESTORED TO MATCH EXISTING ACCORDING TO THE CURRENT EDITIONS OF THE F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN, SECTION 522, AND SECTION 310 OF THE F.D.O.T. DESIGN STANDARDS.
46. WHENEVER A PERMANENT ROADWAY SURFACE IS NOT PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OF THE NEWLY INSTALLED PIPE LINE IN AREAS WHERE TRAFFIC MUST PASS, THE CONTRACTOR SHALL INSTALL A TEMPORARY SURFACE CONSISTING OF NINE INCHES OF COMPACTED LIME ROCK BASE AND A COAT OF ASPHALT EMULSION. PERMANENT ROADWAY REPAIR SHALL BE PERFORMED A MAXIMUM OF TWENTY-ONE CALENDAR DAYS AFTER THE INITIAL OPEN CUTTING.
47. RESTORATION OF CURBS, DRIVEWAYS, SIDEWALKS, AND PLACEMENT OF SOD SHALL BE COMPLETED WITHIN FORTY-FIVE CALENDAR DAYS OF INITIAL DISTURBANCE, OR TWENTY-ONE CALENDAR DAYS OF SUBSTANTIAL COMPLETION, WHICHEVER OCCURS FIRST.

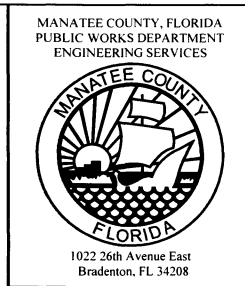
**CONSTRUCTION**

48. THE EXHAUST SYSTEM OF ALL GASOLINE AND DIESEL ENGINES SHALL BE EQUIPPED WITH MUFFLERS THAT MEET THE EQUIPMENT MANUFACTURER'S REQUIREMENTS FOR NOISE SUPPRESSION. THE CONTRACTOR SHALL INSTALL NOISE ABATEMENT Baffles POSITIONED TO BREAK LINE-OF-SITE FROM THE NOISE SOURCE TO AFFECTED RESIDENCES, AS APPROVED BY THE ENGINEER.
49. NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEEP DAILY AS PART OF DAILY CLEAN UP.
50. THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
51. INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.
52. PRIOR APPROVAL WILL BE REQUIRED FOR REMOVAL OF ANY TREE WITHIN THE CONSTRUCTION AREA.
53. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY. DEWATERING IS REQUIRED TO 18" BELOW TRENCH BOTTOM.
54. ALL PIPING AND FITTINGS USED ON THIS PROJECT SHALL BE AS NOTED ON THE PLANS AND IN THE CONTRACT DOCUMENT AND SHALL BE INSTALLED TO THE LINES AND GRADES SHOWN ON THE PLANS AND PROFILES.
55. ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS.
56. ALL PIPE AND FITTINGS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER AND ALL PIPE JOINTS SHALL BE RESTRAINED WHERE REQUIRED.
57. ALL FITTINGS FOR PRESSURE CLASS-RATED PIPE SHALL BE RESTRAINED DUCTILE IRON. RESTRAINED LENGTHS OF PIPE SHALL ADHERE TO THE REQUIREMENTS AS SHOWN ON THE DETAIL SHEETS.
58. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE RECOMMENDED DEFLECTION.
59. ALL PIPE LENGTHS ARE PLUS OR MINUS AND MAY BE ADJUSTED IN THE FIELD AS REQUIRED. PIPE MEASUREMENTS ARE TO CENTER OF STRUCTURES OR FITTINGS.
60. ALL ROCKS OR STONES LARGER THAN SIX INCH DIAMETER SHALL BE REMOVED FROM THE BACKFILL MATERIAL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN TWO INCH DIAMETER.

61. ONLY MANATEE COUNTY UTILITY OPERATIONS STAFF ARE AUTHORIZED TO OPERATE VALVES ON COUNTY OWNED AND MAINTAINED UTILITY SYSTEMS.
62. ALL PENETRATION OF EXISTING STRUCTURES SHALL BE BY THE MECHANICAL ROTARY CORE BORING METHOD.
63. ALL CONCRETE PENETRATED OR DISTURBED SHALL BE COATED WITH TWO COATS OF EPOXY.
64. THE CONTRACTOR, PRIOR TO ANY TEMPORARY WATER SHUT-OFFS DURING WATER MAIN TIE-IN, ETC., SHALL NOTIFY THE AFFECTED RESIDENTS BY POSTING INFORMATIONAL SIGNS IN THE NEIGHBORHOOD AT LEAST TWO DAYS (48 HRS) PRIOR TO THE WATER SHUT-OFF. REFERENCE SECTION 01580, PARAGRAPH 1.03 OF THE SPECIFICATIONS. WHEN FEASIBLE, "DOOR HANGERS" SHALL BE DELIVERED TO AFFECTED RESIDENCES AT LEAST TWO DAYS (48 HRS) PRIOR TO WATER SHUT-OFF. FOR LARGE PROJECTS WITH HUNDREDS OF HOMES AFFECTED, THE CONTRACTOR SHALL ALSO MAKE EXTENSIVE USE OF THE MEDIA AND SHALL HAVE PRIOR CONTACT WITH HOMEOWNER'S ASSOCIATIONS. WRITTEN NOTIFICATIONS SHALL ALSO BE FAXED TO THE TAMPA TRIBUNE, BRADENTON HERALD, SARASOTA HERALD TRIBUNE, WRD RADIO, EMERGENCY COMMUNITY CENTERS, INSPECTIONS, WATER TREATMENT PLANT, WATER MANAGER, HELPLINE, CUSTOMER SERVICE, AND THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT.
65. ALL NEW PIPE LINES SHALL BE PIG CLEANED (4" AND LARGER), FLUSHED, PRESSURE TESTED, DISINFECTED AND CERTIFIED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PIG CLEANING AND PRESSURE TESTING.
66. ALL TEST POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. A CORPORATION STOP PLUG SHALL BE INSTALLED AND THE CORPORATION STOP SHALL REMAIN IN PLACE.
67. ALL EXISTING MAINS THAT ARE BEING REPLACED SHALL BE ABANDONED IN PLACE UPON ACCEPTANCE AND ACTIVATION OF THE NEW MAINS. ABANDONED MAINS SHALL BE CUT, FILLED WITH GROUT, AND CAPPED. REFER TO SECTION 02064 OF THE SPECIFICATIONS FOR GROUTING OF ABANDONED PIPE.
68. WATER MAINS CROSSING OVER OR UNDER SANITARY SEWERS, FORCE MAINS, AND RECLAIMED WATER LINES SHALL BE LAID PER CURRENT EDITION OF "10 STATE STANDARDS" AND MANATEE COUNTY UTILITY STANDARDS UNLESS NOTED OTHERWISE ON THE PLANS.
69. FIELD CONDITIONS MAY NECESSITATE MINOR ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER.
70. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS AT NO COST TO THE OWNER. RECORD DRAWINGS SHALL BE SIGNED & SEALED BY A SURVEYOR CURRENTLY LICENSED BY THE STATE OF FLORIDA. ALL RECORD DRAWING INFORMATION REQUIREMENTS IN SECTION 14 SHALL BE STRICTLY ENFORCED. A COPY OF SECTION 14 WILL BE PROVIDED UPON REQUEST.
71. THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF THE WORK AS CONSTRUCTED. AS-BUILT DRAWINGS SHALL INCLUDE THE LOCATION OF ABANDONED FORCE MAIN CUT AND PLUG POINTS. AS-BUILT DRAWINGS SHALL BE ANNOTATED EACH DAY AS THE WORK PROCEEDS AND SHALL BE AVAILABLE TO THE COUNTY PROJECT MANAGER AND/OR FIELD INSPECTOR FOR REVIEW ON AN ONGOING BASIS. AS-BUILT DRAWINGS SHALL PROVIDE THE HORIZONTAL AND VERTICAL INSTALLED LOCATION OF ALL NEW PIPELINE, FITTINGS, VALVES AND FORCE MAIN APPURTENANCES REFERENCED TO FIXED SURFACE FEATURES THAT ARE SHOWN ON THE CONSTRUCTION DRAWINGS AND/OR RIGHT-OF-WAY LINES, PROPERTY CORNERS OR OTHER SURVEYED POINTS. THE CONTRACTOR SHALL BE ABLE TO PRESENT THE RECORD DRAWINGS TO THE COUNTY PROJECT MANAGER AND/OR INSPECTOR ON DEMAND AS THE WORK PROCEEDS.

**MAINTENANCE OF TRAFFIC**

72. THE CONTRACTOR IS RESPONSIBLE FOR ANY TRAFFIC CONTROL PLAN IMPLEMENTED. THE TRAFFIC CONTROL PLAN SHALL BE PREPARED BY AN INDIVIDUAL CERTIFIED TO PREPARE A TRAFFIC CONTROL PLAN IN THE STATE OF FLORIDA THAT MEETS OR EXCEEDS THE REQUIREMENTS OF THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS LATEST EDITION (SERIES 600) ANY DEVIATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE FDOT AND THE COUNTY FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FDOT AND COUNTY APPROVAL (PRIOR TO IMPLEMENTATION) AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.
73. THE CONTRACTOR PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN A RIGHT-OF-WAY USE PERMIT AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
74. THE CONTRACTOR SHALL USE, BUT ARE NOT LIMITED TO, FDOT INDICES 415, 600, 615, 616, AND 621. THE RECOMMENDED FDOT DESIGN STANDARD INDICES ARE CONCEPTUAL.
75. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TEMPORARY DRAINAGE. THERE WILL BE NO DIRECT PAY FOR THIS WORK. COSTS SHALL BE INCLUDED IN THE COST OF PIPE.
76. MOTORIZED AND MECHANICAL EQUIPMENT SHALL BE EFFECTIVELY SHIELDED, PADDED, OR LOCATED TO MINIMIZE NOISE.
77. THE CONTRACTOR WILL NOTIFY ALL EMERGENCY AND RESCUE AGENCIES LOCATED IN THE PROJECT VICINITY 24 HOURS IN ADVANCE OF ANY PROPOSED LANE CLOSURES OR DETOURS.
78. ACCESS TO ALL SIDE STREETS AND DRIVEWAYS MUST BE PROVIDED AND MAINTAINED DURING CONSTRUCTION.
79. USE FDOT INDEX NO. 619 FOR TRAFFIC CONTROL MEASURES WHEN CONSTRUCTION EQUIPMENT IS DRIVEN ON OPEN TRAVEL LANES. THE REGULATORY SPEED IN WORK ZONES SHOULD BE AS CLOSE TO NORMAL CONDITIONS AS POSSIBLE, UNLESS NOTED ON THE TRAFFIC CONTROL PLANS.
80. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO WORKING NEAR THEIR EXISTING FACILITIES.
81. CONSTRUCTION SEQUENCES SHALL BE COORDINATED TO PROVIDE POSITIVE DRAINAGE OF THE TRAVELWAYS AT ALL TIMES.
82. ANY MOT ITEM NOT SPECIFICALLY LISTED UNDER A PARTICULAR PAY ITEM SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS. THERE SHALL BE NO SEPARATE PAYMENT.
83. THE MAXIMUM SPACING BETWEEN WARNING DEVICES USED FOR DELINEATION BETWEEN THE TRAVELWAY(S) AND CONSTRUCTION AREA SHALL BE AS PER FDOT STANDARD INDEX 600.
84. ALL DETOURS, IF APPROVED BY THE COUNTY, SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D. LATEST EDITION) AND THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, LATEST EDITION (600 SERIES). ANY DETOUR RECOMMENDED BY THE CONTRACTOR MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE FDOT AND THE COUNTY FOR APPROVAL AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COUNTY APPROVAL (PRIOR TO IMPLEMENTATION) AND FAILURE TO OBTAIN APPROVAL SHALL NOT BE GROUNDS FOR ANY DELAY CLAIM FOR TIME OR ADDITIONAL COMPENSATION.



