



CITY OF VENICE, FLORIDA

Procurement- Finance Department

**401 W. Venice Avenue
Venice, FL 34285**

Invitation to Bid

ITB Number 2975-13

Date of Issue: October 12, 2013

Submission Deadline: November 14, 2013 at 2:00 PM

Title and Purpose of ITB:

Water Main Replacement Program- Phase I

INVITATION TO BID

The City of Venice invites sealed bids from qualified bidders to provide the following goods or services, which is described in detail in the Specifications.

Bid No.: 2975-13

Bid Title: Water Main Replacement Program- Phase I

PROJECT DESCRIPTION: The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by these Specifications and as shown on the Drawings. The Contractor shall perform the work complete, in place and ready for continuous service, and shall include repairs, testing, permits, clean-up, replacements and restoration required as a result of damages caused during this construction. All materials, equipment, skills, tools and labor which is reasonably and properly inferable and necessary for the proper completion of the work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not. The Contractor shall comply with all Municipal, County, State, Federal, and other codes which are applicable to the proposed construction work.

The project area is bound by Armada Street to the north, Villas Drive to the south, Harbor Drive to the east and Park Boulevard to the west plus Ponce DeLeon Avenue between Harbor Drive and Nassau Street South. The project also includes and a new replacement 8-inch water main under Hatchett Creek from Warfield Avenue North to Marcus Street.

BID OPENING LOCATION: City of Venice, Venice City Hall, Community Hall, room # 114,
401 West Venice Ave., Venice FL 34285

BID SUBMITTAL DEADLINE and BID OPENING DATE & TIME: November 14, 2013
at 2:00 PM

PRE-BID MEETING: YES DATE & TIME: October 25, 2013 at 2:00 PM

LOCATION: City of Venice, Venice City Hall, Community Hall, room # 114,
401 West Venice Ave., Venice FL 34285

Specifications and Bid documents are available by calling Onvia DemandStar at (800) 711-1712 or by their Internet address at <http://www.demandstar.com>. Proposers may also pick up Bid documents at the City of Venice Procurement- Finance Department, Room 204, 401 West Venice Ave., Venice Florida 34285, (941) 486-2626 Ext. 24002 at no charge.

A pre-bid meeting will be held on October 25, 2013 at 2:00 p.m., Venice City Hall, Community Hall, room #114, 401 West Venice Ave., Venice FL 34285. Representatives from the City will be present to discuss the overall project and the Invitation to Bid. Interested Firms are encouraged to attend.

All questions, comments, or concerns about this ITB must be submitted in writing to Mr. Jon Mayes, Procurement- Finance Department, for the City of Venice, Room 204, 401 West Venice Avenue, Venice, FL 34285 or e-mail at jmayes@venicegov.com. Mr. Mayes is the only designated representative of the City authorized to respond to comments, questions, and concerns. The City will not respond to comments, questions or concerns addressed to any person other than Mr. Mayes. If the City determines that a particular comment, question or concern necessitates a global response to all Proposers, the City will issue a clarifying memorandum or addendum. **The final day that the City will accept questions will be Wednesday, October 30, 2013 by 1:00 p.m.**

Bids must be submitted in **four sets** and at least one set must bear an original signature, in a sealed envelope marked **“Invitation to Bid # 2975-13: “Water Main Replacement Program- Phase I”** and mailed or delivered to the City of Venice- Purchasing Department, 401 W. Venice Ave. Room # 204, Venice, FL 34285, no later than the deadline specified. The City assumes no responsibility for bids received after the bid submittal time or at any location other than that specified, no matter what the reason. Late bids will be held unopened and will not be considered for award.

No bid will be received after the specified time for acceptance and no bidder may withdraw his bid within a period of one-hundred and eighty (180) days after the actual date of opening thereof.

Bids will be considered only from bidders who have the applicable license, if a license is required by the City of Venice and/or State of Florida, for the type of work specified. A copy of the applicable license must be submitted with bid if a license is required.

The City reserves the right to reject any or all bids in whole or in part, with or without cause, to waive any requirements, irregularities or technical defects therein, when it is deemed to be in the interest of the City.

CITY OF VENICE, FLORIDA

Publish: Saturday, October 12, 2013
Wednesday, October 16, 2013

SEALED INVITATION TO BID
CITY OF VENICE, FLORIDA
ITB# 2975-13

GENERAL CONDITIONS & INSTRUCTIONS TO OFFERORS

DEFINED TERMS

Terms used in this solicitation are defined and have the meaning assigned to them. The term "Offeror" means one that submits a proposal directly to CITY as distinct from a Sub-Offeror, who submits a Proposal to the Offeror. The term "Successful Offeror" means the qualified, responsible and responsive Offeror to whom the City of Venice (on the basis of CITY'S evaluation as hereinafter provided) makes an award. The term "CITY" refers to the City of Venice, a municipal corporation of the State of Florida. The term "ITB" refers to this Sealed INVITATION TO BID. The term "solicitation" refers to the entire ITB package and the Offeror's submittal as a response to this ITB. The term "submittal" refers to all documentation and information as submitted by the Offeror in response to this solicitation. The term "Department" refers to the State of Florida Department of Transportation.

1. OFFEROR REGISTRATION

Offerors who obtain solicitation documents from sources other than the City or download from <http://www.demandstar.com/> must officially register receipt of the solicitation with the City's Procurement- Finance Department in order to be placed on the notification list for any forthcoming addendum or other official communications. Failure to register as a prospective Offeror may cause your submittal to be rejected as non-responsive if you have submitted a response without acknowledgment of issued addenda. The City of Venice is not responsible for the accuracy of bid documents and information obtained from any source other than <http://www.demandstar.com/>.

2. CONTACT

All prospective Offerors are hereby instructed not to contact any member of the City of Venice City Council, City Manager, or City of Venice staff member other than the contact person indicated in this ITB regarding this solicitation or their submittal at any time prior to the final evaluation and recommended ranking by the City staff for this project. Any such contact shall be cause for rejection of your submittal.

3. ADDENDA AND INQUIRIES

- 3.1 If there is any doubt as to the true meaning of the specifications and information provided, Offerors may submit written or faxed inquiries regarding this solicitation to the Procurement- Finance Department, 401 West Venice Avenue, Room # 204 Venice, FL 34285, Fax No. (941) 486-2790. The City will respond to written or faxed inquiries received by the posted deadline for questions. Inquiries must reference the date and time of opening, and the solicitation number. Failure to comply with this condition shall result in the Offeror waiving their right to dispute the specifications and information provided in the solicitation document.
- 3.2 Any change to this solicitation shall be made by addenda duly issued to each registered Offeror. Receipt of such addenda must be so noted on or within your response. It is the Offeror's responsibility to make contact through the Internet or phone to determine if Addenda have been issued.
- 3.3 Oral Inquiries: The City will not respond to oral inquiries.

4. PUBLIC OPENING

Submittals shall be received in the Procurement- Finance Department, 401 W. Venice Ave, Venice, FL 34285 by the date and time indicated on these documents. As soon as possible thereafter, the names of the Offerors shall be read off at the specified location.

5. DELAYS

The City, at its sole discretion, may delay the scheduled due dates indicated above if it is to the advantage of the City to do so. The City will notify Offerors of all changes in scheduled due dates by written addenda.

6. PROPOSAL SUBMISSION AND WITHDRAWAL

6.1 Address to send submittal:

*Procurement- Finance Department
City of Venice – Purchasing Department
401 W. Venice Ave, Room # 204.
Venice, FL 34285*

- 6.2 The outside of the envelope/container must be identified with the solicitation number and title as stated above. The envelope/container must also include the Offeror's name and return address.
- 6.3 Submittals may be withdrawn by an appropriate document duly executed (in the manner that a Submittal must be executed) and delivered to the place where Submittals are to be submitted at any time prior to the deadline for submission. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to do so. Evidence of such authority must accompany the request for withdrawal or modification. Withdrawal of a Submittal will not prejudice the rights of an Offeror to submit a new Submittal prior to the opening date and time. After expiration of the period for receiving Submittals, no Submittal may be withdrawn or modified.
- 6.4 Withdrawal of Submittals after Opening Date: Submittals, once opened, become the property of the City and will not be returned to the Offerors. Submittals not so withdrawn before the opening constitute an irrevocable offer for a period of one-hundred-eighty (180) days to provide the City the

services set forth in these specifications until one or more of the proposals have been accepted by City staff. No Offeror may withdraw their proposal during this one-hundred-eighty (180) day period.

- 6.5 Number of Submittal Copies: Offerors shall submit four (4) complete sets (one original and three copies) of the submittal complete with all supporting documentation (i.e. photographs, drawings, and exhibits) in a sealed envelope/container marked as noted above.
- 6.6 Proposal Is Not Binding: The Offeror understands that responding to this solicitation does not constitute an agreement or contract with the Offeror. A submittal is not binding until submittal is reviewed and accepted by the appropriate level of authority and both parties execute a contract.
- 6.7 Responsibility for getting a submittal to the City on or before the specified date and time is solely and strictly that of the Offeror. The City will not be responsible for any delay, for any reason whatsoever. Submittals by telephone, telegram, facsimile machines, and Internet, will not be acceptable. Submittals must be received and stamped on the outside of the envelope with the time and date, in the Procurement- Finance Department by the date and time specified for opening.
- 6.8 LATE SUBMITTALS – Submittals received after the date and time of the opening will not be considered and will not be opened. It will be the Offeror's responsibility to make arrangements for the return of their submittal at their expense.
- 7. PRICES, TERMS AND PAYMENT:**
- Firm prices shall be bid F.O.B. requesting agency and include packing, handling and shipping charges fully prepaid by the vendor.
- 7.1 BID PRICE/MISTAKES: The bidder shall show in the proposal both the unit price and the total amount on items when indicated. In the event of discrepancy between the unit price and the extension, THE UNIT PRICE SHALL PREVAIL. Prices shall be extended in decimals.
- 7.2 INVOICING AND PAYMENT: The vendor shall be paid upon submission of proper certified invoices to the ordering agency at the prices stipulated on the contract. Invoices shall contain the purchase order number. THE VENDOR SHALL ACCEPT NO ORDER WITHOUT A PURCHASE ORDER NUMBER FROM THE CONTRACTING ENTITY. The City reserves the right to pay for purchases made under any agreement resulting from a solicitation through its Purchasing Card Program which utilizes VISA credit cards. Check or the ACH (Automated Clearing House) process may also be used if the City desires to select this form of payment. When payment is received utilizing the City credit card, an original invoice should not be mailed to the Finance Department. Only the credit card receipt is issued for this charge with the original receipt being provided with the delivery to the individual cardholder placing the order. No surcharges will be accepted for the use of purchasing cards.
- 7.3 TAXES: The purchase of certain items by the Contracting Entity are exempt from the payment of

excise, transportation and sales tax imposed by the Federal, State and/or City governments. Such taxes must not be included in proposal prices. Upon request, applicable Federal Excise Exemption certificates will be furnished.

8. CONDITION AND PRICING:

It is understood and agreed that any item offered or shipped as a result of this bid shall be new (current model at the time of this bid). All containers shall be suitable for storage or shipment and all prices shall include standard commercial packaging.

9. SAFETY STANDARDS:

Unless otherwise stipulated in the bid, all manufactured items or fabricated assemblies shall comply with applicable requirements of occupational Safety and Health Act and any standards

10. MANUFACTURER'S NAME AND APPROVED EQUIVALENTS:

Any manufacturer's names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition unless otherwise indicated. The bidder may offer any brand for which he/she is an authorized representative, which meets or exceeds the bid specification for any item(s). If bids are based on equivalent products, indicate on the bid form the manufacturer's product name and reference number. Bidder shall submit with his/her proposal, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous bid will not satisfy this provision. The bidder shall explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Bids that do not comply with these requirements, are subject to rejection. Bids lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the bid form. The City's Procurement- Finance Department is to be notified of any proposed changes in (a) materials used, (b) manufacturing process, or (c) construction. However, changes shall not be binding upon the City unless evidenced by a Change Notice issued and signed by the Procurement- Finance Department or designated representative.

11. DELIVERY:

All prices shall be F.O.B. Destination, Venice, Florida. Delivery date and warranties must be written out and submitted with bids. Delivery dates, as specified, must be met.

12. ADDITIONAL PURCHASES ("PIGGY-BACK") BY OTHER PUBLIC AGENCIES:

The vendor, by submitting a bid, authorizes other Public Agencies to "Piggy-Back" or purchase equipment or services being proposed in this invitation to bid at prices bid unless otherwise noted on the proposal sheet.

13. SUBMITTAL PREPARATION COST

The City shall not be liable for any expense incurred in connection with preparation of a submittal to this document. Offerors should prepare a straightforward and

concise description of the Offeror's ability to meet the requirements of this document.

14. ACCURACY OF SUBMITTAL INFORMATION

Any Offeror, who states in their submittal any information that is determined to be substantially inaccurate, misleading, exaggerated, or incorrect, shall be disqualified from consideration.

15. LICENSES

Licensed and Certified: Offeror's, both corporate and individual, must be fully licensed and certified for the type of work to be performed in the state of Florida at the time of submittal and during the entire Contract time.

16. LOCAL PREFERENCE

16.1 Unless otherwise noted in the solicitation, preference shall be given to a "local business" in the awarding of any Invitation to Bid (ITB), Request for Proposal (RFP) or Request for Qualifications (RFQ) in accordance with Section 2-217 of the City of Venice's Code. Local preference shall not apply to other types of solicitations unless explicitly stated in the subject solicitation.

16.2 "Local business" means the vendor has paid a local business tax to either Sarasota, Manatee, DeSoto or Charlotte County, whichever county the vendor is located, if applicable prior to bid submission that authorizes the vendor to provide the commodities or services to be purchased, and maintains a permanent physical business address located within the limits of either Sarasota, Manatee, DeSoto or Charlotte County from which the vendor operates or performs business, and at which at least one full time employee is located.

16.3 In addition, fifty percent (50%) or more of the employees based at the local business location must reside within Sarasota, Manatee, DeSoto or Charlotte County.

16.4 In the event the local office is not the primary location of the vendor, at least ten percent (10%) of the vendor's entire full-time employees must be based at the local office location. Alternatively, this requirement may be satisfied if at least one corporate officer, managing partner or principal owner of the vendor resides in Sarasota, Manatee, DeSoto or Charlotte County.

16.5 Offerors wishing to be given preference as a local business must submit **with their offer**, all of the Local Preference documentation identified in the "Required Forms Section" of the solicitation.

16.6 For local preference to be granted, the name of the company represented on the required forms must be the same as the name on the Local Preference documentation.

16.7 Information regarding Sarasota County's Local Business Tax can be found at www.sarasotataxcollector.governmax.com.

16.8 In case of a proposal submitted by more than one entity, any one of those entities can qualify the proposal for the local preference. Sub-contractors or sub-consultants cannot qualify a proposal for local preference.

17. POSTING OF NOTICE OF INTENT

A notice of intent for award will be posted for review by interested parties in City Hall and on the City's website prior to submission through the appropriate approval process to the appropriate level for final approval of award.

18. PUBLIC RECORDS/TABULATION

Submittals are not public records, subject to the provisions of Florida State Statutes, Chapters 119 and 120, until such time as notice of a decision or intended decision is provided, or within ten (10) days after the solicitation opening, whichever is earlier. A copy of the tabulation results will be forwarded upon receipt of a stamped, self-addressed envelope. An electronic tabulation will be posted on Demand Star at their Internet Website at <http://www.demandstar.com/>.

19. RESERVED RIGHTS

19.1 The City reserves the right to waive formalities in any submittal, and to reject any or all submittals in whole or in part, with or without cause and/or to accept the submittal that in the City's judgment will be in the best interest of the City. The City specifically reserves the right to reject any conditional submittal.

19.2 To the extent permitted by applicable state and federal laws and regulations, City reserves the right to reject any and all submittals, to waive any and all informalities not involving price, time or changes in the work with the Successful Offeror, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional submittals. Submittals will be considered irregular and may be rejected, if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alterations, or irregularities of any kind.

19.3 City reserves the right to reject the submittal of any Offeror if the City believes that it would not be in the best interest of the City to make an award to that Offeror, whether because the submittal is not responsive or the Offeror is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by City.

19.4 The City reserves the right to terminate the contract with any vendor who fails to meet a deadline or shows incompetency.

20. INDEMNIFICATION/HOLD HARMLESS

The Offeror shall defend, indemnify and hold the City, the City's representatives or agents, and the officers, directors, agents, employees, and assigns of each harmless for and against any and all claims, demands, suits, judgments, damages to persons or property, injuries, losses or expenses of any nature whatsoever arising directly or indirectly from or out of any negligent act or omission of the Offeror, its sub-consultants and their officers, directors, agents or employees; any failure of the elected firm to perform its services hereunder in accordance with generally accepted professional standards; any material breach of the elected firm representations as set forth in the proposal or any other failure of the elected firm's to comply with the obligations on its part to be performed under this contract.

21. PUBLIC ENTITY CRIMES/NON-COLLUSIVE AFFIDAVIT

- 21.1 Each Offeror shall complete the Non-Collusive Affidavit and the Public Entity Crimes Form and shall submit the forms with the submittal. CITY considers the failure of the Offeror to submit these documents to be a major irregularity and may be cause for rejection of their submittal.
- 21.2 A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a response on a contract to provide any goods or services to a public entity, may not submit a response on a contract with a public entity for the construction or repair of a public building or public work, may not submit responses on leases of real property to a public entity, may not be awarded or perform work as a Offeror, supplier, Sub-Offeror, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.
- 21.3 Termination for Cause: Any Agreement with the City obtained in violation of this Section shall be subject to termination for cause. A Sub-Offeror who obtains a subcontract in violation of this Section shall be removed from the Project and promptly replaced by a Sub-Offeror acceptable to the City.

22. GRATUITIES AND KICKBACKS

- 22.1 Gratuities: It is unethical for any person to offer, give, or agree to give any employee or for any employee to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, audit, or in any other advisory capacity in any proceeding or application, request for ruling, determination claim or controversy, or other particular matter, pertaining to any program requirement or an Agreement or subcontract, or to any solicitation or proposal therefore.
- 22.2 Kickbacks: It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a Sub-Offeror under a Contract to Offeror or higher tier Sub-Offeror any person associated therewith, as an inducement of the award of a subcontract or order.
- 22.3 Contract Clause: The prohibition against gratuities and kickbacks prescribed in this section shall be conspicuously set forth in every Contract and subcontract and solicitation therefore.

23. EQUAL EMPLOYMENT OPPORTUNITY

Offeror shall be in compliance with Executive Order 11426 Equal Opportunity as amended by Executive Order 11375, and as supplemented by the Department of Labor Regulations as applicable.

24. TERMS FOR FEDERAL AID CONTRACTS

The following terms apply to this contract which involves the expenditure of federal funds:

- 24.1 It is understood and agreed that all rights of the Department relating to inspection, review, approval, patents, copyrights, and audit of the work, tracing, plans specifications, maps data, and cost records relating to this Agreement shall also be reserved and held by authorized representatives of the United States of America.
- 24.2 It is understood and agreed that, in order to permit federal participation, no supplemental agreement of any nature may be entered into by the parties hereto with regard to the work to be performed hereunder without the approval of U.S.D.O.T., anything to the contrary in this Agreement notwithstanding.
- 24.3 COMPLIANCE WITH REGULATIONS: The Consultant shall comply with the regulations of the U.S. Department of Transportation relative to nondiscrimination in federally-assisted programs of the U.S. Department of Transportation (Title 49, Code of Federal Regulation, Part 21, hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of the contract.
- 24.4 NONDISCRIMINATION: The Consultant, with regard to the work performed by him after award and prior to completion of the contract work, will not discriminate on the grounds of race, color, religion, sex or national origin in the selection and retention of Sub-Offerors, including procurements of material, and leases of equipment. The Consultant will not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the program set forth in Appendix B of the Regulations.
- 24.5 SOLICITATIONS FOR SUBCONTRACTS, INCLUDING PROCUREMENTS OF MATERIALS AND EQUIPMENT: In all solicitations made by competitive bidding or negotiation made by the Consultant for work to be performed under a subcontract, including procurements of materials and leases of equipment, each potential Sub-Offeror, supplier or lessor shall be notified by a consultant of the consultant's obligations under this contract and the regulations relative to nondiscrimination on the grounds of race, color religion, sex or national origin.
- 24.6 INFORMATION AND REPORTS: The Consultant will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Department or U.S. Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of the Consultant is in the exclusive possession of another who fails or refuses

to furnish this information, the Consultant shall certify to the Department, or the U.S. Department of Transportation, as appropriate, and shall set forth what efforts it has made to obtain the information.

24.7 **SANCTIONS OF NONCOMPLIANCE:** In the event of the Consultant's noncompliance with the nondiscrimination provisions of this contract, the State of Florida Department of Transportation shall impose such contract sanctions as it or the U.S. Department of Transportation may determine to be appropriate, including but not limited to,
1. withholding of payments to the Consultant under the contract until the Consultant complies and/or
2. cancellation, termination or suspensions of the Contract, in whole or in part.

24.8 **INCORPORATION OR PROVISIONS:** The Consultant will include the provisions of Section 25.11, part 1 and 2 of the General Conditions in every subcontract, including procurements of materials and leases of equipment unless exempt by the Regulations, order, or instructions issued pursuant thereto. The Consultant will take such action with respect to any subcontract or procurement as the State of Florida Department of Transportation or the U.S. Department of Transportation may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that, in the event a Consultant becomes involved in, or is threatened with litigation with a Sub-Offeree or supplier as a result of such direction, the Consultant may request the State to enter into such litigation to protect the interests of the State, and, in addition, the Consultant may request the United States to enter into such litigation to protect the interests of the United States.

24.9 **INTEREST OF MEMBERS OF CONGRESS:** No member of or delegate to the Congress of the United States shall be admitted to any share or part of this contract or to any benefit arising therefrom.

24.10 **INTEREST OF PUBLIC OFFICIALS:** No member, officer, or employee of the public body or of a local public body during his tenure or for one year thereafter shall be any interest, direct or indirect, in this contract or the proceeds thereof. For purposes of this provision, public body shall include municipalities and other political subdivisions of States, and public corporations, boards, and commissions established under the laws of any State.

24.11 **PARTICIPATION BY MINORITY BUSINESS ENTERPRISES:** The Consultant shall agree to abide by statements in Paragraph (1) and (2) which follow. These statements shall be included in all subsequent agreements between the Consultant and any subconsultant or Offeror:

1. "Policy: It is the policy of the Department of Transportation that minority business enterprises as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal

funds under this agreement. Consequently, the MBE requirements of 49 CFR Part 23 apply to this agreement."

2. "MBE OBLIGATION: The recipient or its Offeror agrees to ensure that minority business enterprises, as defined in 49 CFR Part 23, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal Funds provided under this agreement. In this regard, all recipients or Offerors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds provided under this agreement. In this regard, all recipients or Offerors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts. Recipients and their Offerors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT-assisted contracts."

24.12 It is mutually understood and agreed that the willful falsification, distortion or misrepresentation with respect to any facts related to the project(s) described in this Agreement is a violation of the Federal Law. Accordingly, United States Code, Title 18, Section 1020, is hereby incorporated by reference and made a part of this Agreement.

24.13 It is understood and agreed that if the Consultant at any time learns that the certification it provided the Department in compliance with CFR, Section 23.51, was erroneous when submitted or has become erroneous by reason changed circumstances, the Consultant shall provide immediate written notice to the Department. It is further agreed that the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transaction" as set forth in 49 CFR, Section 29.510, shall be included by the Consultant in all lower tier covered transactions and in all aforementioned federal regulation.

24.14 The Department hereby certifies that neither the Consultant nor the Consultant's representative have been required by the Department, directly or indirectly as an express or implied condition in connection with obtaining or carrying out this contract, to
A. employ or retain, or agree to employ or retain, any firm or person, or
B. pay, or agree to pay, to any firm, person, or organization, any fee, contribution, donation, or consideration of any kind;

24.15 The Department further acknowledges that this agreement will be furnished to a federal agency, in connection with this contract involving participation of Federal-Aid funds, and is subject to applicable State and Federal Laws, both criminal and civil.

24.16 The Consultant hereby certified that it has not:

- A. employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for the above Offeror) to solicit or secure this contract;
- B. agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out this contract; or
- C. paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for the above Offeror) any fee contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract.

24.17 The Consultant further acknowledges that this agreement will be furnished to the State of Florida Department of Transportation and a federal agency in connection with this contract involving participation of Federal-Aid funds, and is subject to applicable State and Federal Laws, both criminal and civil.

25. CONFLICT OF INTEREST

No employee of an agency acting in his or her official capacity as a purchasing agent, or public officer acting in his or her official capacity, shall either directly or indirectly purchase, rent, or lease any realty, goods, or services for his or her own agency from any business entity of which the officer or employee or the officer's or employee's spouse or child is an officer, partner, director, or proprietor or in which such officer or employee or the officer's or employee's spouse or child, or any combination of them, has a material interest. Nor shall a public officer or employee, acting in a private capacity, rent, lease, or sell any realty, goods, or services to the officer's or employee's own agency, if he or she is a state officer or employee, or to any political subdivision or any agency thereof, if he or she is serving as an officer or employee of that political subdivision. The foregoing shall not apply to district offices maintained by legislators when such offices are located in the legislator's place of business or when such offices are on property wholly or partially owned by the legislator. This subsection shall not affect or be construed to prohibit contracts entered into prior to:

- October 1, 1975.
- Qualification for elective office.
- Appointment to public office.
- Beginning public employment

26. DRUG FREE WORKPLACE:

The City of Venice has adopted a policy in observation of the Drug Free Work Place Act of 1988. Therefore, it is unlawful to manufacture, distribute, disperse, possess, or use any controlled substance in the City of Venice workplace.

The City of Venice requests the attached Drug Free Workplace Affidavit to accompany your response. This form has been adopted by the City in accordance with the Drug Free Workplace Act. The City will not disqualify any respondent who does not concur with the affidavit. The Drug Free Workplace Affidavit is primarily used as tiebreaker when two or more separate entities have submitted proposals at the same price, terms and

conditions.

27. APPLICABLE LAWS

Interested parties are advised that all City contracts and/or documentation pertinent to this solicitation are subject in full or in part to all legal requirements provided in applicable City Ordinances, State Statutes, and Federal Regulations. Uniform Commercial Code, Chapter 672, Florida State Statutes shall prevail, as the basis for contractual obligations between the Offeror and the City for any terms and conditions not specifically stated within the context of this contract.

28. COMPETENT PERSONNEL

All interested firms are to warrant that services shall be performed by skilled and competent personnel to the highest professional standards in this scope of work.

29. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

29.1 Before delivering a submittal, each Offeror must (a) consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, or performance of the work, (b) study and carefully correlate the Offeror's observations with the solicitation documents; and notify the Procurement- Finance Department of all conflicts, errors and discrepancies, if any, in the solicitation documents.

29.2 The Offeror, by and through delivering a submittal, agrees that they shall be held responsible for having familiarized themselves with the nature and extent of any local conditions that may affect the services.

30. SPECIFICATIONS

30.1 The apparent silence of the specification as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of the Specifications shall be made on the basis of this statement.

30.2 For the purpose of evaluation, the Offeror must indicate any variance or exceptions to the stated Specifications, no matter how slight. Deviations should be explained in detail. Absence of variations and/or corrections will be interpreted to mean that the Offeror meets all the Specifications in every respect.

31. CANCELLATION CLAUSE

Failure to comply with any of the terms, conditions, specifications and/or service requirements will be just cause for termination of this contract by a thirty (30) day written notice of intent forwarded to the successful Offeror.

32. ACCEPTING CONTENT OF PROPOSAL

By delivering a submittal in response to this solicitation document, the Offeror certifies that they have fully read and understand the context of the solicitation document and have full knowledge of the scope, nature, and detailed requirements of services and/or commodities to be provided and performed. Submittals shall be returned in the

sequential manner as requested in the "Submittal Format and Requirements" section of this solicitation.

33. TAXES

The negotiated cost shall include all freight, handling, delivery, surcharges or other incidental charges that may be required to provide the services or deliver the commodities. The City of Venice is exempt from the payment of Federal and State taxes, including sales tax. Your cost proposal shall not include sales tax to be collected from the City. The City's sales tax exemption is not available to you for items you purchase, regardless of whether these items will be transferred to the City.

34. ASSIGNMENT

- 34.1 Successful Offeror shall not assign, transfer or subject the Contract or its rights, title or interests or obligations therein without CITY'S prior written approval.
- 34.2 Violation of the terms of this paragraph shall constitute a breach of the Contract by Successful Offeror and CITY may, at its discretion, cancel the Contract and all rights, title and interest of Successful Offeror shall thereupon cease and terminate.

35. SOLICITATION FORMS

- 35.1 If the Proposer cannot meet a service or equipment requirement, then the phrase "not available" should be entered on the Proposal Form for that service requirement. In the case of a "not available" remark, the Offeror may offer an alternative service. Alternate submittals may be submitted for consideration. It will be at the City's sole discretion to accept or reject any and all alternate submittals received.
- 35.2 This solicitation presents the City's minimum requirements under present methods of operation. Responses to this request should address these requirements, but Offerors are encouraged to suggest any additional services or commodities, which in their opinion, would be in the best interest of the City.
- 35.3 Submittals may be delivered, which deviate from the requirements herein, providing that they are clearly identified as alternate submittals and providing further that it can be demonstrated that stated requirements are substantially improved or are not compromised or prejudiced by such deviations; and, that it would be clearly in the interest of the City that an alternative proposal be considered. Such alternative proposals will be provisionally accepted for consideration, subject to the reserved right of the City to make the determination whether the above stated conditions for alternate proposals have been satisfied and subject further to the reserved right of the City to accept or reject these proposals upon the basis of the determination.

36. DISCLOSURE – PUBLIC OFFICER, PUBLIC EMPLOYEE OR ADVISORY BOARD MEMBER OF CITY

- 36.1 Sections 112.313(3) and 112.313(7), Florida Statutes, prohibit any public officer, employee, or advisory board member of the City from holding any employment or contractual relationship with any business entity doing business with the City. Section 112.313(12) provides that a public officer, employee, or advisory board member will not be in violation of the prohibition if all three of the following conditions are met. The filing of the disclosure form with the Supervisor of Elections is the sole responsibility of the Proposer and must be filed prior to or at the time of submission of the proposal. A copy of the filed disclosure form shall be submitted as part of the proposal.
- 36.2 Bid is awarded under a sealed, competitive Proposal to lowest or best Proposer system. Advisory board member is required to, prior to or at the time of the submission of the proposal, file a statement with the Supervisor of Elections, disclosing his interest and the nature of the intended business. The form is entitled "Form 3A Interest in Competitive Proposal for Public Business," a copy of which is available from the City's Procurement- Finance Department.
- 36.3 The public officer, employee, or advisory board member, spouse, or child is required to have in no way used or attempted to use his influence to persuade a member of the City or any of its personnel to enter into such a contract other than by the mere submission of the proposal.
- 36.4 The public officer, employee, or advisory board member, spouse, or child is required to have in no way participated in the determination of the Bid specifications or the determination of the lowest or best Proposer.

37. CIVIL RIGHTS

- A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332:
The CONSULTANT or SUBGRANTEE shall not discriminate on the basis of race, age, creed, disability, marital status, color, national origin, or sex in the performance of this contract. The CONSULTANT or SUBGRANTEE shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of (Florida Department of Transportation, the Federal Highway Administration, Federal Aviation Administration, the US Department of Energy, US Department of Justice, or Office of Housing and Urban Development) assisted contracts. Failure by the CONSULTANT or SUBGRANTEE to carry out these requirements is a material breach of this AGREEMENT, which may result in the termination of this AGREEMENT or such other remedy, as the City deems appropriate.

Each subcontract the CONSULTANT or SUBGRANTEE signs in regards to this federal aid PROJECT must include the assurance in this paragraph (see 49 CFR 26. 13(b). The CONSULTANT or SUBGRANTEE agrees to comply with all applicable federal implementing regulations and other implementing requirements the Federal government may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to this AGREEMENT:

(1) Race, Color, Creed, National Origin, Sex - In accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the CONSULTANT or SUBGRANTEE agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the PROJECT.

The CONSULTANT or SUBGRANTEE agrees to take all reasonable steps to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following:

Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of payer other forms of compensation; and selection for training, including apprenticeship. In addition, the CONSULTANT or SUBGRANTEE agrees to comply with any implementing requirements the Federal government may issue.

(2) Age - In accordance with Section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 621 through 634 and Federal transit law at 49 U.S.C. § 5332, the CONSULTANT or SUBGRANTEE agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the CONSULTANT or SUBGRANTEE agrees to comply with any implementing requirements the Federal government may issue.

(3) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the CONSULTANT or SUBGRANTEE agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with

Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the CONSULTANT or SUBGRANTEE agrees to comply with any implementing requirements the Federal government may Issue.

(4) Access to Services for Persons with Limited English Proficiency - To the extent applicable and except to the extent that the Federal agency determines otherwise in writing, the CONSULTANT or SUBGRANTEE agrees to comply with the policies of Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," 42 U.S.C. § 2000d-1 note, and with the provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 et seq., January 22, 2001. The City's LEP Plan is available in the Title VI/ADA plan at City facilities or may be viewed online at www.venicegov.com

(5) Drug or Alcohol Abuse - Confidentiality and Other Civil Rights Protections - To the extent applicable, the CONSULTANT or SUBGRANTEE agrees to comply with the confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1101 et seq., with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4541 et seq., and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 201 et seq., and any amendments to these laws.

(6) Other Nondiscrimination Laws - The CONSULTANT or SUBGRANTEE agrees to comply with all applicable provisions of other federal laws, regulations, and directives pertaining to and prohibiting discrimination, except to the extent the Federal Government determines otherwise in writing. The CONSULTANT or SUBGRANTEE also agrees to include these requirements in each subcontract financed in whole or in part with federal assistance, modified only if necessary to identify the affected parties.

38. BID PROTESTS

In any case where a bidder wishes to protest either the results of or the intended disposition of any bid, the bidder must:

- 38.1 File a written notice to the City Manager of the bidder's intention to protest within one (1) business day of the bid opening or the City's declaration of intent with regard to the disposition. Upon receipt of a protest, the bid process shall be suspended until the protest procedure herein described has been completed.
- 38.2 Within five (5) days of filing the written notice of intent to protest, the protester shall file a formal written protest with the City Manager, acting as the bid protest officer, explaining in detail the nature of

the protest and the grounds on which it is based. During this five-day period, the protester is encouraged to attempt to resolve the issue with the City's Finance Department.

- 38.3 The protester must include with the formal written protest a bid protest bond in the form of a certified check, cashier's check or money order made payable to the city in an amount equal to five percent (5%) of the lowest acceptable bid. The bond will be deposited with the Cashier's Office where it will be put into an account and the protester will receive a receipt.
- 38.4 Upon timely receipt of the formal written protest and protest bond, the City must:
- (1) Issue formal findings of fact and a written decision with regard to the validity or non-validity of the formal written protest within ten (10) business days of the City's receipt of the protest.
 - (2) Within two (2) business days of receipt of the formal findings of fact and written decision, the City shall notify the protester of the decision of the bid protest officer. Such notification shall be transmitted via certified return receipt mail.

- 38.5 Should the protest be found to be without merit or validity, the bid protest bond shall be forfeited to the City in its entirety, and the bid process may resume. If a decision favorable in whole or in part to the protest is rendered, a check for the full amount of the bond will be returned to the protester.

39. SCRUTINIZED COMPANIES

Pursuant to Section 287.135, F.S., a company that, at the time of bidding or submitting a proposal for a new contract or renewal of an existing contract, is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S., is ineligible for, and may not bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of \$1 million or more. Any contract with an agency or local governmental entity for goods or services of \$1 million or more entered into or renewed on or after July 1, 2011, must contain a provision that allows for the termination of such contract at the option of the awarding body if the company is found to have submitted a false certification as provided under Subsection 287.135(5), F.S., or has been placed on either of the aforementioned lists. The CITY agrees to comply with the requirements of Section 287.135, F.S. in connection with the implementation of the PROJECT.

END OF SECTION

“ATTACHMENT A”

Insurance:

Before performing any work, the Company shall procure and maintain, during the life of the Contract, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the City and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best and Company rating of no less than A:VII. No changes are to be made to these specifications without prior written specific approval by the City.

A. Workers Compensation: Company will provide Workers Compensation Insurance on behalf of all employees, including sub-contractors who are to provide a service under this Contract, as required under Florida Law, Chapter 440, and Employers Liability with limits of not less than \$100,000 per employee per accident; \$500,000 disease aggregate; and \$100,000 per employee per disease.

B. Commercial General Liability including but not limited to bodily injury, property damage, contractual, products and completed operations, and personal injury with limits of not less than \$1,000,000 per occurrence, \$1,000,000 aggregate covering all work performed under this Contract, to include broad form property damage.

Policy Form:

A. All policies required by this Contract, with the exception of Workers Compensation, or unless specific approval is given by the City, are to be written on an occurrence basis, shall name the City of Venice, its Elected Officials, Officers, Agents, Employees as additional insured as their interest may appear under this Contract. Insurer(s), with the exception of Workers Compensation, shall agree to waive all rights of subrogation against the City of Venice, its Elected Officials, Officers, Agents, & Employees.

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

C. Each insurance policy required by this Contract shall:

- (1) apply separately to each insured against whom claim is made and suit is brought, except with respect to limits of the insurer's liability;

(2) be endorsed to state that coverage shall not be suspended, voided or canceled by either party except after thirty (30) calendar days prior written notice by certified mail, return receipt requested, has been given to the City of Venice Risk Manager.

D. The City shall retain the right to review, at any time, coverage form, and amount of insurance.

E. The procuring of required policies of insurance shall not be construed to limit Company's liability nor to fulfill the indemnification provisions and requirements of this Contract.

F. The Company shall be solely responsible for payment of all premiums for insurance contributing to the satisfaction of this Contract and shall be solely responsible for the payment of any deductible and/or retention to which such policies are subject, whether or not the City is an insured under the policy. In the event that claims in excess of the insured amounts provided herein are filed by reason of operations under the contract, the amount excess of such claims, or any portion thereof, may be withheld from any payment due or to become due to the Company until such time the Company shall furnish additional security covering such claims as may be determined by the City. Deductible levels should be acceptable to the city.

G. Claims Made Policies will be accepted for professional and hazardous materials and such other risks as are authorized by the City. All Claims Made Policies contributing to the satisfaction of the insurance requirements herein shall have an extended reporting period option or automatic coverage of not less than two years. If provided as an option, the Company agrees to purchase the extended reporting period on cancellation or termination unless a new policy is effected with a retroactive date, including at least the last policy year.

H. Certificates of Insurance evidencing Claims Made or Occurrence form coverage and conditions to this Contract, as well as the City's Bid Number and description of work, are to be furnished to the City's Risk Manager, 401 West Venice Avenue, Venice, FL 34285, ten (10) business days prior to commencement of work and a minimum of thirty (30) calendar days prior to expiration of the insurance policy.

I. Notices of Accidents and Notices of Claims associated with work being performed under this Contract, shall be provided to the Company's insurance company and the City's Risk Manager, as soon as practicable after notice to the insured.

END OF SECTION

SPECIAL CONDITIONS

1. Payment

Retainage of 10 percent of each progress payment made to the contractor shall be withheld until final completion and acceptance of the project by the City of Venice for all construction services contracts exceeding \$200,000. Retainage shall not be withheld for construction services contracts of \$200,000 or less.

2. Stored Materials

The City of Venice, at its discretion, will pay for stored materials which are safely stored on the project site in accordance with the manufacturer's or supplier's recommendations and in accordance with these Contract Documents. All requests for payment of stored materials shall be accompanied by a paid receipt indicating that the contractor has paid for the materials.

3. Owner's Allowance

This Bid Item entails minor increases 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 the Bid Documents. Authorization for use of any of this Bid Item shall be made by the City of Venice in writing prior to performing the associated work. 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.

4. Permits

Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. City shall assist Contractor, when possible, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the work.

The following City permits are required for this project:

Right of Way Use Permit Authorization (Application fee is waived)

Site Preparation Permit (Application fee is waived)

Building Permit – See Section 01030 for details

5. Warranty

All work, materials and equipment furnished as defined herein shall be guaranteed and warranted by the Contractor for a minimum period of one (1) year, unless otherwise specified, from final acceptance by the City to be free from defects due either to faulty materials or equipment or faulty workmanship. If within one (1) year after the date of final completion or such longer period of time as may be prescribed by laws or regulation 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 the City and in accordance with the City's written instructions, either correct such defective work or remove it from the site and replace it with non-defective work. If Contractor does not promptly comply with the terms of such instruction, City may have the defective work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by the Contractor.

6. Stipulated Damages

In the event that the work is not completed within the required time, then from the compensation otherwise to be paid to the Contractor, the City may retain the sum of one thousand five hundred thirty-two dollars (\$1,532.00) per day for each calendar day that the work remains uncompleted beyond the time limit, which sum shall represent the actual damage which the City will have sustained per day by failure of the Contractor to complete the work within the required time, said sum not being a penalty but being the stipulated damages the City will have sustained in the event of such default by the Contractor.

7. Testing

Unless otherwise specified herein, Contractor shall arrange and pay for all testing required by the Contract Documents.

8. Construction Time

The Contractor shall diligently prosecute the work to completion within 150 days from receipt of a Notice To Proceed.

TECHNICAL SPECIFICATIONS

for

WATER MAIN REPLACEMENT PROGRAM – PHASE 1



Venice, Florida
"City on the Gulf"

CITY OF VENICE

OWNER

CITY OF VENICE
UTILITIES DEPARTMENT
200 NORTH WARFIELD AVENUE
VENICE, FL 34285

DESIGN PROFESSIONAL

King
ENGINEERING ASSOCIATES, INC.

KING ENGINEERING ASSOCIATES, INC.
4921 Memorial Highway
One Memorial Center, Suite 300
Tampa, FL 33634

SEPTEMBER 2013

4799-002-000
DESIGN PROFESSIONAL'S REF NO.

WATER MAIN REPLACEMENT PROGRAM – PHASE 1

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SECTION 01005

GENERAL REQUIREMENTS

PART 1 – GENERAL

1.01 SCOPE OF WORK

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 and other means of construction necessary or proper for performing and completing the work. 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 Engineer, 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 costs incidental thereto. 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 therefore.

The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment, prior approval of the Engineer notwithstanding.

The Contractor shall comply with the requirements of all permits and regulatory agencies having jurisdiction over the various portions of the Work. Contractor shall provide and maintain effective erosion control measures for the entire duration that construction is in progress.

C. Public Utilities 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 whether owned or controlled by the Owner, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water or other public or private property which may be affected by the work shall be deemed included hereunder.

The Contractor shall protect all public utility installations and structures from damage during the work, except those specifically designated to be removed or relocated. Access across any buried public utility installation, or structure, shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. 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 directed by the Engineer. 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 Owner or other governmental body which are shown on the Plans to be removed, relocated, replaced or rebuilt by the Contractor 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 therefore.

Where public utility installations or structures owned or controlled by the Owner 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 Engineer, 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 Engineer, 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.

All Owner and other governmental utility departments and other owners of public utilities which may be affected by the work will be informed in writing by the Engineer within two weeks after the execution of the Contract or Contract covering the work. Such notice will set out, in general, and direct attention to, the responsibilities of the Owner and other governmental utility departments and other owners of public utilities for such installations and structures as may be affected by the work and will be accompanied by one set of Plans and Specifications covering the work under such Contract or Contracts.

In addition to the general notice given by the Engineer, the Contractor shall give written notice to Owner and other governmental utility departments and other owners of public utilities of the locations 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 "Underground Utility Notification Center for Excavators (Sunshine State One Call of Florida)."

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 Engineer.

D. Contractor's Use of Premises

Unless otherwise indicated on the Drawings or directed, all project construction work will be accomplished on City owned property, rights-of-way, or easements, and the Contractor shall confine his activity to those designated areas. The Contractor shall not enter upon private property for any reason without securing prior permission from the property owner. Such permission, including any stipulations, shall be in writing and a copy shall be delivered to the City Representative prior to the Contractor's entry or occupation of the subject property. This requirement will be rigidly enforced.

When access through construction areas must be disrupted, the Contractor shall provide alternate acceptable access, as specified herein. The residents shall be allowed uninterrupted access to their homes throughout the construction phase.

The Contractor shall perform his work in such manner that he will not damage adjacent public or private property. Any damage to existing physical structures or utility services shall be repaired or restored promptly at no expense to the Owner.

The Contractor shall avoid damage to and preserve all existing vegetation (grass, shrubs, trees, etc.,) on or near the work area which do not, within reason, interfere with construction. The Contractor will be responsible for and required to replace or restore all such vegetation damaged or destroyed at no cost to the Owner. The Contractor will also be responsible for any unauthorized cutting or damage to

trees, shrubs, etc. and also includes damage caused by careless operation of equipment, storage of materials and rutting or tracking of grass by equipment.

During the progress of the work the Contractor shall keep the work site free from an accumulation of rubbish, waste materials or any type of debris resulting from the construction. Upon completion of the work all equipment, excess materials, etc., shall be removed from the project site as soon as is practicable, and the Contractor shall restore the entire project work site to its original condition, with the exception of any area(s) designated for alteration by the Contract Documents.

1.02 DRAWINGS AND SPECIFICATIONS

A. Drawings

When obtaining data and information from the Drawings, 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 suppliers such copies of the Contract Documents as may be required for their work. Additional copies of the Drawings and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.

C. Supplementary Drawings

When, in the opinion of the Engineer, 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 Engineer and five paper prints thereof will be given to the Contractor and the Owner.

D. Contractor to Check Drawings and Data

The Contractor shall verify all dimensions, quantities and details shown on the Drawings, Supplementary Drawings, Schedules, Specifications or other data received from the Engineer and shall notify him of any errors, omissions, conflicts and discrepancies found therein. The Contractor shall submit to the Engineer a Request for Information (RFI), consecutively numbered, detailing all errors, omissions, conflicts and discrepancies. Engineer shall promptly provide a response to all RFIs submitted by the Contractor. Contractor will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the Engineer, should such errors or omissions be discovered."

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.

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.

Certain portions of the work may be described by reference to the "FDOT Standard Specifications" or "Standard Specifications." These terms refer to the Florida Department of Transportation (FDOT) "Standard Specifications" for Road and Bridge Construction," latest edition. Whenever the "Standard Specifications" use the word "Department" or reference any of its engineers, agencies or

representatives, the word or reference shall be taken to mean "City of Venice, Florida." In any case where a specific specification regarding materials or method of construction has been omitted in the technical specifications for the Work of this project, such work shall be performed by the Contractor in accordance with the applicable "Standard Specifications" as determined by the Engineer.

F. Intent

All work called for in the Specifications applicable to this Contract, but not shown on the Drawings 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 Drawings 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.

G. Project Submittals

The Contractor shall submit a minimum of six (6) copies of the manufacturer's shop drawings, descriptive literature and appropriate certified test reports on all materials to be used on this project.

The Contractor shall submit all Shop Drawings and schedules sufficiently in advance of construction requirements to provide adequate time for review.

1.03 MATERIALS AND EQUIPMENT

A. Manufacturer

The names of proposed manufacturers, suppliers and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Engineer for approval. Such approval must be obtained before shop drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

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

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

All materials and equipment shall be new, unless otherwise provided. The Contractor shall furnish satisfactory evidence as to the type and quality of materials or equipment to be furnished and installed on this project.

Materials of fabrication and construction to be furnished and permanently installed in the project shall be of the best quality. The workmanship of construction, fit and finish on the project shall be equal to the highest standards of the industry. As indicated above, all materials and equipment and/or components thereof shall be new and shall not have been in service at any other installation.

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. The Contractor shall replace, at his own expense, all such material(s) found to be damaged in shipment or handling or defective in manufacture. The cost of the replacement material and labor of installation for the replacement of previously installed material found to be defective prior to the final acceptance of the work shall also be the responsibility of the Contractor.

All materials and equipment to be incorporated into the project shall be loaded and unloaded by a method that will provide protection against damage. Every precaution shall be taken to prevent damage or injury to the equipment and material during transporting and handling. Proper and suitable power equipment shall be used in the loading or unloading process. Under no condition shall any items of equipment be dropped or rolled from a truck or dragged over the ground after being unloaded. When a crane or similar type equipment is being used in loading or unloading a suitable lifting sling and hook shall be used.

C. Storage

It will be the responsibility of the Contractor to store delivered materials or equipment in a secure area. The Owner will not be responsible for any damages resulting from vandalism or other reasons. Replacement of materials or equipment lost, stolen, damaged or destroyed due to careless or improper storage will be the Contractor's responsibility. All stored materials shall be easily and readily accessible for inspection by the City Representative.

D. 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.

E. 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 Drawings, unless directed otherwise by the Engineer 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 Engineer and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall, at his own expense, 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 Kop-Coat 300M.

Materials and coatings that will be in contact with potable water shall comply with NSF Standard 61 requirements.

F. Service of Manufacturer's Engineer

The Contract prices for equipment shall include the cost of furnishing 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 Owner, such engineer or superintendent shall make all adjustments and tests required by the Engineer to prove that such equipment is proper and in satisfactory operating condition, and shall instruct such personnel as may be designated by the Owner 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 Contractor's independent laboratory or the equipment manufacturer unless otherwise specified. 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 copies of the reports shall be submitted and authority's certification thereof must be furnished to the Engineer 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 Engineer 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 Owner.

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 Owner formally takes over the operation thereof

B. Costs

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 Owner for compliance. The Contractor shall reimburse the Owner

for the expenditures incurred in making such tests on materials and equipment which are rejected for non-compliance.

C. Inspection of Materials

The Contractor shall give notice in writing to the Engineer, sufficiently 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 Engineer will arrange to have a representative present at such times during the manufacture as maybe 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 Engineer 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 Engineer notifies the Contractor, in writing, that the results of such tests are acceptable.

Five copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company, shall be forwarded to the Engineer for approval.