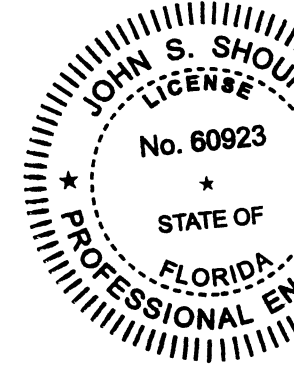
1022 26th Avenue East  
Bradenton, FL 34208

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**GENERAL NOTES & LEGEND**

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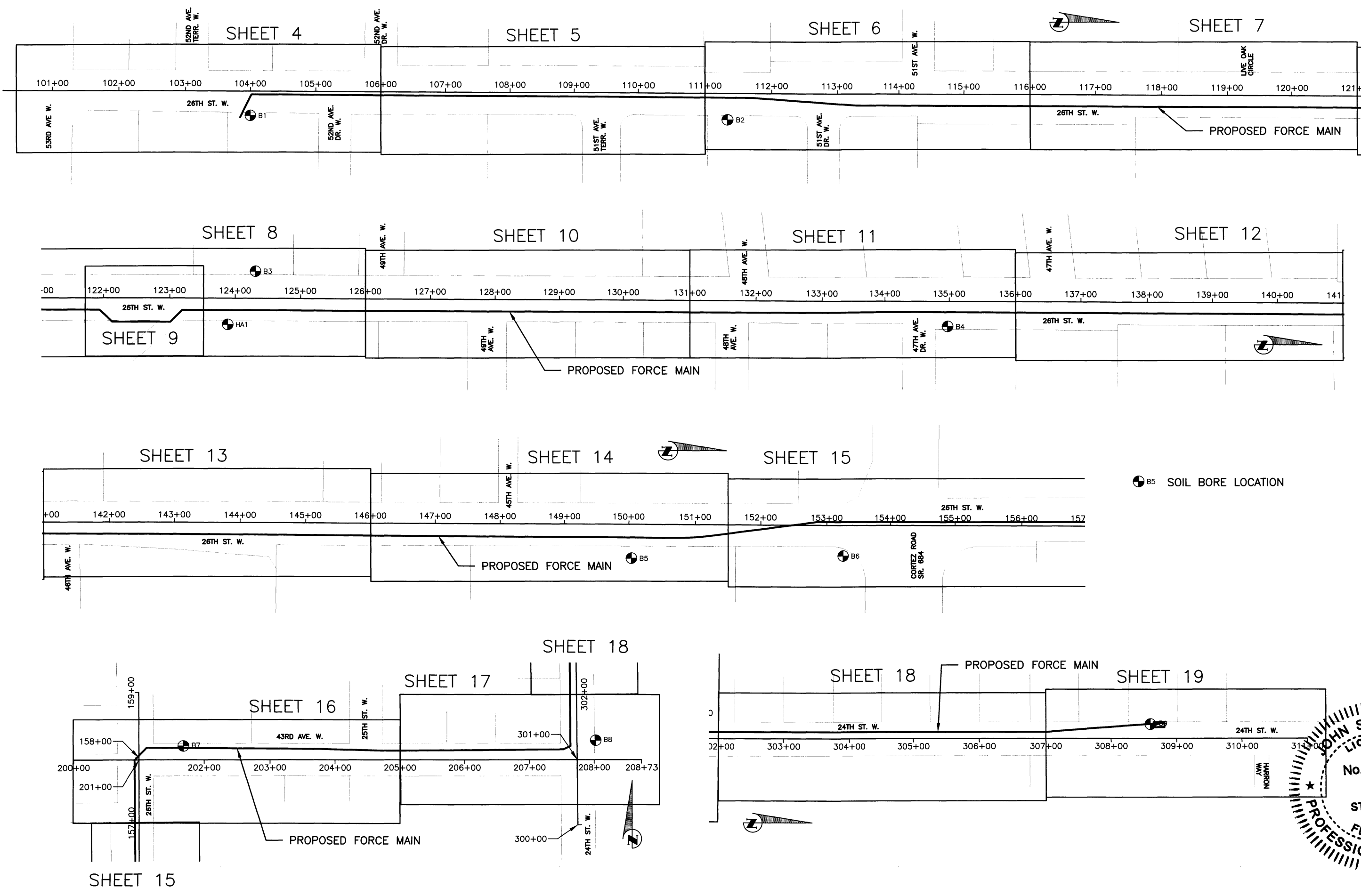
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JOHN S. SHOUN P.E.  
FLORIDA P.E. # 60923  
4/24/13  
Signature & Date  
**SHEET 2**

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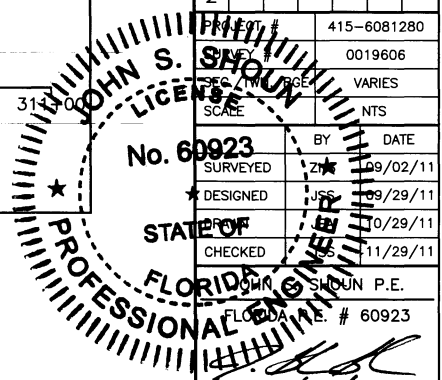
**FORCE MAIN REPLACEMENT 34A  
26TH ST. W. FROM HERON WAY TO  
53RD AVE. W.  
KEY SHEET**

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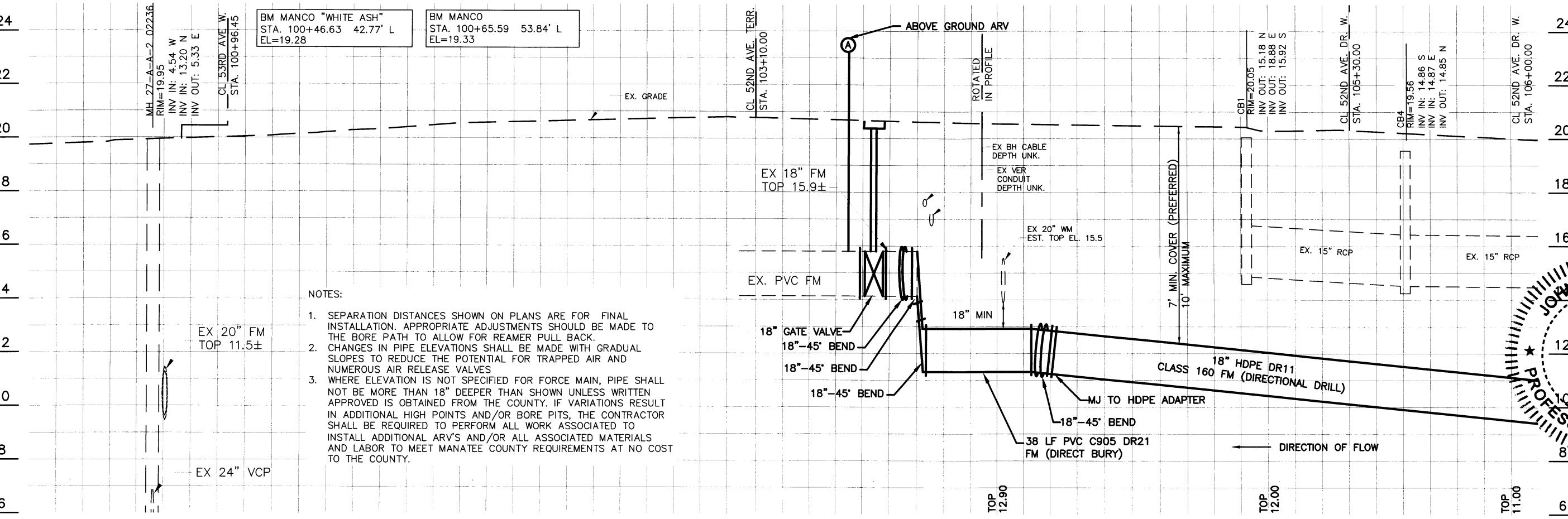
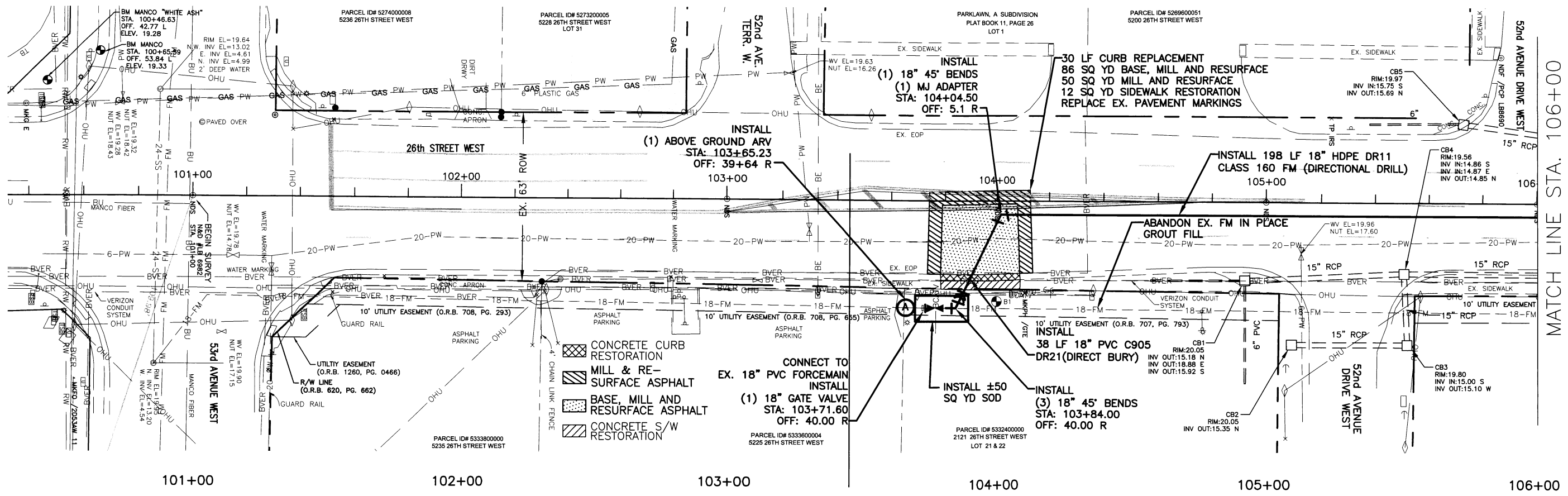
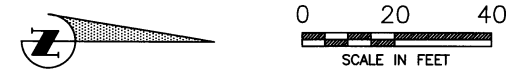
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| PROJECT NO.       | 415-6081280        |
| KEY               | 0019606            |
| SCALE             | VARIABLE           |
| BY                | DATE               |
| SURVEYED          | 09/02/11           |
| DESIGNED          | 09/29/11           |
| CHECKED           | 11/29/11           |
| DATE              | 02/29/13           |
| PROF. ENGINEER    | JOHN S. SHOUN P.E. |
| FLORIDA LICENSE # | 60923              |

Signature & Date  
4/24/13



S:\PWD\_Engineering\_Shoun\Util\_Eng\_Design\PROJ\34A\_SWR\_Proj\FM-34A\_Replacement\DWG\KEY\_FM\_Replacement\_LS\_34A.dwg,3 KEY, 5/3/2013 10:19 AM Sheo Shoun, 1:1, ANSI full bleed B (17.00 x 11.00 inches)

CONTRACTOR SHALL REFERENCE SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS FOR RECORD DRAWING REQUIREMENTS.