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 replacement 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, and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the Owner. 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, guarantee or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacements or otherwise as directed by the Engineer. The decision of the Engineer 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 or specified requirements, the Owner, 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 this own expense.

I. Final Inspection

During such final inspections, the work shall be clean and free from water. In no case will the final estimate be prepared until the Contractor has complied with all requirements set forth and the Engineer 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 Documents.

1.05 PREPARATION AND CERTIFICATION OF AS-BUILT DRAWINGS

- A. Contractor shall prepare and maintain As-Built drawings. Submission of the As-Built drawings shall be made with each application for payment in accordance with the Agreement; and the final submittal of As-Built drawings, acceptable to the Engineer, shall be made before final payment.
- B. The Contractor shall maintain a complete and accurate log of construction control and survey as the work progresses, including underground construction.
- C. As construction progresses, update the plans to show measured locations of installed pipe, fittings, valves, taps, hydrants, manholes, services and other appurtenances of the completed work – both buried and above ground. Installed inlets, junction structures, curb, and roadway that is constructed as part of the work shall also be field measured. Horizontal and vertical locations of such items, as well as cover over pipe, shall be shown on a marked-up drawing to serve as the basis for preparing final As-Built drawings of the work.
- D. See specification 01050 for As-Built survey requirements.

1.06 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 Engineer, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The Engineer shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

Contractor shall provide temporary fencing of the type and at the locations necessary to provide for security, protect public safety, or to meet the requirement of a permit for construction staging areas and areas of construction activity outside of the public right-of-way. All such temporary fencing shall be considered as an incidental cost of performing the work, and the cost of such fencing shall be allocated among the various bid items identified in the bid schedule.

1.07 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.

B. Temporary Sanitary Facilities

The Contractor shall provide adequate sanitary facilities for the use of those employed on the work site. Such facilities shall be made available prior to or on the date the first employees arrive on the work site, shall be properly secluded from public view, and shall be maintained during the progress of the work in such numbers and locations as may be required.

The Contractor shall maintain the sanitary facilities in a satisfactory manner at all times, enforce their use, and shall prohibit the committing of any nuisance on the work site, in the road right-of-way, or any adjacent private property. The Health Department, Owner or City Representative shall have the right to inspect the facilities at any time if they have reason to suspect they are not being properly maintained.

1.08 LINES AND GRADE

A. Grade

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

The Contractor, prior to commencing of construction, shall have established bench marks and base line controlling points. The Contractor shall so place excavation and other materials as to cause no inconvenience in the use of the reference marks provided. He shall remove any obstructions placed by him contrary to this provision.

B. Surveys

The Contractor shall furnish and maintain, at his own expense, stakes and other such materials to establish all working or construction lines and grades, as required, and shall be solely responsible for the accuracy thereof. The cost of all labor, materials and incidentals required for the performance of any survey and utility location work shall be the responsibility of the Contractor and cost of this work is to be included within the Contractor's bid price (merged with bid line items).

C. 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 re-establishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to 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 re-establishing them if disturbed or destroyed.

1.09 ADJACENT STRUCTURES AND LANDSCAPING

A. Protection of Structures

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 Drawings or specified shall be included in the various Contract Items and no separate payments will be made therefor. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Drawings and when, in the opinion to avoid interference with the work, payment therefor 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 to 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 noted, 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 Owner and to the satisfaction of the Engineer. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the Engineer.

Prior to the beginning of any excavations the Contractor shall advise the Engineer of all building 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 his 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. It is the intent of the drawings and specifications that every effort is taken to preserve and protect existing trees that the drawings indicate to remain. However, trees adjacent to or along the path of construction having branches that will unreasonably interfere with construction, or with the operation of construction equipment, may be selectively and minimally trimmed upon prior approval by the Engineer. Trimming shall be performed in accordance with the National Arborist Association (NAA) Pruning Standards and in accordance with instructions provided by the City Arborist. The costs of pruning, removal of prunings from the site, and disposal shall be included in the various Contract Items as incidental work pertaining thereto and no separate payment will be made for tree trimming.
4. At the discretion and direction of the City's representative, any tree root systems to be disturbed by open cut methods of construction shall be root pruned prior the construction activity.

5. The Owner may order the Contractor, for the convenience of the Owner, to remove trees along the line or trench excavation. If so ordered the Owner will obtain any permits required for removal of trees. Such tree removal shall be paid for under the appropriate Contract Items.

C. Grass Areas

Grass 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 in the manner described in the Workmanship and Materials section.

Areas which have construction equipment tire tracks, or depressions created by construction equipment or material, shall be considered as disturbed by construction and restored appropriately to the satisfaction of the Engineer.

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 Engineer. 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.

E. Landscaped Areas

Landscaped areas outside of right-of-way, easements, or City property shall be protected from damage. Any bush, shrub, ornamental, or other landscaping plant or feature that is damaged or removed during the course of the work shall be restored or replaced, at no cost to the City, and to the satisfaction of the Engineer.

Landscaping within right-of-way, easements, or City property shall be protected as described by the drawings or as directed by the Engineer. In general, landscaping within these areas may be removed as reasonably necessary to perform the work. The limits of landscape removal shall be agreed upon by the Engineer and Contractor prior to beginning work in the affected area, and all landscaping that is to remain shall be protected from damage. Unless otherwise shown on the drawings, landscaping removed within right-of-way, easements, or City property does not need to be replaced, but instead the area shall be restored by sodding. When directed by the Engineer, these landscape areas may be restored by fine grading the area in preparation of replanting by others.

1.10 PROTECTION OF WORK AND PUBLIC

A. Barriers and Lights

The Contractor shall provide and maintain proper and adequate barricades, construction signs, torches, flashers, construction tapes, flagmen, guards or other traffic control devices as may be necessary to provide the required safety and protection to the public at and around the perimeter of the construction areas.

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. The Contractor shall comply with all City, County or State regulations.

B. Smoke Prevention

The Contractor shall use hard coal, coke, oil or gas as fuel for equipment generating steam. A strict compliance with ordinances regulating the production of 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 gasoline motors or other power equipment shall be provided with mufflers. The Contractor shall strictly observe all local regulations and ordinances covering noise control. Furthermore, the Contractor shall meet the noise abatement performance standards as compiled in the City of Venice Noise Ordinance.

If mufflers and silencers cannot achieve the necessary noise reduction, other noise abatement procedures shall be instituted by the Contractor, such as installation of three-quarter inch (3/4") plywood baffles positioned to break off line-of-sight from the noise source to affected residences and/or commercial structures.

Except in the event of an emergency, no work shall be done outside of normal working hours. If the proper and efficient prosecution of the work requires operations during the night, the written permission of the Engineer shall be obtained before starting such items of the work.

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.

F. Safety

It is the Contractor's responsibility to comply with the Occupational Safety and Health Administration excavation safety standards, 29 CFR 1926.650 Subpart P trench safety standards are in effect during the period of construction of the Project. In compliance with current State of Florida statutes, the Contractor or subcontractor performing trench excavation work on the Project shall comply with the applicable trench safety standards.

The Occupational Safety and Health Administration excavation safety standards, 29, CFR 1926.650 Subpart P trench safety standards are in effect during the period of construction of the Project. In compliance with current State of Florida statutes, the Contractor or subcontractor performing trench excavation work on the Project shall comply with the applicable trench safety standards.

G. Water Control

The Contractor shall provide for the disposal of surplus water (wellpoint, mud pumps, etc.,) and shall submit his plan to the City Representative for his review prior to initiation and implementation as any such plan may require approval from the proper authorities for the use of public or private lands or facilities for such disposal.

H. Pollution Control

The Contractor shall provide for adequate protection against polluting any private or public lands, streams, ponds, lakes, sanitary or storm drainage systems, etc., by the disposal of surplus materials in the form of solids or liquids or any other deleterious materials (fuels, oils, bitumens, etc.)

1.11 CUTTING AND PATCHING

- A. 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 Engineer and in accordance with the Drawings and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

1.12 CLEANING

- A. 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 Engineer, 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 therefor develops.

- B. Final Cleaning

At the conclusion of the work, all erection plant, 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.

- C. In the event that the timely clean up and restoration of the job site is not accomplished to the satisfaction of the Owner, the Owner shall make arrangements to affect the necessary clean up by others. The Contractor shall be charged for these costs through deductions in payment due the Contractor. If such action becomes necessary, the Owner shall not be responsible for the inadvertent removal from the work site of materials which the Contractor would not normally have disposed of had he affected the required clean up.
- D. Upon completion of the project, and prior to a final inspection, the Contractor shall examine the project construction area to be certain all excess soil, debris and other unsightly materials have been removed and disposed of in a satisfactory manner. All areas of construction disturbed by the project work shall be restored as specified, and any areas outside the limits of construction and not designated for alteration shall be restored, as near as practicable, to their original or better condition.

1.13 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, drainage ditches, wetlands and other areas of concern.
2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the Engineer which results from his construction operations.
3. The Contractor shall be solely responsible for any fines resulting from the encroachment of any

environmentally protected areas.

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, Southwest Florida Water Management District, U.S. Army Corps of Engineers, etc.

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 Specific 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 manufacturers' instructions.

E. Tree Removal

The Contractor shall be required to notify the Owner forty-eight (48) hours in advance of any removal of trees on the project. No clearing shall occur and no earth moving equipment shall be placed on-site until after the notice has been issued. The Contractor shall provide maintenance of the tree barricades and other preventive measures to protect the trees that are to remain.

F. Sanitary & Storm Sewer Systems

The Contractor shall be entirely responsible for the satisfactory replacement of storm sewer and installation of sanitary sewer systems in substantial conformance to the approved Drawings. It is strongly recommended that no roadway base or paving be constructed until the Contractor has performed lamping of these lines to his and the Engineer's satisfaction, and all storm sewer and sanitary sewer invert grades are verified in the field by the Owner. The lamping of lines and verification of elevations in no way absolves the Contractor from any of his contractual obligations.

G. Related Permits

The Contractor recognizes that the Owner has applied for, and may have received, certain permits pertaining to the work. At the sole discretion of the City, the City may assign said permits to the Contractor and the Contractor shall accept said assignments upon such request from the City.

H. All work in the vicinity of open waters, wetlands or any jurisdictional area is to be performed in strict accordance with the environmental permits and their conditions. Erosion barriers, when shown on the construction Drawings, are the minimum required. If the Contractor's construction methods require that additional erosion control is necessary to satisfy these permits, such controls shall be supplied, installed and maintained throughout the construction process by the Contractor at no additional cost to the Owner or Engineer.

It is the sole responsibility of the Contractor to submit, in a timely manner, any information, data, etc. which is required as a condition of a permit. Required information, data, etc. shall be submitted directly to the permitting agency by the Contractor with copies to the Permittee and the Engineer. The Contractor will be held responsible for any fine(s) or other action resulting from a violation of permit conditions.

1.14 RESTORATION OF PROPERTY

A. Responsibility

All damage as a result of construction work done to existing structures, wetland areas, roadway pavement, driveways, other paved areas, fences, utilities, traffic control devices and any other obstruction not specifically named herein, shall be repaired, restored or replaced by the Contractor unless otherwise specified.

B. Temporary Repairs

All damage named in Paragraph A above shall be at least temporarily repaired, restored or replaced immediately following construction efforts at that location. Temporary restoration shall mean putting the affected area back into a safe, usable condition. In no case shall trenches remain open over night within a street right-of-way unless specific approval is granted by the Owner.

C. Permanent Repairs

All damage named in Paragraph A above shall be permanently repaired, restored, or replaced not later than the 30th calendar day following the completion of construction at that location unless otherwise stipulated. Permanent repairs will be accomplished in a professional workmanship-like manner in accordance with Specifications contained herein, or contract documents, if addressed. The Contractor may be relieved of the 30-day time limit above only by specific written agreement with the Owner.

D. Owner Retribution

In the event that the Contractor fails to make the permanent repairs within the time specified in Paragraph A above, the Owner, at its option, will, with its own resources or by contract with others, cause the repair, restoration, or replacement of the affected area to be accomplished. The costs of such work will then be deducted either from the next pay request or from any other monies owed the Contractor by the Owner.

E. In all areas disturbed by the work, the Contractor shall grade and restore the site to a condition as good or better than existed before construction. Sodded areas shall be sodded with sod matching the existing adjacent sod. Likewise unseeded and unsodded areas need only to be graded and leveled with existing soil except as directed by the City Representative. All removed trees shall be replaced with trees matching the existing trees. Any drives, walks, pavements, structures, survey monuments, property corner markers, shrubs, or any other public or private property damaged or destroyed by the work shall be restored or replaced at the Contractor's expense.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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SECTION 01014

SUMMARY OF WORK

PART 1 – GENERAL

1.01 LOCATION OF WORK

- A. The project area is bound by Armada Street to the north, Villas Drive to the south, Harbor Drive to the east and Park Boulevard to the west plus Ponce DeLeon Avenue between Harbor Drive and Nassau Street South. The project also includes and a new replacement 8-inch water main under Hatchett Creek from Warfield Avenue North to Marcus Street.

1.02 WORK TO BE DONE

- A. The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by these Specifications and as shown on the Drawings.
- B. The Contractor shall perform the work complete, in place and ready for continuous service, and shall include repairs, testing, permits, clean-up, replacements and restoration required as a result of damages caused during this construction.
- C. All materials, equipment, skills, tools and labor which is reasonably and properly inferable and necessary for the proper completion of the work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.
- D. The Contractor shall comply with all Municipal, County, State, Federal, and other codes which are applicable to the proposed construction work.

1.03 GENERAL DESCRIPTION OF WORK TO BE PERFORMED

- A. The work of this Contract consists of furnishing all material, labor, equipment, etc., necessary for the general construction of the following, as shown on the Drawings and as specified herein.
 - 1. A new 6-inch water main on Armada Street with service connections to the lots on the north and south side of the street;
 - 2. New service connections from the existing main on Valencia Road to the lots on the north side of the street plus three lots on the south side of the street;
 - 3. New service connections to the lots on the north and south side of the street from the existing main on Alhambra Road;
 - 4. New service connections to the lots on the north side of the street from the existing main on Sante Joseph Street;
 - 5. New service connections from the existing main to three lots on the south side of Verdi Street;
 - 6. New service connections from the existing main to the lots on the north side of Beatrice Street;
 - 7. A new 4/6-inch main on Maggiore Road from its west end to Harbor Drive with new services to all lots, including the rear of two lots on Beach Park Boulevard;

8. A new 6-inch main on Ravenna Street between Maggiore Road and Gulf Street with new services to all the lots on the east side;
9. New services from the existing main on Harbor Drive to the lots on the west side between Maggiore Road and Gulf Street;
10. A new 6-inch main on Ravenna Street between Gulf Street and Villas Drive with new services to all lots. Relocation of the hydrant feed at the southeast corner of Gulf and Ravenna from the main on Gulf to the new main on Ravenna;
11. New services from the existing main to the two northern lots on the east side of Hibiscus Drive;
12. New services from the existing main to the two northern lots on the west side of Pointsettia Drive;
13. A new 6-inch main on Ponce DeLeon Avenue from the existing hydrant on the north side to the existing main on Nassau Street South with new services to the lots along the new main on both the north and the south side of the street;
14. A new replacement 8-inch water main under the Hatchett Creek from Warfield Avenue North to Marcus Street, and
15. Abandonment of rear lot water mains within the project area as noted on the Drawings.

1.04 CONSTRUCTION ACTIVITIES

- A. Specific requirements for the above activities are outlined in the respective Specification sections and on the Drawings.
- B. Contractor shall ensure that, prior to testing or start-up of any component, all required thrust restraint and associated safety-related facilities are in place.
- C. All work shall be executed in accordance with the project permits.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01030

SPECIAL PROJECT PROCEDURES

PART 1 – GENERAL

1.01 WORKMANSHIP, MATERIAL AND EQUIPMENT

- A. When a particular product is specified or called for, it is intended and shall be understood that the proposal tendered by the Contractor included those products in his bid. Should the Contractor desire products equal to those specified, the Contractor shall furnish information as described in the Standard General Conditions. The alternate product or products submitted by the Contractor shall meet the requirements of the Specifications and shall, in all respects, be equal to the products specified by name herein.
- B. All apparatus, mechanism, equipment, machinery and manufactured articles for incorporation into the Work shall be the new and unused standard products of recognized reputable manufacturers.
- C. Contractor must provide his own disposal of excavation that he removes from the site.

1.02 CONTRACTOR PROVIDED STAGING AREA

- A. The Work of this project is to be performed in a congested area that affords minimal and limited space that the Contractor may use to stage construction activities such as material storage, parking, or tool & supply storage. The Contractor shall secure staging area(s) as he may require and the cost shall be included as part of the price bid for the work.
- B. Appropriate temporary security fencing and effective erosion control measures shall be provided for the staging area(s). In particular, effective measures shall be employed to prevent soil, mud, or dust from being tracked onto roadway surfaces between the site of the work and the staging area. The cost to provide and maintain temporary security fencing and erosion control measures shall be considered an incidental project cost shall not be separately measured for payment.
- C. When the Work of this project is completed, and before final payment is made to the Contractor, the staging area shall be restored according to the agreement between the Contractor and the staging area owner including removal of temporary fencing and erosion control measures. Roadway damage that may have occurred between the project site and staging area because of construction equipment operation between the two sites shall be repaired to the satisfaction of the Engineer. The City may withhold payment retainage to the Contractor until the requirements of this paragraph are satisfied.

1.03 CONNECTIONS TO EXISTING SYSTEMS

- A. The Contractor shall perform all work necessary to locate, excavate, restrain or confirm restraint, and prepare for connections to the existing systems, as shown on the Construction Drawings. The cost for this work and for the actual connection to the existing systems shall be included in the various prices bid for the Work, except where specifically indicated as a separate Item, and shall not result in any additional cost to the Owner.
- B. The Contractor shall install, pressure test, disinfect, and wait for clearance from the Health Department or FDEP for the new water main prior to transferring services over to the new main and taking the existing water main out of service. The maximum duration that the water main can be temporarily taken out-of-service shall be as specified herein. The Contractor shall plan his work accordingly so as to comply with these requirements.

- C. The Contractor shall provide, install and test any required piping and valves, including tapping sleeves and valves. The Contractor shall make the tap in the presence of a City Utilities Representative, and only in the presence of a City Utilities Representative.
- D. The Contractor shall provide the City's Project Manager with written notice of any requirement to shut down the system at least 72 hours in advance.
- E. It shall be noted that existing water mains can be shut down for a maximum of 3 hours.

1.04 PROVISIONS FOR CONTROL OF EROSION

- A. Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials harmful to humans, fish, or other life, into the supplies and surface waters of the state. Control measures must be adequate to assure that turbidity in the receiving water will not be increased more than 10 nephelometric turbidity units (NTU), or as otherwise required by the state or other controlling body, in water used for public water supply or fish unless limits have been established for the particular water. In surface water used for other purposes, the turbidity must not exceed 25 NTU unless otherwise permitted. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.
- B. Comply with the requirements of the EPA-NPDES general permit for stormwater discharges and the stormwater pollution prevention plan developed for the project.

1.05 WARRANTIES

- A. The Contractor and the materials manufacturers shall warranty all workmanship and materials for a minimum period of twelve (12) months. Warranty period shall commence on the date of Final Acceptance by the Owner.
- B. If, within the warranty period, repairs or changes are required in connection with guaranteed work which, in the opinion of the Engineer, is rendered necessary as the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall, promptly upon receipt of notice from the Owner and without expense to the Owner, do the following:
 - 1. Place in satisfactory condition in every particular all of such warranted work and correct all defects herein.
 - 2. Make good all damage which, in the opinion of the Engineer, is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract.
 - 3. Make good any work or material or site disturbed in fulfilling any such guarantee.
- C. If the Contractor, after notice, fails within ten (10) days to proceed to comply with the terms of this warranty, the Owner may have the defects corrected, and the Contractor and his surety shall be liable for all expense incurred, provided, however, that in case of an emergency where, in the opinion of the Owner, delay would cause loss or damage, repairs may be started without notice being given to the Contractor and the Contractor shall pay the cost thereof.
- D. All special guarantees or warranties applicable to specific parts of the work, as may be stipulated in the Contract Specifications or other papers forming a part of this Contract, shall be subject to the terms of this paragraph during the first year of life of each such guarantee. All special guarantees and manufacturers' warranties shall be assembled by the Contractor and delivered to the Engineer, along with a summary list thereof, before the acceptance of the Work.

- E. The Contractor's twelve (12) month warranty or guarantee period shall be part of the project performance bond.

1.06 CONSTRUCTION CONDITIONS

- A. The Contractor shall strictly adhere to the specific 2010 Florida Plumbing Code requirements of the governmental unit(s) or agency(ies) having jurisdiction over the work. Wherever there is a difference in the requirements of the 2010 Florida Plumbing Code and these Specifications, the more stringent shall apply.

1.07 PUBLIC NUISANCE

- A. The Contractor shall not create a public nuisance including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.
- B. Trash accumulation, including accumulation of lunch-break refuse, shall be avoided. The Contractor shall provide appropriate containers for collecting rubbish and the Contractor's superintendent shall enforce their use. The containers shall also be regularly emptied.
- C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.08 HAZARDOUS LOCATIONS

- A. Contractor shall perform work in accordance with OSHA, state and local safety requirements.

1.09 RELOCATIONS

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to: utility poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the bid.

1.10 SUSPENSION OF WORK DUE TO WEATHER

- A. During inclement weather, all work that could be damaged or rendered inferior by such weather conditions shall be suspended. The orders and decisions of the Engineer as to suspensions shall be final and binding. The ability to issue such an order shall not be interpreted as a requirement to do so. During suspension of the work for any cause, the work shall be suitably covered and protected so as to preserve it from injury by the weather or otherwise; and, if the Engineer shall so direct, rubbish and surplus materials shall be removed. Throughout the duration of the Work, the Contractor shall provide temporary connections between new portions of the storm drainage system and existing portions of the storm drainage system in order to allow drainage of storm water runoff from the work area consistent with the requirements for providing effective erosion control.

1.11 HURRICANE PREPAREDNESS PLAN

- A. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the Engineer and Owner a Hurricane Preparedness Plan. The Plan should outline the necessary measures that the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane warning.
- B. In the event of inclement weather, or whenever Engineer shall direct; the Contractor shall carefully protect the Work and materials against damage or injury from the weather. If, in the opinion of Engineer, any portion of Work or material has been damaged or injured by reason of

failure on the part of the Contractor or subcontractors to set protect the Work, such Work and materials shall be removed and replaced at the expense of the Contractor.

1.12 SALVAGE

- A. 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 necessary and delivered, to the Owner at a location directed by the Owner, at the Contractor's expense. Removed material not designated as salvage, or that the Engineer decides is not to salvage, shall become the property of the Contractor, removed from the site, and properly disposed at the Contractor's expense.

1.13 PERMITS

- A. Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the Owner to do the work from the appropriate governmental agency or agencies. This includes a City Building Permit for all work to be performed on private property. No work shall commence until all applicable permits have been obtained and copies delivered to the Engineer. The costs for obtaining all permits shall be borne by the Contractor.
- B. The Contractor shall be responsible for complying with all permit conditions for any permits that the Owner has already obtained and are attached to these specifications.
- C. The City has obtained, or is actively in the process of obtaining, the following permits for the Work:
 - 1. Sovereign Submerged Lands Letter of Consent for the Hatchet Creek crossing.
 - 2. Florida Department of Environmental Protection/Sarasota County Health Department Public Water System Construction Permit.
 - 3. Florida Department of Environmental Protection Environmental Resource Permit (ERP).
 - 4. U.S. Army Corps of Engineers Nationwide 12 Permit for the Hatchet Creek crossing.

1.14 PUMPING

- A. The Contractor shall, for the duration of the contract, and with his own equipment, pump out stormwater runoff or groundwater which may flow, seep or leak into excavations.
- B. Contractor shall provide all labor, material, and equipment necessary to provide a pump discharge that is located and made in a manner acceptable to the Engineer; that meets all permit and environmental protection requirements; and meets all federal, state, and local laws. At no time will the Contractor be allowed to pump sewage or polluted water into storm drains, streams, open channels, or onto streets during the course of the work. The Contractor shall also provide all necessary noise suppression devices to minimize pump noise and comply with the noise requirements of the Contract Documents.

1.15 NOTIFICATION OF WORK ON EXISTING FACILITIES

- A. Before commencing work on any of the existing structures or equipment, the Contractor shall notify the Owner/Engineer, in writing, at least 10 calendar days in advance of the date he proposes to commence such work.
- B. Contractor shall notify the various permitting and regulatory agencies prior to commencing the work permitted and regulated by the affected permits in accordance with the conditions of the permit.

1.16 EXISTING UNDERGROUND PIPING, STRUCTURES AND UTILITIES

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists that the Contractor will encounter various water, gas, telephone, electrical, service laterals or other utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage thereto. Should damage occur to an existing line, the Contractor shall immediately contact the utility and the Owner. If the repair is to be completed by the Contractor it shall be carried out in a timely and quality manner. Costs associated with such damage shall be borne by the Contractor at no additional cost to the Owner.
- 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 supported in position while work proceeds in the vicinity of the pole and that utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.
- C. The locations of existing utilities 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. Encountering existing utilities at different depths or locations than shown on the drawings shall not be cause for additional costs to the Owner.
- D. The existing piping and utilities that interfere with new construction shall be rerouted as shown, specified or required. The Contractor shall excavate sufficiently ahead of the proposed work to predict potential conflicts. Before any piping and utilities not shown on the Drawings are disturbed, the Contractor shall immediately notify the Engineer of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed.
- E. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities that do not interfere with completed 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 Engineer.
- F. It is intended that wherever existing utilities such as water, 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 on the Drawings. However, when in the opinion of the Owner or Engineer this procedure is not feasible, the Engineer may direct the use of fittings for the utility crossing. The Contractor shall verify utility crossings with test pits prior to construction as required by the Engineer.
- G. The contractor shall preserve existing sanitary sewers without interruption while performing the work of the project. When the drawings indicate that all or a portion of a service lateral is to be replaced, the Contractor shall accomplish the work without disruption of service, backup in the structure served, or leakage of sewage into the excavation.

1.17 JOB SITE SECURITY

- A. The Contractor shall properly protect the work area to prevent the public from entering the work area. The Contractor shall furnish and erect such barricades, fences, lights, and danger signals and shall provide such other precautionary measures for the protection of persons or property and of the work as necessary. Barricades/fencing shall be painted or have a reflective color that will be visible at night. From sunset to sunrise, the Contractor shall furnish and maintain at least one light at each barricade/fence and sufficient numbers of barricades/fencing shall be erected to keep vehicles or pedestrians from entering on or into any work under construction.
- B. The Contractor will be held responsible for all damage to the work due to failure of barricades, fencing signs, and lights to protect it and whenever evidence is found of such damage, the Contractor shall immediately remove the damaged portion and replace it at his cost and expense.

The Contractor's responsibility for the maintenance of barricades, signs, and lights shall not cease until the project has been accepted by the Owner.

1.18 NEW SERVICE CONNECTIONS

- A. The work requires that new services be installed to the lots shown on the drawings. In most cases, this shall include a new service from the new water main to the new meter box, relocating the existing meter to the new meter box and a new service line from the meter box to the building on the lot.
- B. In some cases, as shown on the Drawings, the existing meter box and meter, and the line from the meter box to the building will remain. In such cases, the work involves only running a new service line from the new water main to the existing meter box and connecting into the existing meter with a new curb stop. No new backflow prevention device is required.
- C. The Contractor's pricing for installing the new service lines on private property shall allow for installation by either open cut or by horizontal directional drill based on direction from the City and feedback from the property owner.
- D. After the new water main and street services are tested, disinfected and cleared by the Health Department/FDEP, the Contractor shall transfer each affected lot's service to the new water main. This shall include:
 - 1. Unless the Drawings call for connecting to an existing meter:
 - a. Furnishing and installing a new meter box and a new service from the meter box to the existing water service connection on the building being served. New service laterals shall be Schedule 40 PVC or SDR-9 HDPE and shall match the size of the new street lateral. All above ground pipe shall be copper or brass.
 - b. Relocating the existing meter to the new meter box. Piping in the meter box shall include all accessories necessary to connect the meter.
 - 2. Some of the existing services have dual or double check valve assemblies or RPZs. Unless connecting to an existing meter, all existing dual or double check valve assemblies and RPZs on residential services shall be removed and turned over to the property Owner and a new dual check valve assembly shall be installed on the new service. Dual check valve assemblies shall be Conbraco model 40-300. New dual check valve assemblies are only required if the existing service has a backflow prevention device. Existing RPZs on commercial services shall be relocated and reinstalled on the new service. All new dual check valve and relocated commercial RPZ assemblies shall be tested after installation and certified by a licensed backflow testing professional prior to activating the new service.
 - 3. Temporarily discontinuing water service to the affected lot and concurrently relocating the existing meter and RPZ (where applicable), connecting the new service laterals to the meter and, if included, to the building.
 - 4. Restoring water service to the affected building by placing the new service line into service. The trench for the new service from the meter to the building shall not be backfilled until the City's Plumbing Inspector inspects the line visually for leaks and passes the line.
 - 5. If not connecting to an existing meter, removing the existing meter box and backfilling and restoring the remaining hole.
 - 6. If not connecting to an existing meter, cutting and capping the old service line at the building, a minimum of 6 inches below ground.
- E. All work conducted downstream of the meter and on private property shall be completed by a licensed plumber hired by the Contractor and properly registered to do work in the City.

- F. Irrigation meters and services are not shown on the drawings. If there is an existing irrigation meter, a new irrigation water service will be required and the contractor's plumber will be responsible for connecting the new irrigation water service to the existing irrigation system. Payment for the new irrigation service and meter will be made at the contract unit price for the same size water service.
- G. The City has obtained written permission from property owners for the work to be completed on private property. Copies will be provided to the Contractor.
- H. Property owners and/or residents shall be notified at least 72 hours in advance of work being conducted on their property and for the need to turn off water service.

1.19 DOOR HANGERS

- A. The Contractor shall develop and distribute door hangers to notify residents and businesses of the impending work on their street. The language to be used in the door hanger shall be submitted to the City for approval prior to their production.
- B. Door hangers shall be placed on the front door of each affected property on a given street one week prior to commencing work.
- C. When necessary, Boil/Rescind notices will be provided by the City for distribution by the Contractor. Notices shall be distributed a minimum of 24 hours before shutdowns.

1.20 RESTORATION

- A. The Contractor shall restore disturbed areas progressively as the work continues. No more than 1,200 linear feet of work area along the force main lengths shall remain unrestored at any given time.
- B. No open trenches shall be allowed during non-working hours for all work in this project.
- C. Good housekeeping on this project is extremely important and the Contractor will be responsible for keeping the construction site neat and clean, with debris being removed daily as the work progresses or as otherwise directed by the Engineer. Good housekeeping at the job site shall include: Removing all tools and temporary structures, dirt, rubbish, etc.; hauling all excess dirt, rock, etc., from excavations to a dump provided by the Contractor; and all clean up shall be accomplished to the satisfaction of the Engineer. Dust shall be controlled daily as may be required. Immediately after construction completion in an area or part thereof (including restoration), barricades, construction equipment and surplus and discarded materials shall be removed by the Contractor.
- D. In the event that the timely clean up and restoration of the job site is not accomplished to the satisfaction of the Engineer, the Engineer shall make arrangements to affect the necessary clean up by others. The Contractor shall be charged for these costs through deductions in payment due the contractor. If such action becomes necessary on the part of an in the opinion of the Engineer, the City shall not be responsible for the inadvertent removal from the work site of materials which the Contractor would not normally have disposed of had he affected the required clean up.
- E. The City reserves the right to stop new construction until the provisions of this Article are satisfied with no award of additional contract time or cost.

1.25 JACKING AND BORING

- A. The project includes a jack and bore under Harbor Drive South, a Sarasota County Road. Jacking and boring under Harbor Drive South shall be in accordance with Section 9 of the Sarasota County Uniform Water, Wastewater and Reclaimed Water Systems Code. A copy of Section 9 of this

code is provided as Attachment No. 1 to these technical specifications and is hereby incorporated into these Contract Documents.

1.26 GEOTECHNICAL INVESTIGATION

- A. A report entitled “Geotechnical Engineering Services, City of Venice Water Main Replacement, Venice, Florida” for the project completed by Dunkelberger Engineering Services Inc. is provided as Attachment No. 2 to these technical specifications to assist Contractors with preparation of their bids.
- B. Contractors may perform additional geotechnical investigations at the site that they deem necessary for preparing their bids.

1.27 SHUTDOWN OF EXISTING WATER MAINS

- A. In the event that the Contractor shuts down and depressurizes an existing water main with live service connections as part of his construction efforts, he shall be responsible for notifying residents a minimum of 48 hours in advance of the shutdown. Prior to placing the water main back into service, the Contractor shall develop Boil Water Notices and distribute the notices to the affected properties. A copy of the required City of Venice Boil Water Notice forms is provided as Attachment No. 3 to these technical specifications.

1.28 GROUTING OF ABANDONED WATER MAIN

- A. All abandoned water mains 3” and greater shall be pumped full of 100 psi excavatable flowable fill in accordance with FDOT Standard Specifications section 121. A pumpable grout product with strength equivalent to the flowable fill will also be considered acceptable.

1.29 STORMWATER POLLUTION PREVENTION PLAN AND NOTICE OF INTENT

- A. Prior to the start of construction, the Contractor shall sign the Stormwater Pollution Prevention Plan provided on sheet G1.02 and file the Notice of Intent to Discharge Stormwater from Construction Activities with the FDEP along with the associated fee. Compensation for the fee will be paid for from the contract’s permitting allowance.

1.30 COORDINATION WITH THE CITY BUILDING DEPARTMENT

- A. The City Building Department will issue a master Plumbing Permit for all involved private properties, and an \$80.00 fee must be paid for each property. A Permit Fee Allowance of \$15,000 is included in the contract in order to reimburse the Contractor for these fees.
- B. It is anticipated that the inspection and approval process with the Building Department will be as follows:
 - 1. The Contractor will fill in the required Minor Work Plumbing Permit application and pay the \$80 fee for each property. The Building Department will help the Contractor in doing duplicate permit applications.
 - 2. After installing the new service lines between the meter and the building, call in for an inspection prior to backfilling the trench. The plumber shall provide the Building Department a minimum of 24-hours notice for inspections. If the service is found to be acceptable by the Building Department inspector, the trench may be backfilled and the new service line may be activated. If the inspector finds deficiencies in the service line, the plumber shall correct the deficiencies and then call for a re-inspection.
 - 3. The plumber shall notify the Building Department once the work on each private property is completed for final plumbing inspection. This inspection will include

observing the new service line visually for leaks. The service line trench shall therefore not be backfilled until the inspection is completed.

4. When work on all lots is completed, the plumber shall file the appropriate closeout paperwork with the Building Department.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01050

FIELD ENGINEERING AND SURVEY

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall provide and pay for field engineering and survey service required. Such work shall include survey work to establish existing and/or proposed lines and grades and to locate and lay out site boundary's, project control, site improvements, structures, controlling lines and levels and all other survey required for the construction of the work. Also included are such engineering services as are specified or required to execute the Contractor's construction methods. Engineers and surveyors shall be licensed professionals registered in the State of Florida.
- B. The accuracy of any method of staking shall be the responsibility of the Contractor. All surveying for vertical and horizontal control shall be the responsibility of the Contractor.
- C. The Contractor shall be held responsible for the preservation of all stakes and marks. If any stakes or marks are carelessly or willfully disturbed by the Contractor, the Contractor shall not proceed with any work until he has established such points, marks, lines and elevations as may be necessary for the prosecution of the work.

1.02 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on the Drawings. The Contractor shall locate and protect control points prior to starting site work and shall preserve all permanent reference points during construction. In working near any permanent property corners or reference markers, the Contractor shall use care not to remove or disturb any such markers. In the event that markers must be removed or are disturbed due to the proximity of construction work, the Contractor shall have them referenced and reset by a Florida Registered Land Surveyor and Mapper.

1.03 PROJECT SURVEY REQUIREMENTS

- A. The Contractor shall engage the services of a Florida Registered Land Surveyor and Mapper to establish all lines and grades on the Drawings necessary to fully construct the work in accordance with Chapters 5J-17.050, 5J-17.051, and 5J-17.052 of the Florida Administrative Code.
- B. The Registered Land Surveyor and Mapper shall establish and stake all Right-of-Way adjacent to construction at 100' intervals on tangents, 50' intervals on curves and at all changes in direction. The surveyor shall place lath and hub at such points with stations indicated. Tack in hub shall not be permitted.
 - 1. The Registered Land Surveyor shall utilize current right-of-way maps, plats and property deeds, all being of public record, in conjunction with existing monumentation to establish the existing right-of-way lines and utility easement boundaries.
- C. The Registered Land Surveyor shall establish a temporary benchmark system in accordance with Chapter 5J-17 F.A.C. and shall provide a written list to the Contractor for his use.
- D. The Contractor shall provide an As-Built Survey of all pipelines installed in the project, signed and sealed by a Florida Registered Surveyor and Mapper. As a minimum, the As-Built Survey shall provide at minimum:
 - 1. Top of pipe elevations at every 100 feet;

2. Top of pipe elevations at any grade change or direction changes;
 3. Top of pipe and top elevations of all utilities at utility crossings where the proposed utility crosses above or below other utilities;
 4. Top elevations and GPS coordinates of all fittings and valves;
 5. GPS coordinates of all ARV enclosures, hydrants and above grade appurtenances;
 6. GPS coordinates of all service saddles;
 7. All other surveying as required to show that the work has been completed to the lines and grades shown on the Drawings or the Specifications.
- E. GPS coordinates shall be survey accuracy and shall conform to the requirements of Chapter 5J-17-6, FAC, pursuant to Chapter 472.

1.04 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as construction progresses. Survey notes indicating the information and measurements used in establishing locations and grades shall be kept in notebooks and furnished to the Engineer with the Record Drawings.

1.05 SUBMITTALS

- A. Submit name and address of surveyor to the Engineer.
- B. On request of the Engineer, submit documentation to verify accuracy of field engineering work.
- C. Submit three (3) full sized 24"x36" of the as-built survey, signed and seal by the Registered Land Surveyor.
- D. Submit two (2) CD-ROMS of the as-built survey in AUTOCAD 2007 or later format.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

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

1.02 QUALITY ASSURANCE

- 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 establish stricter standards.
- B. Publication Date: The 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 OF ORGANIZATIONS

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

AA	Aluminum Association 818 Connecticut Avenue, NW Washington, DC 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Washington, DC 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MO 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
ASIS	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018

ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
AWS	American Welding Society 2501 NW 7th Street Miami, FL 33125
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
NEMA	National Electrical Manufacturers' Association 2101 L Street, N.W. Washington, DC 20037
NSF	National Sanitation Foundation P.O. Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113-0140
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PPI	Plastics Pipe Institute 105 Decker Court, Suite 825 Irving TX, 75062
SSPC	Steel Structures Painting Council Pittsburgh, PA
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

01090-2

(01090 – Reference Standards)
(08/30/12)

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.1 General Information

The Contractor shall receive and accept the compensation provided in the Proposal and the Agreement as full payment for furnishing certain materials and all labor, tools and equipment, for performing all operations necessary to complete the work under the Agreement, and also in full payment for all loss or damages arising from the nature of the work, or from any discrepancy between the actual quantities of work and quantities herein estimated by the Engineer, or from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the work until the final acceptance by the City.

It is the intent of these contract documents that any cost for which compensation is not directly provided by a bid item shall be prorated and included in the bid item(s) for which they are required. Failure of the Contractor to follow this procedure shall be basis for rejection of his bid.

The prices stated in the Proposal include all costs and expenses for taxes, labor, equipment, commissions, transportation charges and expenses, patent fees and royalties, together with any and all other costs and expenses for performing and completing the work as shown on the plans and specified herein. The basis of payment for any item at the unit price shown in the Proposal shall be in accordance with the description of that item in this Section.

All work shall be in accordance with the Technical Specifications.

Unless specifically listed as a Bid Item, no separate payment will be made for the following items and the cost of such work shall be included in the applicable contract pay items of work.

1. Clearing and grubbing;
2. Excavation, including necessary pavement/slab removal;
3. Shoring and sheeting;
4. Dewatering and disposal of surplus water including well point dewatering as directed by Engineer;
5. Backfill;
6. Grading;
7. Replacement or restoration of paved or unpaved roadways, grass and shrubbery plots outside of established pay limits;
8. Replacement or restoration of curbing, gutter, sidewalk, and site restoration of any areas damaged during construction activities;
9. Temporary facilities and controls during construction such as water/sanitary facilities, traffic control and environmental protection, unless specifically provided for in a pay item;
10. Removing and disposing of waste material due to construction;
11. Cleanup;
12. Refill materials, except as hereinafter specified;
13. Testing and placing system in operation;
14. Any material or equipment required installed and/or used for the tests;
15. Maintaining the existing quality of service during construction;
16. Repair of sanitary sewer house laterals damaged during construction;
17. Repair and/or cleaning of storm sewers, inlets & catch basins damaged or filled with sediment during construction;
18. Color audio-video construction record;

19. Providing the services of an Independent Testing Laboratory for materials and compaction testing;
20. Providing the services of a professional land surveyor, licensed in the State of Florida, to establish horizontal and vertical control, layout the work, and assist with the preparation of record drawings;
21. Cost to reproduce drawings, specifications, shop drawings, and reports for the Contractor's use and for submissions to the City;
22. Temporary fencing;
23. Dust Control;
24. Noise suppression measures;
25. Removing, relocating, resetting existing street signage to facilitate construction;
26. Removing, relocating, resetting mailboxes to facilitate construction;
27. Utility notification and location and exploratory pits; and
28. All other appurtenant work as required for a complete and operable system.

The Contractor's attention is again called to the fact that the quotations for the various items of work are intended to establish a total price for completing the work in its entirety. Should the Contractor feel that the cost for any item of work has not been established by the Proposal or Contract Pay Items, he shall include the cost for that work in some other applicable bid item, so that his proposal for the project does reflect his total price for completing the work in its entirety.

Following final payment by the City, the Contractor shall maintain the surface of the unpaved trenches, shrubbery, trees, fences, sod, and other surfaces disturbed for a period of six (6) months thereafter. The cost of maintaining the restored areas is considered incidental to the cost of restoring the areas disturbed by the Contractor. These costs shall be prorated and included in the cost for the bid item for which it is required.

1.2 Measurement

The quantities for payment under this Agreement shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the City, in accordance with the applicable method of measurement therefore contained herein. A representative of the Contractor shall witness all field measurements. Payment shall be made and shall be based on percent complete of the Lump Sum price according to the schedule of values.

1.3 Payment

The Contractor will be paid monthly, by the City, for work performed the previous month. Each application for payment shall be submitted with a copy of "as built" drawings, to date, as well as an updated schedule for the project. Payment shall be for the approved and accepted amount of work that the Contractor has accomplished in the previous month.

Payment shall be made and shall be based on percent complete for Lump Sum pay items and on a measured quantity times unit price basis for unit price pay items.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 Bid Items: Water Main Replacement Program – Phase 1

- A. WATER MAIN INSTALLED BY HORIZONTAL DIRECTIONAL DRILL METHOD (Bid Items #1, #2)

The Contractor shall provide all labor, equipment and materials to furnish and install pipe by horizontal directional drill (HDD) method. The HDD installation of pipe shall include, but may not be limited to:

1. Performing all evaluations and calculations necessary for the proper implementation of the HDD.
2. Preparing and implementing the HDD work plan, bentonite management and emergency spill plan;
3. Excavating the launch, recovery, intermediate mud and exploratory pits;
4. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
5. Maintaining the pits, which shall include dewatering, barricading, sheeting, shoring, containment, berming and disposal of drill fluid as required or as directed by the Engineer;
6. Furnishing and installing the pipe;
7. Horizontal directional drilling of pipe;
8. Furnishing and installing the locator wires on the pipe;
9. Joining the pipe as required;
10. Furnishing and installing MJ adapters as necessary to connect HDPE pipe to other pipe materials, fittings, and valves;
11. Backfilling and compaction of pits;
12. Hydrostatic pressure testing and cleaning the pipe;
13. Cleaning up and restoring the job site which shall include removing excess materials and debris and re-grading the terrain;
14. Providing an environmental scientist for monitoring HDD activities per the Contract Documents and applicable permits;
15. Connecting piping to existing piping and/or structures; and
16. All other ancillary materials, equipment, labor, water, and power required for the complete installation of the piping by HDD method.

All work shall be in accordance with the Technical Specifications.

Payment for installing pipe by the HDD method shall be based on the size and horizontal distance in linear feet of pipe measured along the top centerline of the installed and connected pipe, in place, complete and acceptable to the Engineer.

B. WATER MAIN INSTALLED BY OPEN CUT METHOD (Bid Items #3, #4, #5, #6)

The Contractor shall provide all labor, equipment, and materials for installing pipe by the open cut method (OC). The open cut installation of pipe shall include, but may not be limited to:

1. Exploratory pits;
2. Excavating and maintaining the trench, which shall include dewatering, sheeting, shoring and/or bracing where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Cleaning dirt and foreign material from within the pipe and bell;
5. Beveling field-cut joints and pipe shorts;
6. Installing City approved pipe and any pipe shorts as part of the pipeline;
7. Furnishing and installing locator wires on PVC pipe;
8. Furnishing and installing leak detector assemblies where called for on the drawings;
9. Furnish and install joint restraints complete with all tie rods and hardware;
10. Furnishing and installing pipe;
11. Furnishing and installing polyethylene encasement on ductile iron pipe;
12. Backfilling and compacting the trench including regrading the terrain;
13. Hydrostatic pressure testing, pigging, and cleaning the pipe;

14. Cleaning up and restoring the job site which shall include removing excess materials and debris and re-grading the terrain;
15. Driveway, sidewalk, asphalt and other restoration;
16. Disinfecting the potable or raw water main pipe;
17. Connecting piping to existing piping and/or structures;
18. Furnishing and installing any lateral pipe and making any connection needed; and
19. All other ancillary materials, equipment, labor, water and power required for the complete installation of the piping by open cut method.

All work shall be in accordance with the Technical Specifications.

Payment for installing pipe by the open cut method shall be based on the horizontal distance in linear feet of pipe measured along the top centerline of the pipe in place complete and acceptable to the Engineer.

C. 16" STEEL CASING WITH DUCTILE IRON CARRIER PIPE INSTALLED BY JACK AND BORE METHOD (Bid Item #7)

The Contractor shall provide all labor, equipment, and materials for installing 16" steel casing with Ductile Iron carrier pipe. The installation of casing and carrier pipe shall include, but may not be limited to:

1. Performing all evaluations and calculations necessary for the proper implementation of the Jack and Bore.
2. Excavating the launch, recovery, intermediate mud and exploratory pits;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Maintaining the pits, which shall include dewatering, barricading, sheeting, shoring, containment, berming and disposal of drill fluid as required or as directed by the Engineer;
5. Furnishing and installing the steel casing piping;
6. Welding/Joining the pipe as required;
7. Jack and Bore drilling of pipe;
8. Furnishing and installing the locator wires on the pipe;
9. Furnishing and installing the restrained carrier piping, casing spacers and casing end seals;
10. Furnishing and installing MJ adapters as necessary to connect carrier pipe to other pipe materials, fittings, and valves;
11. Backfilling and compaction of pits;
12. Hydrostatic pressure testing, pigging, and cleaning the pipe;
13. Cleaning up and restoring the job site which shall include removing excess materials and debris and re-grading the terrain;
14. Testing and disinfecting the carrier pipe;
15. Connecting piping to existing piping and/or structures; and
16. All other ancillary materials, equipment, labor, water, and power required for the complete installation of the piping by Jack and Bore method.

All work shall be in accordance with the Technical Specifications and Plans.

Payment for installing steel casing with ductile iron carrier pipe by the jack and bore method shall be based on the horizontal distance in linear feet of steel measured along the top centerline of the steel casing in place complete and acceptable to the Engineer.

D. 4" HDPE OR PVC CASING INSTALLED BY HORIZONTAL DIRECTIONAL DRILL METHOD
(Bid Item #8)

The Contractor shall provide all labor, equipment and materials to furnish and install casing pipe by horizontal directional drill (HDD) method. The HDD installation of casing pipe shall include, but may not be limited to:

1. Performing all evaluations and calculations necessary for the proper implementation of the HDD.
2. Preparing and implementing the HDD work plan, bentonite management and emergency spill plan;
3. Excavating the launch, recovery, intermediate mud and exploratory pits;
4. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
5. Maintaining the pits, which shall include dewatering, barricading, sheeting, shoring, containment, berming and disposal of drill fluid as required or as directed by the Engineer;
6. Furnishing the casing pipe;
7. Joining the casing pipe as required;
8. Horizontal directional drilling of pipe;
9. Furnishing and installing the locator wires on the casing pipe;
10. Backfilling and compaction of pits;
11. Cleaning up and restoring the job site which shall include removing excess materials and debris and re-grading the terrain;
12. All other ancillary materials, equipment, labor, water, and power required for the complete installation of the piping by HDD method.

All work shall be in accordance with the Technical Specifications.

Payment for installing casing pipe by the HDD method shall be based on the size and horizontal distance in linear feet of casing pipe measured along the top centerline of the casing in place complete and acceptable to the Engineer.

E. COMBINATION AIR/VACUUM VALVE ASSEMBLY (Bid Item #9)

The Contractor shall provide all labor, equipment and certain materials to completely install air release valve assemblies for water mains. The combination air/vacuum valve assembly installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit, which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing air release valves;
5. Field painting the air release valves with the painting system per the Contract Documents;
6. Furnishing and installing valve assembly enclosures;
7. Backfilling and compacting the trench/pit; and
8. All other ancillary materials, equipment, labor, and power required for the complete installation of combination air release/vacuum valve and air release valve assemblies.

All work shall be in accordance with the Technical Specifications and Plans.

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(Section 01150 – Measurement & Payment)
(09/23/13)

Payment shall be made for the number of each combination air/vacuum valve assembly installed and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

F. DUCTILE IRON FITTINGS (Bid Item #10)

The Contractor shall provide all labor, equipment and materials to completely furnish and install all miscellaneous fittings. The installation of these fittings shall include but not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing polyethylene encasement (for ductile iron fittings);
5. Furnishing and installing restrained joints on the fittings;
6. Backfilling and compacting the trench/pit; and
7. All other ancillary materials, equipment, labor, and power required for the complete installation of the ductile iron fittings, joint restraints, and cast-in-place thrust blocks.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made per ton for the total weight of fittings installed based on manufacturers standards of each size and type of fittings, less bolts and accessories, installed complete with joint restraints and incorporated into the piping system, working, and operating to the satisfaction of the Engineer.

G. RESILIENT WEDGE GATE VALVES WITH BOX (Bid Items #11, #12, #13)

The Contractor shall provide all labor, equipment and certain materials to completely furnish and install all resilient wedge gate valves. The resilient wedge gate valve installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing valves, valve boxes, and tapping sleeves;
5. Furnishing and installing mechanical joint restraints;
6. Furnishing and installing valve extension rods where necessary;
7. Furnishing and installing brass valve identification tag;
8. Backfilling and compacting the trench/pit;
9. Furnishing paint and painting valve cover; and
10. All other ancillary materials, equipment, labor, and power required for the complete installation of resilient wedge gate valves.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made based on the size and for each resilient wedge gate valve installation complete, working, and operating to the satisfaction of the Engineer. Operating satisfactorily includes but is not limited to:

1. The valve box and valve is plumb and the valve box is centered on the valve.
2. City personnel can insert a valve key through the valve box and completely open and close the valve.

H. TAPPING SLEEVES AND VALVES (Bid Items #14 and #15)

The Contractor shall provide all labor, equipment and certain materials to completely install and test all tapping sleeves and valves. The tapping sleeve and valve installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing valves, valve boxes, adapter fittings and tapping sleeves;
5. Pressure testing the tapping sleeve;
6. Furnishing and installing mechanical joint restraints;
7. Furnishing and installing valve extension rods where necessary;
8. Furnishing and installing brass valve identification tag;
9. Backfilling and compacting the trench/pit;
10. Furnishing paint and painting valve cover; and
11. All other ancillary materials, equipment, labor, and power required for the complete installation of valves and appurtenances.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made based on the size and for each tapping sleeve and valve complete, working, and operating to the satisfaction of the Engineer. Operating satisfactorily includes but is not limited to:

1. The valve box and valve is plumb and the valve box is centered on the valve.
2. City personnel can insert a valve key through the valve box and completely open and close the valve.

I. FIRE HYDRANT ASSEMBLIES (Bid Item #16)

The Contractor shall provide all labor, equipment and certain materials to completely install fire hydrant assemblies. The fire hydrant assembly installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit, which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing fire hydrant assemblies as shown on the detail drawings including the hydrant valve;
5. Backfilling and compacting the trench/pit; and
6. All other ancillary materials, equipment, labor, and power required for the complete installation of fire hydrant assemblies.
7. The main line tee shall not be included in this bid item.

All work shall be in accordance with the Technical Specifications and Plans. Payment for the tee shall be made under the Ductile Iron Fittings pay item.

Payment shall be made for the number of each fire hydrant assembly installed and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

J. WATER SERVICES WITH NEW METER BOX (Bid Items #17, #18, #19, #20)

The Contractor shall provide all labor, equipment and materials to completely install water services and meter assemblies for each residential lot. The water service and meter assembly installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit, which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing the far-side PVC or HDPE casings;
5. Furnishing and installing carrier piping and service lateral;
6. Furnishing and installing new meter box(es) and accessories;
7. Relocating and installing residential water meter;
8. Connections to new or existing piping systems, including small diameter piping and fittings not included in other bid items;
9. Backfilling and compacting the trench/pit; and
10. All other ancillary materials, equipment, labor, and power required for the complete installation of water services and meter assemblies.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made for the number of each water service installed and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

K. WATER SERVICES WITHOUT NEW METER BOX (Bid Items #21, #22, #23, #24)

The Contractor shall provide all labor, equipment and materials to completely install water services to existing meter assemblies for each residential lot. The water service installation shall include, but may not be limited to:

1. Excavating the trench/pit;
2. Maintaining the trench/pit, which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Furnishing and installing the far-side PVC or HDPE casings;
5. Furnishing and installing carrier piping and service lateral;
6. Furnishing and installing the corporation stop;
7. Connecting to the existing water meter assemblies;
8. Backfilling and compacting the trench/pit; and
9. All other ancillary materials, equipment, labor, and power required for the complete installation of water services.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made for the number of each water service installed and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

L. NEW DUAL CHECK VALVE ASSEMBLIES (Bid Item #25)

The Contractor shall provide all labor, equipment and materials to completely install new dual check valve assemblies per the specifications. The dual check valve installation shall include, but may not be limited to:

1. Furnishing the new dual check valve assemblies;
2. Installing the dual check valve in the meter box as shown on the Drawings;
3. Testing the dual check valve assemblies;
4. Miscellaneous fittings, piping and accessories necessary for a complete installation.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made for the number of each dual check valve installed and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

M. RELOCATED RPZ ASSEMBLIES (Bid Item #26)

The Contractor shall provide all labor, equipment and materials to completely remove, relocate and install existing RPZ assemblies per the specifications. The RPZ relocation shall include, but may not be limited to:

1. Removing the RPZ from the existing service;
2. Installing the above ground RPZ assembly as shown on the Drawings including copper piping, isolation valves and concrete stepping stone;
3. Testing the RPZ assemblies, and;
4. Miscellaneous fittings, piping and accessories necessary for a complete installation.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made for the number of each RPZ relocated and incorporated into the piping system complete, working, and operating to the satisfaction of the Engineer.

N. NEW WATER SERVICE CONNECTIONS FROM METER ASSEMBLIES TO EXISTING BUILDINGS (Bid Item #27)

The Contractor's plumber shall provide all labor, equipment and certain materials to completely install new water services from the new meter assemblies to each existing building. The new water service shall include, but may not be limited to:

1. Coordinating with the property owner to determine the service route;
2. Excavation;
3. Maintaining the trench/pit, which shall include dewatering and bracing and sheeting where required or as directed by the Engineer;
4. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
5. Furnishing, installing, testing and connecting the new service line by either open cut or by horizontal directional drill;
6. Backfilling and compacting the trench/pit;
7. Restoration; and
8. All other ancillary materials, equipment, labor, and power required for the complete installation of water services and meter assemblies.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made for the number of each new service installed complete, working, and operating to the satisfaction of the Engineer.

O. ABANDONMENT OF EXISTING WATER MAINS (Bid Item #28)

The Contractor shall provide all labor, equipment and materials to abandoned the existing water mains as shown on the drawings. The water main abandonment shall include, but may not be limited to:

1. Cutting the abandoned line and capping/plugging its connection to the remaining, in service water main;
2. Removal and disposal of all potable water in the abandoned line;
3. Furnishing, installing and maintaining all necessary erosion control measures including but not limited to artificial coverings, mowing, sandbagging, slope drains, sediment basins, hay bales, straw, floating silt barrier, staked silt barrier and seeding;
4. Materials, equipment, labor, and power required to furnish and install flowable fill on mains 3" or greater;
5. Capping/plugging the main;
6. Closing valves to be abandoned and removing the valve box;
7. Pipe clamps, rebar, concrete, equipment, labor, and power required to furnish and install the reverse dead man or thrust block;
8. Resisting the stub on the water main remaining in service; and
9. All other ancillary materials, equipment, labor, water, and power required for the complete abandonment of the line.

All work shall be in accordance with the Technical Specifications and Plans.

Payment shall be made and shall be based on percent complete of the Lump Sum price according to the schedule of values.

P. ASPHALT RESTORATION (Bid Items #29, #30)

The Contractor shall provide all labor, equipment, and materials to restore asphalt roadway that was cut, removed or damaged during the course of the pipeline construction and milling and paving of full lane widths as shown on the drawings. The asphalt restoration shall include sawcutting, removing and replacing the entire asphalt layer to the milling limits shown on the drawings or:

1. Placing, grading, and compacting sub-base, base, and approved asphaltic pavement over excavated area as specified in the Contract Documents;
2. Returning 30-days later to mill the full lane width of all damaged lanes and designated intersection areas indicated in the Approved Construction Plans so as to provide a uniform longitudinal profile and cross-section;
3. Sweeping of the milled surface;
4. Disposal of all surplus existing materials resulting from milling operations;
5. Restoring, placing, grading, and compacting approved asphaltic pavement at the thickness specified in the Contract Documents.

Payment shall be made on a square yard basis, in place complete and acceptable to the Engineer.

Q. MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL (Bid Item #31)

The bid price for Traffic Control shall be a lump sum amount. This bid item shall include preparation of a Maintenance of Traffic plan consistent with the Contractor's work schedule/plan and coordination with through the Project Representative with the City, County of State Traffic Control authority. It shall include the construction and maintenance of any necessary detour facilities, traffic control barriers; providing of necessary facilities for access to residences and

businesses, etc. along the project; furnishing, installing and maintaining of traffic control and safety devices during construction, including placement and removal of temporary pavement markings, and signs; temporary wheelchair ramps, temporary lighting for nightwork, and any other special requirements for safe and expeditious movement of both vehicular and pedestrian traffic.

Payment for Maintenance of Traffic and Traffic Control will be on an incremental basis in accordance with the following:

Percent of Original Contract Amount Earned	Allowable Percent of the Lump Sum Price for the Item
20	20
40	40
60	60
80	80
100	100

R. GENERAL CONDITIONS, MOBILIZATION AND DEMOBILIZATION (Bid Item #32)

The bid price for General Conditions, mobilization and demobilization shall be a lump sum amount calculated as a percentage of the subtotal of the bid items to be installed. This bid item shall include obtaining all permits, insurance, and bonds; securing a staging area in proximity to the work if public lands are insufficient; moving onto the site all materials and equipment; furnishing and erecting temporary buildings, access roads and other items as necessary to complete the work; providing a color audio-videotape of existing conditions of the construction site or route; providing field trailers, sanitary facilities and potable water facilities as required for the proper performance and completion of the work.

Bid price for mobilization shall not exceed 5% of the bid subtotal for installed items.

Payment for mobilization will be on an incremental basis in accordance with the following:

Percent of Original Contract Amount <u>Earned</u>	Allowable Percent of the Lump Sum <u>Price for the Item</u>
5	15
10	25
25	50
50	75
75	85
100	100

S. INDEMNIFICATION (Bid Item #33)

The bid price for Indemnification shall be a lump sum amount for the project. The amount shall be ten dollars (\$10.00). Payment for Indemnification will be made to the Contractor for considerations for indemnification to Owner and Engineer as specified in the General Conditions at the time of the first invoice.

T. OWNER'S ALLOWANCE (Bid Item #34)

The bid price for Owner's Allowance shall be a lump sum amount for the project. Payment shall be made to the Contractor, at the sole discretion of the Owner for additional Work requested by the Owner that is not covered by the scope of Work identified in this Contract.

U. PERMIT FEE ALLOWANCE (Bid Item #35)

Payment will be made to the Contractor based on actual invoiced amounts paid by the Contractor to obtain required Building Permits and inspections and for the FDEP Notice of Intent to Discharge Stormwater from Construction Activities.

Payment will not be made for:

- a. Contractor premiums or markups.
- b. Fees incurred due to Contractor's negligence.
- c. Permits required for items for the Contractor's convenience but not required by the Contract Documents or the Engineer.
- d. Fees and costs associated with utility services to temporary construction trailers and electricity required by the Contractor during construction.

END OF SECTION

SECTION 01152

APPLICATIONS FOR PAYMENT

PART 1 –GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to the Engineer in accordance with the schedule as approved by the Owner.
- B. Contractor shall submit to the Engineer for review, the proposed Application for Payment form and stored materials tracking form, prior to the first Payment Request.

1.02 FORMAT AND DATA REQUIRED

- A. Submit applications typed on forms either provided in these Specifications, furnished by the Owner, as approved by the Owner, with itemized data typed on 8-1/2 inch x 11 inch white paper continuation sheets.
- B. Provide itemized data on continuation sheet:
 - 1. Format, schedules, line items and values: those of the Schedule of Values accepted by the Engineer.

1.03 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - 3. Execute certification with signature of a responsible officer of the Contractor.
- B. Continuation Sheets:
 - 1. Fill in total list of all scheduled component items of work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - 3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number, and description, as for an original component item of work.
 - 4. To receive approval for payment on component material stored on site, submit copies of the original invoices with the Application for Payment. The application for payment must also

include a table summarizing the amount of each invoice and the schedule of values line item to which the stored materials apply.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. Provide substantiating data, containing suitable information for review of costs requested with a cover letter identifying:
 - 1. Project.
 - 2. Application number and date.
 - 3. Detailed list of enclosures.
 - 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
 - c. Supplier invoices.
 - d. A table identifying stored material, amount stored, amount installed, monthly activities report, updated cash flow chart, progress photos, and schedule of values item which the material applies.
- B. Submit one copy of data and cover letter for each copy of application.
- C. The Contractor is to maintain an updated set of As-built Drawings to be used as record drawings. As a prerequisite for monthly progress payments, the Contractor shall exhibit the updated record drawings for review by the Owner, the Engineer, or their dedicated representatives.
- D. Contractor shall maintain an updated construction schedule in accordance with the Specifications. As a prerequisite for monthly progress payments, Contractor shall submit the updated construction schedule with the applications for progress payments. If the Contractor fails to submit the required updated schedule within the time prescribed, the Engineer may withhold approval of progress payment estimates until such a time as the Contractor submits the required updated schedule. As-built Drawings shall be in accordance with Section 01720 Project Record Documents.

1.05 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in the Specification.
- C. All appropriate information must be entered on the application form.
 - 1. The line title, "Application Period", must indicate the dates between which all work was completed during the pay period. The period is defined from the first day of the month to the last day of the month, i.e. June 1, 2012 to June 30, 2012.
 - 2. All blank lines within the "Contract Data" and "Summary of Project Status" section of the application must be completed. Also, if any Change Orders have been approved, the "Change Orders" section must include that information.

3. All calculations and arithmetic must be precise to the penny.
4. The application must be signed and dated by an authorized representative of the Contractor and notarized.

1.06 SUBMITTAL PROCEDURE

- A. Prior to submitting a completed Payment Request, the Contractor must arrange a field meeting with the Resident Project Representative to review and verify all installed quantities and/or stored material. Only when the Resident Project Representative and Contractor agree on installed quantities and percentages, should the Payment Request be submitted.
- B. Submit six (6) copies of Applications for Payment to the Engineer at the times stipulated in the General Conditions.
- C. When the Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

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SECTION 01153

CHANGE ORDER PROCEDURES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. 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 Engineer on request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Who is authorized to accept changes in the work;
 - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the work.

1.02 DEFINITIONS

- A. Change Order: See General Conditions.
 - 1. Request for Cost Proposal – will be authorized by the Owner prior to all Work Change Directives and Field Orders.
- B. Work Directive Change: A written order to the Contractor, signed By Owner and Engineer, which amends the Contract Documents as described, and authorizes Contractor to proceed with a change that affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Engineer's Supplemental Instructions: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.
- D. Field Order: A written order to the Contractor, signed by the Engineer and the Contractor, which is issued to interpret/clarify the Contract Documents, order minor changes in the work. The work described by a Field Order is to be accomplished without change to the Contract Sum, Contract Time, and/or claims for other costs.

1.03 PRELIMINARY PROCEDURES

- A. Owner and Engineer may initiate changes by submitting a Work Directive Change to the Contractor. Request will include:
 - 1. Detailed description of the change, products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and/or Specifications.
 - 3. The projected time span for making the change, and a specific statement as to whether overtime work is or is not authorized.

4. A specific period of time during which the requested price will be considered valid.
- B. Contractor may initiate changes by submitting a written notice to the Engineer, prior to the work being performed, 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 CONSTRUCTION CHANGE AUTHORIZATION

- A. Work Directive Change will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.
- B. Owner and Engineer will sign and date the Work Directive Change as authorization for the Contractor to proceed with the changes.

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 Engineer 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, plus additional information:
1. Name of the Owner's authorized agent who ordered the work and date of the order.

2. Dates and times work was performed and by whom.
3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
 - a. Equipment used, listing dates, and times of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.

1.06 PREPARATION OF CHANGE ORDERS AND FIELD ORDERS

- A. Engineer will prepare each Change Order and Field Order.
- B. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents 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.
- D. Field Order will describe interpretations or clarifications of Contract Documents, order minor changes in the Work, and/ or memorialize trade-off agreements.
- E. Field Order work will be accomplished without change in the Contract Sum, Contract Time, and/or claims for other costs.

1.07 LUMP SUM/FIXED PRICE CHANGE ORDER

- A. Engineer initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.
- B. Once Engineer has completed and signed the form, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to Owner for approval. Engineer should make distribution of executed copies.

1.08 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 1. Engineer's definition of the scope of the required changes.
 2. Contractor's Proposal for a change, as recommended by Engineer.
 3. Survey of complete work.
- B. The amounts of the unit prices to be:
 1. Those stated in the Agreement.
 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:

1. Owner and Engineer will sign and date a Work Directive Change as authorization for Contractor to proceed with the changes.
- D. When quantities of the items cannot be determined prior to start of the work:
1. Engineer or Owner will issue a Work Directive change directing the Contractor to proceed with the change on the basis of unit prices, and the Engineer will cite the applicable unit prices.
 2. Upon completion of the change, the Engineer will determine the cost of such work based on the unit prices and quantities used. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
 3. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
 4. Contractor will sign and date the Change Order to indicate their agreement with the terms therein.
 5. Owner will then sign the change order.

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

- A. Engineer and Owner will issue a Work Directive Change directing Contractor to proceed with the changes.
- B. Upon completion of the change, the Contractor shall submit itemized accounting and supporting data.
- C. Engineer will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- D. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. Contractor will sign and date the Change Order to indicate agreement therewith.
- F. Owner will then sign the Change Order.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Not greater than monthly revise Schedule of Values and Request for Payment forms to record each change as a separate item of work and to record the adjusted Contract Sum.
- B. Not greater than monthly revise the Construction Schedule to reflect each change in Contract Time. Revise subschedules 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

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(Section 01153 – Change Order Procedures)
(08/30/12)

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 GENERAL

- A. Construction under this contract must be coordinated to assure that construction is completed within the time allowed by the Contract Documents. The Contractor will also coordinate his activities with the other contractors to allow orderly and timely completion of all the work.
- B. All construction schedules shall be of the critical path method, bar chart type, and shall be prepared using SURETRACK, PRIMAVERA P3, or equal.

1.02 CONSTRUCTION SCHEDULING GENERAL PROVISIONS

- A. Within 10 calendar days after the issuance of the Notice to Proceed, the Contractor shall prepare and submit to the Engineer a preliminary construction progress schedule. The schedule shall contain a sufficient number of tasks such that no single task has a value that exceeds 1.5% of the total Contract Amount. Partial payments will not be approved until an acceptable construction progress schedule has been approved by the Engineer.
- B. The schedule shall be updated monthly reflecting the approved baseline schedule and the Contractor's progress on each activity. No progress payment will be approved until the updated schedule is submitted and approved by the Engineer.
- C. Night work may be established by the Contractor as regular procedure only with the prior written permission of the Owner. Such permission, however, may be revoked at any time by the Owner if the Contractor fails to maintain adequate equipment and supervision for the proper execution and control of the work at night.
- D. 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.

1.03 PROGRESS OF THE WORK

- A. The work shall be executed with such progress as may be required to prevent any delay to the general completion of the work. The work shall be executed at such times and in or on such parts of the project, and with such forces, materials and equipment to assure completion of the work in the time established by the Contract.
- B. If the Contractor for his convenience and at his own expense, should desire to carry on his work at night or outside regular hours, he shall submit written notice to the Engineer and he shall allow ample time for satisfactory arrangements to be made for inspecting the work in progress. The Contractor shall reimburse the Owner for extra inspection required for work outside regular hours. The Contractor shall light the different parts of the project as required to comply with all applicable Federal and State regulations and with all applicable requirements of the municipality in which the work is being done.

PART 2 - PROGRESS SCHEDULE SUBMITTALS

2.01 GENERAL REQUIREMENTS

- A. The Contractor shall submit a critical path progress schedule as described herein. The schedule shall take into considerations all work phasing and restrictions as specified elsewhere in the Contract Documents.
- B. The critical path progress schedule requirement will consist of a detailed schedule, monthly status reports (Monthly Reports), a start-up schedule, and revisions to the schedules and analyses as described. The planning, scheduling, management and execution of the work are the sole responsibilities of the Contractor. The progress schedule shall allow Engineer to review Contractor's planning, scheduling, management and execution of the work; to assist Engineer in evaluating work progress and make progress payments; to allow other contractors to cooperate and coordinate their activities with those of the Contractor; and to provide Owner with information about "construction schedule" and "cumulative outlay schedule."
- C. Engineer's review of the schedule submittals shall not relieve Contractor from responsibility for any deviations from the Contract Documents unless Contractor has in writing called Engineer's attention to such deviations at the time of submission and Engineer has given written concurrence to the specific deviations, nor shall any concurrence by Engineer relieve Contractor from responsibility for errors and omissions in the submittals.
- D. Float or slack time is not for the exclusive benefit of the Owner, the Engineer or the Contractor. Extensions of time for performance, as specified in the General and Supplementary Conditions, will be granted only to the extent that equitable time adjustments for the network activity, or activities affected, exceed the total float or slack time along the affected network paths, as shown in the precedence diagram and computer printout report in effect at the instant of either (a) a notice to proceed with a change, or (b) a notice of suspension of work or possession, or (c) detection of a subsequently acknowledged differing site condition, or (d) occurrence of cause for an excusable delay. Further, use of float time in the schedule, or the allocation of float time to activities by means of special logic restraints or imposed dates, shall be shared to the benefit of Owner, Engineer, Contractor, and his subcontractors and suppliers in proportion of their scope of responsibilities. Excessive use of float time to the detriment of succeeding activities may be cause for denying an extension of time if it can be demonstrated that the float along the network paths affected at the instant of the delaying condition would have been larger than the delay had it not been for the excessive and unreasonable float usage in violation of the sharing concept required by this Specification.
- E. Engineer's review of the schedule submittals shall be only for conformance with the information given in the Contract Documents and shall not extend to the means, methods, sequences and techniques or procedures of construction or to safety precautions or programs incident thereto. Engineer's review of the schedule submittals will be predicated on a Contractor's stamp of approval signed off by Contractor. Contractor's stamp of approval on any schedule submittals shall constitute a representation to Owner and Engineer that Contractor, has either determined or verified all data on the submittal, or assumes full responsibility for doing so, and that Contractor and his subcontractors and suppliers have reviewed and coordinated the sequences shown in the submittal with the requirements of the work under the Contract Documents.

2.02 SUPPLEMENTARY REQUIREMENTS

- A. Graphic network diagrams shall be on a time-scaled precedence network format. The graphic network diagram shall include the following format:
 - 1. Description of each activity, or restraint, shall be brief but convey the scope of work described.

2. Activities shall identify all items of work that must be accomplished to achieve substantial completion, or any interim substantial completion, such as the major disciplines of work; items pertaining to the approval of regulatory agencies; contractor's time required for submittals, fabrication and deliveries; the time required by Engineer to review all submittals as set forth in the Contract Documents; items of work required of Owner to support pre-operational and start-up testing; time required for the relocation of utilities. Activities shall also identify interface milestones with the work of other contract work under separate contracts with Owner.
 3. Any activities not shown on the graphic network diagram shall be considered to have no effect on the Contractor's ability to achieve substantial completion, or interim substantial completion, within the Contract Time. Any delays to activities that do not appear in the concurred detailed schedule shall give rise only to non-prejudicial delays. Attempts to impose after-the-fact logic constraints where none existed previously to justify time extensions will not be permitted.
 4. Activity durations shall be in whole working days.
 5. Graphic diagrams shall be time-scaled and sequenced by work areas. The Diagram of Activities shall show numerical values for total float and be shown on their early schedules. The diagram shall be neat and legible and submitted on sheets no larger than 24 inches by 36 inches on a medium suitable for reproduction.
 6. All relationships and the critical path shall be shown. The critical path bars shall be different color than other task bars.
- B. Printout reports shall contain the following data for each activity or restraint:
1. Activity identification, activity description, activity duration, activity man-days, computed or specified early start date, computed early finish date, computed late start date, computed or specified late finish date, and total float and free float.
 2. Five separate reports shall be provided, including all activities and restraints, and shall be submitted monthly as follows:
 - a. Activity, sort by early start dates in order of ascending numbers.
 - b. Activity, sort by department.
 - c. Float report, in order of ascending total float values.
 - d. Successor/predecessor report.

PART 3 – EXECUTION

3.01 DETAILED SCHEDULE SUBMITTAL

- A. Submittal shall include a time-scaled graphic diagram showing all Contract activities, computer printout reports, and a supporting narrative. The initial Detailed Schedule submittal shall be delivered within 10 calendar days after the Notice to Proceed, and shall use the Notice to Proceed as the “data date”. Upon receipt of Engineer's comments, Contractor shall meet with Engineer and discuss an appraisal and evaluation of the proposed work plan. Necessary revisions resulting from this review shall be made by Contractor and the detailed schedule resubmitted within 15 calendar days after the meeting. The re-submittal, if concurred with by Owner, and unless subsequently changed with the concurrence of or at the direction of Owner, shall be the work plan to be used by the Contractor for planning, scheduling, managing and executing the work. If Contractor fails to provide an acceptable

Detailed Schedule submittal, he will be deemed not to have provided a basis upon which progress may be evaluated, which will further constitute reasons for refusing to recommend payment.

- B. The graphic diagram shall be formatted in accordance with Article 2.02(A) above. The diagram shall include (1) all detailed activities grouped by major areas of work. The critical path activities shall be identified, including critical paths for interim dates, if applicable, by clearly highlighting the path on the graphics diagram.
- C. This submittal shall include five copies of the graphic diagram, the printout reports and the narrative, in accordance with Article 2.02 of these scheduling requirements.
- D. The narrative shall include sufficient data to explain the basis of Contractor's determination of durations, describe the contract conditions and restraints plugged into the schedule, and provide a "what-if" analysis pertaining to potential problems and practical steps to mitigate them. Should Engineer require additional data, this information shall be supplied by Contractor within ten calendar days.

3.02 MONTHLY STATUS REPORTS

- A. Beginning with the first month, and every month thereafter, Contractor shall submit to Engineer a Monthly Status Report (based on the Detailed Schedule) with data as of the last day of the pay period. The monthly Status Report shall include a revised copy of the currently accepted graphic diagram, computer printouts and a narrative. The Monthly Status Report will be reviewed by the Engineer. The Contractor will address the Engineer's comments in the subsequent Monthly Status Report. If Contractor fails to provide acceptable Monthly Status Reports, he will be deemed not to have provided a basis upon which progress may be evaluated, which will be reason for refusing to recommend progress payments.
- B. The revised diagram shall show, for the currently accepted detailed diagram, percentages of completion for all activities, actual start and finish dates, and remaining durations, as appropriate. Activities not previously included in the currently accepted detailed schedule shall be added, except that contractual dates will not be changed except by Change Order. Review of a revised diagram by the Engineer 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.
- C. The narrative shall include the information shown in the following outline in a narrative form:
 - 1. Construction progress (refer to activity number in the Detailed Schedule) including:
 - a. Activities completed this reporting period;
 - b. Activities in progress this reporting period;
 - c. Activities scheduled to commence next reporting period.
 - 2. Description of problem areas
 - 3. Current and anticipated delays
 - a. Cause of the delay;
 - b. Corrective action and schedule adjustments to correct the delay;
 - c. Impact of the delay on other activities, on milestones, and on completion dates.
 - 4. Changes in construction sequence
 - 5. Pending items and status thereof

- a. Permits
 - b. Change Orders
 - c. Time extensions
 - d. Other
6. Contract completion date status
- a. Ahead of schedule and number of days
 - b. Behind schedule and number of days

3.03 REVISIONS

- A. All revised Detailed Schedule submittals shall be 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 by Engineer. The revision shall incorporate all previously made changes to reflect current as-built conditions. Minor changes to the submittal may be reviewed at monthly meetings. Changes to activities having adequate float shall be considered a minor change.
- B. A revised detailed work plan submittal shall be submitted for review, when required by Engineer, for one of the following reasons:
- 1. Owner or Engineer directs a change that affects the date(s) specified in the Agreement or alters the length of a critical path.
 - 2. Contractor elects to change any sequence of activities so as to affect a critical path of the currently accepted detailed schedule documents.
- C. If, prior to agreement on an equitable adjustment to the Contract Time, Engineer requires revisions to the Detailed Schedule in order to evaluate planned progress, Contractor shall provide an interim revised submittal for review with change effect(s) incorporated as directed. Approved interim revisions to the documents will be incorporated during the first subsequent Monthly Status Report.

3.04 CONSTRUCTION PERIOD

- A. Whenever it becomes apparent from the current monthly progress evaluation and updated schedule data that any milestone and/or Contract completion date will not be met, the Contractor shall take appropriate action to bring the work back on schedule. Actions could include:
- 1. Increase construction manpower in such quantities and crafts as to substantially eliminate the backlog of work;
 - 2. Increase the number of working hours per shift, shifts per work day, work days per week, or the amount of construction equipment, or any combination of the foregoing sufficient to substantially eliminate the backlog of work; and
 - 3. Reschedule work items to achieve concurrency of accomplishment.
- B. The addition of equipment or construction forces, increasing the working hours or any other method, manner, or procedure to return to the current Detailed Schedule shall be at the Contractor's own cost and shall not be considered justification for a Change Order or treated as an acceleration order.

END OF SECTION

01310-5

(Section 01310 – Construction Schedules)
(10/05/12)

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SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the Engineer for review such 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 shall note that there are specific submittal requirements in other sections of these Specifications.

1.02 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "shop drawings" shall be considered to mean Contractor's Drawings 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, erection and setting drawings and schedule drawings, manufacturer's scale drawings, bills of material, wiring and control diagrams, and inspection and test reports including performance curves and certifications as applicable to the Work.
- B. All details on shop drawings submitted for review shall show clearly the elevations of the various parts to the main members and lines of the structure and/or equipment, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the shop drawings before being submitted for review.

1.03 PRODUCT DATA

- A. Product data as specified in individual sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturers product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing storage instructions, and printed product warranties, as applicable to the work.

1.04 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the Contractor's Drawings for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and falsework; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.
- B. Working drawings shall be signed and sealed by a registered Professional Engineer, currently licensed to practice in the State and shall convey, or be accompanied by, calculations 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 Engineer. Such 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 Owner and Engineer shall have no responsibility therefore.

1.05 SAMPLES

- A. The Contractor shall furnish, for review of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed and in quantities and sizes as specified. A minimum of two samples of each item shall be submitted unless otherwise specified. 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 Engineer.
- B. Samples specified in individual sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the Work.
- C. The Contractor shall prepare a transmittal letter for each shipment of samples. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Review of a sample shall be only for the characteristics or use named in such review and shall not be construed to change or modify any Contract requirements.

1.06 SUBMITTAL REQUIREMENTS

- A. The Contractor shall review, approve, and submit, with reasonable promptness and in such sequence, so as to cause no delay in the Contract Work or in the Work of the Owner or any separate contractor, all shop drawings, product data, working drawings and samples required by the Contract Documents.
- B. Shop drawings, product data, working drawings and samples shall be furnished with the following information:
 - 1. Number and title of the drawing.
 - 2. Date of drawing or revision.
 - 3. Name of project building, facility or system.
 - 4. Name of contractor, subcontractor, and manufacturer submitting drawing.
 - 5. Clear identification of contents, location of the work, and the sheet numbers where the product is found in the contract drawings.
 - 6. Contractor Certification Statement.
 - 7. Submittal Identification Number.
 - 8. Contract Drawing Number Reference.
- C. All items specified are not necessarily intended to be a manufacturer's standard product. Variations from specified items will be considered on an "or equal" basis. If submittals show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall

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(01340 – Shop Drawings, Product Data,
Working Drawings and Samples)
(08/30/12)

describe such variations in his letter of transmittal and on the shop drawings along with notification of his intent to seek contract adjustment. 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 for executing the work in accordance with the Contract, even though such drawings have been reviewed. Variations submitted but not described may be cause for rejection. Any variations initiated by the Contractor will not be considered as an addition to the scope of work unless specifically noted and then approved as such in writing by the Engineer.

- D. Data on materials and equipment shall include materials and equipment lists giving, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, material, size, finish and all other pertinent data.
- E. 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. In addition, a maintenance and lubrication schedule for each piece of equipment shall be submitted
- F. All working drawing shall be scaled drawings and shall be generated using Computer-Aided Design (CAD) software.
- G. The Contractor shall use the color "green" to make his remarks on the Submittals. Only the Engineer will utilize the color "red" in marking submittals.

1.07 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check, and coordinate with the work of all trades, all drawings, data, schedules and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of any drawing or data sheet larger than 11"x17" shall bear Contractor's stamp showing that they have been so checked and approved. Drawings or data sheets 11"x17" and smaller shall be bound together in an orderly fashion and bear the Contractor's stamp on the cover sheet. The cover sheet shall fully describe the packaged data and include a list of all sheet numbers within the package. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor, without review at the Engineer's option, for conformance with this requirement.
- B. The Contractor shall review shop drawings, product data, and samples prior to submission to determine and verify the following:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Manufacturer's catalog numbers and similar data.
 - 4. Conformance with Specifications.
- C. Shop drawings shall indicate any deviations in the submittal from the requirements of the Contract Documents.
- D. At a time decided upon at the preconstruction meeting the Contractor shall furnish the Engineer a Shop Drawing schedule fixing the respective dates for the initial submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall be provided as a separate entity and indicate those submittals that are critical to the progress schedule. The Contractor shall prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be

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(08/30/12)

authorized because of the Contractor's failure to transmit complete and acceptable submittals sufficiently in advance of the Work.

- E. The Contractor shall not begin any work affected by a submittal returned, "Rejected. Revise as indicated and resubmit". Before starting this work all revisions must be corrected by the Contractor. After resubmittal they will be reviewed and returned to him by the Engineer. If returned marked, "No exceptions noted" or "Exceptions as noted", then the Contractor may begin this work. Any corrections made to the shop drawings are to be followed without exception.
- F. The Contractor shall submit to the Engineer all shop drawings and data sufficiently in advance of construction requirements. The Engineer's review period shall be as specified in Subparagraph 6.17 of the General Conditions.
- 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 review by the Engineer of the necessary shop drawings.
- H. All shop drawings, product data, working drawings and samples submitted by subcontractors for review shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission according to the approved shop drawing schedule so as to prevent delays in delivery of materials and project completion.
- I. The Contractor shall check all subcontractor's shop drawings, product data, working drawings and samples regarding measurements, size of members, materials, and details to satisfy himself that they are in conformance to the Contract Documents. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission to the Engineer.

1.08 ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

- A. The Engineer's review is for general conformance with the design concept and contract drawings. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract Drawings and Specifications or from departures therefrom. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- B. The review of shop drawings, data, and samples will be general. They 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 Engineer, except as otherwise provided herein.
- C. If the shop drawings, data or samples as submitted describe variations per subparagraph (1.07H), and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- D. Submittals will be returned to the Contractor under one of the following:

"NO EXCEPTIONS NOTED" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.

"EXCEPTIONS AS NOTED" is assigned when notations or comments have been made on the submittal pointing out minor discrepancies as compared with the Contract Documents. Resubmittal or confirmation is not necessary prior to release for manufacturing.

"EXCEPTIONS AS NOTED/CONFIRM." This combination of codes is assigned when a confirmation of the notations and comments is required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation is to address the omissions and/or nonconforming items that were noted. Only the items to be "confirmed" need to be resubmitted.

"EXCEPTIONS AS NOTED/RESUBMIT." This combination of codes is assigned when a resubmittal is required by the Contractor. The Contractor may release a portion of the equipment or material for manufacture; however, all notations and comments must be incorporated into the final submittal. This resubmittal is to address the omissions and/or nonconforming items that were noted.

"REJECTED. REVISE AS INDICATED AND RESUBMIT." This combination of codes is assigned when the submittal is in noncompliance with the Contract Documents and must be corrected and the entire package resubmitted. This code generally means that the equipment or material cannot be released for manufacture unless the Contractor takes full responsibility for providing the submitted items in accordance with Contract Documents.

"FOR YOUR INFORMATION" is assigned when the package provides information of a general nature that may or may not require a response.

- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.
- F. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer within the time constraints defined by the General and Supplementary Conditions.
- G. The Engineer will review a submittal/resubmittal a maximum of two (2) times after which cost of review will be borne by the Contractor. The cost of engineering shall be equal to the Engineer's charges to the Owner under the terms of the Engineer's agreement with the Owner.
- H. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- I. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

01340-6

(01340 – Shop Drawings, Product Data,
Working Drawings and Samples)
(08/30/12)

SECTION 01385

COLOR AUDIO-VIDEO CONSTRUCTION RECORDS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Audio-Video recording of all work areas in the Contract will be prepared by the Contractor. The video recording shall be in DVD format.
- B. Prior to commencing work, the Contractor shall have a continuous color audio-video recording taken along the entire length of the Project including all affected project areas. Streets, easements, rights-of-way, lots or construction sites within the Project must be recorded to serve as a record of the pre-construction conditions. One copy of the recording and video log shall be submitted to the City and one copy to the Engineer. The Engineer shall designate those areas, if any, to be omitted from or added to the audio-visual coverage. All recordings and written records shall become property of the City.
- C. No construction shall begin prior to review and approval of the recordings covering the Project construction area(s) by the City. The City shall have the authority to reject all or any portion of a recording not conforming to specifications and order that it be re-recorded at no additional charge. The Contractor shall reschedule unacceptable coverage within seven (7) days after being notified.
- D. The Contractor shall engage the services of a professional videographer known to be skilled and regularly engaged in the business of pre-construction color audio-video documentation.
- E. Each recording shall begin with the current date, project name and the general location. Accompanying the video recording shall be a corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing commentary of the camera operator or an aide, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall also be free from any conversations.
- F. All video recordings must continuously display transparent digital information to include the date and time of recording. The date information shall contain the month, day and year. The time information shall contain the hour, minute and seconds. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name, project number and direction of travel.
- G. All recording shall be done during time of good visibility. No recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.
- H. The average rate of travel during a particular segment of coverage shall be directly proportional to the number, size and value of the surface features within the construction areas zone of influence. The rate of speed in the general direction of travel of the vehicle used during recording shall not exceed 44 feet per minute.
- I. Video Log/ Index – All DVDs shall be permanently labeled and shall be properly identified by number and project title. Each recording shall have a log of its content. The log shall describe the various segments of coverage contained in terms of street names or location of easements; coverage beginning and end; directions of coverage; video unit counter numbers, engineering survey or coordinate values and the date.

- J. Recording coverage shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, drainage system features, mailboxes, landscaping, culverts, fences, signs, etc. within the area covered by the project. Of particular concern shall be the existence of any faults, fractures, or defects. Recorded coverage shall be limited to one side of the site, street, easement of right-of-way at any one time.

- K. The cost to complete the requirements under this section shall be included in the contract items provided in the proposal sheet. There is no separate pay item for this work.

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. The Contractor shall employ and pay for the services of an Independent Testing Laboratory to perform all geotechnical materials testing including but not limited to compaction density testing as indicated in the Contract Documents or described in the Specifications.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
 - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the work of the Contract.
 - 3. The Owner or Engineer may elect to have additional materials and equipment tested for conformity with the Contract Documents.
- B. All laboratories used by the Contractor are subject to the Owner's approval.

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 and provide access to work.
- 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, asphalt and other materials 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 Engineer 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 Owner shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:

01410-1

(Section 01410 – Testing & Testing Lab Services)

(03/07/13)

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 (minimum 48 hours) of operations to allow for laboratory assignment of personnel and scheduling of tests.
- 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 Engineer.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 TESTING REQUIREMENTS

- A. Testing shall be conducted in accordance with the following Table. The Owner and Engineer reserve the right to require additional tests.
- B. Lab technician shall notify the Contractor, the Owner's representative and the Engineer upon failing results. Work shall not continue in a given area until passing results are obtained.
- C. The Owner and the Engineer shall be provided with copies of all test reports.

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MATERIAL TESTING TABLE

ITEM	TEST	TEST IDENTIFICATION	TEST REQUIREMENTS VERTICAL	TEST FREQUENCY HORIZONTAL
UTILITY TRENCH BACKFILL	MAXIMUM DENSITY OPTIMUM MOISTURE FIELD DENSITY	AASHTO T-180 AASHTO T-180	PER SOIL CLASSIFICATION/ PER LABORATORY PER PLANS	PER SOIL CLASSIFICATION/ PER LABORATORY ONE PER 200 LF
SUBGRADE UNCLEAR NEW CURB	MAXIMUM DENSITY OPTIMUM MOISTURE LBR FIELD DENSITY	AASHTO T-180 FM 5-515 AASHTO T-180	N/A PER PLANS	PER SOIL CLASSIFICATION/ PER LABORATORY ONE PER 1320 LF AND IN EACH ISOLATED AREA OF WORK ONE PER 200 LF
LIMEROCK/SHELL BASE	MAXIMUM DENSITY OPTIMUM MOISTURE LBR FIELD THICKNESS FIELD DENSITY	AASHTO T-180 FM 5-515 AASHTO T-180	N/A N/A FULL BASE THICKNES S PER PLANS	PER SOIL CLASSIFICATION/ PER LABORATORY THREE PER SOURCE ONE PER 200 LF AND IN EACH ISOLATED AREA ONE PER 200 LF AND IN EACH ISOLATED AREA OF WORK
SOIL CEMENT BASE	SOIL CEMENT PLACEMENT/ MONITORING DENSITIES THICKNESS DETERMINATIONS	AASHTO T-134 AND AASHTO T-135	PER PLANS	ONE PER 200 LF

ITEM	TEST	TEST IDENTIFICATION	TEST REQUIREMENTS VERTICAL	TEST FREQUENCY HORIZONTAL
CONCRETE	COMPRESSIVE STRENGTH (THREE CYLINDERS/TEST) SLUMP, AIR CONTENT	AASHTO T-23 AND AASHTO T-119 AASHTO T-22 AND AASHTO T-152	PER SPECS PER SPECS	PER SPECS/MIN. OF ONE SET/DAY FOR POURS BETWEEN 10 & 50 CY, ADDITIONAL SET FOR EACH 50 CY DAILY OR 1 PER 50 CY MAX
ASPHALT	MATERIAL QUALITY: GRADATION ASHPALT CONTENT SPECIFIC GRAVITY TEMPERATURE FIELD THICKNESS AND FIELD DENSITY	FM 1-T 030 FM 5-563 FM 1-T 209 FM 1-T 166	N/A CORE SAMPLE THROUGH FULL THICKNESS OF WEARING COURSE	DAILY OR 1 PER 250 CY (500 TONS) PER TRUCK DELIVERED ONE CORE PER 500 LF AND IN EACH ISOLATED AREA OF WORK
RECYCLED CONCRETE BASE	GRADATION DENSITIES THICKNESS DETERMINATIONS	AASHTO T-180	PER SPECS	PER SOIL CLASSIFICATION PER LABORATORY ONE PER 200 LF

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 SANITARY FACILITIES

- A. Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.
- B. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

1.02 PARKING

- A. Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

1.03 DUST CONTROL

- A. Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of an approved chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practicable to prevent blowing.
- B. Buildings or operating facilities that may be adversely affected by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels or similar equipment, shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

1.04 SWEEPING

- A. The Contractor shall sweep loose material from all pavements at the end of each workday.

1.05 POLLUTION CONTROL

- A. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris or other substance will be permitted to enter sanitary sewers and reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

1.06 COMBUSTIBLES STORAGE

The Contractor shall protect all combustible products and materials placed on site from vehicular damage and vandalism.

Contractor shall submit a plan for all locations of fuel and vehicle storage through the duration of the project, updated as necessary to address specific phases or locations of the work.

There shall be no fuel storage in wetland areas.

Fuel storage containers shall be limited to 549 gallons or less. The Contractor is solely responsible for maintaining fuel containers and ensuring that all measures for protection and containment are provided as required by law.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01510

TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain temporary utilities required for construction, remove on 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 regulations of Health Department of the municipalities.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company and Owner to provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the Owner as stipulated by the Engineer. All cost associated with obtaining temporary and permanent power will be at Contractor expense.
- B. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

2.03 TEMPORARY WATER

- A. If applicable, establish an account and install at each and every connection to the Owner's water supply a backflow preventer and meter meeting local requirements. This does not include water for testing which will be provided by the Owner free of charge.
- B. The Contractor shall include in its bid any cost(s) anticipated for the use of temporary water facilities as a part of the construction of this project.

2.04 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

PART 3 - EXECUTION

3.01 GENERAL

- A. Maintain and operate systems to assure continuous service.
- B. Modify and extend systems as work progress requires.
- C. Allow the Owner and Engineer reasonable use of all temporary utilities.

3.02 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required as determined by the Engineer, but not before achieving Substantial Completion.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.

END OF SECTION

SECTION 01530

PROTECTION OF EXISTING FACILITIES

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall protect all existing utilities, facilities, and improvements not designated for removal and restore damaged or temporarily located utilities, facilities, and improvements to a condition equal to or better than they were prior to such damage or temporary relocation in accordance with the requirements of the Contract Documents.
- B. The number of exploratory excavations required shall be that number sufficient to determine the alignment and depth of the existing utility or facility.
- C. The Contractor shall determine the exact locations and depths of all existing utilities indicated on the Drawings that affect the Work. In addition to those indicated, the Contractor shall make exploratory excavations of all utilities. All such exploratory excavations shall be performed as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's Work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 RIGHTS-OF-WAY

- A. The Contractor shall not do any Work that would affect any utility; any fence; or any other structure, nor shall the Contractor enter upon the rights-of-way or easements involved with any such utilities until the Contractor has secured authority therefore from the utility, rights-of-way or easement owner, and has provided the Engineer with written proof of same. After authority has been obtained, the Contractor shall give said facility owner a minimum of one week's notice of the Contractor's intention to begin Work, and shall give said facility owner convenient access for removing, shoring, supporting, or otherwise protecting its utility, fence, or structure and for replacing same. Should two (2) or more contracts be executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the Owner shall decide which Contractor shall have priority to perform and in what manner. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Owner to the Contractor so desiring, to the extent, amount, manner, and times permitted by the Owner. No such decision as to the method or time of conducting the Work or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the Work.

3.02 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The Contractor shall not destroy, remove, or otherwise disturb any existing survey markers, or other existing street or roadway markers, without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that may be disturbed by the construction operations have been properly referenced for easy and accurate restoration. It shall be the Contractor's responsibility to notify the proper representatives of the Owner of the time and location that work will be done. Such notice shall be sufficiently in advance of construction that there shall be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey markers or points disturbed without proper authorization by

the Engineer will be accurately restored by the Contractor at no additional cost to the Owner after all street or roadway resurfacing has been completed.

3.03 RESTORATION OF PAVEMENT

- A. General: All paved areas, including asphaltic concrete cut or damaged during construction, shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavements shall conform to the requirements of the affected pavement owner. All pavement subject to partial removal shall be neatly saw cut in straight lines. All restoration shall be performed in accordance with these Specifications.
- B. Temporary Resurfacing: Wherever required by the authorities having jurisdiction, the Contractor shall place temporary surfacing promptly after backfilling and maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements. Temporary resurfacing shall be constructed in accordance with these Specifications.
- C. Permanent Resurfacing: All pavement restoration shall be in accordance with these Specifications.

3.04 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The Contractor shall protect all utilities and other improvements that may be impaired during construction operations. It shall be the Contractor's responsibility to ascertain the actual location of all existing utilities and other improvements indicated on the Drawings that may be encountered during construction, and to assure that such utilities or other improvements are adequately protected from damage due to such operations. The Contractor shall take all possible precautions for the protection of unforeseen utility lines, for uninterrupted utility service and such special protection as may be directed by the Owner.
- B. Utilities To Be Moved: If it becomes necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon proper application by the Contractor, be notified by the Owner to relocate such property within a specified reasonable time. The Contractor shall not interfere with said property until it has been relocated by the utility or franchise holder.
- C. Owner's Right of Access: The right is reserved by the Owner, and by the owners of public utilities and franchises, to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work.
- D. Known Utilities: Existing utility lines that are shown on the Drawings or the locations of which are made known to the Contractor prior to excavation that are to be retained and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired by the Contractor at no additional cost to the Owner.
- E. Unknown Utilities: If the Contractor damages any existing utility lines that are not shown on the Drawings or the locations of which are not made known to Contractor prior to excavation, or were not, or could not have been verified or located by the Contractor prior to starting the Work, a written report thereof shall be made immediately to the Owner. If directed by the Owner, repairs shall be made by the Contractor under the provisions of the Contract Documents.
- F. Utilities To Be Removed: When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the utility owner and the Owner a sufficient time in advance for the necessary measures to be taken to prevent interruptions of the service.

- G. Approval Of Repairs: All repairs to a damaged improvement facility shall be inspected and approved by an authorized representative of the improvement's Owner before being concealed by backfill or other Work.
- H. Relocation of Utilities: Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of an existing utility, or other improvement that is shown on the Drawings, the Contractor shall, at Contractor's own expense, remove, and without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the Owner and the owner of the facility. In all cases of such temporary removal or relocation, restoration to the former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement as nearly as possible to its former location and to as good or better condition as prior to removal.
- I. Maintaining In Service: All utilities encountered along the line of the Work shall be maintained continuously in service during all the operations, unless other arrangements satisfactory to the Engineer are made with the Owner of said utility. The Contractor shall be responsible for and shall make good all damage due to Contractor's operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

3.05 TREES WITHIN RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General: The Contractor shall exercise all necessary precautions to prevent damage or destruction of any trees or shrubs, including those lying within street rights-of-way and Project limits. The Contractor shall not trim or remove any trees unless such trees have been approved for trimming or removal by all jurisdictional agencies and the Owner. All existing trees and shrubs that are damaged during construction shall be trimmed or replaced by Contractor under permit from the jurisdictional agencies and the Owner and to the satisfaction of said agencies and the Owner. Tree trimming, tree planting and transplanting shall be accomplished in accordance with these specifications.