- NOTES:
- SEPARATION DISTANCES SHOWN ON PLANS ARE FOR FINAL INSTALLATION. APPROPRIATE ADJUSTMENTS SHOULD BE MADE TO THE BORE PATH TO ALLOW FOR REAMER PULL BACK.
  - CHANGES IN PIPE ELEVATIONS SHALL BE MADE WITH GRADUAL SLOPES TO REDUCE THE POTENTIAL FOR TRAPPED AIR AND NUMEROUS AIR RELEASE VALVES.
  - WHERE ELEVATION IS NOT SPECIFIED FOR FORCE MAIN, PIPE SHALL NOT BE MORE THAN 18" DEEPER THAN SHOWN UNLESS WRITTEN APPROVED IS OBTAINED FROM THE COUNTY. IF VARIATIONS RESULT IN ADDITIONAL HIGH POINTS AND/OR BORE PITS, THE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL WORK ASSOCIATED TO INSTALL ADDITIONAL ARV'S AND/OR ALL ASSOCIATED MATERIALS AND LABOR TO MEET MANATEE COUNTY REQUIREMENTS AT NO COST TO THE COUNTY.

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**PLAN & PROFILE STA. 101+00 TO 106+00**

**JOHN S. SHOUN**  
 License No. 60923  
 PROFESSIONAL ENGINEER  
 STATE OF FLORIDA

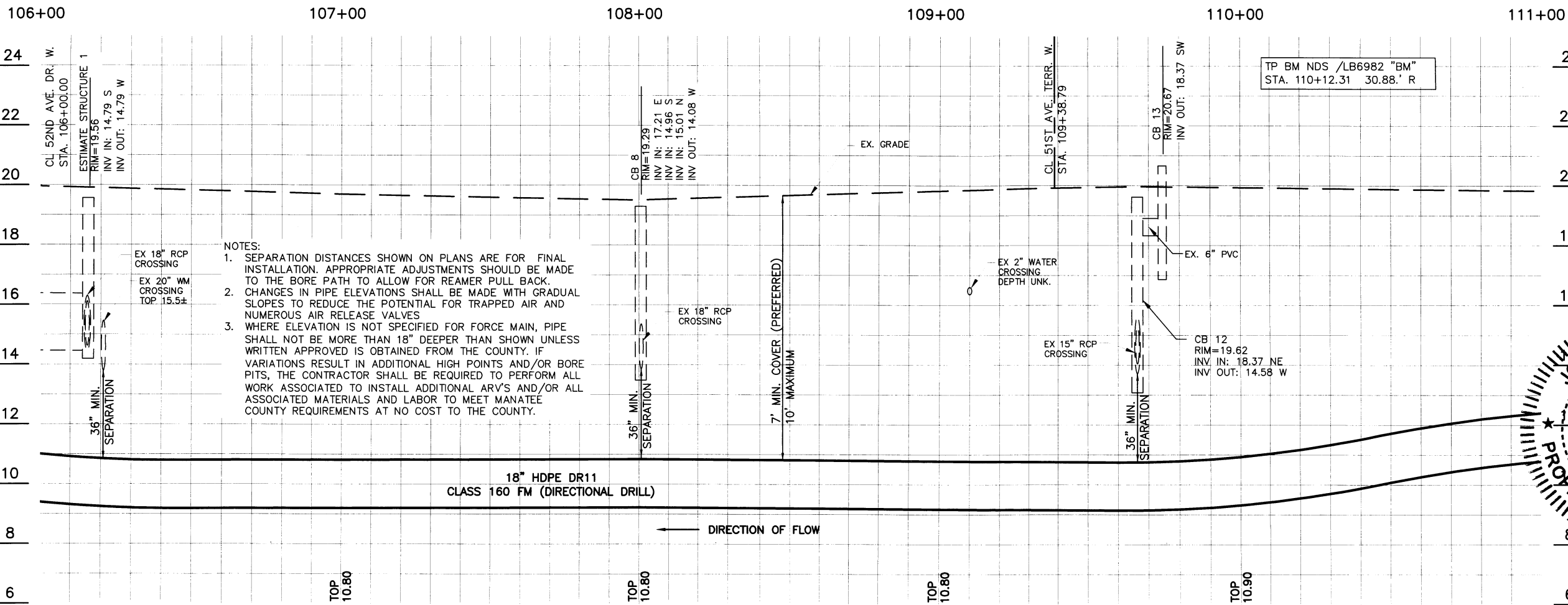
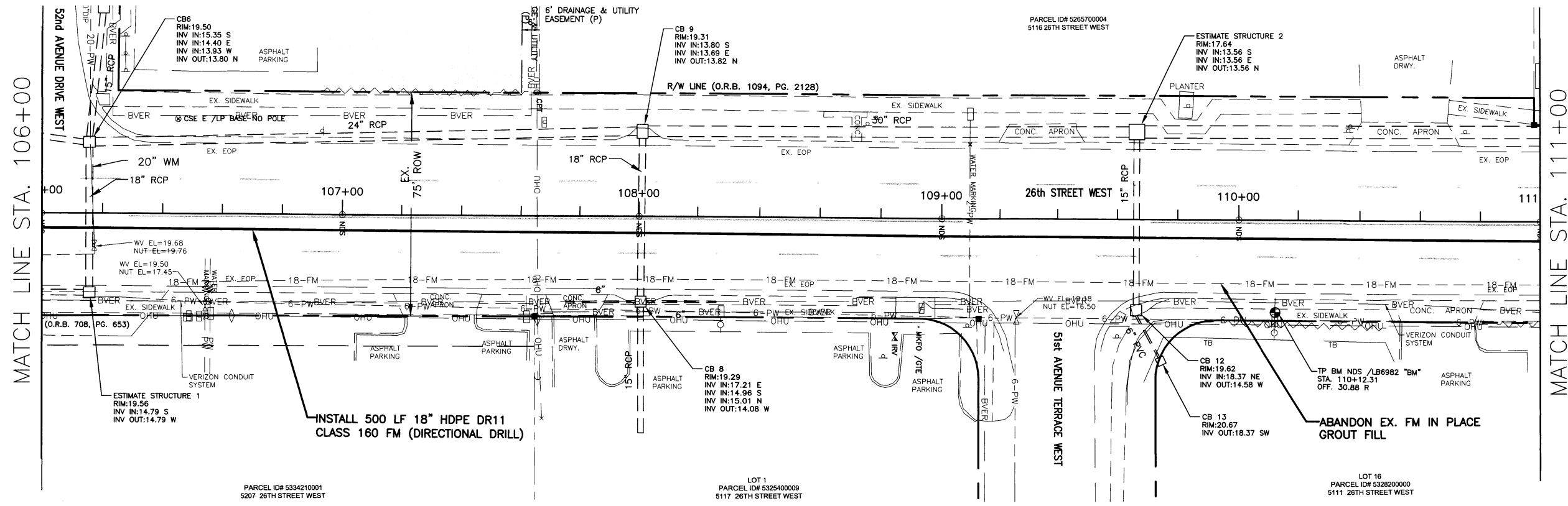
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DESIGNED: 05/29/11  
 CHECKED: 05/29/11  
 DATE: 08/20/11  
 PROJECT: 11/29/11  
 JOHN S. SHOUN P.E.  
 FLORIDA P.E. # 60923

Signature & Date  
 4/26/13  
**SHEET 4**

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CONTRACTOR SHALL REFERENCE SECTION 14 IN THE  
CURRENT MANATEE COUNTY UTILITY STANDARDS FOR  
RECORD DRAWING REQUIREMENTS.



- NOTES:
- SEPARATION DISTANCES SHOWN ON PLANS ARE FOR FINAL INSTALLATION. APPROPRIATE ADJUSTMENTS SHOULD BE MADE TO THE BORE PATH TO ALLOW FOR REAMER PULL BACK.
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THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**

**26TH ST. W. FROM HERON WAY TO 53RD AVE. W.**

**PLAN & PROFILE STA. 106+00 TO 111+00**

| NO. | REVISION DESCRIPTION | BY | DATE |
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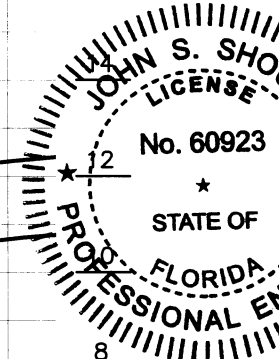
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| PROJECT # | 415-6081280  |
| DRAWN #   | 0019606      |
| SCALE     | 1"=40'       |
| BY        | DATE         |
| SURVEY    | ZNS 09/02/11 |
| DESIGNED  | JSS 09/29/11 |
| INSP.     | JEA 10/29/11 |
| APPROVED  | JSS 11/29/11 |