3.06 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way, the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than three (3) working days nor more than five (5) working days prior to excavation so that representatives of said owners or agencies can be present during such work if they so desire.

3.07 SUBSURFACE OBSTRUCTIONS

- A. The Contractor shall field determine, before pipeline trenching, drilling or any other excavations are begun, the depth and location of existing utilities. Utility locations indicated on the Drawings are shown based on available data. The Contractor shall submit descriptions, depths, and locations of subsurface obstructions to the Engineer for review if they differ from those shown on the Drawings.
- B. In installing pipe, care shall be taken not to remove, disturb, or damage existing pipes, conduits, or structures. If necessary, the Contractor shall sling, shore-up, and maintain such structures in operation at no additional cost to the Owner.
- C. The Contractor shall obtain the permission of and give sufficient Notice to the proper authorities of the Contractor's intention to remove or disturb any pipe, conduit, structure or facility, and shall abide by their requirements and Laws and Regulations governing such work.

- D. In the event subsurface structures are broken or damaged in the execution of the Work, the Contractor shall immediately notify the proper authorities and, at the option of said authorities, either repair the damage at once or pay the proper charges for repairing said damage at no additional cost to the Owner. Repairs shall be made to the satisfaction of the Engineer. The Contractor shall be responsible for any damage to persons or property caused by such breaks or due to the neglect in reporting and/or repairing such damages.
- E. Neither the Owner nor the Engineer will be liable for any claims made by the Contractor based on underground obstructions that could have been reasonably identified as being different than that indicated on the Drawings. The Contractor shall uncover subsurface obstructions in advance of construction so that the method of avoiding same may be determined before the Work reaches the obstruction.

3.08 CONFLICTS WITH OTHER UTILITIES

- A. It shall be the Contractor's responsibility to provide the appropriate utility company sufficient advance Notice so their representatives may verify the utility location on the Project site when construction begins. The Contractor shall coordinate and cooperate with these utilities to ensure that no damages occur which may cause interruption of their services.
- B. All temporary support or minor adjustment that does not require replacement or direct by-pass connections to these existing services (such as all direct-buried telephone cables or two-inch and smaller gas lines) shall be the responsibility of the Contractor.
- C. Where it may be necessary to relocate gas mains or telephone ducts (defined here as gas lines larger than 2-1/2 inches and telephone cables within ductwork) to allow construction of the Work or where major relocation of small services requires replacement or performing connections to the existing lines, all such relocation work is the responsibility of and must be performed by the respective utility companies. The Contractor shall immediately provide Notice to the proper utility company and the Engineer of the occurrence and location of such required relocations.
- D. The Owner will not be responsible for any delay or inconvenience to the Contractor resulting from the existence, removal, or adjustment of any public or private utility that could have been reasonably identified. Additional costs incurred as a result thereof shall be borne by the Contractor and considered as included in the price bid for the various pay items.
- E. Relocation or realignment of storm drains or sewer lines that may interfere with the construction of the Work shall be the responsibility of the Contractor.
- F. Where storm drains or sewer lines are removed by the Contractor to facilitate construction and replaced in their original position, there shall be no direct payment made. All related costs shall be included in the price bid for the various pay items.

3.09 POLE RELOCATION AND PROTECTION

- A. The Contractor shall take notice of the number of power, telephone, and traffic signal support poles along the length of the Project. Several may be in proximity to or in direct conflict with the alignment of the proposed new pipelines. The Contractor shall immediately provide Notice to the proper utility company and the Engineer of the occurrence and location of such required relocations. It is intended that poles shall be supported with mud jacks or by other means of bracing as required to maintain them in a stable condition. The Contractor shall coordinate relocation and protection activities with the pole owner.

3.10 EXISTING FENCE LINES

- A. At various locations along the length of the Project, existing fences may conflict with or impair construction operations for the installation of the Work. The Contractor shall protect these fences in places where they do not conflict with construction operations. Where a fence may conflict with the backswing of machinery or otherwise impede construction, the Contractor shall contact the owner and arrange for the temporary removal or relocation of the fence. Any fence temporarily relocated shall be placed in a manner to maintain the intent and integrity of the original fenced area. Any fence removed or temporarily relocated shall be restored to its original condition and location unless otherwise arranged with the owner of the fence. Where it is impossible to salvage the existing materials to reconstruct the fence, the fence shall be replaced "in kind."
- B. All cost for such temporary removal, temporary replacement, or "in kind" replacement shall be included in the price bid for the various pay items. No direct payment shall be made for fence replacement.

3.11 UTILITY INVESTIGATION

- A. Prior to commencing with trench or other excavations required for the performance of the Work, the Contractor shall conduct a field investigation for the purpose of determining existing locations of all underground utilities and facilities which are shown on the Drawings. The Contractor shall coordinate all utility investigations with Sunshine. The investigation shall be made by hand or machine excavation. All such excavations shall include removal of surface material and obstructions required to perform the excavations. The Contractor shall notify, in writing, the owner of the facility to be excavated and request that a representative of the owner be present during the excavation. The Contractor shall provide the utility owner adequate Notice so that a representative can be there. The Contractor shall provide sheeting, shoring, and bracing as required to minimize the required size of the excavation and support adjacent ground, structures, roadways, and utilities. After the data is obtained at each excavation site, the Contractor shall immediately backfill each excavation site. Backfill shall be compacted sand for the full depth. The surface shall be returned to its original grade and condition except that paved areas may be temporarily surfaced and maintained where excavations required for the performance of the Work coincide with the location of the investigative location. The Contractor shall be responsible for all costs associated with the repair of roadways, paving, structures, underground and above ground utilities and facilities damaged in conducting the investigations.
- B. Findings of the investigation shall be reported to the Engineer. The Engineer will furnish one (1) set of full-size Drawings for the Contractor's field use in recording the findings of the investigation. The Contractor shall describe the size, material, and location of existing underground utilities and facilities. Locations and elevations shall be referenced to Project stationing, distance from base line, and Project bench marks. The Contractor shall provide written detailed description of any underground utility or facility conflicting with the elevation or alignment of the Work.

3.12 SPECIAL RESTORATION REQUIREMENTS

- A. The Contractor shall schedule and conduct operations to minimize the impact of construction upon lawns, driveways, sidewalks, irrigation systems, and street paving. Restoration for these items shall be completed as soon as practical after installation of proposed pipelines. The following specific requirements apply.
 - 1. Driveways and Sidewalks: The Contractor shall saw cut existing driveway or sidewalk pavement and remove the required section not sooner than the same day the Work is to be installed beneath it. The Contractor shall maintain full access to each driveway at all times. The Contractor shall re-grade and compact disturbed areas immediately after the

Work is installed. The Contractor shall provide suitable, safe, temporary walking surfaces where the sidewalk is removed. The Contractor shall construct temporary driveway or sidewalk section within 24 hours of removal of the existing section. The Contractor shall coordinate driveway construction and restoration with property owners. Property owners shall be provided with Notice of proposed method and schedule of construction and restoration a minimum of 72 hours prior to commencement of construction activities affecting the property owner's driveways or sidewalks.

2. Irrigation Systems: The Contractor shall provide 10-day Notice to property owners prior to the Contractor removing irrigation system components.
3. Lawn Areas: The Contractor shall remove existing grass along a straight line to a minimum distance of six inches beyond the areas disturbed by construction activities on each side of the affected area. Sod shall be installed in disturbed lawn areas in a strip of uniform width along each section of lawn area with sod of identical type as existing. The Contractor shall grade and compact the area before the end of the next calendar day after excavation is performed. All sodding shall be performed in accordance with these Specifications. The Contractor shall install new sod within fourteen days after excavation.
4. Trees, Shrubs, and Landscaping: The Contractor shall use a bonded company, licensed to perform landscape work, to perform all landscaping work required in accordance with these Specifications.

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. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.

1.02 TRAFFIC CONTROL

- A. The necessary precautions shall include, but not be limited to, such items as proper construction warning signs, variable message boards, signals, lighting devices, markings, barricades, channelization and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and requirements for the duration of the construction period.
- B. The Contractor shall provide at least 72 hours notification to the applicable City, County or State Highway Department of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that the final approval of such closings can be obtained at least 48 hours in advance.
- C. The Contractor shall also be responsible for completing and submitting Road Closure Requests at least 48 hours in advance.
- D. 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 pre-construction traffic control scheme. Any such actions shall be performed by the Contractor under the supervision, and in accordance with the Specifications, of the Owner, unless otherwise specified.
- E. The Contractor shall immediately notify the Owner of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction of the project.

1.03 MAINTENANCE OF TRAFFIC

- A. The Contractor shall maintain traffic within the construction area throughout the duration of the construction in accordance with Section 102 of the Florida Department of Transportation (FDOT) "Standard Specifications for Road and Bridge Construction," latest edition (the Standard Specifications) except as may be modified herein. References to "Department" shall mean "City of Venice" and Sections 102-11 "Method of Measurement," 102-12 "Submittals," and 102-13 "Basis of Payment" do not apply and are replaced by the measurement and payment requirements of Section 01150 of this contract.
- B. Roadways shall be kept open to one-way traffic in each direction during all phases of the construction period except that daylight lane closures with flagger control will be allowed. The Contractor will not be permitted to isolate residences or places of business. Alternate access shall be provided to all residences and all places of business whenever construction interferes with the existing access.

- C. The Contractor shall maintain access at all times for postal delivery, emergency services and trash pickup. The postal service, police department, fire department and solid waste services shall be notified of the need to temporarily close any roadway and an alternate means of access to affected properties shall be provided.
- D. The Contractor shall conduct his operations in such a manner that will maintain access to private property/driveways and will result in minimum inconvenience to the public accessing the neighborhood roads and/or business establishments and shall provide temporary access during construction.
- E. In the event that vehicular access to residences and/or driveways will be temporarily blocked, the Contractor shall notify the City three (3) days in advance and shall assist the City with coordinating with affected residents. Blocking vehicular access to any residence shall not exceed one calendar day.
- F. The Contractor shall prepare Traffic Control Plans for review and approval by the Engineer prior to implementation of the plan. Prior to initiating each phase of a detour system, the Contractor shall prepare a specific detour letter/map, to be approved by the Engineer, and deliver by hand to each home or business affected.
- G. The Contractor shall furnish, erect and maintain all necessary traffic control and safety devices in accordance with the Florida Department of Transportation (FDOT) Index 600 series of "Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System," latest edition, and shall take all necessary precautions for the protection of the work and the safety of the public for the duration of the construction period.
- H. The work shall include the furnishing, erection, maintenance and removal upon completion of construction, all temporary traffic barricades of whatever type required, and for such duration as may be required by the Engineer. Also included as part of the work is material and construction necessary for temporary connections, sidewalk maintenance and driveway maintenance.

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 prior to construction, and maintain two (2) temporary project signs. One sign shall be located at the intersection of Harbor Drive and Villas Drive and the other shall be located at the intersection of Harbor Drive and Ponce DeLeon Avenue.
- B. Remove all signs on completion of construction.
- C. Allow no other signs to be displayed.

1.02 INFORMATIONAL SIGNS

- A. Painted signs with painted lettering, or standard products.
 - 1. Size of signs and lettering: as required by the Owner, or as appropriate to usage.
 - 2. Colors: as required by the Owner, otherwise of uniform colors throughout Project.
- B. Erect at an appropriate location, as directed by the City, to provide required information.

1.03 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.

PART 2 – PRODUCTS

2.01 PROJECT IDENTIFICATION SIGN MATERIALS

- A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.
- B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints.
- C. Thickness: As required by standards to span framing members, to provide even, smooth surface without waves or buckles.
- D. Rough Hardware: Galvanized.
- E. Paint: Exterior quality.

PART 3 – EXECUTION

3.01 PROJECT IDENTIFICATION SIGNS

Paint exposed surface of supports, framing and surface material; one coat of primer and one coat of exterior paint.

3.02 MAINTENANCE

Maintain sign and supports in a neat, clean condition; repair damages to structures, framing or sign.

3.03 REMOVAL

Remove sign, framing, supports and foundations at completion of project.

PROJECT TITLE ¹

△ CITY COUNCIL

△ MAYOR
Name △

△ VICE-MAYOR
Name △

△ MEMBERS
Name △
Name
Name
Name

PLACE
CITY
LOGO
HERE

△ UTILITIES DEPARTMENT

△ CONSTRUCTION COST
\$ Cost △

△ CONTRACTOR
Name △

△ ENGINEER
Name △

THE SIGNS SHALL BE 8' WIDE x 4' HIGH, CONSTRUCTED OF HIGH DENSITY 3/4" EXTERIOR PLYWOOD. IT SHALL BE MOUNTED AND BRACED WITH PRESSURE TREATED LUMBER AS NECESSARY AND MAINTAINED AND KEPT IN PRESENTABLE CONDITION FOR THE DURATION OF THE PROJECT. THE SIGNS SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF WORK.

THE SIGNS WILL BE PLACED IN ACCORDANCE WITH CITY ORDINANCES. NO SIGN SHALL BE ERRECTED WITHIN THE CLEAR SIGHT TRIANGLE OF INTERSECTIONS. THE BOTTOM OF THE SIGN SHALL NOT EXCEED 4 FT ABOVE THE GRADE.

THE PAINT SHALL BE EXTERIOR TYPE ENAMEL, WHITE BACKGROUND WITH BLACK LETTERING.

THE CITY LOGO DECAL WILL BE PROVIDED BY THE UTILITIES DEPARTMENT.

LETTERING SHALL BE DONE PROFESSIONALLY APPLIED AND SHALL BE AS FOLLOWS:

- △ 1 5 IN. NEWS GOTHIC (BOLD)
- △ 2 3 IN. NEWS GOTHIC
- △ 3 2 IN. BRUSH SCRIPT
- △ 4 2-1/2 IN. NEWS GOTHIC
- △ 5 1 IN. NEWS GOTHIC

PROJECT SIGN

 <p>King ENGINEERING ASSOCIATES, INC.</p>	 <p>City Of Venice Utility Department</p> <p>Venice FL 34285 Ph. 941-460-3333 Ph. 941-466-2626</p>	JOB NO. 4799-002-000	EXHIBIT 1
		DATE JUNE 2013	
		SHEET	

END OF SECTION

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(Section 01580 – Project ID & Signs)
(09/23/13)
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SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Material and equipment incorporated into the Work:

1. Shall conform to applicable specifications and standards.
2. Shall comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.
3. Manufactured and Fabricated Products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, 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 designed or is specified.

1.02 APPROVAL OF MATERIALS

- A. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the work site without prior review of the Engineer.
- B. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, either prior to beginning or during the progress of the work, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, and shipped as directed at the Contractor's expense. Except as otherwise noted, the Owner will make arrangements for and pay for the tests.
- C. The Contractor shall submit data and samples sufficiently early to permit consideration and review before materials are necessary for incorporation in the work. Any delay resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of claims against the Owner or the Engineer.
- D. The materials and equipment used on the work shall correspond to the approved samples or other data previously submitted to the Engineer for review.

1.03 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

- 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 four copies to the Engineer.
 - 1. 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 accord with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

1.05 STORAGE AND PROTECTION

- A. The Contractor shall furnish a covered, weather-protected storage structure providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment, and special equipment to be incorporated into this project. Storage of equipment shall be in strict accordance with the "instructions for storage" of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc. The Contractor shall furnish a copy of the manufacturer's instructions for storage to the Engineer prior to storage of all equipment and materials. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.
- B. Store Products in accord with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weathertight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

3. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. All materials and equipment to be incorporated in the work shall be handled and stored by the Contractor before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft or damage of any kind whatsoever to the material or equipment.
- D. Cement, sand and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All miscellaneous steel, and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Precast concrete sections shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking, and spilling to a minimum.
- E. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work, and the Contractor shall receive no compensation for the damaged material or its removal.
- F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
- G. Protection After Installation:
1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.
- H. The Contractor shall be responsible for all material, equipment, and supplies sold and delivered to the Owner under this Contract until final inspection of the work and acceptance thereof by the Owner. In the event any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance, the Contractor shall replace same without additional cost to the Owner.
- I. Should the Contractor fail to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, the Owner retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from the Contractor's Contract. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering and any other costs associated with making the necessary corrections.

1.06 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Contractor's Options:
1. For Products specified only by reference standard, select any product meeting that standard.
 2. For Products specified by naming several Products or manufacturers, submit the Products or manufacturers named in the Contractors Bid, which complies with the specifications.

3. For Products specified by naming one or more Products or more products or manufacturers and "or equal", Contractor must submit a request as for substitutions for any Product or manufacturer not specifically named.

1.07 SPECIAL TOOLS

- A. Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. The Contractor shall preserve and deliver to the Owner these tools and instructions in good order no later than upon completion of the Contract.

1.08 WARRANTY

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740. The manufacturer's warranty period shall be concurrent with the Contractor's for twelve (12) months after the time of completion and acceptance.

1.09 SPARE PARTS

- A. Spare parts for certain equipment have been specified in the pertinent sections of the Specifications. The Contractor shall collect and store all spare parts so required in an area to be designated by the Engineer. In addition, the Contractor shall furnish to the Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Comply with requirements stated in General Conditions and in Specifications for administrative procedures in closing out the Work.

1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work is substantially complete, he shall submit to the Engineer:
1. A written notice that the Work, or designated portion thereof, is substantially complete.
 2. A list of items to be completed or corrected.
 3. A copy of all applicable, executed:
 - Manufacturer Certifications of Proper testing, Ready for Operation and Completion
 - Calibration and Testing Certificates
 - Transmittals of Operations and Maintenance Manuals
 - Transmittals of Spare Parts
 - Owner's Equipment Training Attendance Sign-in sheets
 - Warranties and guarantees of the manufacturer(s).
- B. Within a reasonable time after receipt of such notice, the Engineer will make an inspection to determine the status of completion.
- C. Should the Engineer determine that the Work is not Substantially Complete:
1. The Engineer will promptly notify the Contractor, in writing, giving the reasons therefore.
 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
 3. The Engineer will re-inspect the Work.
- D. When the Engineer finds that the Work is Substantially Complete, he will:
1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final completion.
 2. After consideration of any objections made by the Owner as provided in Conditions of the Contract, and when the Engineer considers the Work Substantially Complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.03 FINAL INSPECTION

- A. When Contractor considers the Work to be complete, he shall submit written certification that:

1. Contract Documents have been reviewed.
 2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
 5. Work is completed and ready for final inspection.
- B. The Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should the Engineer consider that the Work is incomplete or defective:
1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Engineer that the Work is complete.
 3. The Engineer will re-inspect the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 REINSPECTION FEES

- A. Should the Engineer perform re-inspections, due to failure of the Work, to comply with the claims of status of completion made by the Contractor:
1. Owner will compensate the Engineer for such additional services.
 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Evidence of compliance with requirements of governing authorities.
- B. Project Record Documents and As-built Drawings.
- C. Operating and Maintenance Data, Instructions to Owner's Personnel.
- D. Warranties and Bonds.
- E. Keys and Keying Schedule.
- F. Spare Parts and Maintenance Materials.
- G. Evidence of Payment and Release of Liens.
- H. Certificate of Insurance for Products and Completed Operations.

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(Section 01700 – Contract Closeout)
(08/30/12)

- I. Contractor's Final Affidavit.
- J. Lien Waivers from Subcontractors and Suppliers.
- K. Consent of Surety from the bonding company.
- L. Contractor's Guarantee.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Engineer.
- 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. Deductions for uncorrected Work.
 - d. Penalties and Bonuses.
 - e. Deductions for liquidated damages.
 - f. Deductions for re-inspection payments.
 - g. Other adjustments.
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Price, which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the General Conditions.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

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SECTION 02071

DIRECTIONAL BORING

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The work of this Section includes all labor, machinery, construction equipment and appliances required to perform in a good workmanlike manner all directional boring.

The overall work scope shall include, but not be limited to steerable directional boring equipment, boring pits and equipment, sheeting, location signs as required, maintenance of traffic and miscellaneous appurtenances to complete the entire WORK as shown on the CONTRACT DRAWINGS, and restoration. Directional boring operations shall be performed within the right-of-way and/or easements shown on the DRAWINGS.

Directional boring must be completed between the hours of 8:00 AM and 3:00 PM.

- B. The equipment used in directional boring, also known as horizontal directional drilling, shall be of adequate commercial size and satisfactory working condition for safe operation, and may be subject to approval by the City or State at the discretion of the Engineer. Such approval, however, shall not relieve the Contractor of the responsibility for making a satisfactory installation meeting the criteria set forth herein. Only workmen experienced in directional boring operations shall be used in performing the Work.
- C. Provide all structures, safety equipment, and professional services required to provide for the health and safety of the general public and of personnel involved in directional boring work in accordance with the requirements of the regulatory agencies having jurisdiction.
- D. Potential locations for entry and exit points are shown on the drawings. The Contractor shall submit proposed locations as part of his drilling plan for approval by the Engineer. The Contractor shall employ licensed, professional land surveyors to locate the entry and exit points, and to establish horizontal and vertical datum for the bore and the pipe layout and fabrication areas.
- E. Take all measures necessary to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, and appurtenances from damage due to directional boring work. Responsibility and payment for correction of such damage shall be the sole responsibility of the Contractor.
- F. The Directional Boring operation is to be operated in a manner to eliminate the discharge of water, drilling mud, and cuttings to nearby water bodies or to the land areas involved during the construction process. If inadvertent spills to nearby water bodies occur, the Contractor shall immediately provide environmental controls and clean up to the satisfaction of, and at no additional expense to the Owner.
- G. Best Management Practices (BMP's) for erosion control within the Contractor's work area shall be implemented and maintained at all times during drilling and back-reaming operations to prevent siltation and turbid discharges in excess of State Water quality Standards pursuant to Rule 62-302, F.A.C. Methods shall include, but are not limited to the immediate placement of turbidity containment devices such as turbidity screen, silt containment fence, hay bails, and earthen berms, etc to contain the drilling mud.
- H. The Contractor shall be responsible for preparing and submitting to the Engineer and all permitting agencies (described in the permits attached to these specifications) sheeting, shoring, and bracing plan and dewatering plan for all excavations required in the project. The Contractor shall be responsible for

obtaining all necessary permits including but not limited to a Generic Permit under F.A.C. 62-621.300 for dewatering activities.

1.02 REFERENCE DOCUMENTS

- A. Florida Department of Transportation (FDOT) Utility Accommodation Guide
- B. American Society for Testing and Materials (ASTM).
- C. American Water Works Associations (AWWA).
- D. American Petroleum Institute (API).
- E. Plastic Pipe Institute (PPI).

1.03 QUALIFICATIONS

- A. The following requirements represent the minimum qualifications required by the Owner for this project. The Contractor shall submit proof to the Engineer that the Contractor or the HDD contractor meets these requirements below:
 - 1. Contractor shall have been in business under the current name for the past 36 months.
 - 2. Contractor shall have a minimum of five (5) years of successful experience in installing pipelines using horizontal directional drill (HDD) methods.
 - 3. Contractor must submit on above referenced jobs the successful deployment of downhole survey tools that record fluid pressure and provide steering and tracking.
 - 4. Qualifications and Experience of Contractor Personnel: The Contractor shall employ skilled, experienced superintendent(s), drill rig operators, and key personnel. The superintendent(s) and drill rig operators shall have at least three years of successful experience using the HDD process, on at least five (5) projects with similar diameters, pull back length and ground conditions. The superintendent(s), drill rig operator, and key personnel shall demonstrate successful completion of at least three (3) projects where pipe was installed with horizontal directional drilling techniques. The Contractor shall furnish resumes of the superintendent(s) and operators. Personnel experience records should include project names, locations, pull back lengths, ground conditions, pipe materials, project description, project owner, engineer, and references with names, addresses and telephone numbers. The superintendent and operators listed in the submittal shall be on site during all construction related activities required for HDD installation.

1.04 SUBMITTALS

- A. All submittals shall be in conformance with Section 01340.
- B. Prior to beginning work, the contractor must submit to the Owner and Engineer the following items:
 - 1. The Contractor shall provide a complete HDD work plan with a written description identifying details of the proposed method of construction and sequence of operations to be performed during construction. The work plan shall be comprehensive, realistic and based on actual working conditions for this particular project. The work plan shall address the following requirements as a minimum:
 - a. Pre-construction walkover and site inspection.

- b. Sunshine One Call for utilities location within the limits of the HDD project (Ground Penetrating Radar (GPR) Electronic Locate, Subsurface Location as required).
 - c. The Contractor shall video tape and take photographs of nearby structures which may be affected by inadvertent fluid returns.
 - d. The Contractor shall review as-built drawing and prior geotechnical reports of past projects in the area, if available and identify and potential concerns.
 - e. The work plan shall include the exact locations and dimensions of all drill entry/exit pits, equipment staging areas, and dewatering plans.
 - f. The work plans shall include a traffic control plan, a spill cleanup/environmental protection plan, dewatering plan and contingency plans for possible problems.
 - g. The Contractor shall establish a drill profile between the entry and exit point by observing various framework conditions mentioned below in order to ensure, that the intended theoretical drilling profile line can also be realized in practice.
 - 1) Entry and exit angle
 - 2) Slant tangential sections
 - 3) Radii of curvature
 - 4) Cover
 - 5) Borehole diameter
 - h. The Contractor shall provide anticipated drilling rates for pilot bore, reaming and pullback procedures. These drilling rates shall be used by the Contractor to calculate drilling fluid volumes required for pilot hole, each reaming pass and pullback. The Contractor shall verify pump capacity and that the drilling fluid cleaning system is capable of sustaining the anticipated drilling rates during the pilot bore, reaming and pullback.
 - i. The Contractor shall submit qualification documents for the HDD superintendent and key personnel experience in accordance with Section 1.3A of this specification. Also, the Contractor shall have personnel with a Florida/OSHA Certification for the site Safety Representative.
 - j. The Contractor shall submit a detailed schedule for the HDD installation. The detail schedule shall identify all major construction activities and durations, with beginning and completion dates shown. The detail schedule shall be updated at least every two weeks or more frequently, as directed by the Engineer, and shall include but not limited to the following items:
 - 1) Pre-construction walk over and inspection.
 - 2) Regular Mobilization and set-up.
 - 3) Pilot bore
 - 4) Pre-reaming and reaming.
 - 5) Layout and fusing of pipe.
 - 6) Pressure Testing of pipe prior to pullback and after installation.
 - 7) Final reaming and pullback of product pipe.
 - 8) Mandrel/pig test to confirm deformations of product pipe are within allowable tolerances.
 - 9) Cleanup, surface restoration, and demobilization.
 - k. MSDS of any potentially hazardous substances to be used.
- C. The Contractor shall make available complete, legible, written daily logs and records.

- D. The Contractor shall submit a drill profile for approval by the Engineer and shall be based on the control elevations and stationing of the applicable construction baseline shown on the plans. The Contractor shall notify the Engineer immediately upon discovery of any deviations from the design plans.
- E. The Contractor shall submit an as-built profile of the pilot bore within twenty-four (24) hours of completion of the pilot bore. The pilot bore profile may be submitted in digital format (AUTOCAD or PDF) for review. The Engineer will review and will contact the HDD Contractor to approve or discuss remedy options if the desired tolerances are not met as specified within this specification section. Hand written sketches/drawings will not be accepted.
- F. The Contractor shall submit records of equipment calibrations and certifications for all equipment used for tracking of the drill head. Procedures shall be as recommended by the equipment manufacturer, including measures to verify the accuracy of the equipment readings. If the Contractor is proposing to use a surface wire grid system, the Contractor shall submit a drawing with the surveyed location of the surface wire grid system. The Contractor shall submit methods for surveying the coordinates of the surface wire grid system both outside and under the roadway. The Contractor shall submit a drilling bore log within seven (7) days of performing the bore. Depths shall be recorded at a maximum of every ten (10) feet. Elevations shall be indicated on record drawings. During pilot bore, reaming passes and pipe pullback the Contractor shall electronically record and evaluate the following information a maximum of once every ten (10) feet:
1. Rate of Penetration
 2. Rotation
 3. Thrust
 4. Pump Rates
 5. Measured Depth
 6. Annular Pressure
 7. Flow Meter (Returns Suction Line)

Any unexpected deviations from expected values shall be immediately investigated and the cause of which determined and reported to the Engineer.

- G. The Contractor shall submit calculations to show that the Contractor's proposed method and profile of installing the HDPE pipe is within the allowable tensile force of the pipe. The maximum tensile force shall be calculated with a 1.5 safety factor. If required to maintain the 1.5 safety factor, the Contractor shall submit plans on ballasting the HDPE pipe by filling it with water prior to install or other methods to reduce tensile force. The Contractor shall also submit the following calculations:
1. Contractor shall provide calculations (in accordance with ASTM F 1962 or equal) for pull back force required and the resulting rig size proposed for this project.
 2. Contractor shall provide calculations (in accordance with industry standards) predicting the expected annular pressure and identify areas subject to hydro fracture.
 3. Contractor shall provide calculations demonstrating that the pipe will not be overstressed.
 4. Contractor shall provide calculations for rate of penetration and maximum allowable drilling fluid pressure calculations.
 4. Contractor shall verify that the information and calculations presented herein will be fully incorporated into the work plan.

The Contractor shall identify which, if any, items of the basis of design that the Contractor proposes to change (entry/exit angles, depth, radius, etc.). These changes shall be reflected in the calculations and information required in these evaluation criteria.

- H. Pressure testing procedures prior to pullback and after completed installation.
- I. A drilling bore log shall be submitted within seven (7) days of performing the bore. Depths shall be recorded at a maximum of every ten (10) feet. Record drawings shall indicate elevations.
- J. Contractor shall submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project. Equipment shall include but not be limited to: drilling rig of sufficient capacity, drilling rods, appropriate drill bit, reamer, product pipe, mud system, mud motors (if applicable), down-hole tools, guidance system and rig safety systems. All surveying equipment used for downhole wireline surveying and tracking of the bore path and drill head and layout of the surface wire grid system or other guidance system shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to the commencement of drilling operations. Specifications for any drilling fluid additives that Contractor intends to use or might use shall be submitted.
- K. The Contractor shall submit plans for disposal of waste materials resulting from the pipeline construction, including drilling fluids, cuttings, waste oil, fuel, discharge water, etc. The Contractor shall identify the disposal site and submit a letter indicating willingness and legal authority to accept the described anticipated waste products.
- L. The Contractor shall provide details on measures to be taken to monitor and protect adjacent utilities, structures, and roadways, and provide details on monitoring equipment and provisions, including the layout of all settlement points, and other monitoring points.
- M. The Contractor shall submit to the Engineer prior to construction a Frac-out/ Bentonite Management and Emergency Spill Plan for the installation of pipelines using HDD under the waterways. The Contractor shall submit a letter of intent signed by an authorized representative of Contractor, confirming that the plan shall be followed. The Plan shall address all potential pathways for release of drilling fluid, and shall address containment, cleanup, and mitigation measures as well as reporting procedures and points of contact for regulatory and permitting agencies. The Plan shall address releases to the ground surface and to waterways. Stand-by equipment shall be provided by the Contractor to recover fluids from the waterway via truck and via boat. Floating turbidity barriers shall be part of the stand-by equipment to minimize dispersion into surface waters or storm drains. The Plan shall include the following as a minimum.
 - 1. Prior to commencement of construction, the Contractor shall employ the services of an environmental scientist/biologist experience in water quality monitoring and habitat protection to conduct visual inspections during drilling operations for all subaqueous crossings for any signs of frac-out. The monitoring shall cover the area of 10 feet on either side from the centerline of the HDD route for the entire length of the route. The Contractor shall provide all necessary watercraft or boats to perform this inspection during all water crossings.
 - 2. Rapid response procedures - Directional drilling shall be performed by a Contractor who has the expertise required to perform the related work. The Contractor shall designate qualified personnel and equipment on the site during directional drilling operations responsible for watching surface conditions for visual signs of frac-out and for monitoring drilling fluid pressure; and other indicators of potential frac-out. The Contractor shall provide immediate response and initiate containment procedures in the event of an occurrence of a bentonite spill. In the event of a bentonite spill or frac-out all drilling activities shall be stopped immediately. Drill stem shall be removed from the bore and the hole abandoned. The Florida Department of Environmental Protection (FDEP) shall be notified immediately (within 2 hours) of the frac-out by telephone.
 - 3. Containment procedures - Sediment control systems such as, silt fence or earth berms on uplands, and floating silt barriers or other aquatic barriers in water, and other means

necessary to prevent the spread of the bentonite spill shall be installed. If return drilling mud/fluid is less than the projected amount to be recovered, search for the missing material shall begin immediately. Once the frac-out is located, then the drilling mud containment plan shall be immediately implemented. Any escaped drilling lubricant shall be pumped into filter bags or directly into a vactor truck.

4. Timely cleanup capability - Remediation of the lost drilling mud/fluid shall begin immediately. Clean-up with a vacuum system shall commence within 12 hours of a confirmed frac-out and/or breach of containment. Cleanup shall include removal of the material from the site and disposal of the material to an approved upland disposal location. All adjacent wetlands affected by the spill shall be restored to pre-drilling condition of grade and vegetation.
5. Reports - Should a release occur, a detailed written report shall be submitted to the FDEP within ten (10) business days, after containment/recovery of the drilling material/resources, indicating the location of the frac-out, amount of drilling material discharged and the amount of drilling mud recovered, the process in which the drilling mud was recovered, and the area that was affected by the drilling discharge.
6. To provide an additional level of resource protection, the following measures shall be included in the plan to monitor any potential release of drilling fluid:
 - a. At all times, adequate protection shall be taken to avoid impacts to Aquatic Preserve/Outstanding Florida Waters and /or contiguous wetlands. This shall include, but is not limited to implementation of BMPs and/or ultimately stopping construction/drilling activities.
 - b. Photographs and/or video of the drilling site shall be taken of pre and post-recovery conditions including lat/long coordinates of release locations.
 - c. A spill kit (i.e., absorbent pads/boom, goggles, gloves, etc) shall be available at all times
 - d. Additionally, connections between the pump and drill pipe shall be leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. The Contractor shall install and maintain a containment area around drill rigs, drilling fluid mixing systems, entry and exit pits and drilling fluid recycling systems, etc. to prevent spills into the surrounding environment. Pumps of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage and facilities.

PART 2 – PRODUCTS

2.01 DIRECTIONAL BORING EQUIPMENT

- A. The directional boring equipment shall be suitable for installing the diameter and length of pipe as indicated in the drawings. The drilling equipment shall be capable of advancing through the geologic conditions to be encountered at the site, as described in the geotechnical report, and as anticipated by the Contractor.
- B. The directional boring equipment shall be steerable by means of an electronic tool directional system and shall provide a bentonite clay slurry to completely seal around the installed carrier pipe.
- C. At all times during the pilot bore the Contractor shall provide and maintain a bore tracking system that is capable of accurately locating the position of the drill head in the x, y, and z axes. The Contractor shall record these data at least once per drill pipe length or every ten (10) feet, whichever is more frequent.

- D. Deviations between the recorded and design bore path shall be calculated and reported on the daily log. If the deviations exceed tolerances specified elsewhere, such occurrences shall be reported immediately to the Engineer. The Contractor shall undertake all necessary measures to correct deviations and return to design line and grade.
- E. Drilling fluid pressures and flow rates shall be continuously monitored and recorded by the Contractor. The pressures shall be monitored at the pump and within the annular space with a downhole pressure-sensing tool located within thirty (30) feet of the drilling head.
- F. Maximum allowable drilling speeds shall be calculated by the Contractor for pilot boring and each reaming pass and shall not be exceeded for pilot boring or reaming passes. Measurements shall be taken every ten (10) feet.
- G. The Contractor shall provide all materials for completing the installation and for adequate protection of the work.
- H. The carrier pipe shall be high density polyethylene (HDPE) with DR-11 minimum or equal and of the type and class shown on the drawings and specified. All pipe 4-inch diameter or greater shall conform to standard ductile iron pipe outside diameters for use with standard ductile iron fittings.
- I. Pipe shall be color-coded by the pipe manufactured during fabrication indicating appropriate service.

2.02 DRILLING PIPE

- A. Drill rods shall be Firestick II or equivalent. Drill rods shall be of a diameter sufficient for the torque and longitudinal loads and fluid capacities required for the work.
- B. The Contractor shall use high quality drill pipes. The drill pipe shall be inspected periodically by the Contractor and properly maintained within the manufacturer's prescribed limits.
- C. The Contractor shall adhere to the manufacturer's guidelines for using their pipe, and sound practices must be followed to ensure reduced risk of downhole failure, i.e. the Contractor shall not bend the drill pipe sharper than the minimum bend radius stated by the manufacturer, especially on HDD enter and exit locations.

2.03 BENTONITE DRILLING MUD

- A. Bentonite technical criteria shall be as described in API Specification 13A, "Specification for Oil Well Drilling Fluids Material" for fresh water drilling fluids.
- B. Any modification to the basic drilling fluid involving additives must describe the type of material to be used and be included in Contractor's drilling plan presented to the City. The City retains the right to sample and monitor the waste drilling mud, cuttings and water.
- C. The drilling fluid shall be designed for the geologic conditions to be encountered at the site, as described in the geotechnical report and as anticipated by the Contractor.

2.04 PIPE LOCATION WIRE

- A. All directional drilled pipe shall be installed with two (2) insulated tracer wires with a 45 mil HDPE jacket and minimum average break load of 1150 lbs. Tracer wires shall be 12 AWG-Solid CCS EHS Copperhead Directional Drill Wire as manufactured by Copperhead Industries or approved equal. This wire shall to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods per the equipment manufacturer's recommendation. All miscellaneous splicing components shall be furnished and installed by the Contractor.

2.05 EROSION CONTROL MEASURES

- A. Provide silt fence as approved under FDOT Standard Specifications for use near open water bodies, wetlands, ditches, inlets or other areas where runoff could pollute nearby water bodies. The Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway, or other area designated for protection by the contract documents, state, federal or local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. The Contractor shall adhere and comply with all applicable permits/permit conditions.

2.06 STORAGE AND HANDLING OF MATERIALS

- A. Inspect materials delivered to the site for damage. All materials found to have cracks, flaws, cuts, abrasions or other major defects shall be rejected and removed from the job site immediately.
- B. Store materials under cover out of direct sunlight. Do not store directly on the ground. Keep all materials free of dirt and debris.
- C. Disposal of fluids is the responsibility of the Contractor, and shall be performed in accordance with all permits and applicable federal, state or local environmental regulations. Upon completion, the Contractor shall thoroughly clean the entire area of all debris, spilled fluids and damaged plants, and restored to existing or better conditions.

PART 3 – EXECUTION

3.01 GENERAL

- A. All spoil and slurry must be contained in trucks, tanks, approved recirculation pits, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewer, or discharge into the water bodies will not be permitted. All spoils will be transported and disposed of off site at an approved disposal facility that meets all State of Florida and local requirements.
- B. Perform all work within areas shown on the plans. The Contractor shall provide adequate control of surface water and drilling fluids drainage and runoff, and provide silt fences and hay bales to prevent surface water or drilling fluids from entering the adjacent environmentally sensitive area.
- C. Surface settlement or heave of utilities and other features above the HDD centerlines and within the zone influenced by the HDD construction shall be limited in values that avoid damage. The Contractor shall repair any damage resulting from settlement or heave caused by HDD activities at no additional cost to the Owner.
- D. It shall be the Contractor's sole responsibility that all work is done in conformance with all applicable federal, state, and local safety requirements. Required safety equipment and procedures shall be employed by the Contractor at all times. All materials and methods of construction shall meet the applicable requirements of Pinellas County and the applicable requirements of the State of Florida Administrative Code.
- E. Sound levels shall not exceed 60 dBA 7 AM to 6 PM or as per local code, within five feet of the nearest occupied building. Contractor shall comply with all local noise ordinances if the local requirements are more stringent. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the County for excessive noise shall not relieve the Contractor of the other portions of this specification including, but not limited to, completion of all Work within specified contract time and contract price. The Contractor shall submit a plan prior to construction identifying all noise reduction/abatement procedures. The plan will be approved by the Engineer prior to construction. If mufflers cannot achieve the necessary noise reduction, noise abatement shall be accomplished by the Contractor's installation of baffles (or other acceptable means) positioned to break line-of-sight from the noise source to affected residences and/or commercial

structures. Minimum noise abatement measures shall consist of equipping all engines with hospital grade mufflers or silencers.

- F. Contractor shall provide at least seventy-two (72) hours advance written notice to the Owner of the planned inception of major drilling activities, including pilot bore launch, pre-reaming, reaming, and product pipe pullback. The Contractor shall immediately notify the Owner, in writing, when any significant problems are encountered or if ground conditions are considered by the Contractor to be materially and significantly different than those represented within the Contract Documents. The Contractor shall perform the pilot bore in the presence of the Owner, unless Owner grants prior written approval to perform such work in Owner's absence.
- G. All surveying equipment used tracking of the bore path and drill head shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to the commencement of drilling operations.
- H. The directional boring equipment shall be operated by individuals trained by the manufacturer as experienced operators.
- I. The directional boring equipment shall produce a stable, clay sealed tunnel with a minimum burial depth consistent with the design profile or approved drill profile.
- J. The directional boring equipment shall employ a fluid cutting technique. The soil shall be cut by small diameter, high pressure jets of liquefied clay. The jets shall cut the soil in advance of the boring tool, impregnating and lining the tunnel wall with clay. The clay shall be totally inert and pose no environmental risk. A pilot hole shall be drilled with an appropriately sized drill pipe. The pilot hole will then be increased to the appropriate diameter by a reaming operation. The boring tool will then be connected to the pipe, and the boring tool shall pull the carrier pipe through the clay lined tunnel as it traverses under the surface being crossed. The pulling strength of the boring equipment shall not exceed pipe safety pull strength as per manufacturer's recommendations. Surface excavations shall be limited to small launching and receiving pits. Pits shall be no larger than that required for launching and receiving. Adequate "pit-tail" lengths of service connection piping shall be provided at both the launching and receiving ends to facilitate service connection assembly.
- K. The Contractor shall notify the Engineer immediately in the event that any obstruction is encountered that prevents further advancement of the drill pipe, or pull back of the pre-reamer, reamer, and/or pipe. The Contractor shall make all diligent and reasonable efforts to advance past the object by drilling slowly through the object, pulling back, and drilling along a new bore path that avoids the object, or excavating and exposing and removing the object, and all other reasonable attempts to continue the bore. The Contractor shall notify the Engineer of proposed measures to attempt to advance past the object, prior to initiating the attempt. If the Contractor attempts to pull back and re-drill, the Contractor shall adhere to line and grade tolerances established in this specification section, unless the Engineer approves variance, in writing, prior to the Contractor's attempt to re-drill. The Contractor shall investigate the cause and together determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and re-drilling of a portion of the borehole, or abandonment of the borehole. If abandonment is deemed necessary, the Contractor shall recover, to the extent practicable, any drill pipe, product pipe, and tools in the borehole, and properly abandon the borehole by contact grouting, unless otherwise directed in writing by the Engineer. If the borehole is abandoned, the Contractor shall be allowed to begin a second attempt to install the pipeline at an alternate location subject to approval, in writing, by the Engineer at no additional expense to the Owner. The Contractor shall take all reasonable actions to complete the installation with minimal delays.
- L. The Contractor shall monitor for settlement or heave before and during drilling and grouting operations. The Contractor shall measure and record drilling fluid viscosity and density at least three times per shift with at least two hours between readings, using calibrated Marsh funnel and mud balance. These measurements shall be included in daily logs submitted to the Engineer. The Contractor shall document modifications to the drilling fluids, by noting the types and quantities of drilling fluid

additives and the dates and times when introduced. The reason for the addition of drilling fluid additives or other modifications shall be documented and reported.

The Contractor shall measure and record the pH on a regular basis (three times per shift with at least two hours between readings) with pH strips, paper or a pH meter.

The Contractor shall constantly monitor and record the circulating volume, particularly for the early detection of drilling fluid losses, or thinning, or the danger of borehole collapse. Ground upheavals can also be detected early from such differences, and necessary action can be implemented to prevent further damage.

- M. Butt fused MJ adapters are required at both ends of the bore.
- N. Directional boring must be completed between the hours of 8:00 AM and 3:00 PM.
- O. All directional bores crossing a ditch/swale/creek must be at least 36 inches below actual/design bottom of conveyance.
- P. Directionally drilled pipe installed in the road right-of-way shall be installed no less than 3 feet deep. Depth shall be adjusted to avoid frac-out in the soils encountered. In general, the pipe shall be no more than approximately 6 feet deep unless shown on the plans or necessary to cross under conflicts.

3.02 PILOT BORE

- A. The pilot bore shall follow the design path of the bore shown on the Drawings.
- B. Horizontal and vertical deviations shall be less than plus or minus one foot from the design path centerline. The Contractor shall continuously monitor horizontal and vertical position and record the position at least once per drill pipe length, or at ten (10) feet intervals, whichever is most frequent.
- C. The radius of curvature shall not be less than that shown on the Drawings. The radius of curvature shall be calculated over the distance of three drill pipe sections.
- D. The Contractor shall be solely responsible for all work necessary to correct excessive deviations from line and grade, including re-drilling, redesigning connections, and acquiring additional easement, at no additional cost to the Owner and without schedule extension.

3.03 REAMING

- A. Upon approval of the pilot hole location by the Engineer, the hole opening or enlarging phase of the installation shall begin. The bore hole shall be reamed to 120% to 150% larger than the HDPE. Drilling mud shall then be injected into the hole to stabilize the hole and remove soil cuttings.. The type of reamer to be utilized in this phase shall be determined by the types of subsurface soil conditions that have been encountered during the pilot hole drilling operation. The reamer type shall be at the Contractor's discretion.

3.04 PIPE PULLBACK OPERATION

- A. The pipes shall be assembled in a manner that does not obstruct adjacent roads, driveways or public activities adjacent to the layout areas except as directed otherwise by the City.
- B. The Contractor shall provide adequate support/rollers along the stringing area to support the required length of pipe for each bore. Such support/rollers shall be comprised of a non-abrasive material arranged in a manner to provide support to the bottom and bottom quarter points of the pipeline allowing for free movement of the pipeline during pullback.

- C. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining.
- D. The Contractor shall perform hydrostatic water pressure test in accordance with the manufacturer's guidelines prior to pipe pullback and after installation. Hydrostatic pressure test shall be a minimum 150 psi or per the pipe manufacturer's recommendation.
- E. All plastic pipe installed by directional boring shall be provided with a minimum of two (2) insulated 12 AWG-Solid CCS Directional Drill Copperhead Tracer Wire as manufactured by Copperhead Industries or approved equal. This wire is to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods approved by the Engineer. Trace wires shall be secured to the pipe prior to pulling. The locator wire shall be tested by voltage of at least 12 DC. Test each wire with both positive and negative charge with not more than 1 volt of loss per 1000 feet will be allowed. The wire will be tested prior to the pressure test of pipeline. If wire fails, pressure test will not be done until wire is repaired.
- F. Pulling Loads: The maximum pull (axial tension force) exerted on the pipelines shall be measured continuously and limited to the maximum allowed by the pipe manufacturer so that the pipe or joints are not overstressed.
- G. Torsion and Stresses: A swivel shall be used to connect the pipeline and tracer wires to the drill pipe to prevent torsional stresses from occurring in the pipe.
- H. Pipeline Support: The pipelines shall be adequately supported during installation so as to prevent overstressing or buckling.
- I. The Contractor shall at all times handle the pipe in a manner that does not overstress the pipe. Vertical and horizontal curves shall be limited so that wall stresses do not exceed 50% of yield stress for flexural bending of the pipe. If the pipe is buckled or otherwise damaged, the damaged section shall be removed and replaced by the Contractor at his expense. The contractor shall take appropriate steps during pullback to ensure that the pipe will be installed without damage.
- J. During the pullback operation, the Contractor shall monitor roller operation and sidebooms if required to assist above ground movement of the pipe. Surface damage or cuts that exceed 10% of the pipe wall thickness shall be repaired by Contractor before pulling operations resume.
- K. The lead end of the pipe shall be closed during the pull back operation. If necessary to reduce pull back loads and to ensure that adequate internal pressure is maintained at all points to counter balance collapse pressures, the pipe shall be filled with water as it enters the borehole.
- L. After completion of "pull back" and prior to the final pipe tie-in, HDPE pipe shall be provided a sufficient relaxation period as recommended by the specified pipe manufacturer.
- M. The Contractor shall install, maintain, and leave in place any sheeting, underpinning, cribbing, and other related items (other than that required for the boring and receiving pits) to support any structure or facility affected by the boring operations. The Engineer, depending upon existing conditions, may require that additional sheeting for the excavation be left in place.
- N. Damage to the product pipe resulting from manufacturer defects, installation, contact grouting, or grouting of the annulus is the responsibility of the Contractor, including costs for replacement and labor and materials. To confirm no damage to the pipe, upon completion of pull back and grouting, the Contractor shall perform the following test on the completed pipeline:
 - 1. A sphere or pig, one inch less in diameter than the internal diameter of the product pipe, which is capable of allowing water to pass through it, complete with a pulling cable on either side of sphere or pig, shall be pulled through the entire length of the pipeline. If the pig or sphere cannot pass through the pipe, it shall be considered collapsed and damaged.

2. After the product pipe is completely pulled through the borehole, a sufficient relaxation period, if recommended by the pipe manufacturer, shall be provided before the final pipe tie-in.
- O. Contractor shall flush, clean, pig and hydrostatically test each pipeline according to the test procedures required for the respective material per Sections 02640 and 15066. Potable water mains will also require disinfection and testing for bacteriological clearance per Section 02640.

3.05 HANDLING DRILLING FLUIDS AND CUTTINGS

- A. During the drilling, reaming, or pullback operations, the Contractor shall make adequate provisions for handling the drilling fluids, or cuttings at the entry and exit pits. These fluids shall not be discharged into the waterways. Care shall be taken to avoid spillage on sidewalks, roadways or other public thoroughfares. Spills shall be cleaned prior to resuming public access to construction area. When the Contractor's provisions for storage of the fluids or cuttings on site are exceeded, these materials shall be hauled away to a suitable legal disposal site. After completion of the directional drilling work, the entry and exit pit locations shall be restored to original conditions. The Contractor shall comply with all Florida Department of Environmental Protection permit provisions.

3.06 WATER

- A. The Contractor shall be responsible for providing/obtaining water for construction purposes. The Contractor shall be responsible to pay for all costs for water for construction purposes.

3.07 NEARBY UTILITIES

- A. The drawings show existing buried utilities that are assumed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that additional utilities may not be present. It will be the Contractor's responsibility to locate all nearby utilities or other subsurface obstructions that may interfere with the work by contacting Sunshine One Call, excavating windows along the pipeline drill alignment, or other means.

3.08 RESPONSIBILITY

- A. The Contractor shall be fully responsible for the steerable, clay lined directional drilling operation. Any noticeable surface defects resulting from installation activities or operation of boring equipment shall be repaired by the Contractor, at his expense. All exploratory, entrance, exit and slurry pits shall be restored by the Contractor to the preconstruction condition or better at no additional cost. Care shall be taken to avoid unnecessary construction equipment traffic on sidewalks, driveways and green spaces. Damage to these areas shall be repaired by the Contractor, at his expense.

3.09 CLEANING AND SIZING PIGS

- A. After the pipe is in place, cleaning pigs shall be used to remove residual water and debris. After the cleaning operation, the Contractor shall provide and run a sizing pig to check for abnormalities in the form of buckles, dents, excessive out-of-roundness, and any other deformations. The sizing pig run shall be considered acceptable if the survey results indicate that there are no sharp anomalies (e.g. dents, buckles, gouges, and internal obstructions) greater than 2-percent of the nominal pipe diameter, or excessive ovality greater than 5-percent of the nominal pipe diameter. For gauging purposes, dent locations are those defined above which occur within a span of five feet or less. Pipe ovality shall be measured as the percent difference between the maximum and minimum pipe diameters.

3.10 SUCCESSFUL COMPLETION

- A. The contractor shall be considered as having completed the requirements of any directional boring when he has successfully completed the work and tested the pipe to the satisfaction of the Engineer.

- B. At the completion of construction, the Contractor shall remove all temporary facilities installed by the Contractor. Unused soil, aggregate, and other materials shall be removed and disposed of at approved sites in accordance with all Federal, State, and Local regulations. Any damage to streets, lawns, common areas, and sidewalks shall be restored to original or better conditions. All disturbed areas shall be re-vegetated.

3.11 RECORD KEEPING

- A. Daily logs and records shall be maintained by the Contractor and shall include annular pressure, drilling lengths, location of drill head, drilling fluid pressures and flow rates, drilling fluid losses, inadvertent returns, drilling times required for each pipe joint, any instances of retraction and re-drilling of the pilot bore or segments thereof, and any other relevant observations, including any observed settlement, heave, frac-outs or surface spills. The drilling fluid pressures shall be measured at the entry point and at the drill head and recorded at least twice per drill pipe length. These records shall be maintained and provided daily to the Engineer. The position of the drill head shall be continuously tracked and recorded by a downhole wireline tracking locator system, Sharewell MGS, and shall be supplemented by a surface grid or equivalent tracking system installed that completely encompasses the area between the entry point and the exit point. The coordinates of the surface wire grid system shall be surveyed and recorded. A plot of actual locations of the bore path shall be maintained and updated daily, or more frequently, as directed by the Engineer. Contractor shall maintain a daily project log of drilling operations and a guidance system log with a copy given to Engineer at completion of boring. As-built drawings with x, y, z coordinates of the pipe shall be certified by the Contractor, for accuracy and shall be provided to the Engineer within 48 hours after completion of the boring.
- B. Drill profile submitted by the Contractor shall be based on the control elevations and stationing of the applicable construction baseline shown in the drawings.
- C. The Contractor shall submit measured mud and/or drilling fluid weights used during pilot boring and reaming of the bore measured at a minimum of twice per shift or at least once per two hundred (200) feet of drilled or reamed length, whichever is more frequent.

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SECTION 02125

SILT BARRIERS

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The work included under this section consists of furnishing all necessary labor, equipment, tools and materials, and in performing all operations in connection with the installation of a staked silt barrier, of cloth or straw bales, or a floating silt barrier for the protection of open water, wetland systems or areas intended to remain undisturbed by adjoining work.
- B. This work shall be performed in strict accordance with the requirements of all applicable sections of these specifications and in conformity with lines, grades, notes and typical sections as shown on the drawings, as directed by the Design Engineer or as directed by representatives of governmental agencies having jurisdiction over areas to be protected.

PART 2 – PRODUCTS

2.01 STAKED FABRIC SILT BARRIER

The sediment control fabric is to be woven polypropylene meeting the following standards:

Mullen Burst Test (ASTM D-3786) 200 psi (min.)

Grab Elongation (ASTM D-1682) 30% (max.)

Slurry Flow Rate (VTM-51) 0.3 gpm/sf (min.)

Retention Efficiency (VTM-51) 75% (min.)

The fabric is to be provided in widths adequate to provide a barrier of 24 inches in height and allow for 8 inches of fabric to be buried for toe restraint.

2.02 FLOATING SILT CURTAIN

- A. The floating silt curtain is to be provided in pre-manufactured segments to the depth shown on the plans. Each segment is to have integral flotation, ballast and tension reinforcing. The silt curtain may be manufactured of nylon reinforced vinyl or other fabric having suitable resistance to sunlight and oils and having a minimum tensile strength of 300 pounds per inch of fabric.

PART 3 – EXECUTION

3.01 STAKED CLOTH SILT BARRIER

- A. The sediment control fabric is to be attached, per the manufacturer's recommendation, to the uphill or sediment producing side of the stakes. The stakes are to be spaced at no greater than 10 feet intervals. Where silt barriers are required within the FDOT Right of Way, the stakes shall be spaced per the FDOT Design Standards Index. A 4" to 6" trench is to be dug along the fence line and backfilled with the bottom 8 inches of fabric in place.
- B. The ends of each unit of fence is to be connected to the adjoining fence with a connector provided by the manufacturer or the fabric is to be lapped sufficiently to prevent sediment from escaping.

3.02 STAKED STRAW BALES

- A. Securely bound bales of straw may be used as a sediment barrier. The bales are to be securely bound with two strands of rope or wire. The bales are to be positioned in a 4 inch trench along the plan

alignment and each bale is to be secured by driving two 2"x 2" stakes or #5 rebar through the bale and 18" to 24" into the ground. The tops of the stakes are then to be secured by a continuous wire tie.

- B. Deteriorated bales shall be replaced as directed by the Owner's Engineer.

3.03 FLOATING SILT CURTAIN

- A. The floating silt curtain is to be securely fastened to solid ground at any points of contact with the shoreline and is to be anchored or restrained at intermediate locations sufficient to prevent the distortion of the curtained area due to the action of wind, waves, currents, or the effects of the work in progress.

3.04 REMOVAL

- A. Upon acceptance of the completed work the contractor shall be responsible for the complete removal of all silt barriers unless so directed by the Owner's Engineer. Following removal, all materials shall become the property of the Contractor.

END OF SECTION

SECTION 02222

EXCAVATION AND BACKFILL FOR PIPES

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. It is the Contractor's responsibility to obtain all permits, furnish all labor, materials, equipment, and incidentals necessary to perform all excavation, backfill, fill grading, and slope protection required to complete the work shown on the approved construction plans and specified herein. The work shall include, but not necessarily be limited to: excavation for pipe bedding, cutting and excavation of roadways and pavement, all backfilling, fill, and required borrow, grading, disposal of surplus and unsuitable materials, and related work such as sheeting, bracing, and dewatering.
- B. The Contractor shall furnish and place all sheeting, bracing and supports necessary to keep excavations dry and shall provide all sheeting, shoring and bracing necessary to protect adjacent structures and utilities or to minimize trench width, and shall remove from the excavation all materials which the Engineer may deem unsuitable for backfilling. The bottom of the excavation shall be firm, dry and in all respects, acceptable with absolutely no standing water. The length of open trench shall be related closely to the rate of pipe laying. The Contractor shall not have any open trenches during non-working hours. All trenches shall be filled and protection as required at the end of each work day. All excavations shall be made in open trenches.
- C. All pipe and fittings shall be clearly marked with the name or trademark of the manufacturer, the batch number, the location of the plant and strength designation, as applicable. All pipe (including all service laterals) shall be laid with a 2-inch metallic tape, appropriately color-coded and imprinted with the type of service, 18 to 24 inches directly above the utility for identification and ease of location. The appropriate tape color codes are as follows:

Blue – Potable Water Main
- D. All PVC pipe shall be installed with two (2) insulated tracer wires as specified in section 02640.

1.02 BURNING

- A. Burning of debris shall not be permitted.

1.03 CLEAN-UP

- A. Clean-up is an essential part of the work. As the work progresses and is completed, the Contractor shall clean the various sites of all operations and completely restore all work areas to the satisfaction of the Engineer and the Owner. This clean-up shall be done as promptly as practical and shall not be left until the end of the construction period. No part of the work shall be considered complete, and no payment will be made, until clean-up is completed.
- B. It is the Contractor's responsibility to assure that all construction sites and all their affected properties are restored to a condition equal to, or better than, the existing conditions prior to construction. All restoration is subject to the approval of the Engineer and/or Property Owners.

1.04 DRAINAGE

- A. It is the responsibility of the Contractor to maintain the existing drainage systems during construction. Any damage done to an existing drainage structure or system is to be immediately repaired to a condition equal to or better than its original condition.

1.05 DUST CONTROL

- A. It is the responsibility of the Contractor to control all dust problems that may occur during the construction with required watering. Dust control will be required seven days a week.

1.06 SPRINKLER

- A. The Contractor shall be responsible for sprinklers encountered within the area of excavation and shall make sure that if disturbed or damaged, they shall be rebuilt to the satisfaction of the Engineer or property Owner and with no additional cost to the Owner.

1.07 EROSION CONTROL

- A. It is the Contractor's responsibility to erect suitable silt fences, hay bales or other erosion runoff control devices prior to commencement of earth moving or excavation activities. The Contractor shall be responsible for maintaining the silt fences, hay bales or other erosion runoff control devices in an effective manner, repairing or replacing damaged or ineffective section during the course of the work until a ground cover of grass is established and final environmental approval has been obtained.
- B. During all dewatering or other operations involving the use and disposal of water, suitable means shall be provided by the contractor to minimize soil erosion, siltation, and sedimentation of natural or artificial ditches, drainage channels, streams, wetlands, lakes or other waterways. Appropriate erosion and sediment control best management practices (BMP's) shall be employed to protect stormwater conveyances.
- C. Discharges to the Municipal Separate Storm Sewer System (MS4), or to surface waters of the State of Florida shall be appropriately permitted, and shall comply with all state and local regulations.

1.08 PERMITS FOR DEWATERING OPERATIONS

- A. The Contractor shall be responsible for preparing and submitting to the Engineer and all permitting agencies (described in the permits attached to these specifications) sheeting, shoring, and bracing plans and a dewatering plan for all excavations required in the project. The Contractor is responsible for obtaining all permits required for dewatering discharges, including a Florida Department of Environmental Protection Generic Permit for Produced Groundwater under FAC 62-621.300.

1.09 REFERENCE DOCUMENTS

- A. Sarasota County Land Development Regulations (LDR);
- B. FDOT, "Standard Specifications for Road and Bridge Construction";
- C. American Society for Testing and Materials (ASTM);
- D. American Association of State Highway Transportation Officials (AASHTO);
- E. U.S. Department of Labor Occupational Safety and Health Administration (OSHA);
- F. Florida Trench Safety Act.
- G. National Pollutant Discharge Elimination System (NPDES)
- H. Best Management Practices (BMP's)

PART 2 – PRODUCTS

2.01 MATERIALS

- A. General

1. Materials for use as fill are described below. For each material, the Contractor shall notify the testing lab of the source of the material at least ten (10) calendar days prior to the date of anticipated use of such material.
 2. Materials shall be furnished as required from off site sources and hauled to the site.
 3. Disposal of unsuitable material is specified in this Section.
- B. Common Fill
1. Common fill shall consist of mineral soil, free of organic material, loam, wood, trash and other objectionable materials, which may be compressible or which cannot be compacted properly. Common fill shall not contain stones larger than four inches in any dimension, broken concrete, masonry, rubble, or other similar materials. It shall have physical properties such that it can be readily spread and compacted during filling.
 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 Engineer, is not suitable for reuse shall be spoiled as specified herein for disposal of unsuitable materials.
- C. Crushed Stone
1. Crushed stone for pipe bedding shall be FDOT No. 67 in accordance with Section 901-2 of the FDOT Standard Specifications for Road and Bridge Construction.
- D. Select Fill
1. Select fill shall be noncohesive, non-plastic material free of all debris, lumps or clods. Fill material shall be clean earth fill composed of sand or an approved mixture of clay and sand. Backfill material placed within one foot of piping and appurtenances shall not contain any stones or rocks larger than two inches in diameter, or three-quarter inch in diameter for PVC pipe.
- E. Borrow
1. If there is insufficient satisfactory material from the excavations to meet the requirements for fill material, borrow shall be obtained from pits secured by the Contractor and approved by the EOR. The Contractor shall be responsible for obtaining permits and meeting the standards, as required by appropriate regulatory agencies.

PART 3 – EXECUTION

3.01 SAFETY PRECAUTIONS AND TEMPORARYWORKS

- A. The Contractor shall provide and maintain adequate barricades, construction signs, torches, flashers and guards as required in pedestrian and vehicular traffic areas. All safety rules and regulations of local authorities shall be observed. Local fire officials shall be kept advised of roads closed and roads re-opened.
- B. Where required, the Contractor shall provide suitable crossings at street intersections and driveways, and supply such aid, as may be required for pedestrians and motorists, including delivery vehicles, to safely negotiate the construction area. "Street Closed to Through Traffic" signs and "Detour" routes shall be indicated and maintained by the Contractor when the job is located in a public or private street or way. In the case of dead end streets, the Contractor shall

advise all concerned residents and make all arrangements to maintain reasonable ingress and egress for the residents. Particular attention shall be given to residents in bad health, emergencies and emergency vehicles. The Contractor shall be responsible for building and maintaining all by-pass roadway areas and restoring those areas to their original condition.

- C. The Contractor shall furnish temporary or permanent support, adequate protection and maintenance of all underground facilities and utilities encountered. Support, protection, maintenance and restoration are the Contractor's responsibility at no additional cost to the Owner.

3.02 CLEARING AND GRUBBING

- A. The Contractor shall remove only vegetation such as trees, shrubs, and grass which interfere with the construction, as may be determined by the Engineer, and he shall preserve and protect all other existing vegetation.

3.03 EXCAVATION

- A. General

1. The Contractor shall perform all excavation of every description, and of whatever substances encountered, to the depth indicated on the Drawings, or as otherwise specified.
2. Trench excavation shall be such that the pipe can be laid to the alignment and grade required. Trenches shall be shored and drained in such a manner that work may proceed safely and efficiently.
3. Trench dewatering pumps shall discharge to natural drainage channels, drains or sewers and shall be adequate to remove accumulated storm and/or subsurface water. The Contractor shall take necessary action to prevent surface water from flowing into the trenches. It is the responsibility of the Contractor to assure that all trench walls and trench bottoms are dry and remain dry during pipeline construction.
4. The Contractor shall separate, remove and dispose of excavated material not suitable for backfill, as directed by the Engineer.
5. All excavated material retained for backfill shall be piled in such a manner as not to endanger the work or obstruct the sidewalks, driveways or drainage. Fire hydrants, valve pit covers and hoses, curb stop boxes, fire and police call boxes and other utility controls shall be unobstructed and accessible at all times during construction.

- B. Unclassified Excavation

1. Unclassified excavation shall include soil, clay, silt, sand, muck, gravel, hardpan, loose shale, loose stones in masses and boulders measuring less than one-half cubic yard in volume.

- C. Classified Excavation

1. Classified excavation shall be rock further defined as follows:

boulders, measuring one-half cubic yard or more in volume, rock material in ledges, bedded deposits and unstratified masses, conglomerate deposits firmly cemented and concrete or masonry structures, except sidewalks and paving, that in the opinion of the Engineer required for its removal drilling and blasting, wedging, sledging, barring or breaking up with a power operated hand tool.

2. No soft or disintegrated rock that can be removed with a hand pick or power operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the minimum limits of measurement allowed, which may fall into the excavation, will be considered as rock.

3.04 TRENCH PREPARATION

- A. Unsupported trench width shall be limited to the minimum practicable width allowing working space to place and compact the haunching material. The maximum width shall be the pipe diameter plus one foot on each side of the pipe at springline for pipe in unsupported trenches. In sheeted trenches the width of trench between faces of the sheeting shall be adequate to allow the pipe bedding and haunching to be placed and completed, and the sheeting removed without disturbing the bedding and haunching material within two pipe diameters on each side of the pipe. Trench boxes and moveable sheeting shall be wide enough to allow moving without disturbing the bedding and haunching within two pipe diameters on each side of the pipe. Trench boxes and moveable sheeting shall be constructed and used in the trench to avoid disturbing the piping, bedding and haunching when being moved forward in the trench.
- B. Dewatering of the trench bottom shall be accomplished using adequate means to allow preparation of bedding, placement of haunching and pipe in a trench environment without standing water. Dewatering shall continue until sufficient backfill is placed above the pipe to prevent flotation.
- C. The trench shall be dug so that the pipe can be laid to the alignment and depth required, and it shall be excavated only so far in advance of the pipe laying as allowed by the Engineer. The trench shall be so braced and drained that the workmen may work in it safely and efficiently. All trench preparation shall comply with all the latest applicable Local, State (Florida Trench Safety Act) and Federal Regulations (OSHA: Safe Trench Act). It is essential that the discharge of the trench dewatering pumps be conducted to natural drainage channels, drains or storm sewers.
- D. Bell holes shall be provided at each joint to permit the joint to be made properly. Ledge rock, boulders and large stones shall be removed to provide a clearance of six inches on all pipe twenty-four (24) inches and smaller and nine inches on pipe larger than twenty-four (24) inches. If such removal is required, backfilling will be done with selected material approved by the Engineer and tamped to establish the proper grade.
- E. Trench Bottom
 1. Where the bottom of the trench at subgrade is found to be unstable or to include ashes, cinders, refuse, vegetable or other organic matter, or large pieces or fragments of inorganic material that, in the judgment of the Engineer, should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth as directed by the Engineer. Before the pipe is laid, the subgrade shall be made by backfilling with an approved material in three inch uncompacted layers. The layers shall be thoroughly tamped as specified by the Engineer to provide the uniform and continuous bearing support as heretofore described.
 2. The trench shall be dry when the bottom is prepared. The trench bottom shall be excavated, or filled and compacted, as required to bring it to grade and shaped to receive and support the pipe barrel. In addition, bell holes shall be excavated so that after placement only the barrel of the pipe receives bearing pressure from and is uniformly supported by, the bottom of the trench. Preparation of the trench bottom and placement of the pipe shall be such that the final position of the pipe is true to line and grade, and uniformly supported throughout the barrel of each length. When pipe is placed in refill material, additional refill of the same material shall be tamped on each side of the barrel to the springline, thus forming a trough of firm bedding.

- F. All materials that, in the opinion of the Engineer, are suitable for reuse in restoring the disturbed surface shall be kept separated from the general excavation material and can only be used as directed by the Engineer.
- G. All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Hydrants, valve pit covers, valve boxes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the work is completed. Gutters, drainage inlets, natural water courses and miscellaneous drainage structures shall be kept clear or other satisfactory provisions made for their proper operation.
- H. Hand methods for excavation shall be employed when damage to existing facilities is likely if heavy equipment is utilized or as directed by the Engineer.

3.05 PIPE BEDDING

- A. The Contractor shall furnish and install pipe on the type of bedding shown on the Drawings or as specified by the Engineer. Regardless of the type of bedding used by the Contractor, holes in the trench shall be provided to receive the pipe bell. The hole excavated shall be sufficient to relieve pipe bells of all loads and yet provide support over the total length of the pipe barrel.
- B. Pipe should be installed with proper bedding providing uniform longitudinal support under the pipe. Backfill material should be worked under the sides of the pipe to provide satisfactory haunching. All pipe bedding material should be select fill. Sharp stones and crushed rock (larger than 3/4-in.), which could cause significant scratching or abrasion of the pipe, should be excluded from the embedment material. Proper compaction procedures should be exercised.
- C. Where required to provide a dry, firm bedding, compacted crushed stone shall be provided from a depth of 12" below the pipe up to the pipe haunches.

3.06 DEPTH

- A. Water Mains
 - 1. The depth of trenches for water mains shall be such that the invert of the pipe will be at elevations shown on the plans.
- B. Overdepth
 - 1. When classified excavation is required, the rock shall be excavated to a minimum depth of six inches below the trench depths as indicated on the drawings or Specifications. Authorized overdepths in rock excavation shall be refilled to grade with loose granular moist earth or shell thoroughly tamped in place.
- C. Trench shall be excavated to the depth required so as to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between bell holes, except as necessary for removal of pipe slings or other lifting tackle. Any part of the bottom of the trench excavated to a point below the specified grade shall be corrected with approved material at the Contractor's expense and thoroughly tamped as directed by the Engineer.
- D. Wherever unstable soil or muck that is determined by the Engineer to be incapable of properly supporting the pipe is encountered in the bottom of the trench, such material shall be removed to the required depth and the trench refilled as specified to proper grade. If, in the opinion of the Engineer, removal of the unstable material by this method is impractical, then the Contractor shall support the pipe as detailed on the plans, or as directed by the Engineer.

3.07 BACKFILL

A. General

1. The Contractor shall not perform any of the backfilling operations until after he has inspected the lines and found them to be acceptable to the Owner.
2. Backfill material shall consist of earth, loam, sandy clay, sand, gravel, soft shale or other materials, free from organic materials, large clods of earth, or stones. Where excavated material is not suitable for backfill, it shall be replaced by suitable fill.
3. Should bedding be required, primarily to bring the trench up to proper grade level, due to the removal of unsuitable materials, clean Class II or Class III fill shall be properly placed and compacted evenly along the trench bottom in such a manner that the entire pipe lays evenly, without bridging, holes or dips. Backfill material shall be clean fill approved by the EOR. Backfill materials shall be free of organic material, debris, lumps, broken pavement or any other unsuitable material.
4. Flowable fill will be allowed as an alternative to backfill compaction requirements, at the discretion of UTILITIES. Measures shall be taken to prevent the pipe from floating as the flowable fill is placed. The Contractor shall provide a detail and the EOR shall approve the detail describing the anchor system to be used with the flowable fill prior to construction plan approval.
5. In all areas, backfill material shall be deposited in six inch layers and carefully tamped until the compacted backfill depth reaches one foot above the top of pipe.
6. No mechanical equipment, or machinery other than a hand operated mechanical vibrator, will be allowed within the trench area until the backfill has been properly tamped to one foot above the top of pipe. The remainder of the backfill shall be deposited in one foot layers and thoroughly tamped. In all cases walking or working on the completed pipelines, except as may be necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a point twelve inches (12") above the top of the pipe.
7. The first lift shall be no more than twelve inches (12") in thickness and shall start twelve inches (12") above utility line. The second lift shall start two feet (2') above utility line and any subsequent twelve inch (12") lifts are to end at finished grade.
8. Where trenches are improperly backfilled, or where settlement occurs, the trenches shall be reopened to the depth required for proper compaction, refilled and compacted, and the surface restored to the required grade and compaction, mounded over and smoothed off.
9. The filling of the trench and the compacting of the backfill shall be carried out simultaneously on both sides of the pipe. This shall be done in such a manner that the completed pipeline will not be disturbed, and injurious side pressures to the pipe do not occur. Particular attention and care shall be exercised in obtaining thorough support for the branch of all service connection fittings.
10. When directed by the EOR, the Contractor shall add water to the backfill material or dry out the material when needed to attain a condition near optimum moisture content, for the purpose of obtaining maximum density of the material when it is compacted.
11. Before final acceptance, the Contractor shall level off all trenches or bring the trench up to the level of the surrounding terrain. The Contractor shall also remove from roadways,

right-of-way(s), and/or private property all excess earth or other materials resulting from construction.

B. Water Mains

1. Haunching of native material shall be placed to the springline and compacted. If ground water, or trench bottom conditions, is such as to require use of Class I material, either to aid in dewatering, or to provide foundation and bedding for the pipe, the haunching shall also be of Class I material. Class I material contains angular, 1/4 inch to 1 1/2 inch graded stone. Care shall be taken to place the haunching material, without voids, completely filling the trench from pipe wall to trench wall.

C. Compaction Requirements

1. The minimum compaction shall be 98% for the first three feet (3') under roadways, 95% below three feet (3') under roadways, along road shoulders, and building structures, and 95% of the maximum modified Proctor density in open, non-load bearing areas, in accordance with AASHTO T- 180 standards.
2. Minimum compaction shall be accomplished by use of a motorized compacting device starting from twelve inches (12") above the main to the top of the trench.

D. Testing of Backfill

1. Density tests for backfilled trenches within, or across roadways, shall be performed as specified or as directed by the Engineer. Compaction testing shall be performed every 200 feet, with at least one test taken at different locations for each vertical foot beginning from two feet over pipe to ground level. Density tests shall be taken within seven (7) days after installation.
2. Where unsatisfactory compaction is revealed by the test, the Contractor shall re-excavate, backfill, re-compact and/or rework the backfill as required, to obtain the required degree of compaction over the entire depth of the trench.
3. Satisfactory backfill compaction is an integral part of pipe laying, paving, and stabilizing. Satisfactory density reports shall be on file before each Contractor's statement is submitted for payment.

E. Disturbance of Underground Piping

1. All underground piping shall be checked by the Contractor to determine whether any displacement of the pipe has occurred after the trench has been backfilled to two feet above the pipe. If such inspection shows poor alignment, displaced pipe or any defects, these defects shall be remedied to the satisfaction of the Engineer by the Contractor at his expense.

3.08 DISPOSAL OF SURPLUS MATERIAL

- A. All excavated material not required or not suitable for fill, or backfill, shall be disposed of by the Contractor, as directed by the Engineer.
- B. Work site cleanup and property restoration shall follow construction operations without delay. Excavation and pipe-laying shall be coordinated to minimize the amount of overnight open trench, pits or materials storage. Construction site maintenance, along with ongoing cleanup and debris removal to maintain an orderly construction site is expected.

- C. Suitable excavated materials may be used for fill or backfill if it meets the requirements of this specification and is approved by the Engineer. Excavated material so approved may be neatly stockpiled at the site where designated by the Engineer provided there is an area available that will not interfere with the daily activities of the residents or inconvenience traffic or adjoining property owners. If space limitations do not permit stockpiling on the site, the Contractor will be required to make arrangements for off-site stockpiling. Transport of such material from and to the immediate site including any stockpiling agreements shall be entirely at the Contractor's expense and shall not constitute grounds for additional payment.
- D. Excess, unsuitable, or cleared and grubbed material shall be removed from the work site and legally disposed of at locations secured by the Contractor/Developer and approved by the applicable authorities. Excess excavated material shall be spread on the disposal site and graded for proper drainage without disturbing the existing drainage conditions.

3.09 SHEETING AND BRACING

- A. The Contractor shall do all shoring and sheeting required to perform and protect the excavation and, as required, for the safety of the employees.
- B. All trenches shall be sheeted and braced as required by the Engineer and all applicable Federal, State, County and Municipal regulations. Sheeting and bracing shall be used to prevent shifting of adjacent soil and to prevent damage to structures or the work. The sole responsibility for the design, methods of installation, and adequacy of the sheeting and bracing, shall be and shall remain that of the Contractor.
- C. Sheeting and bracing or approved laying box shall be used in all trenches unless the slopes are excavated until the natural angle of repose of the soil is encountered.
- D. Sheeting shall be removed when the trench has been backfilled to at least one-half (1/2) its depth or when removal would not endanger the construction of adjacent structures.
- E. When required, to eliminate excessive trench width or other damage, sheeting, bracing, or shoring shall be left in place and the top cut off at an elevation of two feet (2') six inches (6") below finished grade, unless otherwise directed by UTILITIES.
- F. In general, sheeting and bracing shall be removed as the excavation is backfilled in such a manner as to avoid the caving in of the bank or disturbance of adjacent areas or structures. The voids left by withdrawal of the sheeting and bracing shall be carefully filled by jetting, ramming or other means approved by the Engineer. Permission shall be obtained from the Engineer prior to removal of any sheeting or bracing. Permission shall not relieve the Contractor of any responsibility for damage due to failure to leave such sheeting and bracing in place.
- G. Wood sheeting shall only be left in place when directed by the EOR. All such sheeting shall be pressure treated with a preservative in accordance with the current requirements of the American Wood Preservers Association Manual of Recommended Practices.
- H. Sheeting and bracing materials shall conform to the standard requirements of the FDOT Standard Specifications for Road and Bridge Construction, when tested in accordance with AASHTO T60. Steel sheeting to be left in place, shall be as specified in ASTM Designation A3212.
- I. The Engineer may order, in writing, any or all sheeting or bracing to be left in place for the purpose of preventing injury to adjacent structures, property, etc. If left in place, such sheeting shall be cut off at the elevation ordered, but in no case less than thirty-six (36) inches below the existing grade. Bracing remaining in place shall be driven in tight. The right of the Engineer to order sheeting and bracing to remain in place shall not be construed as creating any obligation on his part to issue such orders. Payment for sheeting and bracing, unless specifically called for on

the Drawings shall not be paid under separate item, but shall be included in the payment for other items of Work.

3.10 DEWATERING

- A. The Contractor shall furnish all materials and equipment and perform all incidental work required to install and maintain the dewatering and drainage system he proposes for handling ground water or surface water encountered. He shall assume all responsibility for the adequacy of the methods, materials, and equipment employed. Construction shall not begin until the Engineer is assured that the proposed method will be satisfactory. The requirements for a stable subgrade are indicated below, and the Contractor must alter his drainage methods, if, in the opinion of the Engineer, the trench bottom is unsatisfactory. The Contractor shall construct and place all pipelines, concrete work, backfill, structural fill, bedding rock, or clean native soils in dry, suitable material.
- B. The Contractor shall provide pumping equipment and devices to properly remove and dispose of all water entering trenches and excavation. The grade shall be maintained acceptably dry until structures and pipe to be constructed therein are completed. All drainage shall be performed without damage to the trench, pavements, pipes, electrical conduits, or other utilities. Excavations shall be 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 damaged by hydrostatic pressure from natural groundwater.
- C. If the Contractor elects to dewater using wellpoints, all wellpoints shall be spaced and at sufficient depths as required to eliminate water during the excavation period until the work is completed. Ample means and equipment shall be provided with which to remove promptly, and dispose properly all water entering any excavation. This includes the use of sand or gravel as required to maintain adequate flow during the pipe laying or installation of other items of work within the excavation.
- D. Water pumped or drained shall be disposed of in a suitable manner without damage to adjacent property to other work under construction or to street pavements or public parks. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. All gutter, drains, culverts, sewers and inlets shall be kept clean and open for surface drainage. Water shall not be directed across or over pavements except through approved pipes or properly constructed troughs. Contractor shall obtain permission from the owner of any property involved before digging ditches or constructing water courses for removal of water, and provide for disposal of the water without ponding or creating a public nuisance. Water may be discharged into storm sewers. Payment for dewatering shall not be paid for under a separate item, but shall be included in the payment for other items of work, unless it is specifically included as a Pay Item in the Contract.
- E. The Contractor shall be responsible for obtaining permits and meeting the standards, as required, by appropriate regulatory agencies for any dewatering system installed.

3.11 APPURTENANCES

- A. Excavation for manholes and other appurtenances shall be made to size that will allow at least twelve (12) inches between their outer surfaces and the embankment or shoring. Overdepth excavation and backfill to required depth below such appurtenances, that have not been directed by the Engineer, shall be at the expense of the Contractor.

3.12 TEST PITS

- A. The Contractor may be required to excavate test pits for the purpose of locating underground utilities or structures as an aid in establishing the precise location of new work. Test pits shall be backfilled as soon as the desired information has been obtained. The backfilled surface shall be maintained in a satisfactory condition for travel until resurfaced as hereinafter specified.
- B. Excavation of test pits shall be considered work incidental to the project and shall be done at the Contractor's expense.
- C. If, for any reason, a test pit is left open for any period of time, it shall be properly barricaded and lighted by the Contractor, when directed by the Engineer, in accordance with State and Local laws.

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SECTION 02335

FLOWABLE FILL

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies the requirements for flowable fill used in backfill and to fill all abandoned pipelines. All existing mains shown on the Drawings to be cut and capped shall be filled with flowable fill meeting the requirements specified herein.
- B. Flowable fill for the roadway restoration shall be as shown on the drawings and shall meet all FDOT Standard Specification.

1.02 REFERENCES

The materials used shall conform with the requirements specified in Division III of the Standard Specifications, and herein. Specific references are as follows:

- (1) Portland Cement (Types I, II, or III) Section 921
- (2) Fly Ash, Slag and other Pozzolanic
Materials for Portland Cement Concrete Section 929
- (3) Fine Aggregate (Sand)* Section 902
- (4) Water Section 923

* Any clean sand with 100% passing 3/8" sieve and not more than 10% passing the 200 mesh may be used.

1.03 SUBMITTALS

- A. Technical information for equipment and operational procedures including projected slurry injection rate, flowable fill pressure, method of controlling flowable fill pressure.
- B. At least 60 days prior to commencing abandonment activities, submit plan for abandonment, describing proposed sequence and any other information pertinent to completion of work.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. The Contractor shall be responsible for producing a flowable mixture using these guidelines and adjusting his mixture design as called for by circumstances or as may be directed by the Engineer.
- B. The Flowable fill material shall be proportioned to produce a 28-day compressive strength of approximately 150-450 psi.

- C. General mix requirements are as follows:

<u>Components</u>	<u>Pounds per Cubic Yard</u>
Cement	50-100*
Fly Ash or Granulated Blast Furnace Slag	0-600
Find Sand	2750 (adjust to yield one cubic yard of flowable fill)
Water	500 (maximum)

- * The percentage of cement may be increased above these limits only when early strength is required and future removal is very unlikely.
- D. Weights for fine aggregate and water shall be adjusted according to cementitious content. The mix proportions shall be adjusted for removability, pumpability and flowability. If required, strength test data shall be provided prior to batching.
- E. If required by the Engineer, the flowability can be measured by afflux time determined in accordance with ASTM C 939 and shall be 30 seconds +/- 5 seconds as measured on mortar passing the No. 4 sieve. The equipment required to perform this test shall be provided by the Contractor.

PART 3 – EXECUTION

3.01 PREPARATION

- A. The Contractor shall remove all raw sewage, sludge, debris, and water from the force mains/water mains prior to filling pipeline with flowable fill.
- B. Locate previously unidentified connections, which have not been redirected and reconnected as part of this project, and report them to the Engineer. During placement of fill, compensate for irregularities in sewer pipe, such as obstructions, open joints, or broken pipe to ensure no voids remain unfilled.
- C. Clean placement areas of sewer and water lines of debris that may hinder fill placement. Remove excessive amounts of sludge and other substances that may degrade performance of fill.
- D. Remove free water prior to starting fill placement.
- E. All raw sewage, sludge, debris, and water removed from the mains shall become the property of the Contractor and shall be legally disposed in location approved by the Owner.
- F. All proposed force mains and water mains shall be installed, pressure tested, and placed in-service prior to filling any abandoned water or force mains.

3.02 PRODUCTION AND PLACING

- A. Flowable fill shall be produced and delivered using concrete construction equipment. Placing flowable fill shall be by chute, pumping or other methods approved by the Engineer.
- B. The flowable fill shall be placed to the designated fill line without vibration or other means of compaction. Placement shall be avoided during inclement weather, e.g. rain or ambient temperatures below 40 degrees F. The Contractor shall take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement prior to hardening. Also, necessary means to confine the materials within the designated space shall be provided by the Contractor.
- C. All pipes shall be abandoned in the manner which results in the abandoned pipeline not being

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(Section 02335-Flowable Fill)

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pressurized.

3.03 ACCEPTANCE

- A. The flowable fill shall be proportioned and placed as specified herein. In general, the strength desired is the maximum hardness that can be excavated at a later date using conventional excavating equipment. No curing protection is required.
- B. The fill shall be left undisturbed until material obtains sufficient strength. Sufficient strength is 250 psi penetration resistance as measured using a hand held penetrometer. The penetrometer, shall be provided by the Contractor.
- C. All flowable fill areas subjected to traffic loads must have a durable riding surface.

END OF SECTION

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SECTION 02485

SURFACE RESTORATION

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment necessary to satisfactorily return all disturbed areas to their original conditions or better.
- B. Work includes furnishing and placing beach sand, sod, fertilizer, gravel, concrete sidewalk, asphalt, planting, watering and maintenance until acceptance by the Owner.
- C. Unless otherwise shown on the Drawings or directed, all disturbed grass areas shall be restored with solid sod of the same type which existed prior to construction.

1.02 QUALITY ASSURANCE

- A. For purposes of grassing, a satisfactory stand of grass is herein defined as a full lawn cover over areas to be sodded, with grass free of weeds, alive and growing, leaving no bare spots larger than 3/4 sq. yd. within a radius of 10 ft.
- B. 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 sodding at no additional cost to the Owner until a satisfactory stand is obtained.

1.03 SUBMITTALS

- A. Provide technical data as required for shop drawings on all materials or installation procedures required under this Section.
- B. Submit representative topsoil samples for analysis by a private laboratory to determine nutrient deficiencies and outline a proper fertilization program.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Fertilizer
 - 1. Fertilizer shall be a complete fertilizer, the elements of which are derived from organic sources. Fertilizer shall be a standard product complying with State and Federal fertilizer laws.
 - 2. Percentages of nitrogen, phosphorus and potash shall be based on laboratory tests on soils outlined in Paragraph 1.3B and approved by the Engineer. For purpose of bidding, assume 6% nitrogen, 6% phosphorus and 6% potash by weight. At least 50% of the total nitrogen shall contain no less than 3% water-insoluble nitrogen.
 - 3. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guaranteed statement of analysis, or a manufacturer's certificate of compliance

covering analysis shall be furnished to the Engineer. Store fertilizer in a weatherproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.

4. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes containing not less than 20% available phosphoric acid.

B. Sod

1. All areas disturbed by construction shall be replaced with sod. Sod shall be St. Augustine or Argentine Bahia of firm texture having a compacted growth and good root development. The type of sod used for restoration shall match the existing grass type prior to construction.
2. Sod shall be certified to meet Florida State Plant Board Specifications, absolutely true to varietal type, and free from weeds or other objectionable vegetation, fungus, insects and disease of any kind.
3. Before being cut and lifted the sod shall have been mowed 3 times with the final mowing not more than a week before cutting into uniform dimensions.

C. Mulch

Mulch shall be fresh hay. Rate of application specified herein shall correspond to depth not less than 1 inch or more than 3 inches according to texture and moisture content of mulch material.

D. Water

It is the Contractor's responsibility to water the site as required during sodding operations, through the maintenance period, until the work is accepted. The Contractor shall make whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs for his work. The Contractor shall also furnish all necessary hoses, equipment, attachments and accessories for the adequate irrigation of lawns and planted areas as may be required.

E. Trees and Shrubs

All trees and shrubs removed or damaged by the Contractor for his/her operations shall be replaced with the same type of trees and shrubs.

F. Beach Sand

All sand in beach areas disturbed by construction shall be restored to the same grade elevation with identical type of sand prior to construction. The types and depths of sands shall be per the Geotechnical Report.

G. Pavement

1. Materials and methods used by the Contractor for pavement replacement shall conform to the specifications and permit conditions required by FDOT and/or City of Venice Standard Details Sheet 3 Detail 7.

PART 3 – EXECUTION

3.01 LAWN BED PREPARATION

- A. Areas to be sodded shall be cleared of all rough grass, weeds, and debris, and the ground brought to an even grade as approved.
- B. The soil shall then be thoroughly tilled to a minimum 8-inch depth.
- C. The areas shall then be brought to proper grade, free of sticks, stones, or other foreign matter over 1-inch in diameter of dimension. The surface shall conform to finish grade, less the thickness of sod, free of water-retaining depressions, the soil friable and of uniformly fill texture.
- D. Superphosphate at a rate of 5 pounds per 1,000 square foot and 6-6-6, 40% organic, slow or controlled release fertilizer at a rate of 16 pounds per 1000 square foot shall be evenly distributed over entire area and cross-disked into a depth of 4-6 inches. The ground shall be wet down before the seed or sod is laid in place.

3.02 SOD HANDLING AND INSTALLATION

- A. During delivery, prior to planting, and during the planting of the lawn areas, the sod panels at all times be protected from excessive drying and unnecessary exposure of the roots to the sun. All sod shall be stacked during construction and planting so as not to be damaged by sweating or excessive heat and moisture.
- B. Solid sod shall be laid tightly with closely abutting staggered joints with an even surface edge and sod edge, in a neat and clean manner to the edge of all the paving and shrub areas. Cut down soil level to 1 inch to 1-1/2 inches below top of walks prior to laying sod.
- C. Within 2 hours after installing sod and prior to rolling, irrigate the sod. Sufficient water shall be applied to wet the sod thoroughly and to wet the sod to a depth of 2 inches (50 millimeters). Watering shall be done in a manner that will avoid erosion due to the application of excessive quantities, and the watering equipment shall be a type that will prevent damage to the finished sod surface. Watering shall be repeated as necessary to keep sod moist until rooted to subgrade.
- D. The sod shall be pressed firmly into contact with the sod bed using a turf roller or other approved equipment so as to eliminate air pockets, provide a true and even surface and insure knitting without any displacement of the sod or deformation of the surfaces of sodded areas. After the sodding operation has been completed, the edges of the area shall be smooth and shall conform to the grades indicated.
- E. If, in the opinion of the Owner, top dressing is necessary after rolling, clean silica sand shall be used to fill voids. Evenly apply sand over the entire surface to be leveled, filling-in dips and voids and thoroughly washing into the sod areas.
- F. On slopes steeper than 2:1 and as required, the sod shall be fastened in place with suitable wooden pins or by other approved method.

3.03 CLEANUP AND PROTECTION

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

- B. Sodded areas shall be protected against the traffic or other use by placing warning signs or erecting barricades as necessary. Any areas damaged prior to actual acceptance by the Owner shall be repaired by the Contractor as directed by the Engineer.

3.04 MAINTENANCE

- A. Maintain landscape work until Owner accepts project. Watering, weeding, cultivating, restoration of grade, mowing and trimming grass, protection from insects and diseases, fertilizing and similar operations as needed to ensure normal growth and good health for live plant material shall be the responsibility of the Contractor and at no additional cost to the Owner. Sodded areas shall receive no less than 1.5 inches of water per week.

3.05 ROADWAY REMOVAL AND RESTORATION

- A. Bituminous pavement shall be removed in clean straight lines by saw cutting. Where bituminous pavement adjoins a trench, the edges adjacent to the trench shall be trimmed to neat straight lines before resurfacing to ensure that all areas to be resurfaced are accessible to rollers or tampers used to compact the sub-grade or paving materials.
- B. Asphalt restoration shall consist of the following:
 - 1. Furnishing and installing 5" of ABC-3 asphalt base material;
 - 2. Furnishing and installing a 1-1/2" temporary SP-9.5 asphalt wearing surface;
 - 3. After 30 days have passed since the temporary wearing surface has been installed, milling the asphalt to the limits shown on the drawings;
 - 4. Overlaying the entire area with 1" of SP-9.5 asphalt.

In lieu of sawcutting and milling existing asphalt, it is acceptable to sawcut and remove the entire asphalt layer to the milling limits shown on the drawings. Asphalt completely removed shall be replaced in-kind with type SP-9.5 asphalt. All new asphalt, whether replacing all of the existing asphalt or topping a milled asphalt surface, shall be graded properly and free from puddling. Improperly graded asphalt shall be re-worked or replaced as necessary until proper grading is achieved at no additional cost to the Owner. Re-worked asphalt that has a jagged/unprofessional appearance will not be accepted. The City does not know and cannot guarantee the thickness of the existing asphalt.

- C. Concrete pavement shall be removed with sawed edges and cut at a minimum depth of one and one-half inches (1 and 1/2"). If a saw cut in concrete pavement falls within three feet (3') of a construction joint, cold joint, expansion joint or edge, the concrete shall be removed to the joint or edge. The edges of existing concrete pavement adjacent to trenches, which had been damaged subsequent to saw cutting of the pavement, shall be saw cut to neat straight lines for the purpose of removing the damaged pavement areas. Such saw cuts shall be parallel to the original saw cuts or shall be cut on an angle which departs from the original saw cut not more than one inch (1") in six inches (6").
- D. Concrete curb, sidewalk, gutters and driveways shall be removed with neatly sawed edges, cut at a minimum depth of one and one-half inches (1 1/2"). Concrete sidewalk or driveway to be removed shall be neatly sawed in straight lines parallel to the curb or at right angles to the alignment of the sidewalk. No section to be replaced shall be smaller than four feet (4') in either length or width. If the saw cut in sidewalk or driveway should fall within three feet (3') of a construction joint, expansion joint, or edge, the concrete shall be removed to the joint or edge except that where the saw cut would fall within twelve inches (12") of a score mark, the saw cut shall be made in and along the score mark. Curb and gutter shall be sawed to a depth of one and one-half (1 1/2") inches in a neat line at right angles to the curb face.

- E. In the event that pavement is not replaced immediately following trench backfilling in streets and highways, the contractor shall be responsible for maintaining the trench surface in a level condition, at proper pavement grade, at all times.

END OF SECTION

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SECTION 02514

FUSIBLE POLYVINYLCHLORIDE (FPVC) PIPE

PART I – GENERAL

1.01 SCOPE OF WORK

- A. Fusible polyvinyl chloride (FPVC) pipe is acceptable for use in the horizontal directional drill locations in this project. It is not the intent of this project to install FPVC pipe by open trench method.
- B. If fusible PVC is used for the horizontal directional drills, pipe diameters shall remain as shown on the drawings except for the crossing at Hatchett Creek. At Hatchett Creek, the 10" HDPE water main may be reduced to an 8" FPVC water main and, if so, all fittings and valves called out as 10" shall be reduced to 8" and the 10"x8" reducers shall be deleted.
- C. The Contractor shall furnish all the materials, tools, labor, supervision and appliances for and properly install, connect, adjust, test and place in continuous satisfactory service all fusible polyvinylchloride pipe and fittings at the locations and to the elevations indicated, specified or required for the proper completion of all work.
- D. It is the intent of these Contract Documents to require an installation, complete in every detail, whether or not indicated on the Construction Drawings, or specified herein. Consequently, the Contractor shall be responsible for all details, devices, accessories, and special construction necessary to properly furnish, install, adjust, test, place into continuous satisfactory service, and complete the Work in an acceptable manner.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. All Work specified herein shall be in accordance with the standards of the below listed organizations, except as otherwise shown or specified. Where reference is made to a standard of one of these or other organizations the version of the standard in effect at the time of bid opening shall apply.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
- C. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.
- D. American Water Works Association (AWWA)
 - 1. C110 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids
 - 2. C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
 - 3. C153 - AWWA Standard for Ductile-Iron Compact Fittings for Water Service

4. C605 - Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
5. C651 - Standard for Disinfecting Water Mains
6. C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100mm Through 300mm), for Water Distribution
7. C905 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 in. through 48 in. (350mm Through 1200mm), for Water Distribution and Transmission
8. M23 - AWWA Manual of Supply Practices PVC Pipe—Design and Installation, Second Edition

E. American National Standards Institute (ANSI)

1. A21.10 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids
2. A21.11 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
3. A21.53 - AWWA Standard for Ductile-Iron Compact Fittings for Water Service

F. American Society for Testing Materials (ASTM)

1. C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
2. D1784 - Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
3. D1785 - Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
4. D2152 - Test Method for Degree of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion
5. D2241 - Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
6. D2665 - Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
7. D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
8. F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe
9. F679 - Standard Specification for Poly(Vinyl Chloride) (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings
10. F1057 - Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique
11. F1417 - Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique

- G. Uni-Bell PVC Pipe Association (UNI)
 - 1. UNI-B-6 - Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe Reinforced Concrete Manhole Structures, Pipes and Laterals
 - 2. UNI-PUB-08 - Tapping Guide for PVC Pressure Pipe
- H. NSF International, The Public Health and Safety Company (NSF)
 - 1. NSF-14 - Plastics Piping System Components and Related Materials
 - 2. NSF-61- Drinking Water System Components--Health Effects
- I. Plastics Pipe Institute (PPI)
 - 1. PPI TR-2 - PVC Range Composition Listing of Qualified Ingredients

1.03 SUBMITTALS

- A. The Contractor shall submit Shop Drawings to the Engineer of pipe and all appurtenances in accordance with these Contract Documents. The requirements of AWWA C900, C905 and the following supplemental requirements are applicable:
 - 1. Certified catalog-cut type dimensional drawings of all pipe and appurtenances including size, dimensionality, pressure class per applicable standard, color, recommended minimum bending radius, recommended maximum safe pull force, fusion technician qualification indicating conformance with this specification..
 - 2. Joint and pipe/fitting wall construction details, which indicate the type and thickness of the wall; manufacturing tolerances; performance history; and all other pertinent information required for the manufacture of the product.
 - 3. Details of fittings and specials such as elbows, wyes, tees, outlets, connections, test bulkheads, bosses and nozzles or other specials where shown on the Construction Drawings, which indicate amount and position of reinforcement. All fittings and specials shall be properly reinforced to withstand the internal pressure both circumferential and longitudinal, and the external loading conditions as indicated in the Contract Documents. Shop Drawings shall clearly detail special castings indicating all pertinent dimensions.
 - 4. Drawings of special details such as reinforcement, testing stations, joint bonding, etc., shall be at a scale that clearly depicts the item being detailed and, in general, shall not be at a scale less than 1/8-inch equal to 1-foot.
 - 5. The Supplier of the pipe shall submit, through the Contractor, an affidavit that the pipe, fittings and other products or materials furnished for this Project comply with all applicable provisions of these Specifications.
 - 6. Records of certified shop tests.
 - 7. A complete field pressure testing, and flushing plan for review and approval prior to the performance of any of these activities.
 - 8. Certificates confirming that the Fusion Technician is fully qualified by the pipe supplier to install fusible polyvinylchloride pipe of the type(s) and size(s) being used. Qualification shall be current as of the actual date of fusion performance on the project.