JOHN S. SHOUN P.E.  
FLORIDA P.E. # 60923

*[Signature]*  
4/24/13

Signature & Date



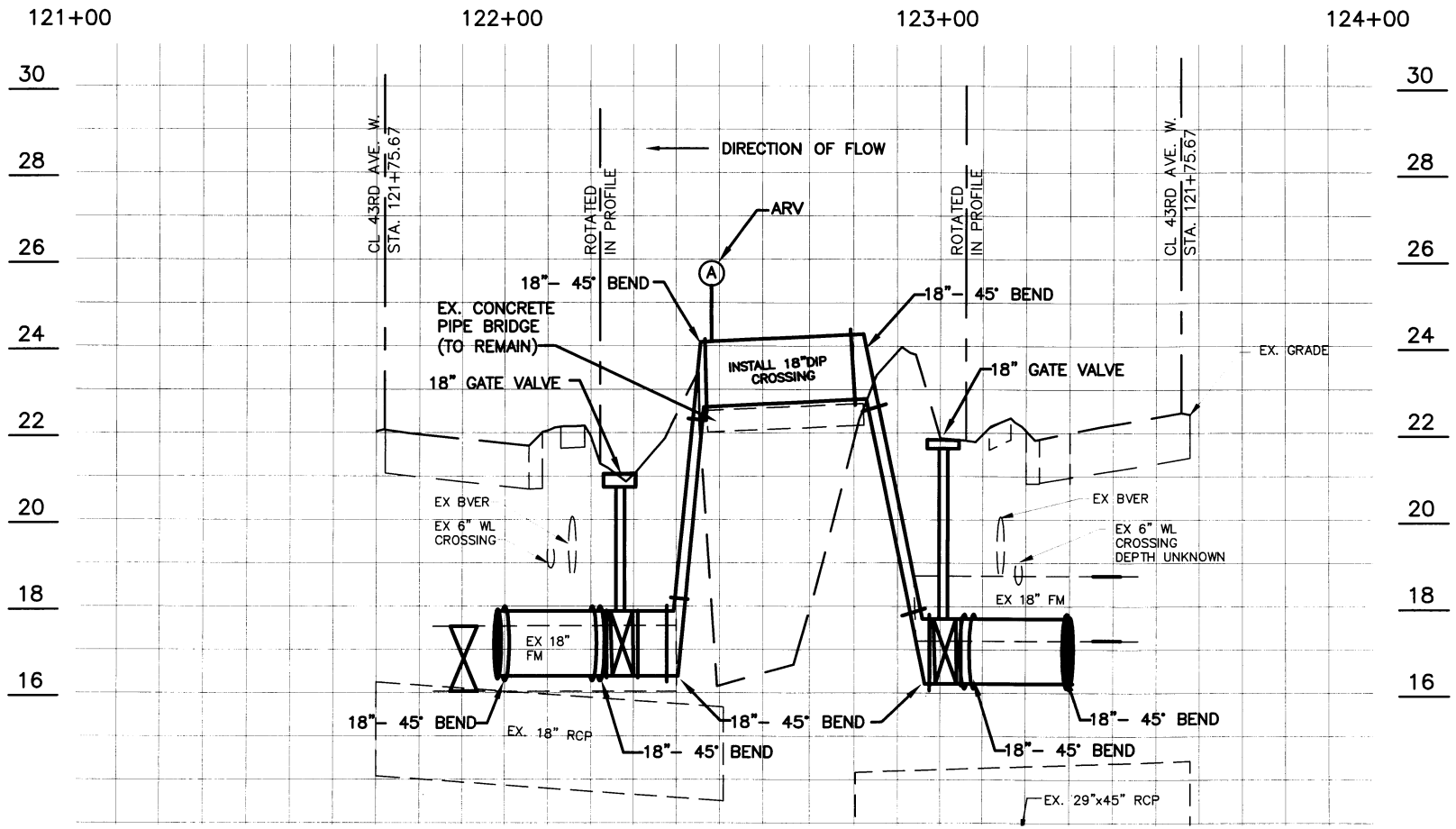
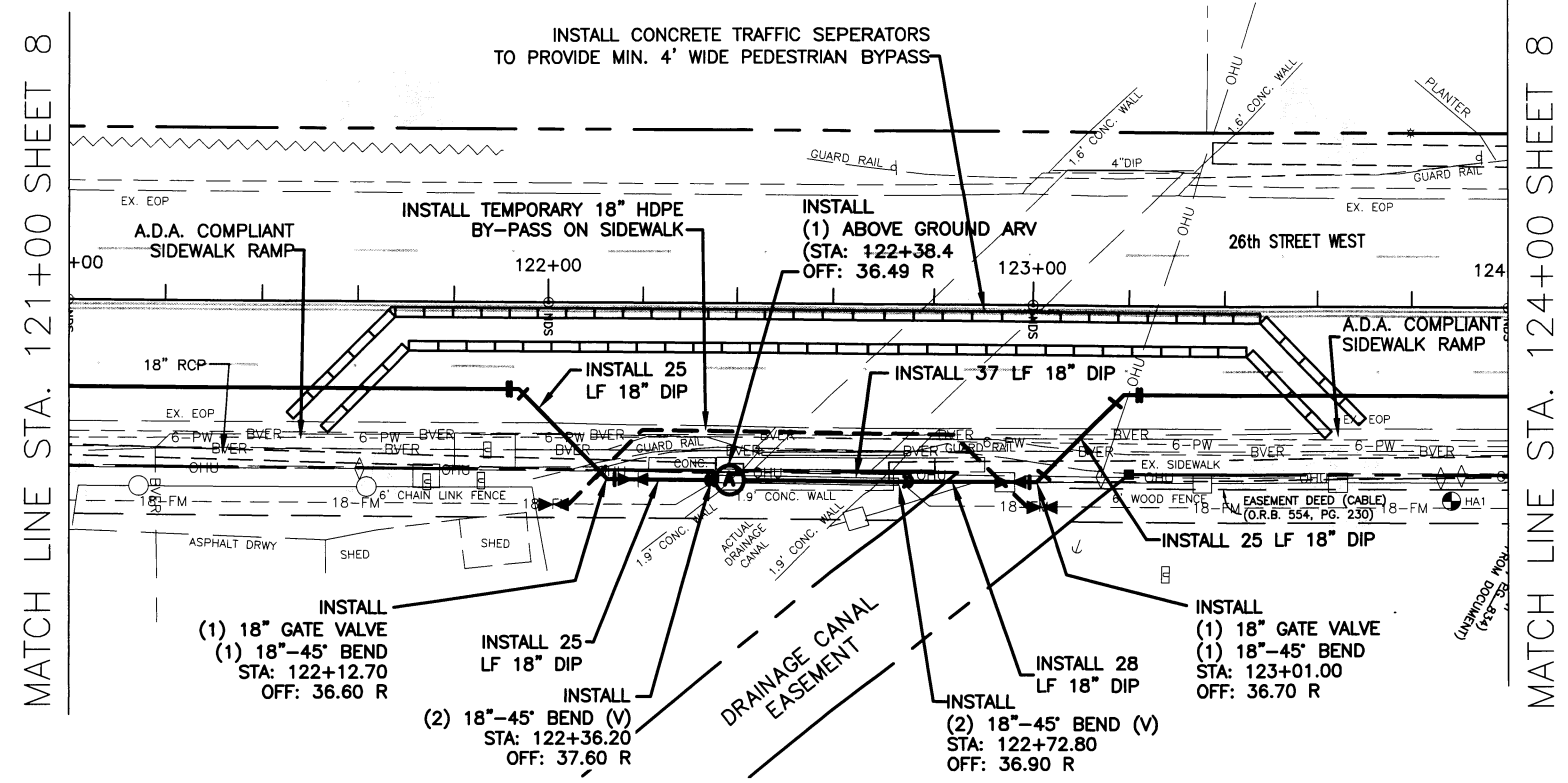
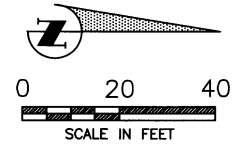
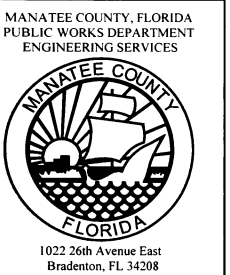








CONTRACTOR SHALL REFERENCE SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS FOR RECORD DRAWING REQUIREMENTS.



NOTES:

1. A REPORT ON MEANS AND METHODS ON HOW THE EXISTING FORCE MAIN WILL BE BY-PASSED AND NEW FORCE MAIN INSTALLED SHALL BE PROVIDED TO THE COUNTY FOR REVIEW FOURTEEN (14) DAYS PRIOR TO IMPLEMENTATION, INCLUDING A TEMPORARY A.D.A. ACCESSIBLE SIDEWALK BYPASS.
2. FORCE MAIN AERIAL CROSSING (ABOVEGROUND) SHALL USE PUSH-ON RESTRAINED JOINT PIPE AND CLASS 53. THE AERIAL CROSSING SHALL BE FULLY RESTRAINED. THE UNDERGROUND PORTION SHALL BE RESTRAINED PER DETAIL US-9.
3. THE AERIAL DUCTILE IRON PIPE FORCE MAIN CROSSING SHALL BE HYDRAULICALLY TESTED SEPARATELY FROM THE OTHER PORTIONS OF THE FORCE MAINS.
4. CONTRACTOR TO REPLACE EXISTING WOOD PIPE SUPPORTS, METAL STRAPS, AND ANCHOR BOLTS WITH NEW PRESSURE TREATED WOOD SUPPORTS, STAINLESS STEEL (304) METAL STRAPS, AND ANCHOR BOLTS. MATCH EXISTING DIMENSIONS. THE ABOVEGROUND DIP FORCE MAIN PIPE SHALL BE PAINTED PANTONE 357 (GREEN). COLOR SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION.

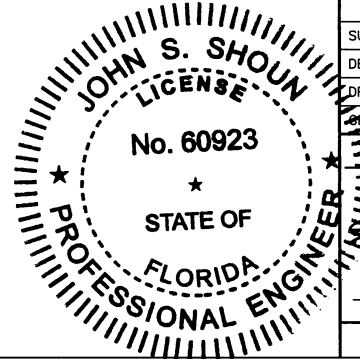
THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**PLAN & PROFILE BRIDGE CROSSING**

| NO. | REVISION DESCRIPTION | BY | DATE |
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| PROJECT #      | 415-6081280 |
| SURVEY #       | 0019606     |
| SEC./TWN./RGE. | VARIES      |
| SCALE          | 1"=40'      |

|          | BY  | DATE     |
|----------|-----|----------|
| SURVEYED | ZNS | 09/02/11 |
| DESIGNED | JSS | 09/29/11 |
| DRAWN    | JEA | 10/29/11 |
| CHECKED  | JSS | 11/29/11 |