- B. The Contractor shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section of the Specifications, as specified in AWWA C900 and C905, and certified copies of the following supplemental data for all pipe, fittings, and specials:
 - 1. The Supplier shall provide, through the Contractor, a sworn statement that the inspection and all specified tests have been made and all results thereof comply with the requirements of these Specifications.
- C. All expenses incurred in making samples for certification of tests and in the preparation of any design reports shall be borne by the Contractor.
- D. Approval of the Shop Drawings and the design report and acceptance of the certifications by the Engineer shall not relieve the Contractor of the responsibility to ensure that the pipe is designed and installed in strict accordance with the Contract Documents.
- E. The following AS-RECORDED DATA is required from the contractor and/or fusion provider to the owner or pipe supplier upon request:
 - 1. Approved datalogger device reports
 - 2. Fusion joint documentation containing the following information: pipe size and thickness, machine size, fusion technician identification, job identification, fusion joint number, fusion, heating, and drag pressure settings, heat plate temperature, time stamp, heating and cool down time of fusion, and ambient temperature.

1.04 QUALITY ASSURANCE

- A. The Contractor shall furnish materials under this Section that are new, unused and as specified, or if not particularized herein, which are the best of their respective kind, free of defects and imperfections, and suitable for the service intended, subject to the approval of the Engineer.
- B. The Contractor shall provide workmanship that is first class in every respect, and have the installation performed by workmen thoroughly experienced in such work. A neat and workmanlike appearance in the finished Work shall be required.
- C. The Contractor shall perform Work in accordance with all applicable laws and regulations and in accordance with all applicable permits and easements.
- D. The fusible PVC pipe furnished under this Specification shall comply with AWWA C900 and C905, except as it may be modified herein.
- E. All test equipment used in activities affecting quality control shall be calibrated and certified at not longer than annual intervals, unless otherwise specified or required.
- F. All pipe shall be clean, sound, and without defects. No manner of repair will be accepted, unless otherwise specified or approved by the Engineer.
- G. The Contractor, at no additional cost to the Owner, shall perform all the testing and recording that is required in these Specifications unless otherwise specified.
- H. The Engineer shall have the right to determine the amount of pipe to be rejected.

1.05 SUPPLIER'S QUALIFICATIONS

- A. All fusible PVC pipe, fittings and appurtenances shall be furnished by a manufacturer who is fully experienced, reputable and qualified in the manufacture of the items 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. The Manufacturer shall have at least 5 years experience in work similar in specification to that which is to be furnished on this project. The Manufacturer shall be required to show experience in supplying pipe in environments similar to those expected to exist on this project and that the pipe supplied in those environments has functioned satisfactorily.

- B. Fusible polyvinylchloride pipe shall be used as manufactured under the trade names Fusible C-900®, Fusible C-905®, and FPVC®, for Underground Solutions, Inc. Fusion process shall be as patented by Underground Solutions, Inc.

1.06 SHOP TESTS

- A. All pipe shall be tested by the Manufacturer in accordance with AWWA C900, C905, the Manufacturer's standard procedures, and this Specification. At the Owner's request, shop tests shall be subject to witness by the Engineer and/or Owner and/or the Owner's Representative. Certified test reports shall be submitted to the Engineer by the Contractor for approval. No lot of pipe shall be shipped to the site of the Work until acceptable shop tests are completed and approved.

1. It shall be the responsibility of the Contractor to provide notice to the Owner and the Engineer of proposed tests in accordance with this Section and the Contract Documents.
2. Tests and examinations to verify the quality of work shall be performed by persons other than those engaged in the activity being examined. Such persons shall not report directly to the production supervisor responsible for the Work. All instruments, gauges and other testing and measuring equipment used in activities affecting quality shall be of proper range, type, and accuracy to verify conformance with the Specification requirements. Procedures shall be in effect to assure that they are calibrated and certified at not longer than annual intervals. Calibration shall be against measurement standards, which have known relationship to national standards where such exist. Gauges must be calibrated and certified for the piece of equipment of which they are a part and must remain on the piece of equipment following certification. Materials and items including products previously checked or manufactured with equipment found to be out of calibration or adjustment shall be considered unacceptable until it can be determined that all applicable requirements have been met.
3. The Supplier shall maintain records of all internal and required tests and inspections. These records shall include records of materials, manufacturing, examination, repairs, and test data taken before and during fabrication. The Engineer reserves the right to request that specific data be included in the records that may not otherwise be included. Whenever tests and examinations are performed on a pipe element or pipe, the appropriate pipe identification number shall be shown on the report. Copies of all records of tests conducted by the pipe Supplier, independent laboratory, or material manufacturers shall be given to the Engineer in such form as to be appropriate for permanent records.
4. The Engineer shall have access to all records of tests and inspections related to pipe manufactured for use in the Work and shall also have the right to witness any tests being performed by the Supplier relative to products, materials, or the pipe being produced.
5. In addition to those tests specifically required, the Owner may request additional samples for testing by the Owner. The cost for these additional samples shall be borne by the Owner at no additional cost to the Contractor.
6. All tests required by AWWA C900, C905 and as required herein, shall be performed by

the Supplier and records of all such tests shall be provided to the Owner.

- B. Dimensions shall be subject to gauging in the presence of the Engineer. Dimensions of each pipe shall be measured as specified in ASTM D2122. Representative samples from each of the molds each shift when the mold is used in manufacturing pipe for the Project shall be gauged.
- C. One pipe from each diameter size and pressure class each shift each day shall be non-destructively tested. The wall thickness shall be measured for conformance to the thickness tolerance at the quarter points of the cross-section and at any other point selected by the Engineer. The measuring device shall be capable of measuring the pipe wall thickness to the nearest 0.001-inch. Any wall thickness measurement less than the nominal wall thickness minus the casting tolerance, shown in Table 1, shall be cause for pipe to be rejected. If the first pipe selected is rejected another pipe shall be tested. If the second pipe fails a third pipe made during that shift shall be tested. If the third pipe fails all pipe made during that shift shall be rejected.
- D. Physical property tests shall be made on test specimens in accordance with the requirements of AWWA C900, C905 and applicable ASTM standards. Samples for tests shall be taken every three hours.

1.07 TOOLS

- A. All special tools, solvents, lubricants, and caulking compounds required for normal installation shall be furnished with the pipe.

1.08 WARRANTIES

- A. Warranties on pipe and fusion services covered under this specification shall be included in the Contractor's general warranty specified in Division 1.

PART II - PRODUCTS

2.01 GENERAL

- A. The pipe shall be designed, manufactured, tested, inspected, and marked according to applicable requirements stated herein and except as modified, shall conform to AWWA C900 and C905.
- B. Pipe shall be Class 235, meeting requirements of Dimension Ratio (DR) 18 with 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 C900
- C. Pipe shall be furnished in nominal lengths of approximately 20 or 40 feet, unless otherwise directed by the Engineer. Pipe shall bear markings indicating pipe size, manufacturer's name, AWWA and/or ASTM Specification number, working pressure and production code.

2.02 DESIGN CRITERIA

- A. All piping shall be made from PVC compound conforming to cell classification 12454 per ASTM D1784.
- B. Pipe supplier shall furnish fusible polyvinylchloride pipe conforming to all standards and procedures, and meeting all testing and material properties as described in this specification.
- C. Pipe shall be DR-18, Pressure Class 235.

2.03 PIPE DESIGN

- A. All fusible PVC pipe shall have a minimum wall thickness, shown in Table 1, as specified in AWWA C900 and C905.
- B. The Contractor shall provide design data on the pipe including calculations showing the separate and combined stresses in the wall of the pipe due to the design loads.

2.04 MATERIALS

- A Fusible polyvinylchloride pipe shall conform to AWWA C905, AWWA C900, ASTM D2241 or ASTM D1785 for standard dimensionality, as applicable. Testing shall be in accordance with the referenced AWWA standard.
- B Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
- C Fusible polyvinylchloride pipe shall be manufactured in a standard 40' nominal length, or custom lengths as specified.
- D Fusible polyvinylchloride pipe shall be blue in color for water use.
- E Pipe shall be marked as follows:
 - 1. Nominal pipe size
 - 2. PVC
 - 3. Dimension Ratio, Standard Dimension Ratio, or Schedule
 - 4. AWWA pressure class, or standard pressure rating for non-AWWA pipe, as applicable
 - 5. AWWA standard designation number, or pipe type for non-AWWA pipe, as applicable
 - 6. Extrusion production-record code
 - 7. Trademark or trade name
 - 8. Cell Classification 12454 and/or PVC material code 1120 may also be included
- F Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

2.05 FUSION JOINTS

- A Unless otherwise specified, fusible polyvinylchloride pipe lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's written guidelines for this procedure. All fusion joints shall be completed as described in this specification.

2.06 FITTINGS

- B All fittings shall be ductile iron as specified in section 02640.

PART III - EXECUTION

3.01 DELIVERY AND OFF-LOADING

- A All pipe shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the owner or engineer.
- B Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify owner or engineer immediately if more than immaterial damage is found. Each pipe shipment should be checked for quantity and proper pipe size, color, and type.
- C Pipe should be loaded, off-loaded, and otherwise handled in accordance with AWWA M23, and all of the pipe supplier's guidelines shall be followed.
- D Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.
- E During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.
- F If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to insure that pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped, from trucks.

3.02 HANDLING AND STORAGE

- A Any length of pipe showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the owner or engineer.
- B Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the owner or engineer.
- C Pipe lengths should be stored and placed on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- D Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.
- E If pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.
- F Pipe shall be stored and stacked per the pipe supplier's guidelines.

3.03 FUSION PROCESS

A GENERAL

1. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.
2. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.

3. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.
4. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:
 - a) HEAT PLATE - Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.
 - b) CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
 - c) GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - d) DATA LOGGING DEVICE – An approved datalogging device with the current version of the pipe supplier's recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
5. Other equipment specifically required for the fusion process shall include the following:
 - a) Pipe rollers shall be used for support of pipe to either side of the machine
 - b) A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.
 - c) An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
 - d) Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
 - e) Facing blades specifically designed for cutting fusible polyvinylchloride pipe shall be used.

B JOINT RECORDING

Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.04 GENERAL INSTALLATION

- A Installation guidelines from the pipe supplier shall be followed for all installations.
- B The fusible polyvinylchloride pipe will be installed in a manner so as not to exceed the recommended bending radius.
- C Where fusible polyvinylchloride pipe is installed by pulling in tension, the recommended Safe Pulling Force established by the pipe supplier shall not be exceeded.

3.05 PREPARATION PRIOR TO MAKING CONNECTIONS INTO EXISTING PIPING SYSTEMS

- A Approximate locations for existing piping systems are shown in the construction documents. Prior to making connections into existing piping systems, the contractor shall:
1. Field verify location, size, piping material, and piping system of the existing pipe.
 2. Obtain all required fittings, which may include saddles, sleeve type couplings, flanges, tees, or others as shown in the construction documents.
 3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.
- B Unless otherwise approved, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.

3.06 PIPE SYSTEM CONNECTIONS

- A Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines and as indicated in the construction documents. Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines.

3.07 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

- A Tapping shall be performed using standard tapping saddles designed for use on PVC piping in accordance with AWWA C605. Tapping shall be performed only with use of tap saddles or sleeves. **NO DIRECT TAPPING WILL BE PERMITTED.** Tapping shall be performed in accordance with the applicable sections for Saddle Tapping per Uni-Pub-8.
- B All connections requiring a larger diameter than that recommended by the pipe supplier, shall be made with a pipe connection as specified and indicated on the drawings.
- C Equipment used for tapping shall be made specifically for tapping PVC pipe:
1. Tapping bits shall be slotted "shell" style cutters, specifically made for PVC pipe. 'Hole saws' made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.
 2. Manually operated or power operated drilling machines may be used.
- D Taps may be performed while the pipeline is filled with water and under pressure ('wet' tap.) or when the pipeline is not filled with water and not under pressure ('dry' tap).

3.08 TESTING

- A Testing shall be as specified in section 02640. The allowable leakage formula is based on 18' length between unfused pipe joints. Therefore, the calculated allowable leakage shall be adjusted by dividing the calculated allowable leakage by the length of the fused FPVC pipe divided by 18.

****END OF SECTION****

SECTION 02520

PORTLAND CEMENT CONCRETE

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The work included under this section consists of furnishing all materials, equipment, and labor required to construct all concrete work shown on the drawings or incidental to the proper execution of the work.

1.02 SUBMITTALS

- A. Prior to placing any concrete, the Contractor shall submit for the Owner's Engineer's approval, a design mix, calculated by a recognized testing laboratory, and using the approved aggregates to produce a workable mix of the desired strength, together with certified copies of 7 day and 28 day tests of cylinders taken from concrete made according to the design mix.

1.03 ALTERNATE SPECIFICATIONS

- A. Special attention is called to the fact that certain portions of the work for this project are described by reference to the "Standard Specifications". The term "Standard Specifications" refers to "The Standard Specifications for Road and Bridge Construction", latest edition, by the Florida Department of Transportation. In any case, where a specific detail regarding materials or method of construction has been omitted in the specifications, such work shall be performed in accordance with the requirements of the "Standard Specifications".

PART 2 – PRODUCTS

2.01 PORTLAND CEMENT

- A. General: For general concrete construction ASTM Designation C-150 Type I or Type II, or Federal Specifications SS-C-192 Type I or II.
- B. Type II Cement: For construction of pump station structures and sanitary sewer manhole inverts Type II cement shall be used.
- C. Slag Cement: Slag cement shall conform to ASTM Designation C-205 or Federal Specification SS-C-197. Slag cement may be used in the maximum ratio of 1 part of slag cement by weight to 6 parts of total cement by weight if approval by the Design Engineer is obtained prior to use.

2.02 FINE AGGREGATE

- A. General: Fine aggregate shall be clean, hard, strong, durable uncoated particles of natural sand known as Lake Wales, Interlachen or approved equal. The source, composition, quality and gradation of the fine aggregate shall be subject to the approval of the Owner's Engineer. Samples of the sand shall be furnished, together with certified copies of the gradation and analysis from a recognized testing laboratory. Concrete aggregate shall conform to the current specifications for "Concrete Aggregate," ASTM Designation C33.
- B. Deleterious Substances: The weight of extraneous or deleterious substances shall not exceed the following percentages:

Loss by decantation:	3%
Shale:	1%
Clay lumps:	1%
Coal and lignite:	1%

- C. Sieve Analysis: The fine aggregate shall be reasonably well graded from coarse to fine, and when tested by means of laboratory sieves shall meet the following requirements in percent of total weight:

<u>Total Retained On</u>	<u>Percent</u>
No. 4 Sieve:	0 - 5
No. 10 Sieve:	3 - 30
No. 30 Sieve:	30 - 70
No. 50 Sieve:	65 - 95
No. 100 Sieve:	95 - 100

Deficiencies in the percentages of the fine aggregates passing the No. 50 and No. 100 sieves may be remedied by the addition of pozzolanic or cementitious materials excepting Portland cement. Such materials must meet the approval of the Owner's Engineer.

2.03 COARSE AGGREGATE

- A. General: Coarse aggregate shall consist of hard, tough, durable components, free from adherent coatings and vegetable matter, and shall not contain soft, friable, thin, or elongated particles in quantities considered deleterious by the Engineer. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of the desired strength, density, and workability. The source, composition, quality and gradation of the coarse aggregate shall be subject to the approval of the Owner's Engineer. Samples of the coarse aggregate shall be furnished together with certified copies of the gradation and analysis from a recognized testing laboratory.
- B. Deleterious Substances: All coarse aggregate shall be washed and shall be free from disintegrated pieces, salt, alkali, vegetable matter, and adherent coatings. The total percentage of all deleterious substances shall not exceed 5 percent by weight. The substances designated shall not be present in excess of the following amounts:

Loss by decantation:	1%
Clay lumps or other soluble materials:	1/4%
Soft fragments:	5%

- C. Sieve Analysis: Where the cover over reinforcing is 2" or more, the maximum size of aggregate shall be 1-1/2". Where the cover over reinforcing is less than 2", the maximum size of aggregate shall be 3/4". The maximum size of aggregate shall not exceed 1/5 of the narrowest dimension between forms nor 3/4 of the minimum clear spacing between reinforcing bars. The grading of the coarse aggregate in the concrete shall be within the following limits:

Maximum size square mesh screen:	97	-100%
1/2 maximum size square mesh screen:	40	- 70%
No. 4 Sieve:	0	- 6%

2.04 WATER

- A. The water used in mixing concrete shall be fresh, clean and free from injurious amounts of oil, acid, alkali, or organic matter.
- B. Water from any other source other than a municipal water supply shall be shown by test to comply with Florida Department of Transportation requirements for mixing water.
- C. Reclaimed water shall not be used for mixing or curing concrete.

2.05 READY-MIXED CONCRETE

- A. Ready-mixed concrete may be used at the option of the contractor, provided such concrete is machine mixed and meets the requirements of these specifications and of ASTM C94 for "Ready-Mixed Concrete." Concrete shall be mixed at least five (5) minutes after all water has been added and shall be discharged into forms within one and one-half (1 ½) hours after water is added to the mix.
- B. Should there be any conflicts between this CODE and ASTM Specifications, the CODE shall govern.

2.06 HIGH-EARLY-STRENGTH CONCRETE

- A. Concrete made with high-early-strength Portland cement shall be used only when specifically authorized by the EOR and approved by UTILITIES.
- B. The seven (7) day compressive strength of concrete made with high-early-strength cement shall be at least equal to the minimum twenty-eight (28) day compressive strength specified previously.
- C. All provisions of these specifications shall be applicable to high-early-strength concrete except that cement shall conform to ASTM Designation C150, Type III.

2.07 DESIGN MIX

- A. The mixes shall be designed to secure concrete having a minimum compressive strength at age 28 days as shown in the following table.

Compressive Strength In Pounds Per Square Inch

COMPRESSIVE STRENGTH IN POUNDS PER SQUARE INCH				
Class	Use	Mix Design (psi)	Cylinder Strength (psi)	
			7 Days	28 Days
A	Pump stations, wastewater and storm structures	4,000	2,500	3,700
B	Curb, driveways, sidewalks	3,200	1,800	3,000
C	Manhole cradles	2,700	1,500	2,500

2.08 REINFORCING STEEL

- A. General: The reinforcing steel, fabricated to shapes and dimensions shown, shall be placed where indicated on the drawings. Before placing, all reinforcements shall be thoroughly cleaned of rust, mill scale, or coatings, which would reduce or destroy the bond.
- B. Reinforcing steel shall be detailed, fabricated, and placed according to the methods and standards recommended in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" of the American Concrete Institute.
- C. Splices in reinforcing mats shall be staggered. Horizontal mats shall be supported on metal chairs with all sills or pads below subgrade. Spacers shall be provided for wall and column steel and shall be removed as the concrete is placed.

- D. The concrete covering over steel reinforcement shall be as shown on the plans.
- E. Reinforcing Bars: Reinforcing bars shall conform to the requirements of Federal Specification QQ-S-632, ASTM Designation A615, Grade 60, and shall be as follows:
 - 1. Bent: Type II (deformed), Class B40
 - 2. Straight: Type II (deformed), Class B40
 - 3. Column Ties: Type I (plain), Class B40
- F. Wire Mesh: Wire mesh, unless otherwise shown on the drawings or specified, shall be 6" x 6" - No. 10 woven or electrically welded wire fabric conforming to the requirements of ASTM Designation A 185 Latest Revision.

PART 3 – EXECUTION

3.01 STORAGE

- A. Immediately upon receipt at the site, cement shall be stored in a dry, weather-tight building, properly ventilated and with provisions for prevention of moisture absorption

3.02 MIXING

- A. General: Concrete shall be machine-mixed in standard equipment in good condition, operated within its rated capacity. The batching plant shall be equipped with facilities for measurement of dry materials by weight, and water by weight or volume. Mixing equipment may be a portable plant (job-mix), or truck mounted (transit-mix). The use of transit-mix concrete will be limited by length of haul. Transit-mixing will be required to meet the requirements for mixing time. Batching plant and handling equipment shall be of sufficient capacity to produce and place concrete without interruption or cold joints. All equipment shall be subject to the approval of the Owner's Engineer.
- B. Proportioning: All materials except water shall be proportioned into the mix by weight. Water may be proportioned either by weight or volume. Delivery tickets for transit mix concrete shall show the weight of cement of each type incorporated in the batch. Precise control of the proportions and amounts of all materials will be required. Unauthorized changes in proportions or addition of water shall be sufficient cause for rejection of the batch. The proportions of the approved design mix may be changed only upon specific approval of the Design Engineer. The use of admixture to improve workability will not be approved unless such admixture is a part of the design mix. Only admixture of pozzolanic, cementitious, or silicious nature will be considered.
- C. Slump: The amount of water used in the mix shall be kept at the minimum necessary to produce concrete of a workable consistency. Consistency shall be measured at the time of pouring by slump tests when directed by the Owner's Engineer. The slump shall fall within the following tabulated limits:

Type of Structure	Slump in Inches	
	Minimum	Maximum
Pavement, slabs on ground, curb, sidewalks, driveways	1-1/2	4

- D. Mixing Duration: The minimum time for mixing each batch after all materials are in the mixer shall be 1 minute for 1/2 to 1-1/2 cubic yard mixers, and 1-1/2 minutes for mixers over 1-1/2 cubic yard capacity. The mixer shall revolve at a uniform speed, a minimum of twelve revolutions after all materials have been placed therein. Neither the speed nor the volume capacity of the mixer shall exceed those recommended

by the manufacturer. Excessive over-mixing requiring addition of water to preserve the consistency will not be permitted.

3.03 PLACING

- A. Time Limit: Concrete shall be placed before the initial set has occurred and in no event after it has contained its water content for more than 30 minutes. All concrete shall be placed during daylight hours, allowing sufficient time for adequately finishing the concrete surfaces during daylight hours unless approved by the Owner for nighttime construction.
- B. Placing: The concrete shall be placed by suitable equipment as nearly possible to its final location and without any segregation of the aggregate. Any free vertical drop shall not exceed three feet. The concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner as to prevent segregation of the coarse aggregate.
- C. Vibrator: All concrete shall be placed with the aid of mechanical vibrating equipment supplemented by hand forking or spading. Vibration shall be transmitted directly to the concrete and not through the forms. The duration of vibration at any location in the forms shall be held to the minimum necessary to produce thorough consolidation.
- D. Cold Joints: Before depositing new concrete on or against concrete which has set, the existing surfaces shall be cleaned of all laitance, foreign matter and loose particles, and covered with a neat cement grout. Grout for horizontal construction joints shall be of cement and fine aggregate in the same proportions as in the concrete to be placed, and shall be from 1/2" to 1" thickness.
- E. Finishing: Top Surfaces which are not covered by forms and which are not to be covered by additional concrete or backfill shall be carried slightly above grade and struck off by board finish.

3.04 FORMS

- A. Forms shall be of wood, steel, or other approved material, securely braced and unyielding, and of sufficient strength to hold the concrete without bulging between supports or without deviation from the neat lines as shown on the plans. Forms shall be designed to withstand the action of vibrators, and the type, shape, size, quality, and strength of all materials used for forms shall be subject to approval by the EOR.
- B. Forms shall be built to line and grade. Formwork shall be preformed in such a manner that concrete surfaces, upon removal of forms, will be free of excessive ridges and depressions. Snap ties shall be used where the concrete surface will be exposed to weathering or gases, and the void sealed with grout or caulk to the finished surface.
- C. Forms for exposed surfaces shall be coated with a non-staining mineral oil which shall be applied shortly before the concrete is placed. Forms for unexposed surfaces may be thoroughly wet in lieu of oiling, immediately before the concrete is placed.
- D. Forms shall be constructed in such a manner as to prevent seepage of concrete or water. Water stops or joint compound may be used if approved by the EOR and/or the Owner.

3.05 SLABS

- A. No special concrete or cement mortar topping course shall be used for slab finish unless shown on the drawings. The slab shall be brought to a true and even finish by power or hand-floating. Unless otherwise specified, the surface shall be floated to a true, regular surface with a wood float and shall be steel-troweled to a smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface. All floor surfaces except those which are to be painted, shall immediately after troweling, be

brushed lightly with a soft bristle janitor's push broom to produce a non-slip surface. The brushing shall be sufficient to mark the surface only, without appreciably disturbing the troweled finish.

3.06 RUBBING

- A. Exposed formed surfaces shall be rubbed with carborundum brick or otherwise dressed to produce a smooth, true surface. Interior surfaces of tanks, wet wells, etc., shall be considered as exposed to a point 6" below low water level. Special care shall be taken in dressing circular structures to obtain a true circular surface.

3.07 CURING AND PROTECTING

- A. Curing: All concrete shall be kept wet by covering with water or approved water saturated covering, or by other method approved by the Owner's Engineer which will keep all surfaces continuously wet, for a period of 7 days unless otherwise directed by the Owner's Engineer. Water for curing shall be clear and entirely free from any elements which might cause staining or discoloration of the concrete. Where wood forms are left in place during curing, they shall be kept wet at all times to prevent opening at the joints and drying out of the concrete.
- B. Weather Protection: No concrete shall be mixed or placed when the air temperature in the shade and away from artificial heat is as low as 40 Fahrenheit, and falling. Concrete may be mixed and placed when the air temperature in the shade and away from artificial heat is 35 degrees Fahrenheit, and rising. Fresh concrete shall be protected from rain, flowing water and mechanical injury and all concrete shall be protected from injurious action by the sun.

3.08 JOINTS

- A. Water Stops: Water stops shall be installed at all expansion, contraction, and construction joints subject to water pressure and where indicated on the drawings. Materials for stops shall be 16 ounce copper sheets soldered into a continuous strip 6" wide, 1/8" steel plate welded into a continuous strip, or an approved alternate material.
- B. Expansion Joints: Expansion joints shall be placed as indicated on the plans. Joint material shall be installed as indicated and as directed by the Owner's Engineer.
- C. Construction Joints: Construction joints shall be located as shown on the plans and/or in accordance with an approved schedule of pours. Vertical construction joints will not be allowed unless so detailed on the drawings.

3.09 GROUTING AND PATCHING

- A. Cement for use in grouting and patching shall be non-shrinking material, free of stain-causing agents and matching the adjacent concrete in appearance. Before depositing new concrete on or against concrete that has set, existing surfaces shall be thoroughly roughened and cleaned of glaze, foreign matter, and loose particles. An epoxy coating shall be applied for bonding the new concrete to the old.

3.10 TESTS

- A. General: The quality of the concrete as to conformance to the specifications is the entire responsibility of the Contractor until it is accepted in place in the structure and verified by the final cylinder tests made by the laboratory. Arrangements for field testing shall be made by the Contractor with a laboratory hired by the Owner.
- B. Compressive Strength Test: Compressive strength tests shall be made by breaking standard 6" diameter by 12" high test specimens prepared, cured and broken in accordance with the American Society for Testing Materials Standard Methods C 31 and C 39 Latest Revision. Four specimen test cylinders shall be taken from each concrete pour of five cubic yards or more. One additional test shall be taken from each

30 cubic yards or fraction thereof in each pour in excess of 30 cubic yards. Test specimens shall be taken from manhole bottom pours and other pours of less than five cubic yards as directed by the Owner's Engineer. One cylinder from each pour shall be broken at 7 days, the remainder at 28 days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.

- C. Slump Test: Slump test shall be made in accordance with ASTM C 143, and shall be made whenever directed by the Owner's Engineer.
- D. Reports: Proper reports of all tests performed by the laboratory shall be prepared by the laboratory and submitted promptly to the Owner's Engineer. Such reports shall be properly labeled so as to identify the portions of the project into which the materials are being placed, and the results of the test indicating whether or not the test met the requirements of these specifications.

3.11 CAUSE FOR REJECTION

- A. Should the concrete fail to conform to all the requirements of this Section, the Design Engineer may require the Contractor to remove the defective concrete and reconstruct the work as directed.

END OF SECTION

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SECTION 02525

CONCRETE CURB

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The work included under this section consists of furnishing all necessary labor, equipment, tools and materials, and in performing all operations in connection with the construction of concrete curb, concrete valley curb, concrete swale curb, median curb, and traffic separators.
- B. This work shall be performed in strict accordance with the requirements of all applicable sections of these specifications and in conformity with lines, grades, notes and typical cross sections shown on the drawings or as directed by the Design Engineer.

1.02 ALTERNATE SPECIFICATIONS

- A. Special attention is called to the fact that certain portions of the work for this project are described by reference to the "Standard Specifications". The term "Standard Specifications" refers to "The Standard Specifications for Road and Bridge Construction" approved and adopted in 2000 by the Florida Department of Transportation. In any case where a specific detail regarding materials or method of construction has been omitted in the specifications, such work shall be performed in accordance with the requirements of the "Standard Specifications".

1.03 TESTING STANDARDS

- A. One set of three cylinders are to be made and tested by an independent testing laboratory per 1000 LF or part thereof of curb for each side of road. A minimum of one set of cylinders is required for each day concrete is poured.
- B. Concrete Compressive Strength - (ASTM C-31 or ASTM C-39): 3000 psi minimum at 28 days.
- C. All streets shall have a two (2) – foot wide concrete curb and gutter, and meet or exceed FDOT Specifications unless otherwise approved by the City Engineer. Curb configurations shall be limited to the configurations detailed on the City of Venice Standard Details Sheet 3 Detail 1. Alternate curb designs that meet or exceed FDOT Specifications may be used upon approval by the City Engineer.

PART 2 – PRODUCTS

2.01 CONCRETE

- A. Concrete for use in the construction of curbs and other miscellaneous items shall be Class "B" concrete. Membrane curing compound may be used in lieu of the wet cure method or the initial cure may be by the wet method followed by a membrane cure. Membrane curing compound shall be applied at a uniform rate of one gallon per 200 square feet.

PART 3 – EXECUTION

3.01 GENERAL

- A. Curbs shall be constructed on a prepared smooth stabilized subgrade of uniform density. Large boulders and other obstructions shall be removed to a minimum depth of 6 inches below the finished subgrade elevation and the space shall be backfilled with sand or gravel or other suitable material which shall be

thoroughly compacted by rolling or tamping. The Contractor shall furnish a template and shall thoroughly check the subgrade prior to depositing concrete.

3.02 JOINTS

- A. One-half inch expansion joints shall be placed through curbs at all inlet structures, at all radius points, and at other locations as may be required by the plans and specifications. Contraction joints shall be formed not later than the morning after the pour, and shall be placed in all concrete items at intervals not to exceed 10-feet. Joints may be either formed or sawed and shall extend the full perimeter of the exposed portion of the curb. Contraction joints shall be a minimum of 1-inch in depth. Joints shall be constructed for pavements or other items as required by the plans or specifications.

3.03 BACKFILLING

- A. After the concrete has sufficiently set (a minimum of 12 hours), the Contractor shall remove the forms and shall backfill the space on each side of the concrete. The backfill material shall be compacted and graded in a satisfactory manner.

END OF SECTION

SECTION 02640

POTABLE WATER MAINS

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall supply all labor, equipment, materials and incidentals necessary to install and test all potable water mains and appurtenances as shown on the Drawings and as specified herein.
- B. This work shall include, but not be limited to the following: ductile iron pipe, PVC pipe, HDPE pipe, valves and fittings. All main tees, bends and plugs installed shall be provided with thrust blocks and restrained joints. All excavation, backfilling, sheeting, slope protection, drainage, concrete work, riprap, grading, disinfection, testing and all other work necessary to complete the construction and installation and testing of the piping is included in the work.
- C. All pipe, fittings, valves, solvents and glue used for potable water piping shall be NSF-61 certified for continuous contact with potable water.
- D. Unless otherwise shown on the drawings, all buried potable water mains shall be AWWA C900/C905 PVC. Above ground pipe at bridge crossings shall be ductile iron. HDPE water mains installed by directional drill shall be as specified in Section 15066. Ductile iron pipe may also be required at other locations if minimum separation or cover requirements cannot be maintained.
- E. Valves and appurtenances shall be as specified in Section 15100.

1.02 SUBMITTALS

- A. Submit shop drawings to the Engineer for review for all pipe, fittings, restrained joints and appurtenances.
- B. The pipe manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the Engineer a notarized affidavit stating all pipe meets the requirements of ASTM, ASCE, ANSI, etc., these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.
- C. Furnish in duplicate to the Engineer sworn certificates that all tests and inspections required by the Specifications under which the pipe is manufactured have been satisfied.

1.03 INSPECTION

- A. All pipe and fittings to be installed under this contract may be inspected at the site of manufacture for compliance with these Specifications by an independent laboratory selected by the Owner. The manufacturer's cooperation shall be required in these inspections. The cost of inspection by an independent laboratory will be borne by the Owner.

1.04 CONNECTION TO WORK BY OTHERS OR EXISTING LINES

- A. The following work shall be performed where piping of this Contract must connect to lines installed under other Contracts:
 - 1. Removing the temporary plug provided in the pipe installed under another Contract (if any).
 - 2. Furnishing and installing piping and making proper connections.

- B. The following work shall be performed where piping of this Contract must connect to existing lines:
 - 1. Expose buried lines to confirm or determine end connection, pipe material and diameter.
 - 2. Furnish and install appropriate piping and make proper connections.
- C. The Contractor shall provide, install and test any required tapping valves and perform all taps in the presence of the Owner's representative.

PART 2 – PRODUCTS

2.01 DUCTILE IRON PIPE AND FITTINGS

- A. Ductile iron pipe and fittings for buried service shall meet the following requirements:
 - 1. Ductile iron pipe shall conform to the requirements of AWWA C151/ANSI A21.51, Pressure Class 350 minimum. All pipe shall have a cement mortar lining interior, and interior and exterior asphaltic seal coat in accordance with AWWA and ANSI Standards.
 - 2. Pipe for installation below ground shall be supplied in lengths not in excess of a nominal 20 feet. Pipe shall be either push-on joint or manufactured restrained joint where required.
 - 3. The Contractor shall provide a polyethylene encasement over all buried ductile iron pipe and fittings. The material, installation and workmanship shall conform to applicable sections of AWWA C105/ANSI Standard A21.5. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation; and backfilling following installation shall be completed without delay to avoid exposure to sunlight. Polyethylene shall be color coded blue for potable water.
 - 4. Fittings for buried service shall be mechanical joint ductile iron with a minimum pressure rating of 350 psi. Fittings shall meet the requirements of AWWA C153/ANSI A21.53 as applicable. Rubber gasket joints shall conform to AWWA C111/ANSI A21.11 for mechanical and push-on type joints. All fittings shall be mechanically restrained.
 - 6. All ductile iron fittings shall have a cement mortar lining interior. Pipe and fittings for underground service shall be coated on the exterior with a 1.0 mil thick bituminous coat in accordance with ANSI A21.51.
 - 7. All pipe shall be given a factory hydrostatic test of not less than 500 pounds per square inch.
 - 8. Pipe and fittings shall be as by American Cast Iron Pipe Company, US Pipe and Foundry Company, or equal.

2.02 POLYVINYL CHLORIDE PIPE AND FITTINGS

- A. Class-Rated Polyvinyl Chloride (PVC) Pipe: All PVC piping shall be clearly marked indicating pipe size, manufacturer's name, AWWA and/or ASTM specification number, working pressure, and production code, and shall bear the National Sanitation Foundation (NSF) seal for potable water pipe. All PVC water piping shall be color-coded blue.
 - 1. Class-rated PVC pipe and accessories four to twelve inches (4"-12") in diameter, where shown or as specified on the Drawings, shall meet the requirements of AWWA Specification C900 "Polyvinyl Chloride (PVC) Pressure Pipe." Class-rated PVC pipe fourteen to 24 inches (14"-24") in diameter shall meet the requirements of AWWA Specification C905. All pipe shall be

Class 235 meeting the requirements of DR 18. Each length of pipe shall be hydrotested to four (4) times its class pressure by the manufacturer in accordance with AWWA C900/C905.

2. Pressure rated PVC pipe smaller than 4" shall be 200 psi SDR-21 conforming to the requirements of ASTM 2241. Pipe shall have rubber gasket push-on joints conforming with ASTM F 477 and shall be color coded in accordance with the intended service. All potable water pipe shall be color coded blue.
3. PVC pipe less than 4" in diameter which is exposed to view shall be solvent weld ASTM D-1785 Schedule 80 pipe with UV inhibitors.

B. Joints:

1. Joints for buried PVC pipe 4" and greater and for pressure rated pipe less than 4" shall be of the rubber gasket push-on type. The bell shall consist of an integral wall section with a solid cross-section elastomeric ring which shall meet requirements of ASTM D1869. 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.
2. Joints for buried and exposed Schedule 80 PVC pipe less than 4" shall be solvent weld.

C. Fittings:

1. All fittings for class-rated PVC pipe four inches (4") in diameter and greater shall be ductile iron with mechanical joints and polyethylene encased as specified in paragraph 2.1, A.
2. Fittings for pressure rated PVC pipe smaller than 4" in diameter shall be SDR-21 pressure rated PVC.
3. Fittings for exposed Schedule 80 PVC pipe less than four inches (4") in diameter shall be solvent weld.
4. The manufacturer of the pipe shall supply all polyvinyl chloride accessories as well as any adaptors 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.

2.03 POLYETHYLENE TUBING FOR SERVICE LINES

- A. Polyethylene resins shall be high-performance, high-molecular weight, high-density polyethylene conforming to ASTM D1248 (Type III, Class C, for black color or Class B for non-black colors, Category 5, Grade P34) and ASTM D3350 (cell classification PE 345434C otherwise designated as PE 3408). All polyethylene tubing and fittings shall be made from the same resin, homogeneous throughout. All polyethylene tubing shall meet the requirements of ASTM F714. Tube shall be NSF-61 certified and shall meet the requirements of AWWA C901.
- B. Each length shall be marked with the manufacturer's name or trademark, size, material code, and pressure class. Rework material is not acceptable.
- C. Tubing and fittings shall have a pressure class of at least 200 psi, meeting the requirements of Standard Dimension Ratio (SDR) 9 in accordance with ASTM D2737.
- D. All fittings on HDPE service lines shall be brass compression fittings. A stainless steel stiffener insert shall be installed inside the tubing at all compression fittings. Where required, flange connections shall be provided with a full-face neoprene gasket. Flanges shall be made of the same material as the pipe.
- E. Polyethylene tubing for potable water services shall be black in color with a minimum of 2% carbon black to withstand exposure to ultraviolet light without loss of properties.

2.04 RESTRAINED JOINTS

- A. All buried piping and fittings shall be restrained with mechanical restrainers in accordance with the restrained joint table provided in the Drawings. Pipes subject to pressure or being fed by a pumping system shall be restrained based on a 150 psi working pressure. Restrained joint length indicated in the Tables represents the length on all sides of fittings and valves within which all joints must be restrained. As a minimum, the joints at all fittings and valves shall be restrained.
- B. Restrained joints shall be capable of holding against withdrawal for line pressures 50 percent above the normal working pressure but not less than 150 psi. The pipe and fittings shall be restrained push-on joints or restrained mechanical joints.
- C. Restrained pipe joints that achieve restraint by incorporating cut out sections in the wall of the pipe shall have a minimum wall thickness at the point of cut out that corresponds with the minimum specified wall thickness for the rest of the pipe.
- D. Ductile iron mechanical joint fittings on ductile iron pipe shall be restrained with EBAA Iron Mega-Lug Series 1100 or Ford Uni-Flange Series 1400 restrainers. Ductile iron pipe with push-on joints shall be restrained with EBAA Iron Series 1100 HD or Ford Uni-Flange 1390-C restrainers. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A-536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistance high strength, low alloy CORTEN steel meeting the requirements of ASTM A-242.
- E. Ductile iron mechanical joint fittings used with PVC pipe shall be restrained with the Uni-Flange Corp. Series 1500 Restrainer or EBAA Iron Series 2000PV Mechanical Joint Restraint Gland. PVC pipe with push-on joints shall be restrained with EBAA Iron Series 1500 or Ford Uni-Flange 1390 restrainers. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A-536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy CORTEN steel meeting the requirements of ASTM A-242.
- F. Where ductile iron pipe manufactured with restrained joints is utilized, all restrained joints shall be fully extended and engaged prior to backfilling the trench and pressurizing the pipe.
- G. Mechanical joint ductile iron glands shall not be substituted for the restrained joints manufacturer's standard glands.

PART 3 – EXECUTION

3.01 GENERAL

- A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer.
- B. All pipe and fittings shall be subjected to a careful inspection just prior to being laid or installed. If any defective pipe is discovered after it has been laid it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional expense to the Owner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when installed or laid, shall conform to the lines and grades required.
- C. All buried piping shall be installed to the lines and grades as shown on the Drawings. All underground piping shall slope uniformly between joints where elevations are shown.

- D. Contractor shall exercise extreme care when constructing piping to shore up and protect from damage all existing underground water lines and power lines, and all existing structures.
- E. Potable water service lines may be installed by open cut or horizontal directional drill (HDD) as shown on plans or as directed by Engineer.
- F. Connections between asbestos cement pipe and cast iron fittings, valves, or hydrants shall be made with jointing materials conforming to AWWA C603. In general, the desired action would be removal and legal disposal of the asbestos cement pipe.

3.02 DUCTILE IRON PIPE

- A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA Standard Specification C600 except as otherwise provided herein. A firm, even bearing throughout the length of the pipe shall be constructed by tamping selected material at the sides of the pipe up to the springline. Blocking will not be permitted.
- B. All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved in laying. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench. Solid sleeves shall be used only where approved by the Engineer.
- C. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a push-on bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.
- D. Jointing Ductile-Iron Pipe:
 1. Push-on joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe is to be aligned with the bell of the pipe to which it is to be joined, and pushed home with a back or by other means.
 2. Mechanical joints at valves, fittings, and where designated on the Drawings and/or as specified, shall be in accordance with the "Notes on Method of Installation" under ANSI Specification A21.11 and the instructions of the manufacturer. To assemble the joints in the field, thoroughly clean the joint surfaces and rubber gasket with soapy water before tightening the bolts. Bolts shall be tight to the specified torques. Under no condition shall extension wrenches or pipe over handle or ordinary ratchet wrench be used to secure greater leverage.
 3. Ball joints, where designated on the Drawings and/or as specified, shall be installed in strict accordance with the manufacturer's instructions. Where ball joint assemblies occur at the face of structures or tanks, the socket end shall be at the structure or tank and the ball end assembled to the socket.
 4. Flanged joints shall be in accordance with ANSI Specifications A21.15 including its Appendix "A" and the instructions of the manufacturer. Flanged joints shall be fitted so that the contact faces bear uniformly on the gasket and then are made up with relatively uniform bolt stress.
- E. All valves, hydrants, fittings and other appurtenances needed on the pipe lines shall be set and jointed as indicated on the Drawings or as required by the manufacturer.
- F. Deflected pipe if shown on the Drawings is shown only as an assistance in illustrating a preferred means of installation in specific locations, and is not intended to indicate all deflected pipe necessary to effect the

installation as shown in plan and profile views. The cost of all such deflections shall be included within the bid price for furnishing and installing the pipe.

3.03 PVC PIPE

- A. PVC piping shall be installed in strict accordance with the manufacturer's instructions. The pipe shall be backfilled with selected fine excavated material as shown on the Drawings and thoroughly compacted to one foot above the top of the pipe and thereafter backfilled as specified in Section 02222.
- B. Solvent weld joint shall be permitted to cure for a minimum of 24 hours prior to pressurizing the pipe.
- C. All PVC pipe 4" and greater shall be installed with two (2) insulated tracer wires with a 45 mil HDPE jacket and minimum average break load of 1150 lbs. Tracer wires shall be 12 AWG-Solid CCS EHS Copperhead Directional Drill Wire as manufactured by Copperhead Industries or approved equal. This wire shall to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods per the equipment manufacturer's recommendation. All miscellaneous splicing components shall be furnished and installed by the Contractor.

3.04 POTABLE WATER SERVICES

- A. The Contractor shall install a new water service to each lot associated with the project unless otherwise shown on the plans or directed by the City's representative. The size of the service shall be as indicated on the Drawings.
- B. Each service shall consist of the following:
 - 1. A service saddle and corporation stop on the associated potable water main.
 - 2. A SDR-9 HDPE service line terminating with a curb stop. The length of service line constructed shall be sufficient to properly connect with the constructed location of the meter box/set.
- C. Service Connection to potable water main.
 - 1. On new potable water mains, prior to pressure testing, Contractor shall install service saddle and corporation stop for each service that is to be connected to the new main. New service lines shall be pressure tested along with the potable water main.
 - 2. When a new service is to be connected to an existing potable water main, the Contractor shall install service saddle and corporation stop and make the tap.
 - 3. Taps shall not be closer than two feet apart or within two feet of any joint. Taps in multiple groups shall not be made in the same longitudinal line of the pipe but must be staggered vertically. The station and offset of each service saddle shall be provided on the Contractor's Record Drawings.
 - 4. All sleeve ends shall be sealed with foam seal
- D. Service line may be installed by pneumatic bullet or horizontal directional drill (HDD) methods. Service lines under roadways shall be installed in a casing.
- E. Unless otherwise noted in the plans, the existing meter is to be reused.
- F. Upon clearance of the new water main for service by the Health Department or Florida Department of Environmental Protection, the Contractor shall connect the water service to the meter box/set; the Contractor's licensed plumber shall connect the customer-side water service line and water service shall be reinstated to the customer.
- G. Preliminary locations of potable water services are shown on the plans. During construction, the City's representative will confirm the actual location of the services with the property owners.

3.06 PRESSURE AND LEAKAGE TESTS OF UNDERGROUND DUCTILE IRON AND PUSH-ON JOINT PVC PRESSURE PIPING

- A. Field tests shall be made to confirm compliance with the contract and to establish compliance with the technical provision. The test shall be performed by the Contractor as herein specified. All piping, and equipment shall be tested in the field in the presence of the Engineer or his authorized assistant, in the manner prescribed in the Sections of these Specifications pertaining to such installation.
- B. Prior to pressure testing, all mains shall be flushed and pigged to remove all sand and other foreign matter. The velocity of the flushing water shall not be less than 2 feet per second. Flushing shall be terminated at the direction of the Engineer. The Contractor shall dispose of the flushing water without causing a nuisance or property damage.
- C. Pressure and Leakage Test of Underground Piping
 - 1. Hydrostatic pressure and leakage tests for ductile iron and PVC pipe shall conform to Section 4 of AWWA C600 Specification with the exception that the Contractor shall furnish all gauges, meters, pressure pumps and other equipment needed to test the line.
 - 2. The pressure required for the field hydrostatic pressure and leakage test shall be 150 psi. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Corporation cocks at least 2 inches in diameter, pipe riser and angle globe valves shall be provided at each pipe dead-end in order to bleed air from the line. The cost of these items shall be included as part of testing.
 - 3. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage as shown by test. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with. Defective materials, pipes, valves, and accessories shall be removed and replaced. The pipe lines shall be tested in such sections as may be directed by the Engineer by shutting valves or installing temporary plugs as required. The line shall be filled with water and all air removed and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the Contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage.
 - 4. During the duration of the test, the line pressure shall not be permitted to drop more than 5 psi below the test pressure. Once the pressure drops 5 psi below the test pressure, the line shall be refilled until the test pressure is restored.
 - 5. The amount of leakage which will be permitted shall be in accordance with AWWA, C600 Standards for all pressure. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{148,000}$$

In which L is the allowable leakage in gallons per hour; S is the length of pipe tested, in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge. The duration of the leakage test shall be two (2) hours for pressurized pipes. The equation is based on 18' pipe lengths and shall be adjusted accordingly for other lengths.

- 6. The Contractor must submit his plan for testing to the Engineer for review at least ten (10) days before starting the test. The Contractor shall remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the Engineer. Any damage to the pipe coating shall be repaired by the Contractor. Lines shall be totally free and clean prior to final acceptance.
- 7. No leakage will be allowed for solvent weld PVC pipe or pipe sections less than 500 feet in length.

8. Pressure and leakage testing of HDPE pipe installed by horizontal directional drill shall be as specified in section 15066.

3.7 DISINFECTION OF POTABLE WATER LINES

- A. Prior to disinfection, the lines shall be pigged, flushed and pressure tested. Lines shall be disinfected in accordance with the applicable requirements of AWWA C651 and as described hereinafter. At no time are valves on the distribution system to be operated without the presence of a duly qualified representative of the Owner.
- B. Before being placed in service, all potable pipe installed under this Contract shall be disinfected by chlorination. Either of the following methods of procedure may be followed upon approval of the Engineer.
 1. Liquid Chlorine: A chlorine gas-water mixture shall be applied by means of a solution-feed chlorination device. The device must provide a means to prevent the backflow of water into the chlorine cylinder.
 2. Calcium Hypochlorite Solution: A solution consisting of 5 percent calcium hypochlorite powder and 95 percent water by weight shall be prepared and this solution will be injected or pumped into the line.
- C. The point of application of the chlorinating agent shall be at the beginning of the pipeline extension and through a corporation stop inserted in the top of the newly laid pipe. The water injector for delivering the chlorine-bearing water into the pipe may be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipeline extension. Water from the existing distribution system or other source of supply shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine. The Contractor shall not allow the chlorine solution in the line being treated to flow back into the line supplying the water.
- D. Treated water shall be retained in the line at least 24 hours. After the chlorine treated water has been retained for the required time, the chlorine residual in the line shall be at least 50 mg/l. Should the initial procedure fail to result in the conditions specified, the chlorination procedure shall be repeated until results are obtained, at the Contractor's expense. The City will pull a water sample on 2 consecutive days allowing 24-hours for each sample to be processed. Highly chlorinated/ dechlorinated water shall not be permitted to be discharged into open surface waters or creeks. All water used in testing shall become property of Contractor and shall be legally disposed of at the approved location.
- E. The Contractor shall install sample taps on the new main and at the end of each new branch of the piping system. The Contractor shall furnish and install all piping, tubing, valves and ancillary appurtenances for chlorination points and sample points as shown on the drawings. Sample tap locations for potable water mains shall be spaced no greater than 500 feet apart. The Contractor shall flush the chlorinated disinfection water from the piping system until a free chlorine residual of 1 to 1.5 mg/L is maintained. The City will pull a water sample on 2 consecutive days allowing 24-hours for each sample to be processed. Highly chlorinated/ dechlorinated water shall not be permitted to be discharged into open surface waters or creeks. All water used in testing shall become property of Contractor and shall be legally disposed of at the approved location.
- F. Samples for bacterial analysis shall be taken by a certified sampler from the contractor's independent laboratory and submitted for analysis to said laboratory. Two (2) consecutive day approved samples shall be required. If samples do not demonstrate satisfactory results, the disinfection procedure shall be repeated until two (2) consecutive sets of satisfactory samples are obtained. The period between such series of samples shall be a minimum of 24 hours. All drilling and tapping equipment shall be disinfected as directed by the Engineer.

- G. Upon receipt of two (2) consecutive days' passing bacteriological results, the City will submit the analyses and required Certification to the Health Department. Prior to submitting the analyses and required certifications to the Health Department, the Contractor shall provide the Engineer with his Record Drawings for the potable water main being certified. Once the Health Department approves the Certification and issues a Letter of Clearance, the new main may be placed into service. The Contractor shall allow for a 1 week minimum period between receipt of two consecutive passing test results and issuance of the Letter of Clearance as long as As-Built drawings were provided to the Engineer prior to or with the passing bacteriological results.
- H. After completing the testing and disinfection, the chlorinated water shall be removed from the water main and shall be disposed by the Contractor. The disposal of chlorinated water in any open waters of the State or Federal is prohibited. All temporary blow off/sampling arrangements shall be removed from the pipe and shall be plugged.

3.8 PAINTING OF ABOVE GROUND PIPE AND FITTINGS

- A. All above ground ductile iron pipe and fittings shall be painted upon completion. Acceptable painting systems are as follows:
 - 1. Tnemec
 - 1st Coat: Tnemec Series 66 (3.0 - 5.0 mils D.F.T.)
 - 2nd Coat: Tnemec Series 66 (4.0 - 6.0 mils D.F.T.)
 - 3rd Coat: Tnemec Series 73 (2.5 - 4.5 mils D.F.T.)
 - 2. Carboline
 - 1 Coat: Hi-Gard Epoxy (4 mils D.F.T.)
 - 1 Coat: Carboline 134 H.S. (2.5 mils D.F.T.)
 - 1 Coat: Hythane 4600 Series Polyurethane (2.0 mils D.F.T.)
 - 3. Keeler & Long
 - 1 Coat: Kolor-Poxy No. 3200 (5 mils D.F.T.)
 - 1 Coat: Acrythane Enamel Y-Series (2 mils D.F.T.)
- B. Above ground PVC piping shall be painted with one of the following systems:
 - 1. Tnemec
 - 1st Coat: Tnemec Series 66 (2.5 - 3.5 mils D.F.T.)
 - 2nd Coat: Tnemec Series 73 (2.0 - 3.0 mils D.F.T.)
 - 3rd Coat: Tnemec Series 73 (2.0 - 3.0 mils D.F.T.)
 - 2. Carboline
 - 1 Coat: MultiBond 120 (2 mils D.F.T.)
 - 1 Coat: Carboline 134 H.S. (2.5 mils D.F.T.)
 - 1. Keeler & Long
 - 1 coat: Kolor-Poxy Primer No. 3200 (5 mils D.F.T.)
 - 1 coat: Acrythane Enamel Y-Series (2 mils D.F.T.)
- C. Final colors shall be chosen by the Owner, but in general, potable water mains shall be painted blue.

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SECTION 15066

HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. This Section includes materials and methods of installation of HDPE pipe and fittings 4” in diameter and greater for water mains.

1.02 SUBMITTALS

- A. Submit shop drawings to the Engineer for review in accordance with the General Conditions for all pipe and appurtenances.
- B. Furnish in duplicate to the Engineer sworn certificates that all tests and inspections required by the Specifications under which the pipe is manufactured have been satisfied.
- C. Provide a statement in writing from the HDPE pipe manufacturer that it is listed with the Plastic Pipe Institute as a qualified extruder for the polyethylene resin being used to manufacture the pipe for this project.
- D. Provide a certified statement from the pipe supplier that those personnel responsible for fusing the pipe have been trained and certified.
- E. Contractor shall also submit the following to the Engineer for approval:
 - 1. Certified dimensional drawings/profile of all pipe, specials and fittings.
 - 2. Details of fittings and specials such as elbows, wyes, tees, outlets, connections, test bulkheads, bosses and nozzles or other specials where shown on the Construction Drawings, which indicate amount and position of reinforcement. All fittings and specials shall be properly reinforced to withstand the internal pressure both circumferential and longitudinal, and the external loading conditions as indicated in the Contract Documents. Shop Drawings shall clearly detail special castings indicating all pertinent dimensions.
 - 3. The Supplier of the pipe shall submit, through the Contractor, an Certificate of Compliance that the pipe, fittings and other products or materials furnished for this project comply with all applicable provisions of these Specifications.

1.03 REFERENCE DOCUMENTS

- A. AWWA C906, Standard for Polyethylene (PE) Pressure Pipe and Fittings.
- B. AWWA C901, Standard for Polyethylene (PE) Pressure Pipe and Fittings.
- C. ASTM D1248-84, Polyethylene Plastics Molding and Extrusion Materials.
- D. ASTM D3350-84, Polyethylene Plastic Pipe and Fittings Material.
- E. ASTM F714-85, Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.

PART 2 – MATERIALS AND EQUIPMENT

2.01 HIGH DENSITY POLYETHYLENE PIPE

A. General:

1. All High Density Polyethylene (HDPE) shall be manufactured by Driscopipe, a subsidiary of Phillips Petroleum Company; PLEXCO, Division of Chevron Chemical Company; ISCO or approved equal. All HDPE piping system components shall be the products of one manufacturer.
2. All HDPE pipe 4" and greater shall have a Ductile Iron Pipe Sizing (DIPS) outside diameter unless otherwise specified in the Contract Documents.

B. HDPE Pipe Specifications

1. High Density Polyethylene pipe 4-inches diameter and larger shall conform to material standard ASTM D3350 345434 C cell classification rated as PE 3408 by the Plastics Pipe Institute. Minimum pressure rating shall be 165 psi DR 11. All pressure ratings are at standard test conditions and temperature of 73.4 degrees F (23 degrees C).
2. The polyethylene compound shall be suitably protected against degradation by ultraviolet light by means of carbon black, well dispersed by pre-compounding in a concentration of not less than 2 percent.
3. The maximum allowable hoop stress shall be 800 psi at 73.4 degrees F.
4. The pipe manufacturer shall be listed with the Plastic Pipe Institute as meeting the recipe and mixing requirements of the resin manufacturer for the resin used to manufacture the pipe in this project.
5. All pipe shall be color coded for the intended service. For pipe 6" and greater, color coding shall be accomplished through an exterior surface of the required color or through striping. Pipe and tubing less than 6" shall be manufactured entirely in the required color. The color coding shall be permanently co-extruded on pipe outside surface as part of the pipe's manufacturing process. Painting HDPE pipe to accomplish color coding is not permitted. Color coding shall be as follows:
 - a. Potable water – blue
 - b. Sewer - green

C. Fittings.

1. Where shown on the drawings, fittings for HDPE pipe, 4" and larger shall be ductile iron mechanical joint and shall meet ANSI/AWWA C116/A21.16 standards. Connection to the mechanical joint fittings shall be accomplished using a mechanical joint adapter kit. The mechanical joint adapter shall be fused onto the pipe and shall result in a restrained joint with a pressure rating no less than 150 psi. The D.I./HDPE mechanical joint adaptor shall consist of:
 - a. A molded or fabricated HDPE mechanical joint transition fitting.
 - b. A rubber gasket.
 - c. A mechanical joint backup drive ring.
 - d. Corten mechanical joint tee bolts.
 - e. A stainless steel stiffener inserted in the MJ end of the HDPE transition fitting.
2. The HDPE transition fittings shall be molded by the manufacturer of the HDPE pipe and shall be fully pressure rated to match the DR pressure rating of the adjoining pipe. If molded fittings are not

available in certain sizes, the HDPE transition fitting shall be fabricated by the manufacturer of the HDPE pipe and shall have a minimum pressure rating of 150 psi.

3. Service saddles for use on HDPE pipe shall be Ford FCP 202, JCM 406, ROMAC 202N-H or equal.

D. HDPE Pipe Jointing Method

1. HDPE pipe shall be jointed by the butt-fusion process in accordance with pipe manufacturer's directions. Contractor shall provide butt-fusion technicians who are trained and certified by the HDPE pipe manufacturer to complete the project. The date of technician certification shall not exceed 12 months before commencing construction.
2. All HDPE pipe joined by butt-fusion shall be made from the same class and type of raw material made by the same raw material supplier.
3. Butt-fusion means the butt-joining of the pipe by softening the aligned faces of the pipe ends in a suitable apparatus and pressing them together under controlled pressure.
4. The internal and external beads resulting from the butt-fusion process shall be visible and examined for penetration 360 degrees around the pipe diameter.
5. Short pieces of pipe between valves and fittings shall be DIP with all joints restrained for sizes 4-inches and larger. For 2 and 3-inch, the short pieces shall be brass with IP threads and DI, HDPE or brass fittings and all joints restrained.

2.02 LOCATOR WIRE

- A. All HDPE pipe 4" and greater shall be installed with two (2) insulated tracer wires with a 45 mil HDPE jacket and minimum average break load of 1150 lbs. Tracer wires shall be 12 AWG-Solid CCS EHS Copperhead Directional Drill Wire as manufactured by Copperhead Industries or approved equal. This wire shall to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods per the equipment manufacturer's recommendation. All miscellaneous splicing components shall be furnished and installed by the Contractor.

PART 3 – EXECUTION

3.01 GENERAL

- A. All HDPE pipe shall be cut, fabricated, and installed in strict conformance with the pipe manufacturer's recommendations. Joining, laying, and pulling of polyethylene pipe shall be accomplished by personnel experienced in working with polyethylene pipe. The pipe supplier shall certify in writing that the Contractor is qualified to join, lay, and pull the pipe or representative of the pipe manufacturer shall be on site to oversee the pipe joining. Expenses for the representative shall be paid for by the Contractor.

3.02 HANDLING AND STORAGE

- A. All pipe and accessories shall be loaded and unloaded by lifting with hoists or by skidding in order to avoid shock or damage. Under no circumstances shall materials be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior of the pipe.
- B. Materials, if stored, shall be kept safe from damage. The interior as well as all sealing surfaces of all pipe and other appurtenances shall be kept free from dirt or foreign matter at all times.
- C. Pipe stored outside and exposed to prolonged periods of sunlight shall be covered with canvas or other opaque material. Air circulation shall be provided under covering.

- D. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe shall not be stored close to heat sources.

3.03 PIPE INSPECTION

- A. The Contractor shall obtain from the pipe manufacturer a certificate of inspection to the effect that the pipe and fittings supplied for this Contract have been inspected at the plant and that they meet the requirements of these specifications. The Contractor shall submit these certificates to the Engineer prior to installation of the pipe materials. All pipe and fittings shall be subjected to visual inspection at time of delivery and before they are lowered into the trench to be laid. Joints or fittings that do not conform to these specifications will be rejected and must be removed immediately by the Contractor. The entire product of any plant may be rejected when, in the opinion of the County, the methods of manufacture fail to secure uniform results, or where the materials used are such as to produce inferior pipe or fittings.

3.04 TRANSPORTATION

- A. Care shall be taken during transportation of the pipe that it is not cut, kinked, or otherwise damaged.

3.05 HANDLING PIPE

- A. The handling of the joined pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Ropes, fabric, or rubber-protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground. Slings for handling the pipeline shall not be positioned at butt-fused joints. Sections of the pipes with cuts and gouges exceeding 10 percent of the pipe wall thickness or kinked sections shall be removed and the ends rejoined. The dragging of fused HDPE pipe along asphalt and concrete paving shall not be permitted.
- B. The open ends of all sections of joined and/or installed pipe (not in service) shall be plugged at night to prevent animals or foreign material from entering the pipe line or pipe section.
- C. Waterproof nightcaps of approved design may be used but they shall be so constructed that they will prevent the entrance of any type of natural precipitation into the pipe and will be fastened to the pipe in such a manner that the wind cannot blow them loose.
- D. The practice of stuffing cloth or paper in the open ends of the pipe will not be permitted.
- E. Where possible, the pipe shall be raised and supported at a suitable distance from the open end such that the open end will be below the level of the pipe at the point of support.

3.06 LAYING PIPE

- A. HDPE Pipe by Directional Boring - See Section 02071.
- B. Joints:
 - 1. All HDPE pipe shall be jointed by the heat fusion process which produces homogeneous, seal, leak tight joints.
 - 2. Restrained mechanical joint adapter kits shall be provided at valves, fittings and transition to other pipe materials.
- C. The pipe fusion machine shall be a self-contained hydraulic fusion machine capable of butt fusing HDPE pipe up to 20" DIPS. The carriage must be removable from the chassis for in-ditch use. The machine must be compatible with an electronic data recording device. Accessories will include all butt fusion

inserts for the specified range of pipe sizes, a pyrometer kit for checking the surface temperature of the heater, extension cord (25' minimum), and hydraulic extension hoses (minimum of four). The butt fusion machine will be McElroy, or approved equivalent. In areas where there may be insufficient space to layout the entire length of fused pipe to be pulled-back, the Contractor shall utilize a continuous HDPE pipe fusion equipment such as a PolyHorse by McElroy or other means in order to fuse the length of pipe necessary for the installation. The Contractor shall be responsible for securing and obtaining permission/permits from adjacent property if necessary, for staging and/or fusing of the pipe and HDD equipment at no additional cost to the Owner.

- D. The Data Recording System shall consist of a hand-held, battery operated computer that records and documents the profile of each fusion joint made. This device shall be rugged, portable and weather-resistant. It will be compatible with the fusion equipment. The data recorded will include the date and time, machine identification and model, pipe size, heater plate surface temperature, and hydraulic cylinder pressure of each fusion process. The recording device will have the ability to produce printouts as well as download the information to an IBM compatible personal computer.
- E. Butt Fusion Testing:
 - 1. Contractor shall test the first fusion of the day on a daily basis.
 - 2. In testing, the fusion shall be allowed to cool completely, then fusion test straps shall be cut out. The test shall be minimum of 30 times the wall thickness in length with the fusion in the center, and minimum of 1.5 times the wall thickness in width. Bend the test strap until the ends of the strap touch. Contractor shall not commence until a fusion test has passed the bent strap test.

3.07 PIGGING, FLUSHING AND CLEANING

- A. All mains shall be pigged, cleaned and flushed to remove all sand and other foreign matter. The Contractor shall be responsible for developing a pigging and flushing plan to be submitted to the Engineer for approval prior to pigging and flushing.

3.08 TESTING AND LEAKAGE

- A. The Contractor shall furnish all valves, gauges, meters, pressure pumps and other equipment required to test the line.
- B. Hydrostatic Tests – HDPE PIPE ONLY
 - 1. The piping shall be tested between valved sections to a maximum length of 3,000 feet.
 - 2. In testing, the part of the system under test shall be filled with water and subjected to a sustained pressure of 150 pounds per square inch. The piping shall be tested in sections, thereby, testing each valve for secure closure. While the system is being filled with water, air shall be carefully and completely exhausted. If permanent air vents are not located at all high points, the Contractor shall install corporation stops or fittings and valves at such points so the air can be expelled as the pipe system is slowly filled with water. Service shall be tested as part of the main pipeline.
 - 3. All components of the piping system, including fittings, service connections and valves shall be hydrostatically tested per the test method given in the Plastic Pipe Institute Technical Report #31 (TR #31). The test procedure for HDPE pipe consists of two steps: 1) the initial expansion and 2) the test phase. During the expansion phase, sufficient make-up water shall be added hourly for 3 hours to return to the test pressure. The test phase shall not begin until the pipeline has been under pressure for a minimum of 3 hours. Under no circumstances shall the total time under test exceed eight (8) hours. If the test is not completed due to leakage, equipment failure or any other reason, the test section shall be permitted to "relax" for eight (8) hours prior to the next testing sequence.

4. All pumps, gauges and measuring devices shall be furnished, installed and operated by the Contractor and all such equipment and devices and their installation shall be approved by the Owner's Engineer. The pressure gauges or data recorders should be calibrated and sufficiently sized to provide mid-range data, easy reading, interpretation, and accuracy of resolution to ± 2.0 psi. The test pressure should be taken at the position in the pipeline at the lowest point in elevation along the test section's vertical pipeline profile. All pressure and leakage testing shall be done in the presence of a representative of the Owner and Engineer.
5. Water for testing and flushing shall be potable water for potable water mains and reclaimed water for reclaimed water mains provided by the Owner, from a source approved by the Engineer. Flow velocity during line filling should not exceed 2 fps.
6. If the Contractor elects to perform hydrostatic testing against valves in an existing distribution system, he does so at his own risk and will bear the cost of any damages to the existing valve, piping system, private or public property, or the new pipeline under test.
7. The Contractor may backfill fittings, valves and service connections prior to testing at his own risk. Any section of piping system which fails to meet the testing criteria will be excavated and repaired by the Contractor, including restoration, at his own expense.
8. Test pressure shall be maintained by pumping for at least 2 hours and until all sections under test have been checked for evidence of leakage. Rate of loss shall not exceed that specified, in Table 1, "Allowance for Expansion Under Pressure". Visible leaks shall be corrected regardless of total leakage shown by test.

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Table 1: Allowance for Expansion Under Test Pressure*
 Allowance for Expansion (U.S. Gals/100 ft of pipe)

Nominal Pipe Size, in.	1-Hour Test	2-Hour Test	3-Hour Test
3	0.10	0.15	0.25
4	0.13	0.25	0.40
6	0.30	0.60	0.90
8	0.50	1.0	1.5
10	0.75	1.3	2.1
11	1.0	2.0	3.0
12	1.1	2.3	3.4
14	1.4	2.8	4.2
16	1.7	3.3	5.0
18	2.2	4.3	6.5
20	2.8	5.5	8.0
22	3.5	7.0	10.5
24	4.5	8.9	13.3
28	5.5	11.1	16.8
32	7.0	14.3	21.5
36	9.0	18.0	27.0
40	11.0	22.0	33.0
48	15.0	27.0	43.0
54	22.0	35.0	55.0

*These allowances only apply to the test period and not to the initial expansion phase.

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SECTION 15100

VALVES, SERVICES AND APPURTENANCES

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and complete and ready for operation all valves and appurtenances shown on the Drawings and as specified herein.
- B. All valves and appurtenances shall be of the size shown on the Drawings. Insofar as possible, all equipment of the same type shall be from one manufacturer.
- C. All valves and appurtenances shall have the name of the maker and the pressure for which they are designed cast in raised letters some appropriate part of the body.
- D. The equipment shall include, but not be limited to, the following:
 - 1. Resilient wedge gate valves
 - 2. Ball valves
 - 3. Air release valves
 - 4. Valve boxes
 - 5. Valve Tags
 - 6. Tapping Sleeves
 - 7. Service Saddles
 - 8. Meter Accessories
 - 9. Fire Hydrants
 - 10. Brass Pipe and Fittings

1.02 DESCRIPTION OF SYSTEMS

- A. All of the equipment and materials specified herein are intended to be standard for use in chlorinated potable water, reclaimed water or wastewater.
- B. Valves and appurtenances for use with potable water shall be NSF-61 certified.
- C. All buried valves shall have polyethylene encasement as specified in Sections 02640.

1.03 QUALIFICATIONS

All of the types of valves and appurtenances shall be products of well established firms, who are fully experienced, reputable 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.

1.04 SUBMITTALS

Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer for review, in accordance with the requirements of the General Conditions.

1.05 TOOLS

Special tools, if required for normal operation and maintenance, shall be supplied with the equipment.

1.06 VALVE INDICES

The Contractor shall be responsible for furnishing tags for all valves required on the work and installing the tags required for his own work. Tags on above ground valves shall be noncorrosive metal or plastic, 2 inches in diameter, 19 gauge thick. Tags for buried valves shall be secured to a concrete base as shown on the Drawings. Submit to the Engineer for approval, two (2) samples of each type of tag proposed and manufacturer's standard color chart and letter styles. Tags shall have stamped on them the information shown on the Drawings and the data described herein

PART 2 – PRODUCTS

2.01 RESILIENT WEDGE GATE VALVES

- A. All gate valves 4" to 24" in diameter shall be resilient wedge, manufactured to meet or exceed the requirements of AWWA C509 or AWWA C515 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.
- B. The valves are to be non-rising stem with the stem made of cast, forged or rolled bronze shown in AWWA C509. Two stem seals shall be provided and shall be of the O-ring type, one above and one below the thrust collar.
- C. The sealing mechanism shall consist of a cast iron gate having a vulcanized synthetic rubber coating, or natural rubber seat ring. The resilient sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.
- D. The valve body, bonnet, and bonnet cover shall be cast iron ASTM A126, Class B. All ferrous surface inside and outside shall be meet AWWA C550 fusion-bonded epoxy coating. A handwheel or wrench nut shall be provided for operating the valve. All Valves are to be tested in strict accordance with AWWA C509.
- E. Valves shall be manufactured by American Flow Control Series 2500, Mueller A2360/A2361, or equal.
- F. Valves shall open left (counter clockwise)
- G. Bonnet hex head nuts and bolts shall be 304 stainless steel (no socket head bolts allowed). Brass nuts shall be used with packing gland bolts if required for OS&Y valves.
- H. Buried Valves:
 - 1. In-line valves shall have mechanical joint ends in accordance with ANSI/AWWA C111/A21.11.
 - 2. Tapping valves shall have flanged end with raised male face, conforming to MSS SP-60, for connection to the tapping sleeve; and a mechanical joint connection on the outlet side of the valve. Flange end bolting shall be 304 stainless steel.
 - 3. The valves are to be non-rising stem with the stem made of copper alloy in accordance with AWWA C515. Two stem seals shall be provided and shall be of the O-ring type, Nitrile Buna-N or EPDM rubber, one above and one below the thrust collar.
 - 4. Provide two-inch square operating nut.
 - 5. Provide bevel gear for valve when shown on the drawings or when necessary to allow using a valve box in locations where depth of bury is limited.
- I. Above Grade Valves:

1. Provide with Flanged ends that are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1, Class 125).
2. The valves are to be non-rising stem with the stem made of copper alloy in accordance with AWWA C515. Two stem seals shall be provided and shall be of the O-ring type, Nitrile Buna-N or EPDM rubber, one above and one below the thrust collar. Valves in master meter assembly shall be outside screw-and-yoke (OS&Y) with rising stems.
3. Provide with hand wheel operator.

2.02 BALL VALVES

- A. Stainless steel ball valves shall be of 2-piece (1" and smaller) or 3-piece (1-1/2" and larger) construction. Valves shall be rated for 150 psi saturated steam pressure and 400 psi WOG pressure. Valves shall have stainless steel body, stainless steel ball, replaceable Teflon or TFE seats and seals, blowout proof stem and vinyl covered steel handle. All end connections shall be threaded.
- B. All valves shall be mounted in such a position that valve position indicators are plainly visible when standing on the floor.
- C. Valves shall be manufactured by Jamesbury or equal.

2.03 AIR RELEASE VALVES

- A. Air release valves for potable water mains shall be APCO 400A Air Release Valve as manufactured by APCO Valve & Primer Corporation, Val-Matic Model 48 or equal. The air release valve shall open while pressurized, allowing entrained air to escape from the water pipeline, pump or reservoir tank thru the air release orifice. After entrained air escapes thru the air release orifice, the valve orifice shall be closed by a needle mounted on the compound lever mechanism actuated by a float to prevent water from escaping. The air release valve shall stay closed until more air accumulates in it and the opening cycle will repeat automatically. The needle shall be Buna-N for tight shut-off and be resilient to prevent seepage due to pipeline or pump vibrations. The Air Release Valve compound internal lever mechanism shall be all Stainless Steel. All other internals shall be stainless steel. The stainless steel float shall be sufficiently buoyant to operate water and be spurt free. The valve shall withstand 500 psi test pressure and have a 3/16" orifice for operating (opening) pressure up to 150 psi. The venting capacity @ 150 psi shall be 55° CFFAM. All materials of construction shall be certified in writing to conform to A.S.T.M. specifications as follows:

Body & Cover Cast Iron ASTM A126 Gr. B
 Concave float patented Stainless Steel ASTM A240 T304
 Needle Buna-N Nitrile Rubber
 Internal Linkage: Stainless Steel ASTM A296, T316
 Universal Metal Primer

All Air Release Valves shall be coated with a finish coat of polyurethane paint after installation.

- B. Air release valves for sewage service:
 1. Combination air and vacuum valve with short body design.
 2. A.R.I. D-025 with stainless steel body, 2-inch NPT inlet; or engineer approved equal.
- C. Above Ground Enclosure:
 1. When drawings call for fabricated metal enclosure, fabricate an aluminum metal cabinet in

accordance with the drawing details.

2.04 VALVE BOXES

- A. All buried valves shall have cast-iron three-piece valve boxes and rated H-20 loading. Valve boxes shall be provided with suitable heavy bonnets and to extend to such elevation at or slightly above the finished grade surface, as directed by the Engineer. The barrel shall be two-piece, screw type, having 5-1/4-inch shaft. The upper section shall have a flange at the bottom having sufficient bearing area to prevent settling and shall be complete with cast iron covers.
- B. All valves shall have actuating nuts extended within 12 inches of the top of the valve boxes. Valve boxes shall be provided with concrete base and valve nameplate engraved with lettering 1/8-inch deep as shown on the Drawings.
- C. Valves for reclaimed water shall be rectangular as shown on the Drawings.
- D. Valve box covers shall indicate the type of service "Water", "Reclaimed Water" or "Sewer".

2.05 VALVE TAGS

- A. Valve Identification Disk: Solid cast bronze, three (3) inch diameter with integral anchor pin for embedment in concrete. Anchor shall be suitable for securing to a concrete base in theft or tamper proof manner. Surface of disk shall be engraved with 1/4" to 3/8" capital letters and numbers, approximately 0.015 inch depth, as shown in City of Venice detail drawing. Surface shall be ground smooth and epoxy-coated to prevent tarnishing.
- B. When connecting above ground water main piping to existing water or wastewater plant piping, the Contractor shall furnish valve tags for all new valves required on the work. Tags on the above ground valves shall be noncorrosive metal or plastic, 2 inches in diameter, 19 gauge thick. Tags shall have stamped on them the valve size, service, and ID number unless otherwise shown on the drawing details.

2.06 TAPPING SLEEVES

- A. Tapping sleeves shall be constructed of epoxy coated ductile iron. All tapping sleeves shall be suitable for tapping ductile iron pipe, C-900 PVC pipe, asbestos cement pipe and all pipe manufactured in accordance with ANSI A21 Standard.
- B. All tapping sleeves shall be split sleeve design with one half containing the outlet half of the sleeve, the hub, and the other half completing the encompassing effect of the sleeve, the back. A 3/4-inch NPT test plug shall be provided on the outlet throat of the sleeve for pressure testing the sealed sleeve at 150 psi prior to tapping the pipe. All tapping sleeves shall allow a full size cutting head to pass through the outlet of the hub. All bolts joining the two halves of the sleeve shall be high strength, low alloy steel in accordance with Section 11-6.5 of AWWA C-111, latest edition.
- C. All tapping sleeve connection flanges shall be a 150 lb flange joint with a counter bore per MSS SP-60 dimensions.
- D. Tapping sleeves shall seal to the pipe by the use of a confined "O" ring gasket around the tap opening between the sleeve and pipe or by a full circumferential gasket between the sleeve and pipe.
- E. Mechanical joint tapping sleeves shall, after bolting the halves together, form a mechanical joint at each end of the sleeve. The sleeve shall then be sealed to the pipe by assembling the mechanical joint using split gaskets and follower glands.
- F. All tapping sleeves shall be Ford FTSC or equal.

2.07 SERVICE SADDLES

- A. Service saddles shall be used for all taps less than 4". Direct tapping of the pipe is not permitted.
- B. Service saddles for pipe less than 3-inches shall be a single band which is hinged or split from the saddle body and is anchored by bolting one or more bolts between the band and saddle body or a double strap design anchored by four bolts.
- C. Service saddles for pipe greater than 3-inches shall use a double band, with a minimum of a four bolt pattern anchoring. These service saddles shall provide for a variable range in diameter per nominal size of pipe.
- D. All service saddles shall be constructed from epoxy coated ductile iron with stainless steel bands and shall seal to the distribution pipe by a synthetic or natural rubber gasket. The gasket shall maintain a resilient seal without cracking or becoming brittle during the work life of the service saddle. Gasket shall be of self-sealing design.
- E. Saddle assembly should be capable of pressure up to 150 psi without rupture or failure.
- F. All service saddles shall have corporation tap threads.
- G. Service saddles shall be Ford FC101, FC202, FDC101, FDC202.

2.08 METER ACCESSORIES

- A. Curb Stops for connection to water meters shall be all brass in accordance with AWWA Standard C-800 for 300 psi operating pressure and shall be of sizes required and/or noted on the Drawings. Curb stops shall be provided with lock wing cast on stop body and operating tee cap to provide for locking the stop in closed position. Provide tubular stainless steel insert stiffener for connection to polyethylene service tubing. Curb stops shall be Ford model B43-444W.

2.09 FIRE HYDRANTS

- A. Comply with provisions of AWWA C-502 (Dry Barrel Fire Hydrants), latest revision.
- B. The drain outlet for the hydrant shall be eliminated as part of the casting or machining process, or must be completely plugged with a bronze plug.
- C. Hydrant shall deliver at least one thousand (1,000) gallons per minute through the pumper nozzle with the pressure head loss through the hydrant not exceeding 3.6 psi.
- D. Hydrants shall be American B84BV, Mueller Super Centurian Model A423 or equal with breakaway feature.

2.10 BRASS PIPE AND FITTINGS

- A. Brass pipe and nipples shall be threaded schedule 40 red brass (ASTM B43). Brass nipples, caps, plugs, tees, bends, and bushings shall be manufactured of brass, cast and machined in accordance with AWWA Standard C-800 (ASTM B62 85-5-5-5). All threads shall be standard iron pipe thread conforming to ANSI B.1.20.1.
- B. All pipe fittings and accessory components in contact with potable, raw, or reclaimed water shall comply with NSF Standard 61 requirements. Certification of these standards must be available. An affidavit to this effect shall be submitted and signed by an officer of the manufacturing firm.

- C. Couplings for joining brass pipe or fittings to PVC or service line piping shall be brass in accordance with AWWA Standard C-800 with end connections appropriate to the pipe and/or fittings being joined. Couplings shall be as manufactured by Ford or McDonald.
- D. Provide tubular stainless steel insert stiffeners with all connections to polyethylene service tubing.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the Engineer before they are installed.
- B. Buried Valves
 - 1. Valve stems shall be vertical.
 - 2. Provide bevel gear actuators for large valves to allow use of valve box when depth of bury is limited.
 - 3. The Contractor shall provide, install, and test tapping valves and sleeves. Taps on all mains shall be made by the Contractor in the presence of a City Representative.
 - 4. Buried valves, including tapping valves and sleeves, shall be wrapped with polyethylene encasement material before backfilling.
- C. Valves above grade or in vaults
 - 1. Position valve with the actuator in the position indicated by the drawings; or positioned to be accessible from the floor, vault access, or cabinet opening. Valve position indicators shall be plainly visible when standing on the floor or ground surface.
- D. Check Valves
 - 1. Install check valves of the type and at the locations shown in the drawings.
 - 2. Unless otherwise specifically shown by the drawings or directed by the Engineer, check valves shall be installed in horizontal runs of pipe with shaft on the top side.
 - 3. Contractor shall carefully plan the positioning of check valve in pipeline so that the final installed position of the check valve provides free and unobstructed movement of the outside lever and weight.
- E. Valve Boxes
 - 1. Place valve box over each stem with base bearing on compacted fill and top flush with final grade. Valve box shall be aligned vertically and plumb over the valve operating nut.
 - 2. Base of valve box shall be positioned to just cover the top of the valve but not rest directly on the valve. Inserting a PVC riser pipe between valve and valve box base is not acceptable.
 - 3. Boxes shall have sufficient bracing to maintain alignment during backfilling.
 - 4. Prior to acceptance by the City, Contractor shall remove any sand or other undesirable material from the box.
- F. Fire Hydrants
 - 1. Hydrants shall be installed plumb at the heights shown on the Drawings.
 - 2. Hydrants shall be installed with the pumper nozzle facing the road.
 - 3. Following installation, hydrants shall be painted with a compatible polyurethane coating system. Color shall be chosen by the Owner.

- G. 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.

3.02 INSPECTION AND TESTING

- A. Valve and service components shall be inspected for damage and shall be repaired to the satisfaction of the Engineer before they are installed.
- B. Completed pipe, valves and service lines shall be subjected to a hydrostatic pressure and leakage test in accordance with City of Venice technical specification Section 02640 – Water Mains. All leaks shall be repaired and lines retested. Prior to testing, the pipelines shall be restrained to prevent movement during tests. If any joint, connection, or device proves to be defective, it shall be repaired or replaced to the satisfaction of the Engineer.
- C. After installation of tapping sleeve and tapping valve, but before the existing main is tapped, Contractor shall subject the completed assembly to a hydrostatic pressure test in accordance with City of Venice technical specification Section 02640 – Water Mains. The test shall be witnessed by the City Inspector.
- D. After installation of fire hydrant assemblies, Contractor shall notify Engineer that the assembly is complete and ready to be flow tested. City will flow test hydrant. Contractor shall keep hydrant assembly wrapped in plastic or other suitable material until the water main to which it is connected is disinfected and cleared for service by the Health Department. After the water main is placed into service, and the City has flow tested the hydrant, the hydrant shall be painted by the Contractor and a blue reflective marker shall be installed in the roadway.

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**WATER MAIN REPLACEMENT
PROGRAM – PHASE 1**

ATTACHMENTS

**JACKING AND BORING – SECTION 9 OF THE SARASOTA COUNTY UNIFORM
WATER, WASTEWATER AND RECLAIMED WATER SYSTEM**

SECTION 9

JACKING AND BORING

9.1 GENERAL

- .1 This section covers the furnishing of labor, equipment, and materials required to perform all jack and boring of pipeline casings and the installation of the pipe therein. Boring and jacking operations shall be performed within the right(s)-of-way and/or easements shown on the drawings.
- .2 Specific crossing requirements shall be obtained in advance from the authority having jurisdiction
- .3 Casing pipes crossing under roadways shall be located at suitable approved alignments and elevations in order to eliminate possible conflict with existing or future utilities and structures. A minimum of thirty-six inches (36") depth of cover is required between the top of the casing pipe and the surface of the roadway.

9.2 MATERIALS

- .1 CASING shall be new prime steel pipe conforming to the requirements of ASTM Designation A-139, Grade B, beveled for field welding. The minimum casing pipe size and wall thickness shall be as shown in TABLE 9.1 for the carrier pipe size indicated. For sizes not included therein, or for special design considerations, approval shall be obtained from the UTILITIES.
- .2 FIELD AND SHOP WELDS of the casing pipes shall conform to the American Welding Society (AWS) standard specifications and AWWA C206. Field welds shall be complete penetration, single-bevel groove type joints. Welds shall be airtight and continuous over the entire circumference of the pipe.
- .3 CARRIER PIPES shall be ductile iron class 51 or AWWA C900, PVC Class 150, DR-18 as required. Pipe and fittings shall comply with the applicable provisions of these standards.
 - .a Pressure type carrier pipes to be installed within the specified casings shall be equipped with restrained joint connections unless otherwise approved by the EOR and UTILITIES.
 - .b Gravity carrier pipes shall be installed as noted above with ASTM 3034 DR-26 pipe, minimum.
- .4 Casing spacers (insulators) shall be two (2) piece, stainless steel and be at least twelve inches (12") long, having two inch (2") wide polyethelene or glass reinforced plastic runners. Casing spacers shall be installed using a minimum of three (3) casing spacers per pipe section. Studs, nuts, and washers and any other fastening or locking devices shall be 304 stainless steel. Plastic runners shall be mounted and positioned to the carrier pipe for a centered position. More that three (3) spacers may need to be used as recommended by the spacing or pipe manufacturer or engineer.
- .5 End seals for casing shall be manufactured one-eighth inch (1/8") synthetic rubber as

SECTION 9

JACKING AND BORING

manufactured by Cascade, Model CCES, or approved equal. The end seals shall be secured to the casing and carrier pipe with T-304 banding strips.

9.3 JACK AND BORE INSTALLATION

- .1 Excavations shall be stabilized and maintained to the minimum dimension necessary to conduct the work. Said excavations shall be adequately barricaded, sheeted, braced, and de-watered as required.
- .2 Installation of the casing pipe shall be a continuous operation until completed. Extreme care shall be exercised by the Contractor to maintain line and grade during jacking operations. The Contractor shall correct any deviation when deemed necessary by the EOR and/or UTILITIES.
- .3 Casing pipe holes shall be mechanically bored through the soil by a cutting head on a continuous auger mounted inside the pipe. The auger shall extend a minimum distance beyond the end of the casing pipe to preclude formation of voids outside of the pipe shell.
- .4 Add-on sections of casing pipe shall be full-ring welded to the preceding length as specified herein. The casing installation shall produce no upheaval, settlement, cracking, movement, or distortion of the existing roadbed or other facilities.
- .5 The casing pipe shall be adequately protected to prevent crushing or other damage under jacking pressures. Backstops shall be provided for adequately distributing the jack thrust without causing deformation of the soil or other damage.
- .6 Should the casing pipe be damaged, such damaged portion, if not in the hole, shall be replaced. If the casing is already inserted, the encasement pipe shall be filled with grout and abandoned in place.

9.4 CARRIER PIPE INSTALLATION

- .1 The pipe shall be installed in the casing on casing spacers as shown on the standard detail. The pipe bells must not rest directly on the casing, and the pipe must be aligned to grade specified.
- .2 Casing spacers shall be secured to the carrier pipe as shown on the standard detail using a minimum of three (3) spacers per pipe section, or as recommended by the manufacturer. Casing spacers shall be spaced as shown on the standard details or as recommended by the manufacturer, but in no case shall spacing exceed six feet (6').
- .7 Following placement of the carrier pipe within the steel casing, manufactured end seal shall be used to secure casing ends to pipe.

SECTION 9

JACKING AND BORING

9.5 MINIMUM PIPE SIZE AND THICKNESS TABLE

TABLE 9.1

Carrier Pipe Nominal Size	Casing Pipe Inside Diameter	Casing Pipe Wall Thickness
4 inches	12 inches	0.281 inches
6 inches	16 inches	0.281 inches
8 inches	18 inches	0.312 inches
10 inches	20 inches	0.344 inches
12 inches	24 inches	0.406 inches
14 inches	30 inches	0.469 inches
16 inches	30 inches	0.469 inches
18 inches	30 inches	0.469 inches
20 inches	36 inches	0.562 inches
24 inches	36 inches	0.562 inches
30 inches	42 inches	0.562 inches
36 inches	48 inches	0.562 inches

END OF SECTION

DUNKELBERGER ENGINEERING GEOTECHNICAL INVESTIGATION

**GEOTECHNICAL ENGINEERING SERVICES
CITY OF VENICE WATER MAIN REPLACEMENT
VENICE, FLORIDA**

Date: July 30, 2012

Prepared For:

King Engineering & Associates, Inc.
4921 Memorial Highway, Suite 300
Tampa, Florida 33634

Prepared By:

Dunkelberger Engineering and Testing, Inc.
8260 Vico Court, Unit B
Sarasota, Florida 34240

Project No.: SAR-12-1477

King Engineering & Associates, Inc.
4921 Memorial Highway, Suite 300
Tampa, Florida 33634

July 30, 2012
Project No.: SAR-12-1477

Attention: Mr. Christopher F. Kuzler, P.E.
Senior Vice President

Subject: **Geotechnical Engineering Services**
City of Venice Water Main Replacement – Phase 1
Venice, Florida

Dear Mr. Kuzler:

INTRODUCTION

In accordance with your request, which was authorized by a subcontract agreement on June 28, 2012, we have completed our geotechnical engineering services in connection with the above referenced project.

PROJECT CONSIDERATIONS

We understand that a new 6-inch water main is to be installed at various locations in Venice, Florida. The construction method will be mostly directional bores. The planned locations of the directional bores are listed below:

- Beneath Hatchett Creek from Marcus Street to Warfield Avenue North.
- Ponce De Leon Avenue from Nassau Street South to Harbor Drive South.
- Armada Road from Harbor Drive South to Park Boulevard South.
- Maggiore Road from Harbor Drive South to the dead end.
- Ravenna Street from Maggiore Road to Gulf Street.
- Ravenna Street from Gulf Street to Villas Drive.

If the actual project considerations vary from our present understandings, then we should be advised to allow re-evaluation of the opinions, recommendations and conclusions presented in this report.

SURFICIAL SOIL CONDITIONS

The Soil Survey of Sarasota County, Florida, issued September 1991 and published by the Soil Conservation Service (U.S. Department of Agriculture), was reviewed to determine the soil map units at this site, prior to any development. The project areas are shown predominately as Map Unit 10, EauGallie and Myakka fine sand and Unit 33, Pomello fine sand, with lesser areas of the map units included in the following table.

Key characteristics of the soil types (map units) within the site are summarized below:

Map Unit No.	Soil Type	Mucky Soil	Loamy Soil	SHWL (Natural Conditions)
3	Boca and Hallandale soils	N/A	At 22" to 32" bls	At a depth of 6 to 18 inches bls for 2 to 4 months of the year
8	Delray fine sand, depressional	N/A	At 54" to 80" bls	Ponded for 6 to 9 months of the year
10	EauGallie and Myakka fine sands	N/A	At 44" to 80" bls	At a depth of 6 to 18 inches bls for 1 to 3 months of the year
22	Holopaw fine sand, depressional	N/A	At 50" to 80" bls	Ponded for 6 to 9 months of the year
26	Manatee loamy fine sand, depressional	N/A	At surface to 80" bls	Ponded for 6 to 9 months of the year
31	Pineda fine sand	N/A	At 36" to 48" bls	Within 12 inches bls for 1 to 6 months of the year
33	Pomello fine sand	N/A	N/A	At a depth of 24 to 40 inches bls for 1 to 4 months of the year

- Note: 1) Loamy refers to fine-grained soils (i.e. silty/clayey sand)
 2) SHWL – Seasonal High Water Level, per Soil Survey 1991 (pre-development)
 3) bls – below existing land surface

The Boca and Hallandale soils (Map Unit No. 3), found in the location of Hatchett Creek, are reported to include hard, fractured limestone at a depth of about 32 inches below the land surface (bls).

SUBSURFACE CONDITIONS

Field Exploration

The subsurface conditions of the project area were explored with twelve (12) Standard Penetration Test (SPT) borings located in drill rig accessible locations near each end of the

planned directional bore alignments. The two SPT borings on each side of Hatchett Creek were drilled to a depth of 25 feet bls, and the ten SPT borings for the roadway directional bores were drilled to a depth of 10 feet bls. The test borings were performed by a truck-mounted Central Mine Equipment Model 55 (CME 55) drill rig using mud rotary procedures and SPT methodology, per ASTM D-1586, for the collection of soil samples. Representative portions of the recovered soil samples were collected in labeled glass jars and transported to our laboratory for visual-manual classification by a geotechnical engineer.

The groundwater level was measured in each boring just prior to it being backfilled with soil cuttings and capped with about 6 inches of cold mix asphalt patch.

The locations of the borings are indicated on the attached *Boring Location Plan* included as Sheet 1 of this report.

SPT Boring Findings

In general, the borings found very loose to medium dense fine sand with trace to slight amounts of silt (SP, SP-SM) to a depth ranging from about 8 to 12 feet bls, followed by very loose to medium dense silty and clayey fine sand (SM, SC) to depths ranging from about 18 to 23 feet bls.

Boring B-1 found stiff clay (CL) from about 23 to 25 feet bls and Boring B-2 found medium dense silt (ML) from about 18 to 25 feet bls.

The boring results, including soil stratigraphy and classifications, SPT blow count data (N-Values), results of laboratory testing, and groundwater levels are summarized on the *Subsurface Profiles* drawings included as Sheets 2A and 2B. These attachments should be consulted for details at any specific boring location.

Groundwater

Groundwater levels measured during drilling ranged from about 1 ½ to 5 feet bls. The groundwater measurements are influenced by the drilling process, existing site drainage features, and ambient weather conditions which have been seasonably wet.

Generally, the groundwater level is shallow in the project area and therefore will impact both design and construction.

If more accurate groundwater levels are required, consideration should be given to the installation of piezometers that could be monitored over a period of time.

Laboratory Analyses

Soil samples collected from the borings were reviewed in our laboratory by a geotechnical engineer and assigned a visual-manual classification per the Unified Soil Classification System

(U.S.C.S.). Also, nine (9) samples were selected for testing to aid in the U.S.C.S classification. Nine (9) moisture content tests and nine (9) percent finer than the U.S. No. 200 sieve tests were performed. The results of the lab testing are shown on the *Subsurface Profiles* on the attached Sheets 2A and 2B.

DISCUSSION AND RECOMMENDATIONS

General Overview

The contractor should anticipate the following subsoil conditions during directional drilling operations:

- 1) Saturated, loose, fine-grained sands which are prone to instability during excavation or directional drilling.
- 2) Possible, localized areas with caprock (hard limestone) at shallow depths.
- 3) Clay and silt layers below about-15 feet bls at and near Hatchett Creek.

Earth Pressure Soil Parameters

The following soil parameters may be used for the planning of the directional drilling operations in the vicinity of the SPT Borings. The parameters are presented by Stratum Number for design purposes. The approximate depths of each stratum should be determined from the subsurface profiles shown on the attached Sheet 2.

Stratum No.	USCS Classification	SPT "N" (range)	Total Weight (pcf)	Submerged Weight (pcf)	Friction Angle (phi)	Cohesion (psf)	Coefficients		
							Active (Ka)	Passive (Kp)	At-Rest (K ₀)
1	SP, SP-SM	1-29	110	50	30	0	0.333	3.00	0.500
2, 3	SM, SC	2-8	115	55	28	0	0.361	2.77	0.531
4	ML	8-10	115	55	29	0	0.347	2.88	0.515
5	CL	10	120	60	N/A	1000	1.000	1.00	1.000

N/A – Not applicable

Other Recommendations

1. Any open trench (excavation) areas for placing and backfilling the pipe should be accomplished in the dry (i.e. not in saturated or submerged conditions). Dewatering to a depth of 2 feet below the bottom of all pipe should be performed prior to placement of bedding and backfill materials.

2. Muck, or other organics, encountered in excavations should be removed in their entirety from beneath the pipe and for a minimum lateral distance of 5 feet from pipe/structure edges.
3. Should the trench bottom become unstable due to persistent moisture, hydrostatic pressure, or if organics are encountered, the bottom should be over-excavated a minimum of 12 inches (deep) and replaced with clean gravel (FDOT No. 57 Stone).
4. Pipe backfill should consist of relatively clean sands or gravels, with a maximum of 12% passing the U.S. No. 200 sieve and no particle size larger than 2 inches in any dimension. The fill should be placed in the dry in lifts that do not exceed 12 inches in vertical measure. Each lift should be compacted to 95% of the Modified Proctor maximum dry density (ASTM D-1557). Backfill in roadway areas should be compacted to 98% density (ASTM D-1557).

Stratum 1 soils should meet the backfill gradation requirement of a maximum of 12% passing the U.S. No. 200 sieve.

LIMITATIONS OF STUDY

Dunkelberger warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of the project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the assumed structures.

This report has been prepared for the exclusive use of King Engineering & Associates, Inc. for the specific application to the City of Venice Water Main Replacement in Venice, Florida.

___oOo___

We appreciate the opportunity to be of service during this phase of the project. If you have any questions, please contact the undersigned at 941-379-0621.

Sincerely,

DUNKELBERGER ENGINEERING & TESTING, INC.



James M. Jackson, E.I.