JOHN S. SHOUN P.E.  
 FLORIDA P.E. # 60923  
 Signature & Date  
 SHEET 9

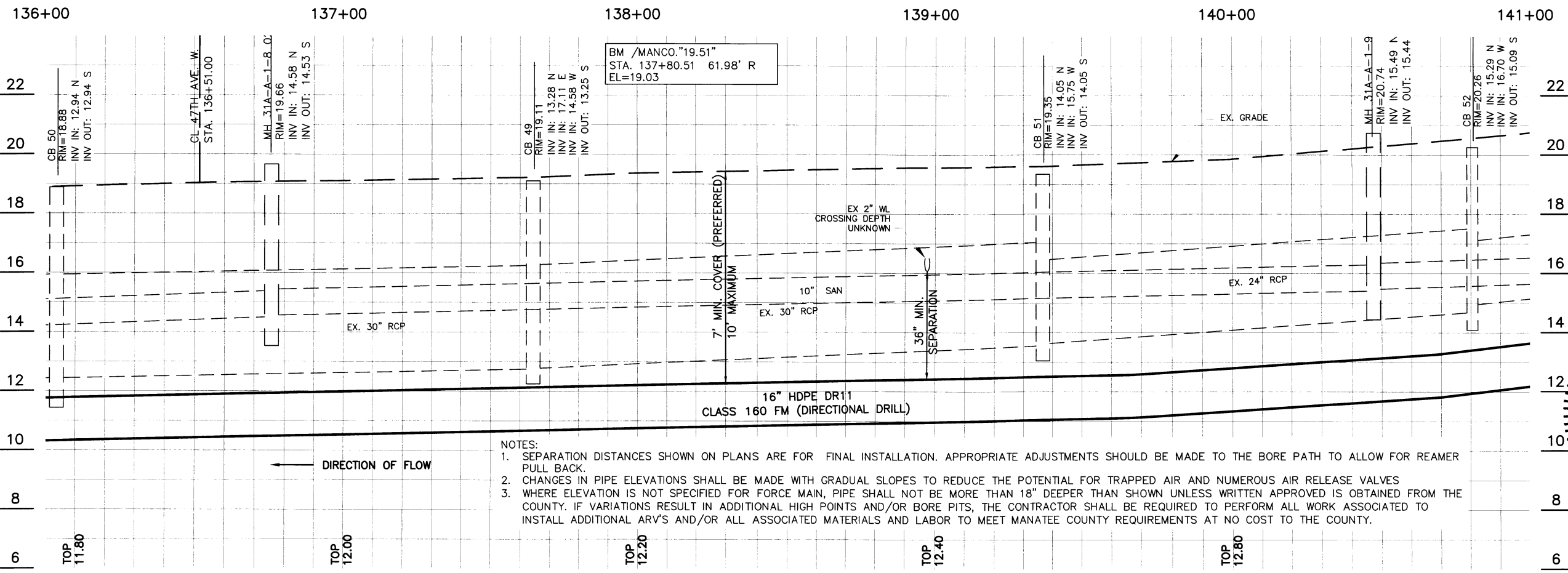
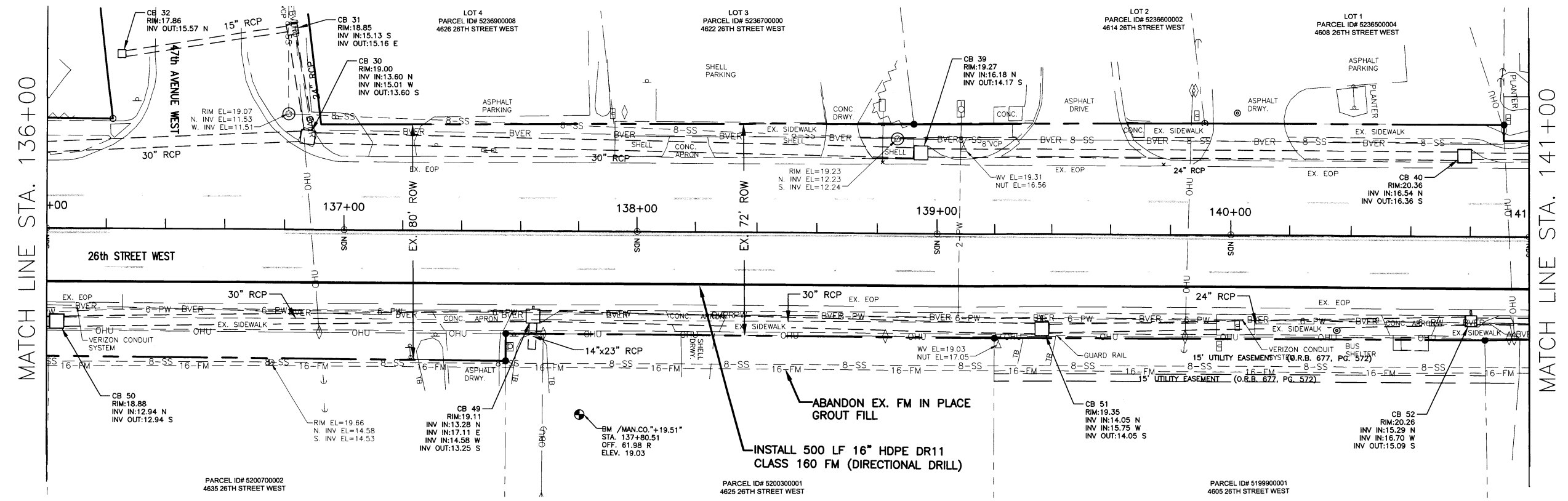
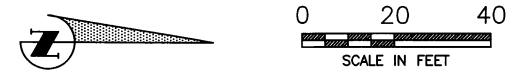
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CONTRACTOR SHALL REFERENCE SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS FOR RECORD DRAWING REQUIREMENTS.



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THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**

**26TH ST. W. FROM HERON WAY TO 53RD AVE. W.**

**PLAN & PROFILE STA. 136+00 TO 141+00**

| REVISION DESCRIPTION | BY | DATE |
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**JOHN S. SHOUN**  
LICENSED PROFESSIONAL ENGINEER  
No. 60923  
FLORIDA

415-6081280  
0019606  
SEC./TWN./RGE  
=40'  
DATE  
12/09/02/11  
09/29/11  
10/29/11  
11/29/11

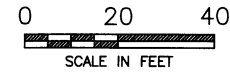
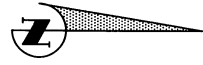
Signature & Date  
*J. Shoun*  
4/24/13  
SHEET 12

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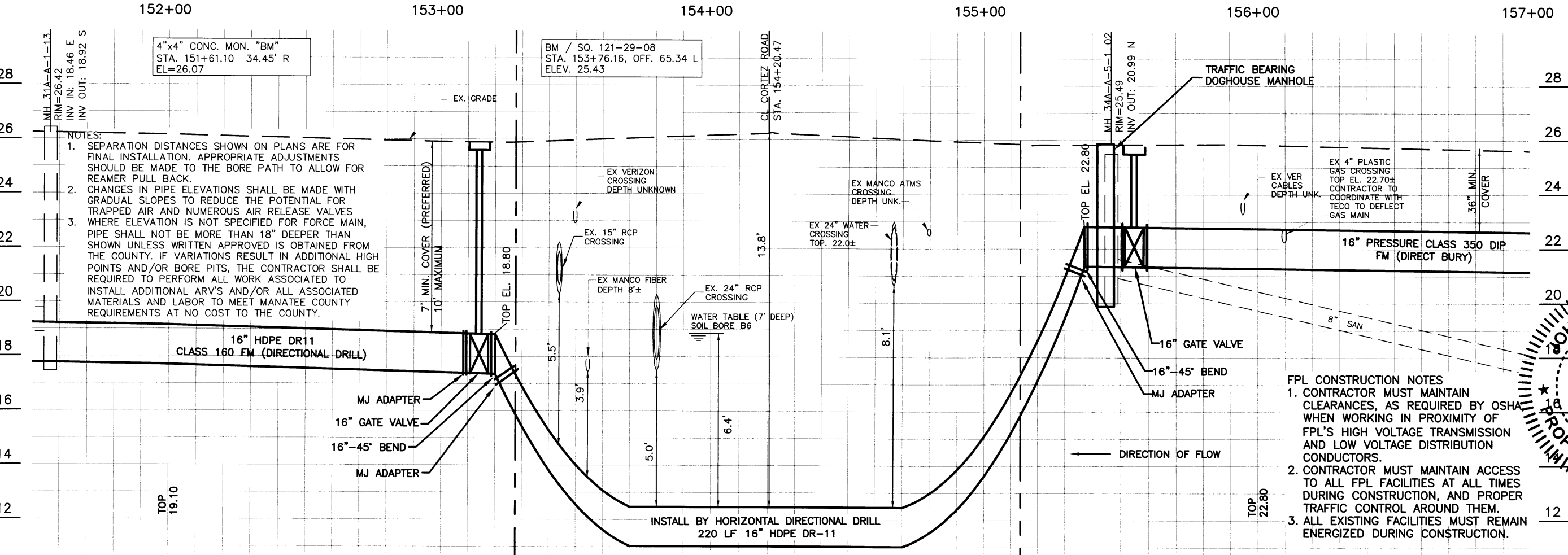
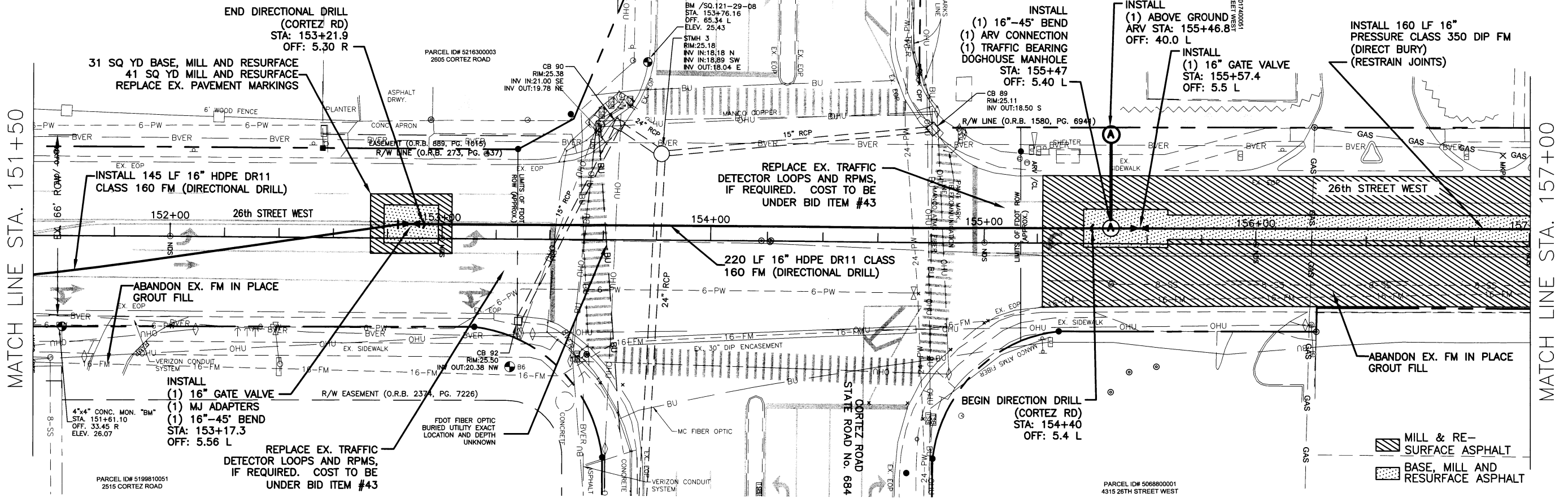
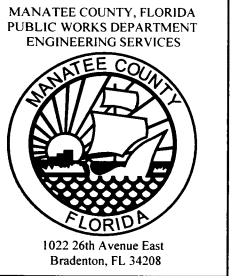








CONTRACTOR SHALL REFERENCE SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS FOR RECORD DRAWING REQUIREMENTS.

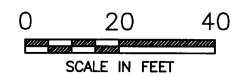


NOTES:  
1. SEPARATION DISTANCES SHOWN ON PLANS ARE FOR FINAL INSTALLATION. APPROPRIATE ADJUSTMENTS SHOULD BE MADE TO THE BORE PATH TO ALLOW FOR REAMER PULL BACK.  
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FPL CONSTRUCTION NOTES  
1. CONTRACTOR MUST MAINTAIN CLEARANCES, AS REQUIRED BY OSHA WHEN WORKING IN PROXIMITY OF FPL'S HIGH VOLTAGE TRANSMISSION AND LOW VOLTAGE DISTRIBUTION CONDUCTORS.  
2. CONTRACTOR MUST MAINTAIN ACCESS TO ALL FPL FACILITIES AT ALL TIMES DURING CONSTRUCTION, AND PROPER TRAFFIC CONTROL AROUND THEM.  
3. ALL EXISTING FACILITIES MUST REMAIN ENERGIZED DURING CONSTRUCTION.

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS  
**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO 53RD AVE. W.**  
**PLAN & PROFILE STA. 151+50 TO 157+00**

Professional Engineer Seal for John G. Shoun, No. 60923, State of Florida. Includes a signature and date stamp: 4/26/13.



CONTRACTOR SHALL REFERENCE SECTION 14 IN THE CURRENT MANATEE COUNTY UTILITY STANDARDS FOR RECORD DRAWING REQUIREMENTS.

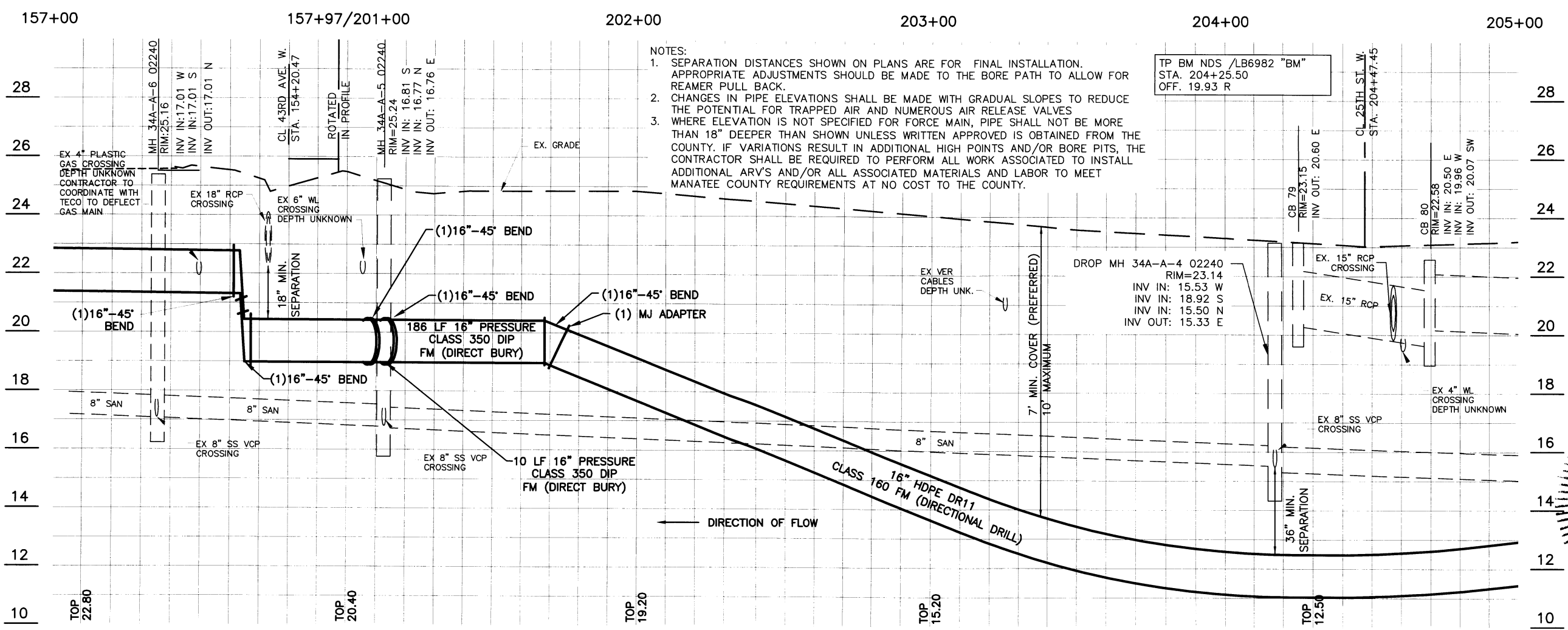
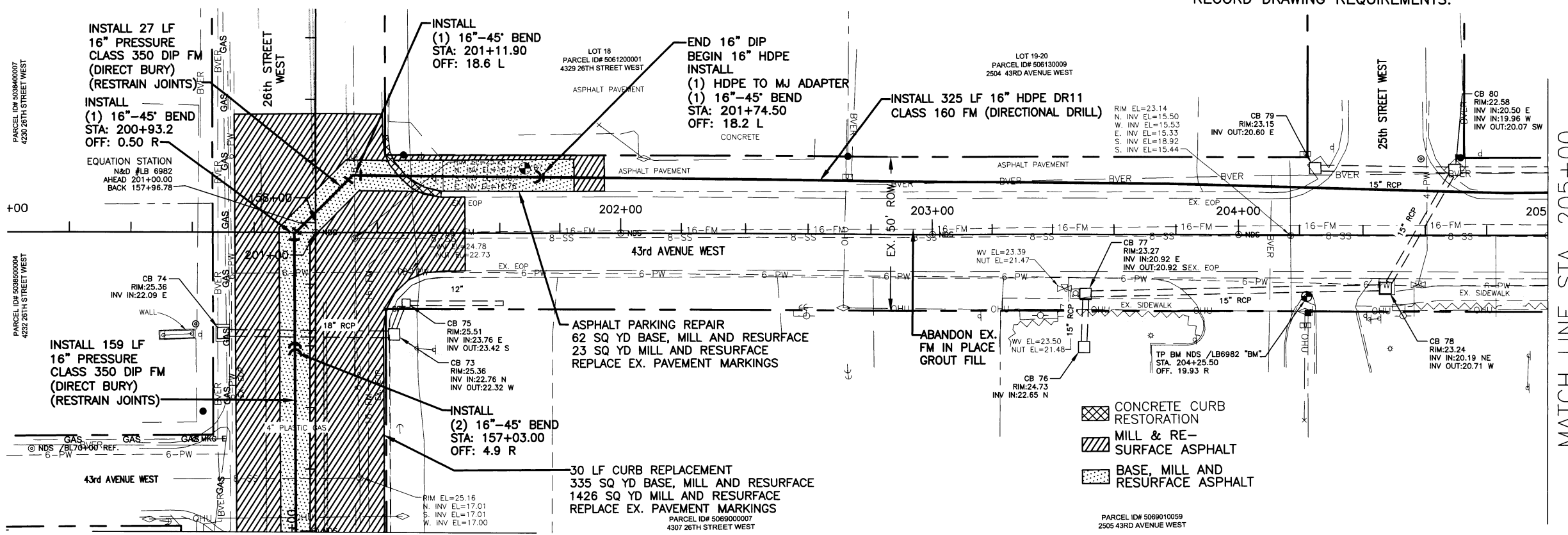


THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS  
**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**PLAN & PROFILE STA. 157+00 TO 205+00**

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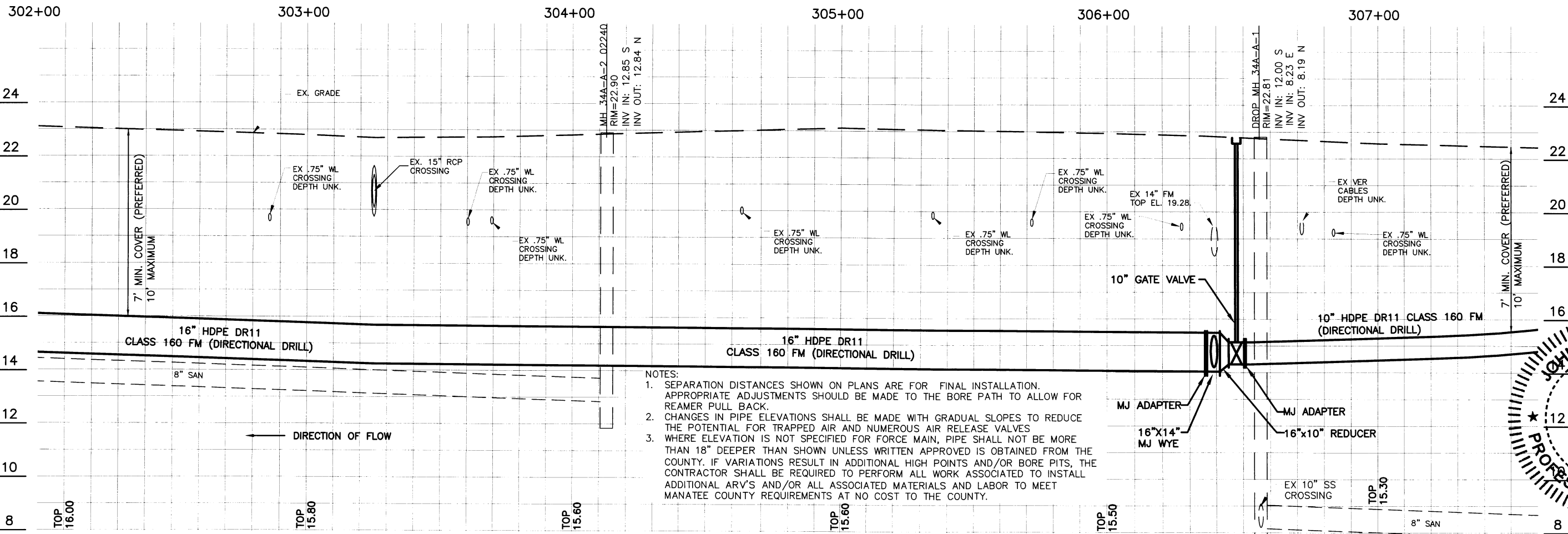
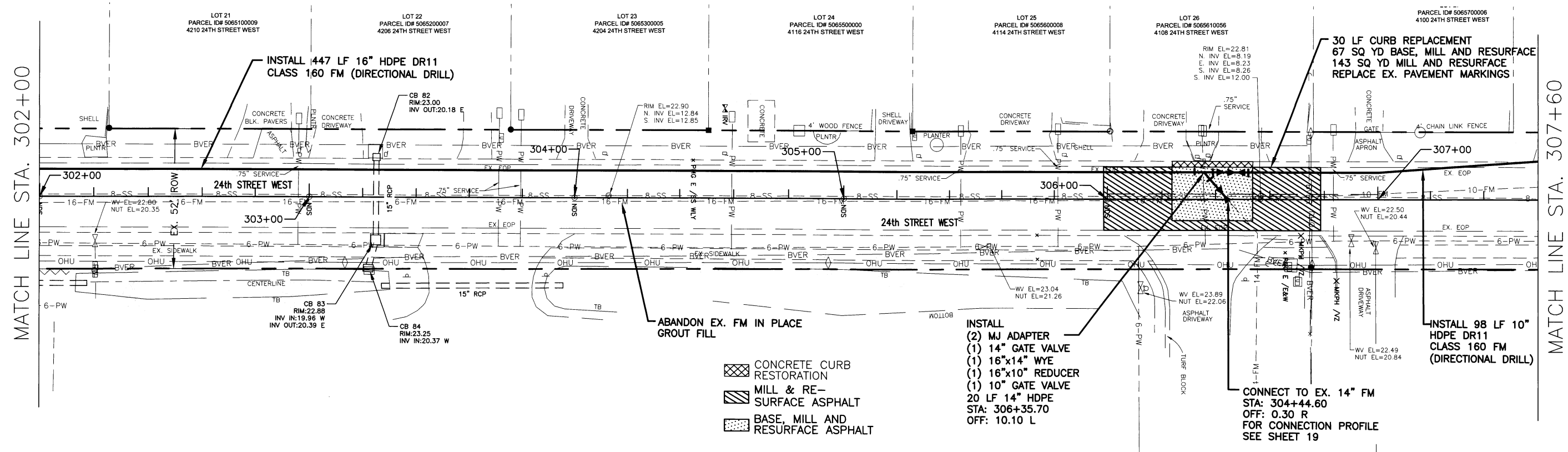
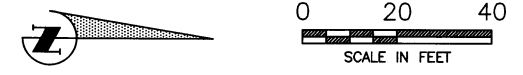
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| PROJECT #           | 415-6081280         |
| SURVEY #            | 0019606             |
| DATE                | VARIES              |
| SCALE               | 1"=40'              |
| SURVEYED            | ZNS 09/02/11        |
| DRAWN               | JSS 09/29/11        |
| CHECKED             | JSS 09/29/11        |
| DESIGNED            | JSS 09/29/11        |
| STATE OF FLORIDA    | JOHN S. SHOWN, P.E. |
| FLORIDA LICENSE NO. | 60923               |
| Signature & Date    |                     |







CONTRACTOR SHALL REFERENCE SECTION 14 IN THE  
CURRENT MANATEE COUNTY UTILITY STANDARDS FOR  
RECORD DRAWING REQUIREMENTS.



THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A  
26TH ST. W. FROM HERON WAY TO  
53RD AVE. W.  
PLAN & PROFILE STA. 302+00 TO 307+60**

| NO. | REVISION DESCRIPTION | BY | DATE |
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| PROJECT #             | 415-6081280  |
| SURVEY #              | 0019606      |
| SEC. PLAN #           | VARIES       |
| SCALE                 | AS SHOWN     |
| DATE                  |              |
| SURVEYED              | ZNS 09/28/11 |
| DESIGNED              | JSS 09/28/11 |
| DRAWN                 | JEA 10/28/11 |
| CHECKED               | JSS 10/28/11 |
| STATE OF FLORIDA      |              |
| PROFESSIONAL ENGINEER |              |
| FLORIDA P.E. #        | 60923        |
| Signature & Date      |              |







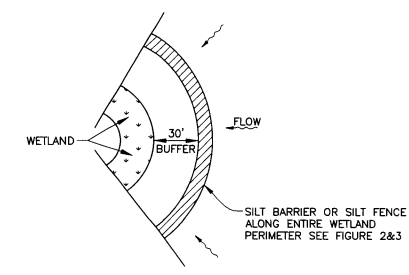




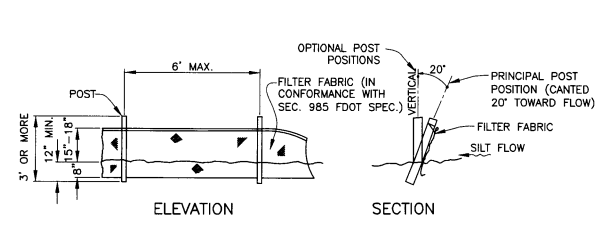
THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**

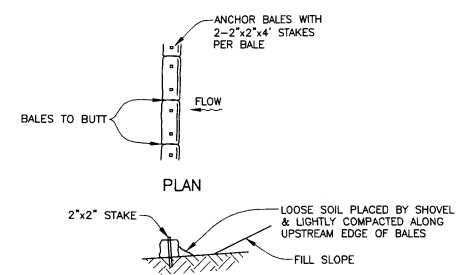
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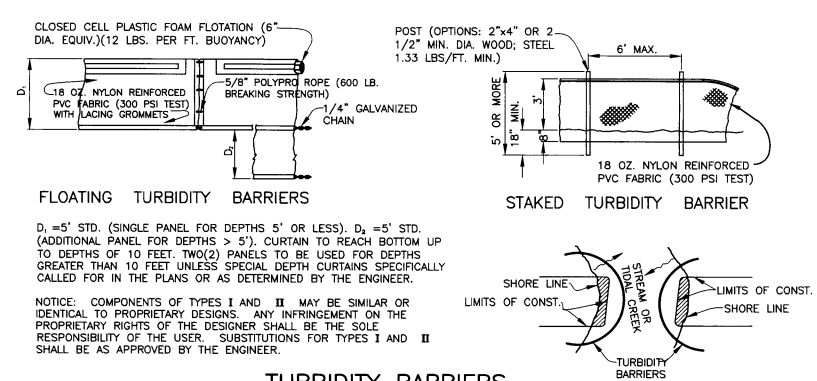
**WETLAND BUFFER**  
FIGURE 1



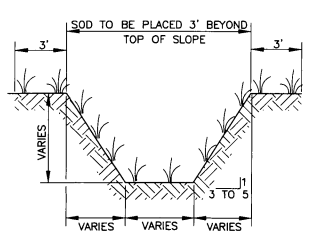
**TYPICAL SILT FENCE**  
FIGURE 2



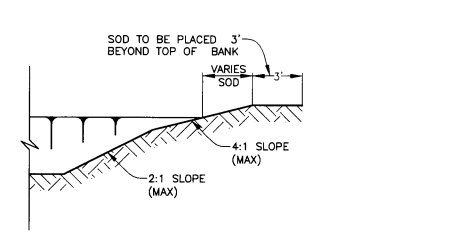
**TYPICAL BALE SILT BARRIER**  
FIGURE 3



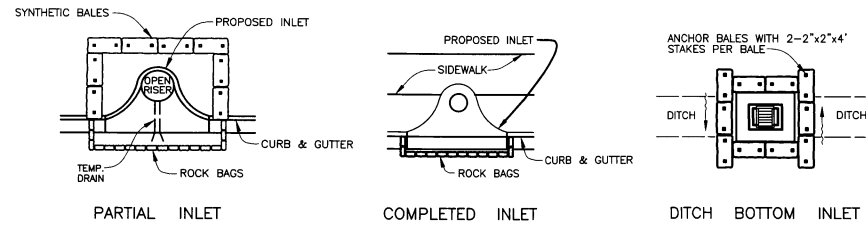
**TURBIDITY BARRIERS**  
FIGURE 4



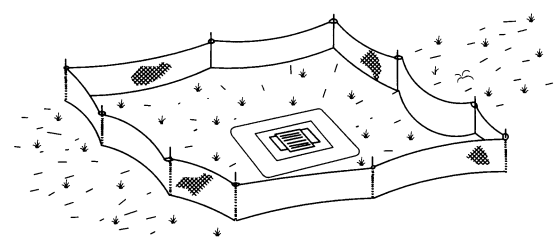
**TYPICAL SWALE SECTION**  
FIGURE 5



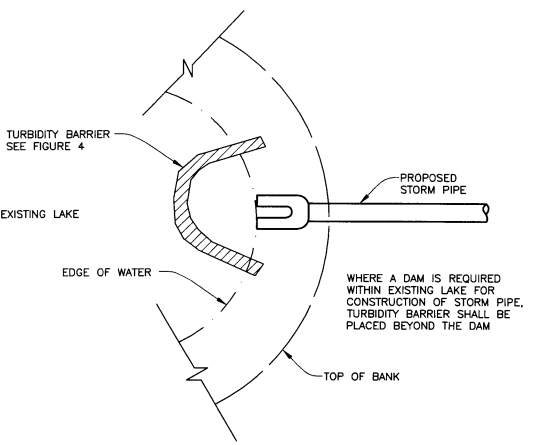
**TYPICAL RETENTION/DETENTION POND SECTION**  
FIGURE 6



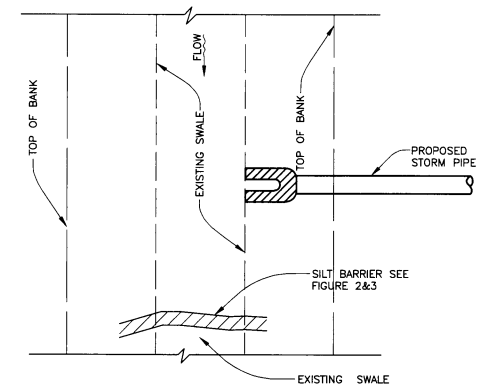
**SYNTHETIC BALE PROTECTION AROUND INLETS OR SIMILAR STRUCTURES**  
FIGURE 7



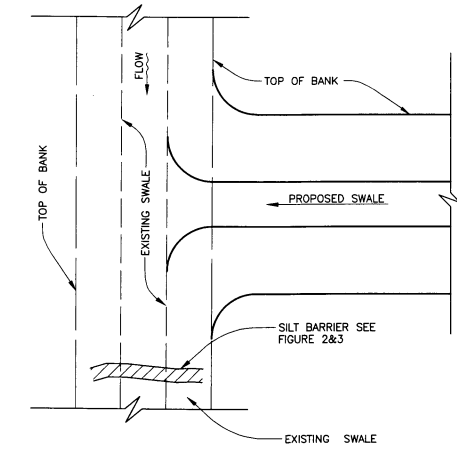
**TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**  
**STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**  
FIGURE 8



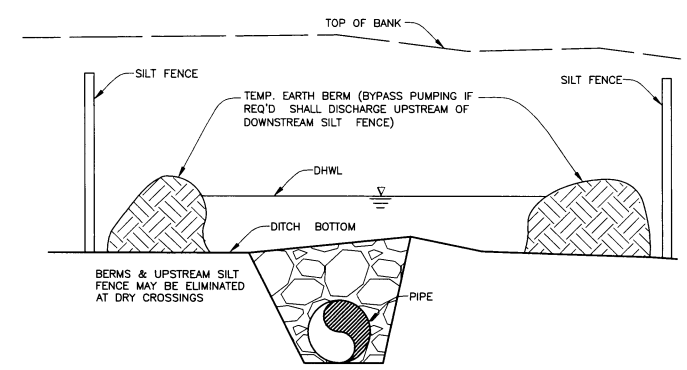
**TURBIDITY BARRIER AT CONNECTION OF STORM PIPE TO EXISTING LAKE**  
FIGURE 9



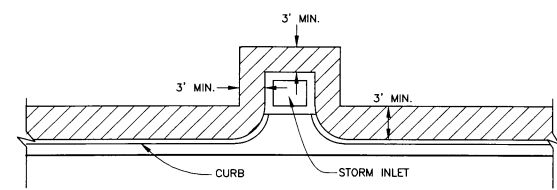
**SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE**  
FIGURE 10



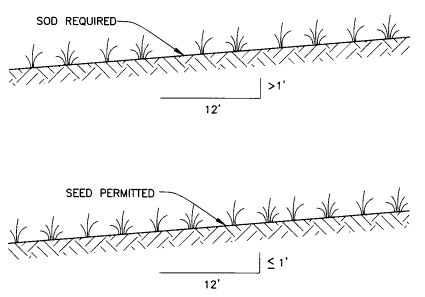
**SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE**  
FIGURE 11



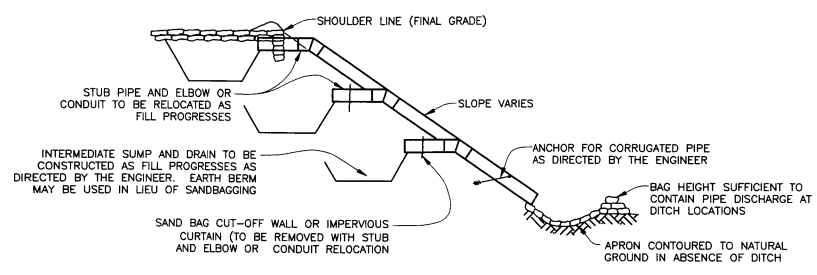
**UNDERGROUND PIPE CROSSING**  
FIGURE 12



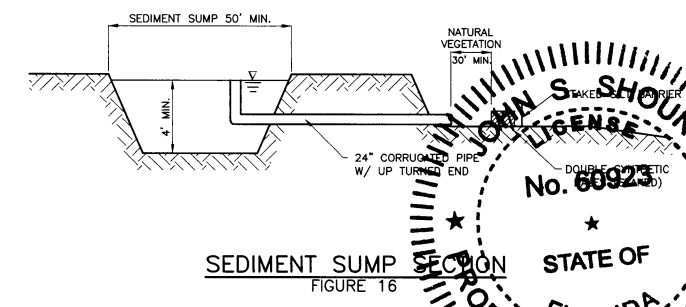
**SOD ALONG CURB AND AROUND INLET**  
FIGURE 14



**GRASS SLOPES**  
FIGURE 13



**SECTION AA**  
**TEMPORARY SLOPE DRAIN**  
FIGURE 15



**SEDIMENT SUMP SECTION**  
FIGURE 16

**NOTE:**  
REFERENCE THE FDOT DESIGN STANDARDS LATEST EDITION FOR ALL TEMPORARY EROSION CONTROL MEASURES.

**JOHN S. SHOUN**  
LICENSE  
No. 60923  
FLORIDA PROFESSIONAL ENGINEER

| NO. | REVISION DESCRIPTION | BY | DATE |
|-----|----------------------|----|------|
|     |                      |    |      |
|     |                      |    |      |
|     |                      |    |      |
|     |                      |    |      |

|               |             |
|---------------|-------------|
| PROJECT #     | 415-6081280 |
| SURVEY #      | 0019606     |
| SEC./TWN./RGE | VARIES      |
| SCALE         |             |

|          | BY  | DATE     |
|----------|-----|----------|
| SURVEYED | ZNS | 09/02/11 |
| DESIGNED | JSS | 09/29/11 |
| DRAWN    | JEA | 10/29/11 |
| CHECKED  | JSS | 11/29/11 |

JOHN S. SHOUN P.E.  
FLORIDA P.E. # 60923

*[Signature]*  
4/24/13  
Signature & Date

**SHEET 23**

S:\PMD\_Engineering\_Shore\Util\_Eng\_Design\PROJ\34A\_SNR\_Proj\34A\_SNR\_34A\_Replacement\DWGS\Cover\_FM\_Replacement\_LS\_34A.dwg, 23 Erosion Control Util\_5/3/2013 10:21 AM Shep Shoun, 1:1, ANSI full bleed B (17.00 x 11.00 inches)





**SURVEYOR'S REPORT**

**FORCE MAIN - 34A REPLACEMENT**  
**MANATEE COUNTY PROJECT NO. 6081280**

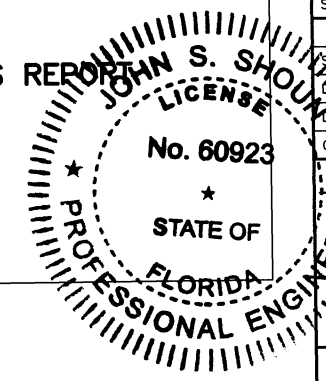
I hereby certify that:

1. I am a Professional Surveyor and Mapper, registered in the State of Florida, holding Certificate No. PSM 4295 and that I am acting on behalf of ZNS Engineering, L.C., a corporation authorized to offer services of registered Surveyors and Mappers in the State of Florida, holding L.B. No. 6982.
2. This certificate is made to Topographic Survey of Force Main 34A Replacement. Route of survey is south along 24<sup>th</sup> Street West from Lift Station 239 to 43<sup>rd</sup> Avenue West, west to 26<sup>th</sup> street West, south along 26<sup>th</sup> street West to 53<sup>rd</sup> Avenue West. Survey prepared for force main replacement.
3. I hereby certify that the survey prepared under my direct supervision (Project No. 6081280) is to the best of my knowledge, information and belief, a true and correct representation of the existing improvements shown and meets the requirements of Chapter 5J-17, Florida Administrative Code, as it pertains to Topographic Surveys.
4. The bearings shown are based on the survey baseline of 26<sup>th</sup> Street West from 10+00 to Station 66+97 having a bearing of N 00° 16' 40" E and are related to Florida State Plane Coordinate System, (West Zone) NAD 83/90. Derived from Control Monument G. Stroop CORS APR(DL7628).
5. Elevations shown are based on 1929 NGVD. The Benchmarks these elevations are derived from are:
  - Manatee County Benchmark White Ash , Elevation= 19.28'
  - Manatee County Benchmark #121-29-08, Elevation= 25.43'
6. Improvements such as, but not limited to, landscape features and subsurface improvements have not been located except as shown. The location of all subsurface improvements (utilities) should be verified in the field prior to any excavation.
7. No Instruments of record reflecting easements, rights of way and/or ownership are known by, or were furnished to this surveyor, except as shown hereon.
8. Monuments at property corners depicted were not recovered or set, unless noted.
9. Parcel information shown hereon was gathered from the Manatee County Geographic Information System Property Information web site.
10. This survey does not warranty: title, zoning, easements or ownership.

Date: September 22, 2011

*James N. Gatch*  
James N. Gatch, PSM  
Professional Surveyor and Mapper  
Florida License No. 4295

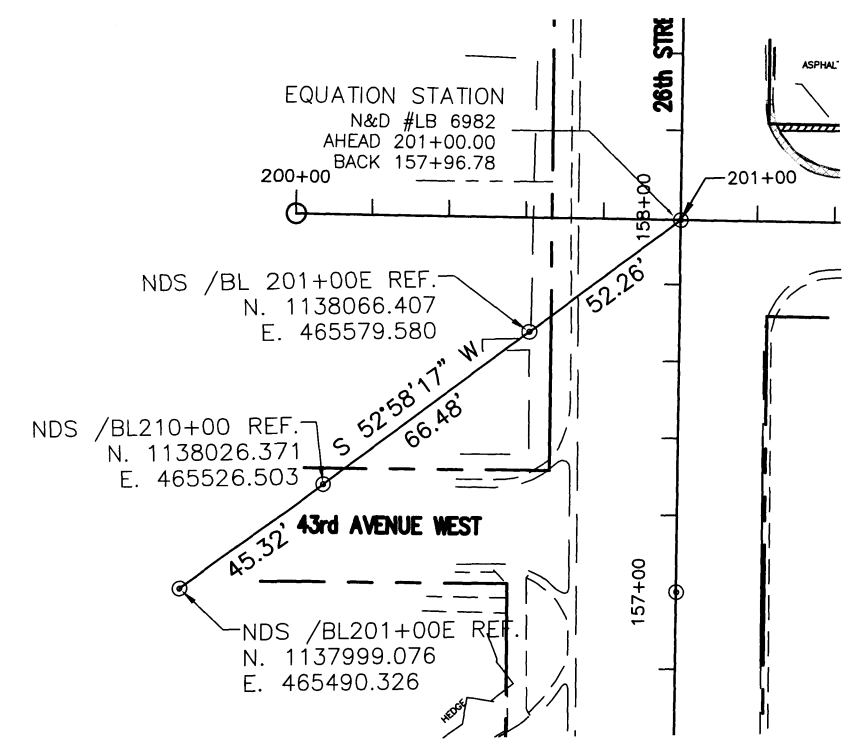
COPY OF SURVEYOR'S REPORT



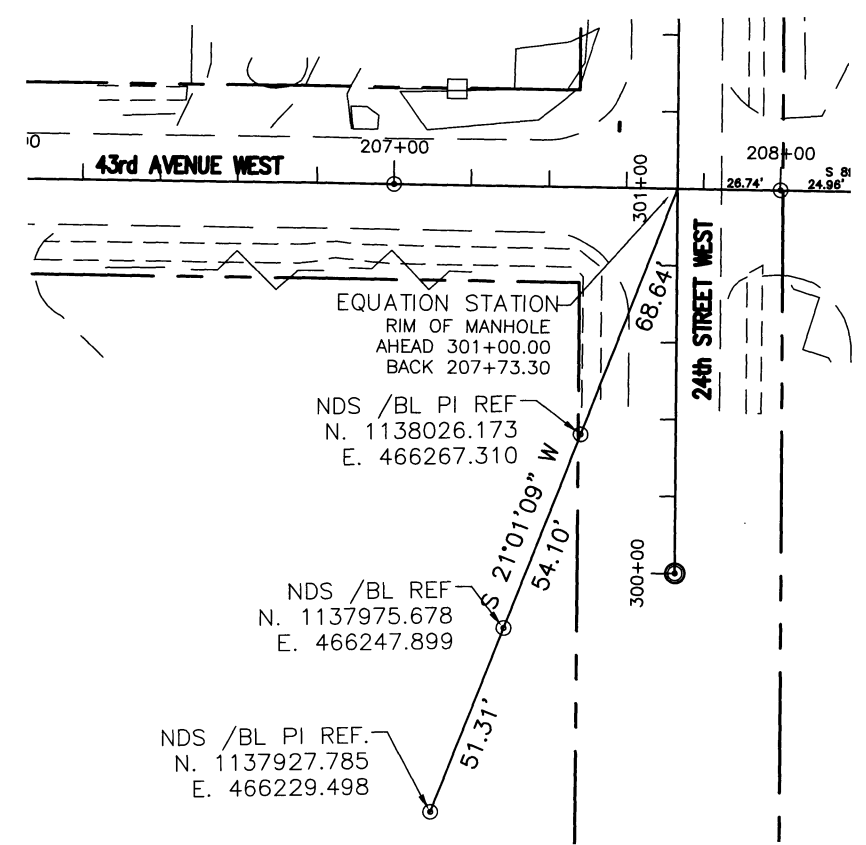
JOHN S. SHOUN P.E.  
FLORIDA P.E. # 60923  
*John S. Shoun*  
4/24/13  
Signature & Date  
**SHEET 25**

THESE PLANS HAVE BEEN DESIGNED ON 11x17 SHEETS

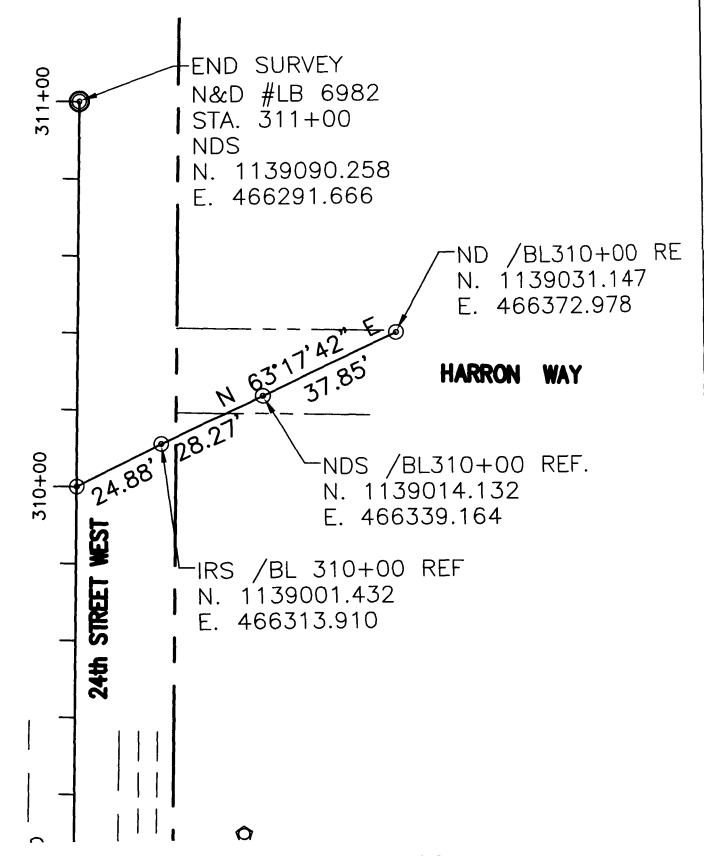
**FORCE MAIN REPLACEMENT 34A**  
**26TH ST. W. FROM HERON WAY TO**  
**53RD AVE. W.**  
**SURVEY CONTROL**



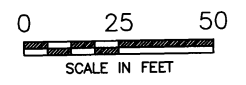
**STATION 157+96.78 26 TH ST. W. BASELINE**  
**STATION 210+00.00 43RD AVE. W. BASELINE**



**STATION 207+73.30 43RD AVE. W. BASELINE**  
**STATION 301+00.00 24TH ST. W. BASELINE**



**STATION 310+00.00**  
**24TH ST. W. BASELINE**



**NOTE:**  
**ALL SURVEY INFORMATION**  
**IS PROVIDED BY ZNS**  
**ENGINEERING.**