Staff Engineer 7/30/12

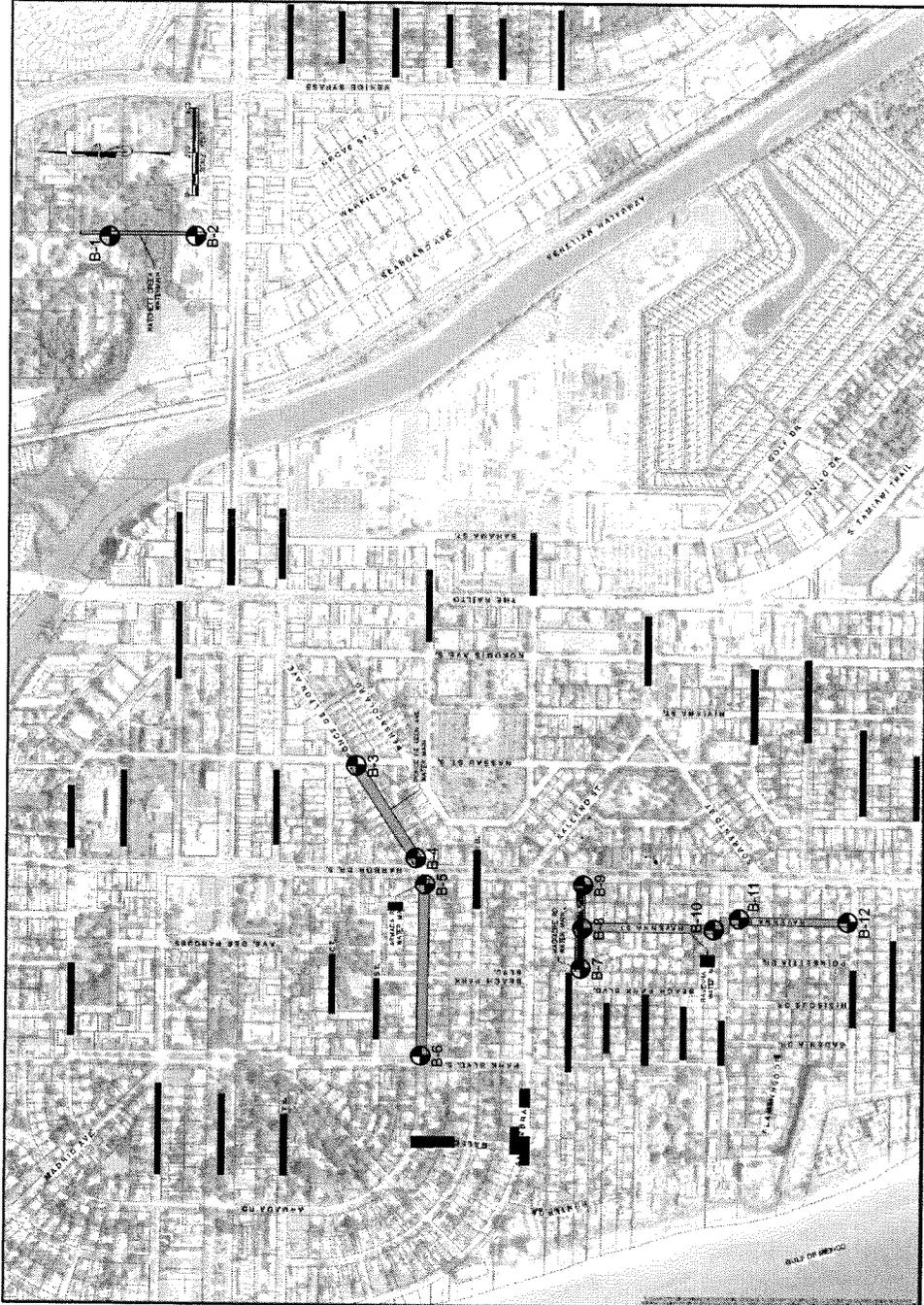


Scott N. Parrish, P.E.

Branch Manager 7/30/12

FL License No.: 69091

Attachments: Sheets 1 – Boring Location Plan
Sheets 2A and 2B – Subsurface Profiles



SOURCE: KING ENGINEERING & ASSOCIATES, INC.

DRAWN	JJ
CHECKED	JJ
APPROVED	SP
SCALE	SEE SCALE SHEET
REVISED	

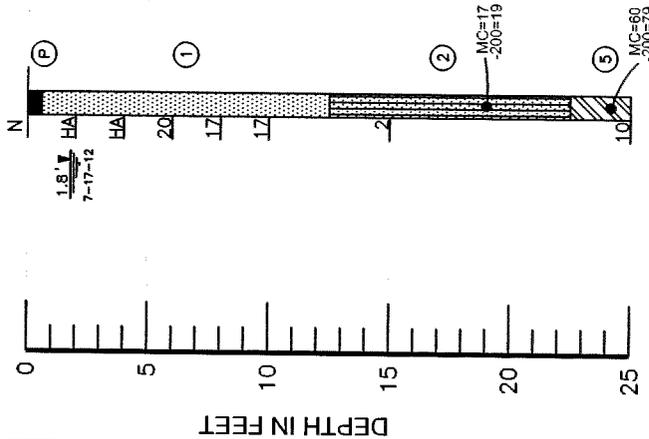
LEGEND	
	STANDARD PENETRATION TEST BORING LOCATION AND NUMBER
	BORING LOCATION AND NUMBER

Locations are approximate.

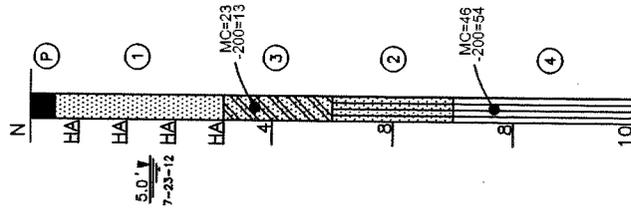


CITY OF VENICE WATER MAIN REPLACEMENT	
BORING LOCATION PLAN	
VENICE, FLORIDA	
DUNKELBERGER engineering & testing, inc.	
DATE	7-25-12
PROJ. NO.	SAR-12-1477
SHEET	1

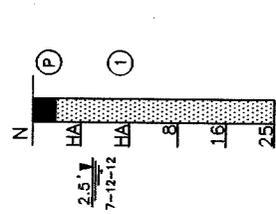
BORING NO.
LOCATION:



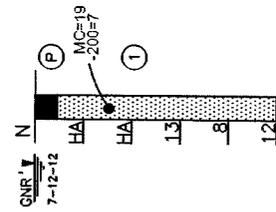
B-1
HATCHETT CREEK



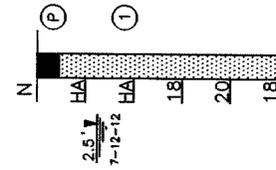
B-2
HATCHETT CREEK



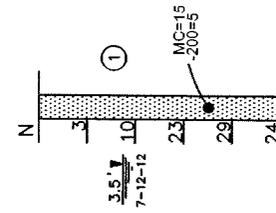
B-3
PONCE DE LEON AVE.



B-4
PONCE DE LEON AVE.

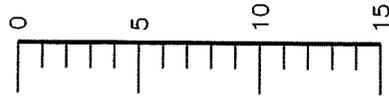


B-5
ARMADA RD.



B-6
ARMADA RD.

DEPTH IN FEET



LEGEND

- (P) Pavement (Asphalt and Base)
- (1) Light gray to dark brown fine to medium SAND with trace silt to slightly silty (SP, SP-SM)
- (2) Gray silty fine SAND (SM)
- (3) Gray clayey fine SAND (SC)
- (4) Light gray to gray SILT (ML)
- (5) Blue-gray CLAY (CL)
- SP - Unified Soil Classification System Group Symbol (ASTM D 2487)
- N - Indicates the number of blows of a 140 pound hammer, freely falling a distance of 30 inches, required to drive a 2-inch diameter sampler 12 inches (ASTM D 1586)
- HA - Hand auger 4 feet in order to avoid possible conflict with underground utilities
- B-1 - Standard Penetration Test (SPT) boring and number
- MC - Moisture Content (%)
- 200 - Amount Finer Than The U.S. Standard No. 200 Sieve (%)
- 2.5' 7-12-12 - Depth of groundwater (feet) & date measured
- GNR' 7-12-12 - Groundwater not recorded

NOTES

- (1) Boreings were drilled on July 12 through 23, 2012 using a Central Mine Equipment Model 55 (CME 55) drilling rig.
- (2) Strata boundaries are approximate and represent soil strata at each test hole location only. Soil transitions may be more gradual than implied.
- (3) Groundwater depths shown on the subsurface profiles represent groundwater surfaces on the dates shown. Groundwater level fluctuations should be anticipated throughout the year.

CITY OF VENICE WATER MAIN REPLACEMENT	
SUBSURFACE PROFILES	
VENICE, FLORIDA	
DUNKELBERGER ENGINEERING & TESTING, INC.	
DATE	7-25-12
PROJ. NO.	SAR-12-1477
SHEET	2A

DRAWN	JJ
CHECKED	JJ
APPROVED	SP
SCALE	1" = 5'
REVISED	

BORING NO.
BORING NO.

B-7
MAGGIORE RD.

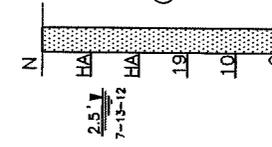
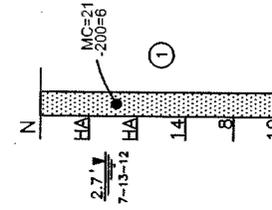
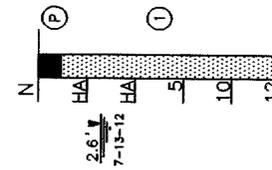
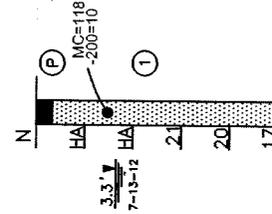
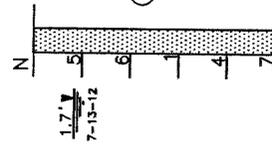
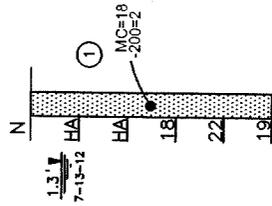
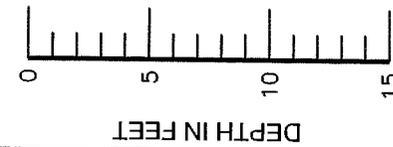
B-8
MAGGIORE RD.

B-9
MAGGIORE RD.

B-10
RAVENNA ST.

B-11
RAVENNA ST.

B-12
RAVENNA ST.



DEPTH IN FEET

DEPTH IN FEET

LEGEND

① Light gray to dark brown fine to medium SAND with trace silt to slightly silty (SP, SP-SM)

② Gray silty fine SAND (SM)

③ Gray clayey fine SAND (SC)

④ Light gray to gray SILT (ML)

⑤ Blue-gray CLAY (CL)

SP - Unified Soil Classification System Group Symbol (ASTM D 2487)

N - Indicates the number of blows of a 140 pound hammer, freely falling a distance of 30 inches, required to drive a 2-inch diameter sampler 12 inches (ASTM D 1586)

HA - Hand auger 4 feet in order to avoid possible conflict with underground utilities

B-1 - Standard Penetration Test (SPT) boring and number

MC - Moisture Content (%)

-200 - Amount Finer Than The U.S. Standard No. 200 Sieve (%)

1.3' 7-13-12 - Depth of groundwater (feet) & date measured

GNR 7-12-12 - Groundwater not recorded

NOTES

- Borings were drilled on July 12 through 23, 2012 using a Central Mine Equipment Model 55 (CME 55) drilling rig.
- Strata boundaries are approximate and represent soil strata at each test hole location only. Soil transitions may be more gradual than implied.
- Groundwater depths shown on the subsurface profiles represent groundwater surfaces on the dates shown. Groundwater level fluctuations should be anticipated throughout the year.

CITY OF VENICE WATER MAIN REPLACEMENT
SUBSURFACE PROFILES
VENICE, FLORIDA

DUNKELBERGER
engineering & testing, inc.

DATE 7-25-12 PROJ. NO. SAR-12-1477 SHEET 2B

DRAWN	JJ
CHECKED	JJ
APPROVED	SP
SCALE	1" = 5'
REVISION	

CITY OF VENICE BOIL WATER NOTICE FORMS

City of Venice
Utilities Department

Telephone 941-480-3333 After Hours Telephone 941-486-2770

NOTICE OF WATER SERVICE SHUTDOWN

Date of Notice: _____

Date of Shutdown: _____

Duration of Shutdown: _____ hour from _____ to _____

Reason for Shutdown: _____

Area of Shutdown: _____

As a precautionary measure, you are advised to boil water vigorously for at least three (3) minutes or use bottled water for drinking and cooking purposes. This precautionary period will extend for 72 hours. For additional information you may call the numbers listed above.

WHY SHOULD YOU BOIL WATER?

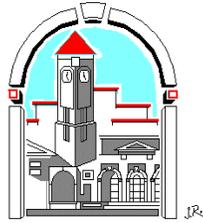
Pipes that carry clean water to your home normally are kept contaminant - free using state regulated disinfectant procedures. But, when a water pipe breaks or is cut to make repairs, contaminants can get into the pipe. Mud and dirt can get into the pipe, as well as contaminated surface water. Boiling water will kill any microorganisms that may be in the water. It is advised that you boil water for drinking and cooking purposes.

WHY DOES THE PRECAUTIONARY PERIOD LAST 72 HOURS?

City employees must restore the water to its proper chemical balance. The water must be sampled and be analyzed for bacteriological content and chlorine level. The treatment and testing to ensure proper water typically takes 72 hours.

WHO IS AT RISK?

Everyone in the notified area is advised to boil water as a precautionary measure. Some people, such as the very young or old, or those with *suppressed immune systems* such as *cancer chemotherapy patients* or people with *AIDS*, should be especially careful to use boiled water for drinking and cooking purposes.



City on the Gulf
Venice, Florida

City of Venice Utilities

ADVISORY NOTICE

Date: _____

**This notice is
to advise you
that, effective
immediately,
the boil water
notice has been
rescinded.**

*Should you have any questions,
please call (941) 480-3333 ext. 229.*

FDEP NOTICED GENERAL PERMIT



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

South District Office
P.O. Box 2549
Fort Myers, FL 33902-2549

RICK SCOTT
GOVERNOR

JENNIFER CARROLL
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

VIA ELECTRONIC MAIL

February 4, 2013

City of Venice
c/o King Engineering Associates, Inc.
4921 Memorial Highway
One Memorial Center, Suite 300
Tampa FL 33634
bballard@kingengineering.com

Corrected Permit

Re: Sarasota County—ERP
File No.: 58-0191792-002

Dear Mr. Bramble:

This is to acknowledge receipt of your notice on January 9, 2013 of intent to use a Noticed General Permit (NGP), pursuant to the provisions of Rule 62-330.453, Florida Administrative Code (F.A.C.) and an authorization to use state-owned submerged lands, pursuant to Chapters 253, F.S., to replace existing small diameter water mains with the City of Venice and the replacement of 393 linear feet of 40" 10" HDPE water main to be via HDD method under Hatchett Creek from Warfield Avenue North to Marcus Street in Hatchett Creek, Class III Waters, Section 7, 12, 13, 18, Township 39 South, Range 19 East, Sarasota County.

Your notice of intent to use a Noticed General Permit has been reviewed by Department staff for regulatory compliance under Rule 62-330.453, F.A.C. In addition to regulatory authorization, this type of activity may require authorization to use state-owned submerged lands (proprietary authorization) for private purposes. Federal authorization for works in wetlands and/or waters of the United States may also be required for this activity. Your notice has been reviewed for the regulatory, proprietary and Federal authorization for works in waters of the United States through the State Programmatic General Permit (SPGP) program (SPGP IV). The authority for review and the outcomes of the reviews are listed below. Please read each section carefully. Your project **MAY NOT** have qualified for all three authorizations. If your project did not qualify for one or more of the authorizations, the specific section dealing with that authorization will advise you how to obtain it. You may **NOT** commence your project without all three authorizations. **If you change the project from what you submitted, the authorization(s) granted may no longer be valid at the time of commencement of the project. Please contact us prior to beginning your project if you wish to make any changes.**

REGULATORY REVIEW – APPROVED

Based on the forms, drawings, and documents submitted with your notice, it appears that the project meets the requirements for the Noticed General Permit (NGP) under Rule 62-330.453, F.A.C.

Please be advised that the construction phase of the NGP must be completed within five years from the date the notice to use the NGP was received by the Department. If you wish to extend this NGP beyond the expiration date, you must notify the Department at least 30 days before its expiration.

Activities performed by way of a NGP are subject to the General Conditions in Rule 62-330.405, F.A.C. (attached), and the Specific Conditions of Rule 62-330.453, F.A.C. (attached). Any deviations from these conditions may subject the permittee to enforcement action and possible penalties.

PROPRIETARY REVIEW – GRANTED

Your project occurs on state-owned, submerged land and will require authorization from the Department to use these lands. The Department has reviewed your project as described above and on the documents and/or drawings attached to your application, and as long as the work performed is located within the boundaries as described and is consistent with the terms and conditions therein, we find your project qualifies for consent to use state-owned submerged lands. **As such, consider this letter to also constitute authorization to perform the activity. This consent is conditioned upon acceptance of and compliance with the attached General Consent Conditions.**

SPGP (FEDERAL) REVIEW – NOT APPROVED

A copy of your notice was sent to the U.S. Army Corps of Engineers (Corps) for review. The Corps determined that your proposed activity as outlined in your application **is NOT in compliance with the Corps State Programmatic General Permit (SPGP IV-R1)** effective July 25, 2011. The Corps may require a separate permit. **Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency.** For further information you should contact the Corps at 239-334-1975.

Authority for review – an agreement with the U.S. Army Corps of Engineers entitled “Coordination Agreement between the U.S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection State Programmatic General Permit, Section 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act.”

This notice constitutes final agency action and is subject to the provisions of Chapter 120, F.S., which **does not** apply to the SPGP review.

NOTICE OF RIGHTS OF SUBSTANTIALLY AFFECTED PERSONS

This letter acknowledges that the proposed activity may be conducted under general permit Rule 62-330.453, F.A.C., qualifies for authorization to use sovereign submerged lands pursuant to Chapter 253, F.S., and Chapter 18-21, F.A.C. This determination is final and effective on the date filed with the Clerk of the Department unless a sufficient petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., as provided below. If a sufficient petition for an administrative hearing is timely filed, this determination automatically becomes only proposed agency action subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. The procedures for petitioning for a hearing are set forth below.

Mediation is not available.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the Department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that right.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

- a) The name and address of each agency affected and each agency's file or identification number, if known;
- b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- c) A statement of when and how the petitioner received notice of the agency decision;
- d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and
- g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

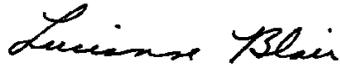
Under Sections 120.569(2)(c) and (d), F.S., a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This determination constitutes an order of the Department. Subject to the provisions of Section 120.68(7)(a), F.S., which may require a remand for an administrative hearing, the applicant has the right to seek judicial review of the order under Section 120.68, F.S., by the filing of a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department. The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of the order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Complete copies of all documents relating to this Notice General Permit are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, at Florida Department of Environmental Protection, South District Office, 2295 Victoria Avenue, Fort Myers, FL 33901.

Thank you for applying to the Submerged Lands and Environmental Resource Program. If you have any questions, please contact Patricia Clune at the letterhead address, by telephone at (239) 344-5639 or by e-mail at Patricia.Clune@dep.state.fl.us When referring to this project, please reference the file number listed above.

Sincerely,



Lucianne Blair
Environmental Administrator
Submerged Lands and
Environmental Resources Program

LB/PC/mv

Enclosures:

- 49 drawing(s)
- General Conditions for NGP 62-330.405 F.A.C.
- Rule 62-330.453, F.A.C.
- State Lands General Consent Conditions

cc: U.S. Army Corps of Engineers, Tampa, Permit # SAJ 2013-00180

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document, including all copies, was mailed before the close of business on June 10, 2013, to the above listed person(s).

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated Department clerk, receipt of which is hereby acknowledged.



Clerk

June 10, 2013

Date

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUBMERGED LANDS AND ENVIRONMENTAL RESOURCES PROGRAM
GENERAL CONDITIONS FOR AUTHORIZATIONS

Project No: 58-0191792-002

Rule 18-21.004(7), Florida Administration Code (F.A.C.), provides that all authorizations granted by rule or in writing under Rule 18-21.005, F.A.C., except those for aquaculture activities and geophysical testing, shall be subject to the general conditions as set forth in paragraphs (a) through (i) below. The general conditions shall be part of all authorizations under this chapter, shall be binding upon the grantee, and shall be enforceable under Chapter 253 or Chapter 258, Part II, F.S. Rule 18-21.004(7), F.A.C., General Conditions for Authorizations:

- (a) Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.
- (b) Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.
- (c) Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in Sections 253.04 and 258.46, F.S., or Chapter 18-14, F.A.C.
- (d) Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged land resources.
- (e) Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in Rules 68A-27.003, 68A-27.004, and 68A-27.005, F.A.C.
- (f) Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.
- (g) Structures or activities shall not create a navigational hazard.
- (h) Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of Rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident or fire.
- (i) Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities authorized under Rule 18-21.004(1)(g), F.A.C. or any other applicable law

GENERAL CONDITIONS FOR ALL NOTICED GENERAL PERMITS
Rule 62-330.405, Florida Administrative Code

- (1) The terms, conditions, requirements, limitations, and restrictions set forth in this section are general permit conditions and are binding upon the permittee for all noticed general permits in this chapter. These conditions are enforceable under Part IV of Chapter 373, 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. A violation of the permit is a violation of Part IV of Chapter 373, F.S., and may result in suspension or revocation of the permittee's right to conduct such activity under the general permit. The Department also may begin legal proceedings seeking penalties or other remedies as provided by law for any violation of these conditions.
- (3) This general permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any construction, alteration, operation, maintenance, removal or abandonment authorized by this permit.
- (4) This general permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the general permit.
- (5) The general permit does not relieve the permittee from liability and penalties when the permitted activity causes harm or injury to: human health or welfare; animal, plant or aquatic life; or property. It does not allow the permittee to cause pollution in contravention of Florida Statutes and Department rules.
- (6) The permittee is hereby advised that Section 253.77, F.S., states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.
- (7) The authorization to conduct activities pursuant to a general permit may be modified, suspended or revoked in accordance with Chapter 120 and Section 373.429, F.S.
- (8) This permit shall not be transferred to a third party except pursuant to Rule 62-343.130, F.A.C., or, for activities within the geographical area of the Northwest Florida Water Management District, Rule 62-346.130, F.A.C. The permittee transferring the general permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located.

(9) Upon reasonable notice to the permittee, Department staff with proper identification shall have permission to enter, inspect, sample and test the permitted system to insure conformity with the plans and specifications approved by the permit.

(10) The permittee shall maintain any permitted system in accordance with the plans submitted to the Department and authorized in this general permit.

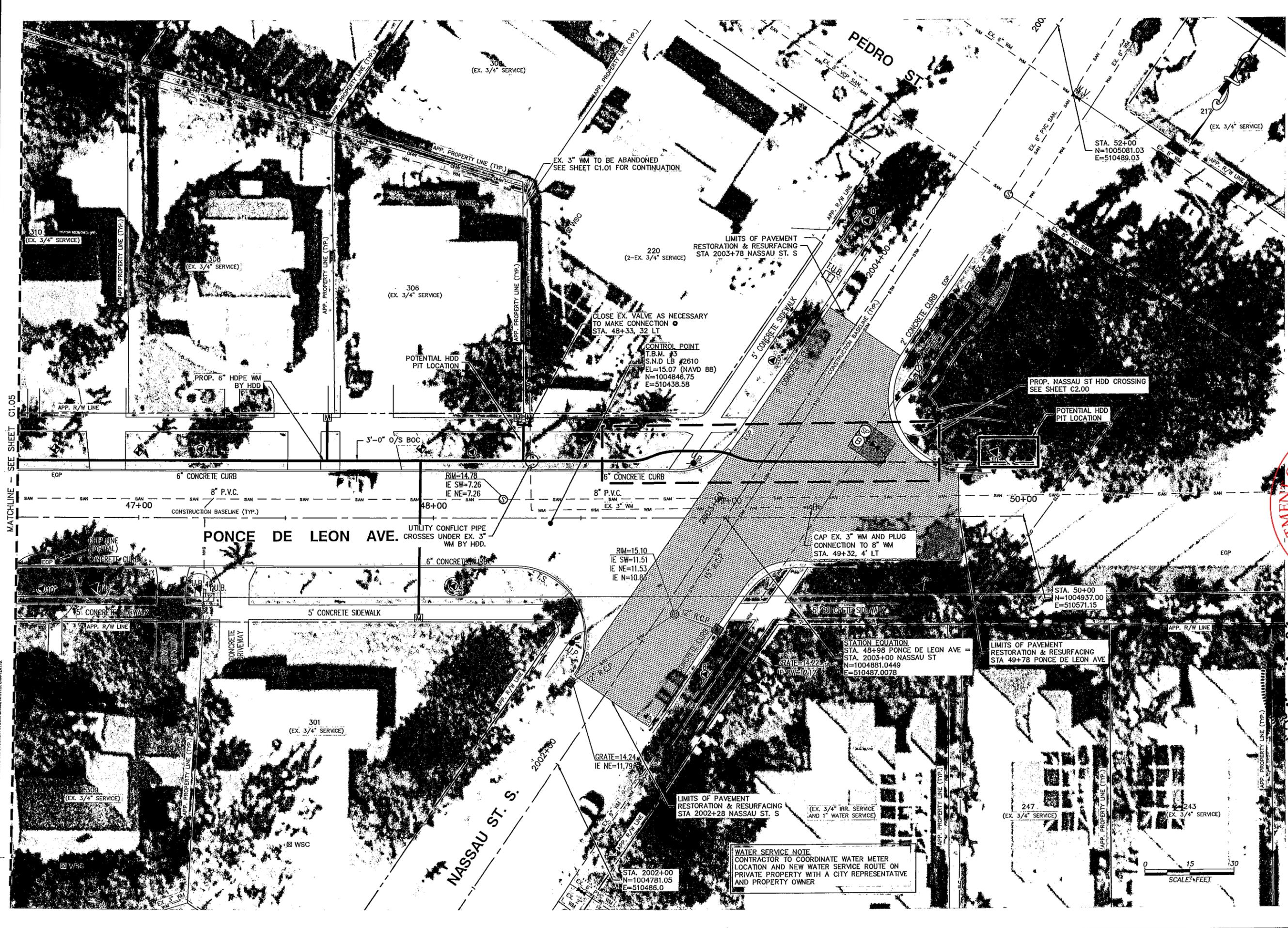
(11) A permittee's right to conduct a specific noticed activity under this noticed general permit is authorized for a duration of five years.

(12) Construction, alteration, operation, maintenance, removal and abandonment approved by this general permit shall be conducted in a manner which does not cause violations of state water quality standards, including any anti-degradation provisions of Sections 62-4.242(1)(a) and (b), Sections 62-4.242(2) and (3) and Rule 62-302.300, F.A.C., and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters. The permittee shall implement best management practices for erosion, turbidity, and other pollution control to prevent violation of state water quality standards. Temporary erosion control measures such as sodding, mulching, and seeding shall be implemented and shall be maintained on all erodible ground areas prior to and during construction. Permanent erosion control measures such as sodding and planting of wetland species shall be completed within seven days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into wetlands and other surface waters exists due to the permitted activity. Turbidity barriers shall remain in place and shall be maintained in a functional condition at all locations until construction is completed and soils are stabilized and vegetation has been established. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

(13) The permittee shall hold and save the Department harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the general permit.

(14) The permittee shall immediately notify the Department in writing of any previously submitted information that is later discovered to be inaccurate. Specific Authority 373.026(7), 373.043, 373.118(1), 373.406(5), 373.414(9), 373.4145, 373.418, 403.805(1) FS. Law Implemented 373.044, 373.406(5), 373.118(1), 373.129, 373.136, 373.413, 373.414(9), 373.4145, 373.416, 373.422, 373.423, 373.429 FS. History—New 10-3-95, Amended 10-1-07

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DESIGNED: MUG
 DRAWN: CS/CRS
 CHECKED: SLP
 City Of Venice
 Utility Department
 200 North Warrick Avenue
 Venice FL 34285
 Ph: 941-486-2833
 Ph: 941-486-2839
King
 ENGINEERING ASSOCIATES, INC.
 2930 University Parkway
 Sarasota, Florida 34243
 Phone 941 358-6500
 Fax 941 358-6510
 www.kingengineering.com
 Engineering License #26510

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Permit Number
58-0191792-002
 South District
 Port Myers

STONE L. POSEY
 LICENSED PROFESSIONAL ENGINEER
 No. 74168
 JAN 04 2013
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

**PONCE DE LEON
 AVE. STA. 46+59
 TO STA. 55+03**

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4789-002-000	SHEET NO. C1.06
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 29, 2012	

U:\11\NV_ENG\4799\002\1000\Cadd\C1.05.dwg - January 4, 2013 8:47 AM, CS, King Engineering Associate Inc.



DESIGNED BY: M.J.G.
 DRAWN BY: [Signature]
 CHECKED BY: CS/ORS
 ENGINEER: SLP
 DATE: 08

City of Venice
 Utility Department
 200 North Warfield Avenue
 Venice, FL 34285
 Ph: 814-486-2933
 Ph: 814-486-2929

2930 University Parkway
 Sarasota, Florida 34243
 Phone: 941-554-5500
 Fax: 941-554-5500
 www.kingengineering.com
 Engineering License #6610

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number
88-0191792-002
 South District
 Fort Myers

STONEY L. POPE
 LICENSE # 10000
 No. 74168

JAN 04 2013
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER

PONCE DE LEON
 AVE. STA. 42+72
 TO STA. 46+59

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000 SHEET NO. C1.05
 DATE: JUNE 2012
 SCALE: AS SHOWN
 FDEP PERMIT SUBMITTAL
 DEC. 28, 2012

NOTE:
 1. 317 PONCE DE LEON AVENUE INCLUDES A 2-INCH FIRE SERVICE LINE FOR SPRINKLERS.

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

C:\ENVY\ENG\4799\002\0001\Cadd\CaddC1.04.dwg, December 28, 2012 2:12 PM, TAD, King Engineering Associate Inc.

MATCHLINE - SEE SHEET C1.03



City of Venice
Utility Department
200 North Westfield Avenue
Venice FL 34286
Ph. 941-480-3333
Fax. 941-480-3323

2030 University Parkway
Seaside, Florida 32423
Phone 941-338-6500
Fax 941-338-6540
www.kingengineering.com
Engineering License #6510

King
ENGINEERING ASSOCIATES, INC.

**WATER MAIN
REPLACEMENT PROGRAM
PHASE-1**

Permit Number
58-0191792-002
South District
Fort Myers

STONE L. ROSE
LICENSED PROFESSIONAL ENGINEER
No. 74168
JAN 04 2013
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ARMADA RD.
STA. 8+50 TO
STA. 12+81

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.04
DATE JUNE 2012	
SCALE AS SHOWN	

FDEP PERMIT SUBMITTAL
DEC. 28, 2012

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MATCHLINE - SEE SHEET C1.02

MATCHLINE - SEE SHEET C1.04



DESIGNED: MJG
 DRAWN: DMW
 CS/OBS: EBC/RS
 CHECKED: SLP

City Of Venice
 Utility Department
 200 North Warfield Avenue
 Venice FL 34285
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 Ph. 841-486-2929

2930 University Parkway
 Simonsville, VA 24154
 Phone: 804-338-2500
 Fax: 804-338-0940
 www.kingengineering.com
 Engineering License #2610

King
ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

NO.	DESCRIPTION	DATE	BY	APP'D BY
1	PREP PERMIT SUBMITTAL			
2	100% SUBMITTAL			
3	50% SUBMITTAL			
4	UTILITY NOTIFICATION SUBMITTAL			

TONEY L. POPP
 LICENSE # 74168
 No. 74168



ARMADA RD.
 STA. 4+19 TO
 STA. 8+50

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO.	4799-002-000	SHEET NO.	C1.03
DATE	JUNE 2012		
SCALE	AS SHOWN		
	FDEP PERMIT SUBMITTAL	233	
	DEC. 28, 2012		

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER



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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Permit Number
58-0191792-002
 South District
 Fort Myers

City of Venice
 Utility Department
 200 North Wainfield Avenue
 Venice FL 34285
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 Fax. 941-480-3629

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 2930 University Parkway
 Sarasota, Florida 34243
 Phone 941-558-6500
 Fax 941-558-6500
 www.kingengineering.com
 Engineering License #61210

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

NO.	DESCRIPTION	DATE	BY	APP'D BY

STONEY L. POPE
 LICENSE No. 74166
 JAN 04 2008
 STATE OF FLORIDA
PROFESSIONAL ENGINEER

ARMADA RD.
 STA. 0+00 TO
 STA. 4+19

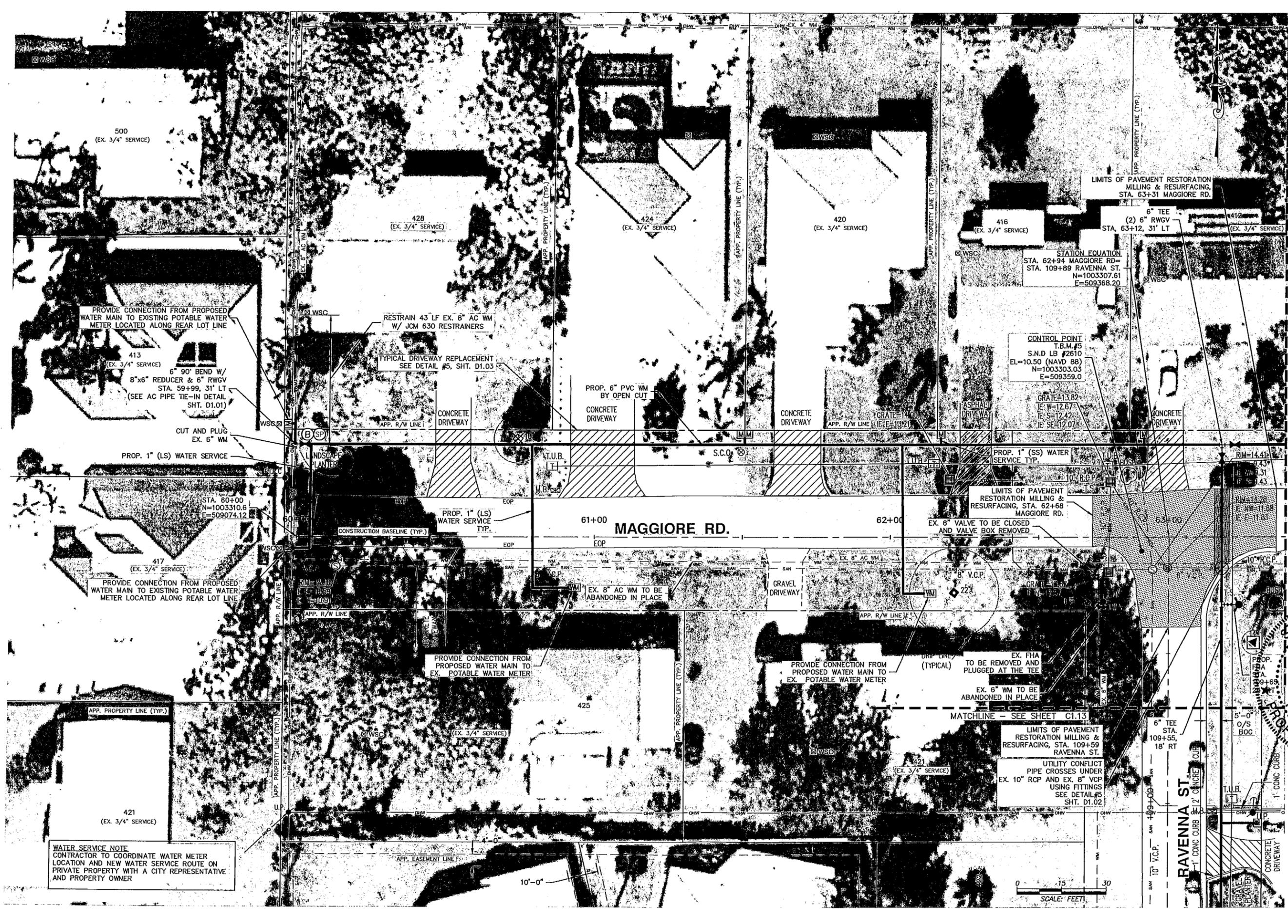
THE SIGNATURE OF THE QUALITY CONTROL
 OFFICER IN THIS SPACE INDICATES THAT ALL
 REQUIRED PERMITS HAVE BEEN OBTAINED AND
 THAT CONSTRUCTION IS AUTHORIZED TO
 COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.02
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTED DEC. 28, 2012 2:34	

MATCHLINE - SEE SHEET C1.03

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER
 LOCATION AND NEW WATER SERVICE ROUTE ON
 PRIVATE PROPERTY WITH A CITY REPRESENTATIVE
 AND PROPERTY OWNER

C:\ENR\ENG\799\002\000\Cadd\C1.07.dwg, January 4, 2013 8:49 AM, CS, King Engineering Associate Inc.



DESIGNED BY: MJG
DRAWN BY: CS/OBS
CHECKED BY: SLP
DATE: 12/28/12

City Of Venice
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Ph: 811-486-2829

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www.kingeng.com
Engineering License #2610

WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

STONEY L. VIGENS, P.E.
No. 74168
JAN 04 2013
STATE OF FLORIDA
PROFESSIONAL ENGINEER

MAGGIORE RD.
STA. 60+00 TO
STA. 63+34

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000 SHEET NO. C1.07
DATE: JUNE 2012
SCALE: AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012

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City of Venice
 Utility Department
 200 North Windward Avenue
 Venice, FL 34285
 PH: 941-486-3333
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2930 University Parkway
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 Phone: 941-558-6500
 Fax: 941-558-6540
 www.king-engineering.com
 ENGINEERING ASSOCIATE, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number
88-0191792-002

South District
 Fort Myers

STONE L. POPE
 LICENSE NO. 74168
 PROFESSIONAL ENGINEER
 STATE OF FLORIDA

RAVENNA ST. STA.
 102+10 TO STA.
 106+41

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.12
DATE JUNE 2012	
SCALE AS SHOWN	
FDEP PERMIT SUBMITTAL DEC. 28, 2012 236	



MATCHLINE - SEE SHEET C1.09

MATCHLINE - SEE SHEET C1.11

City of Venice
 Utility Department
 200 North Westfield Avenue
 Venice FL 34285
 PH 941-480-3333
 PH 941-485-2329

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 Sarasota, Florida 34233
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 PH 941-555-5540
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 Engineering License #2610

WATER MAIN REPLACEMENT PROGRAM PHASE-1

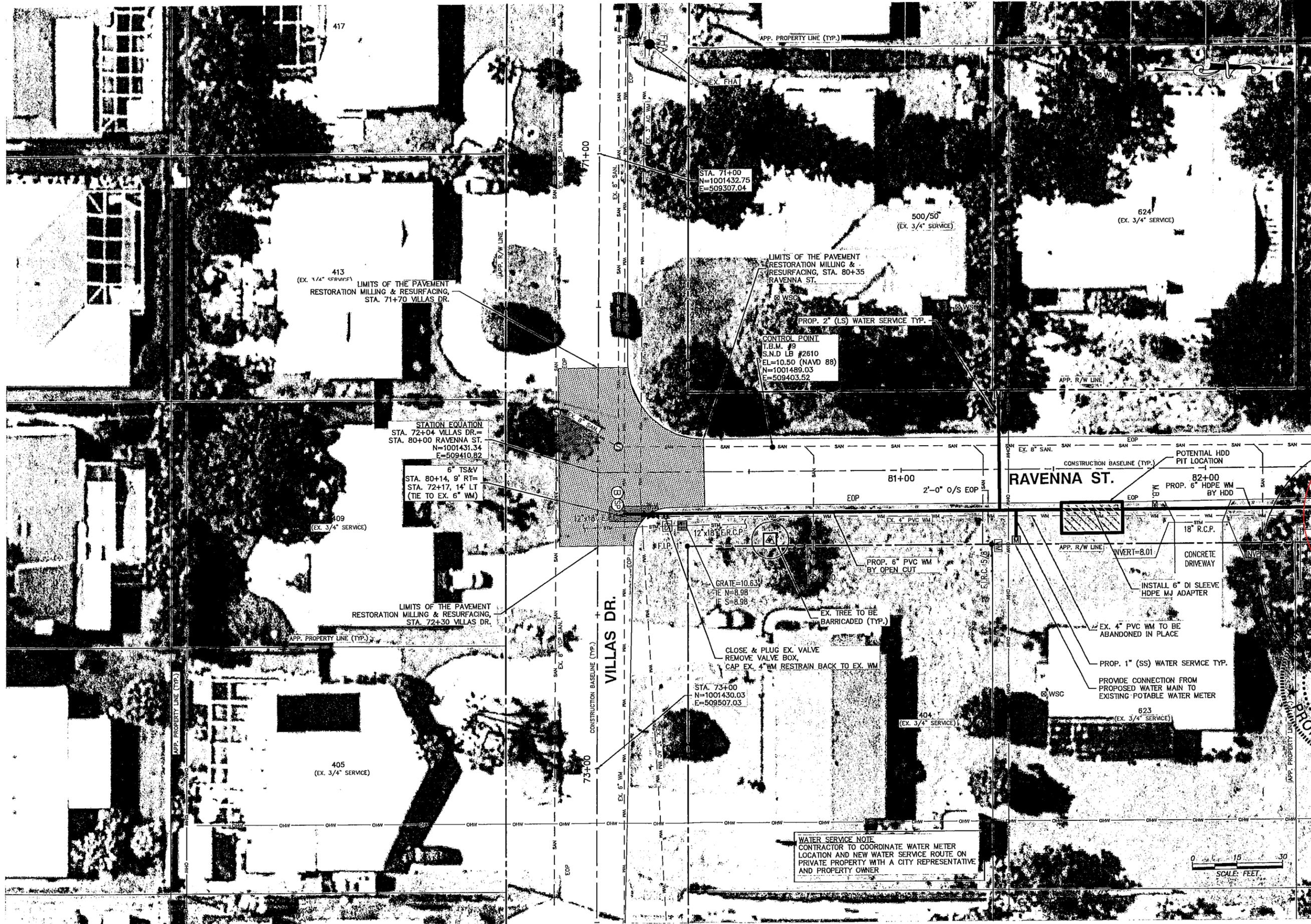
Permit Number
58-0191792-002
 South District
 Fort Myers

STONEY L. POPE
 LICENSED PROFESSIONAL ENGINEER
 No. 74168
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 RAVENNA ST. STA. 82+36 TO STA. 86+66

JOB NO. 4799-002-000	SHEET NO. C1.10
DATE JUNE 2012	
SCALE AS SHOWN	
FDEP PERMIT SUBMITTAL DEC. 28, 2012	

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

NOTE:
 1. PROVIDE CONNECTION FROM PROPOSED WATER MAIN TO EXISTING POTABLE WATER METER.

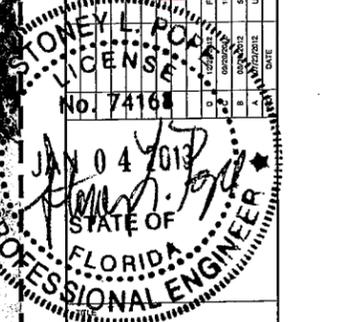


DESIGNED: M.J.G.
 DRAWN: [Signature]
 CHECKED: C.S.G./O.R.S.
 SCALE: S.L.P.
 CITY OF VENICE
 Utility Department
 200 North Welford Avenue
 Venice, FL 34285
 Phone 941 338-6500
 Fax 941 338-6540
 www.kingengineering.com
 Engineering License #26710



**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

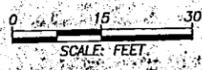
SEE SHEET C1.10



VILLAS DR. STA.
 80+00 TO STA.
 82+36

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.09
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012	



WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

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WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

DESIGNED: []
 DRAWN: []
 CHECKED: []
 CITY OF VENICE
 Utility Department
 200 North Venice Avenue
 Venice, FL 34265
 PH: 841-488-2828

King
 ENGINEERING ASSOCIATES, INC.
 2930 University Parkway
 Sarasota, Florida 34243
 Phone 941-558-5500
 Fax 941-558-5540
 www.kingeng.com
 Engineering License #2610

WATER MAIN REPLACEMENT PROGRAM PHASE-1
 Permit Number
58-0191792-032
 South District
 Fort Myers

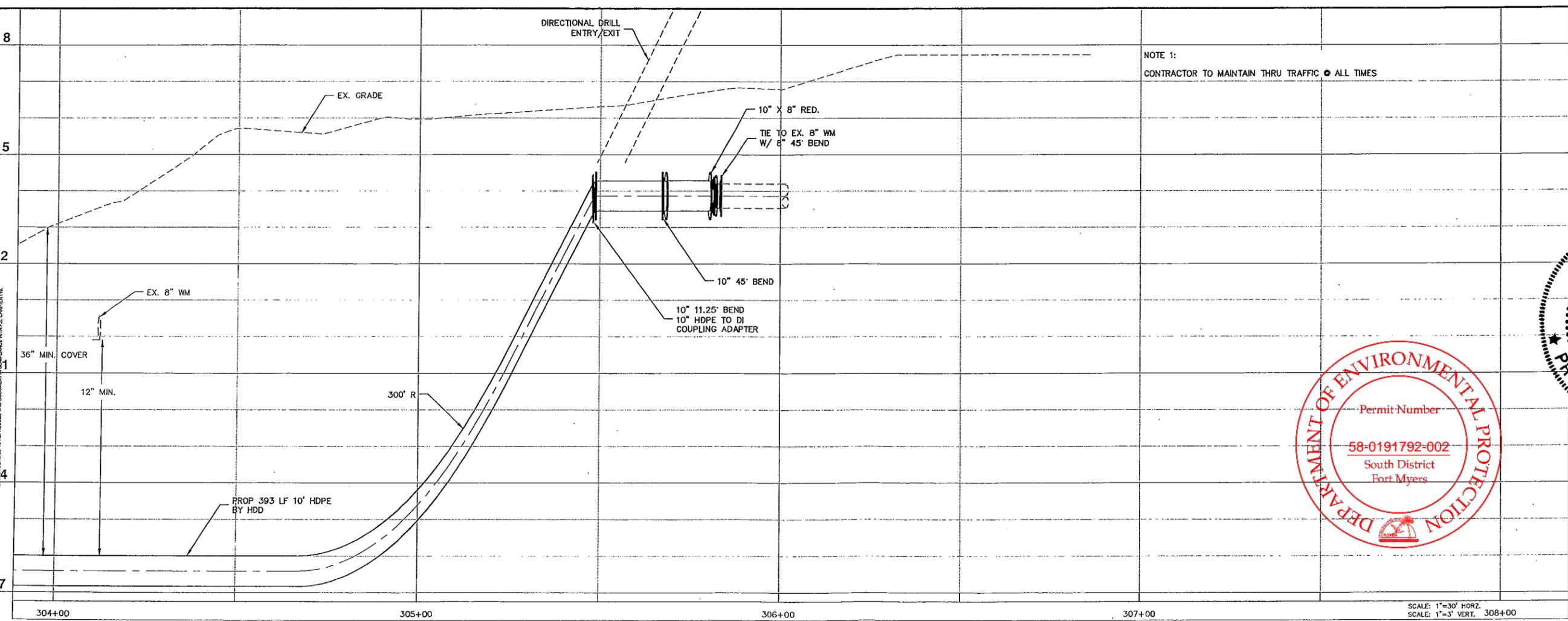
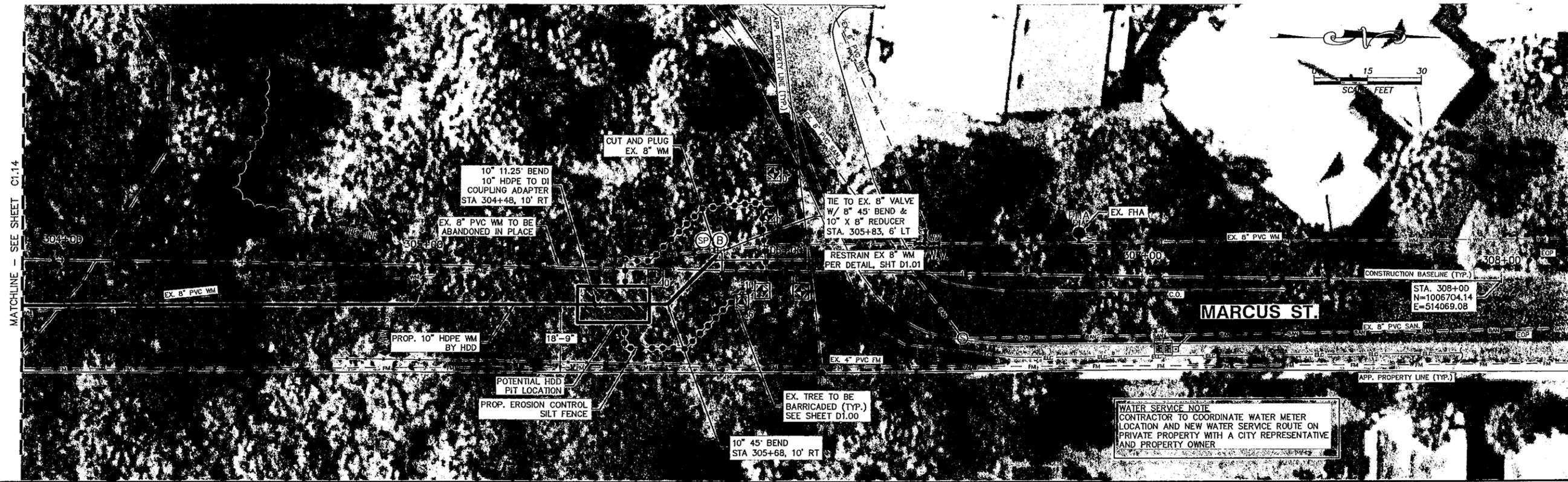
STONE L. POPE
 LICENSED PROFESSIONAL ENGINEER
 No. 74168
 JAN 04 2012
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

RAVENNA ST. STA.
 106+41 TO STA.
 110+00

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

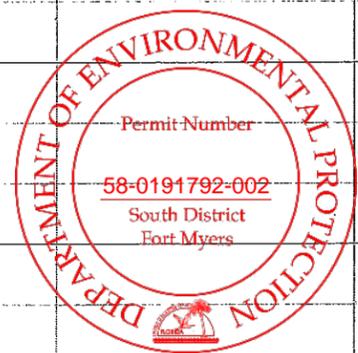
JOB NO. 4799-002-000	SHEET NO. C1.13
DATE JUNE 2012	
SCALE AS SHOWN	
FDEP PERMIT SUBMITTAL DEC. 28, 2012	

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WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

NOTE 1:
 CONTRACTOR TO MAINTAIN THRU TRAFFIC @ ALL TIMES



HATCHETT CREEK
 STA. 303+89 TO
 STA. 308+00

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000
 DATE: JUNE 2012
 SCALE: AS SHOWN
 SHEET NO. C1.15

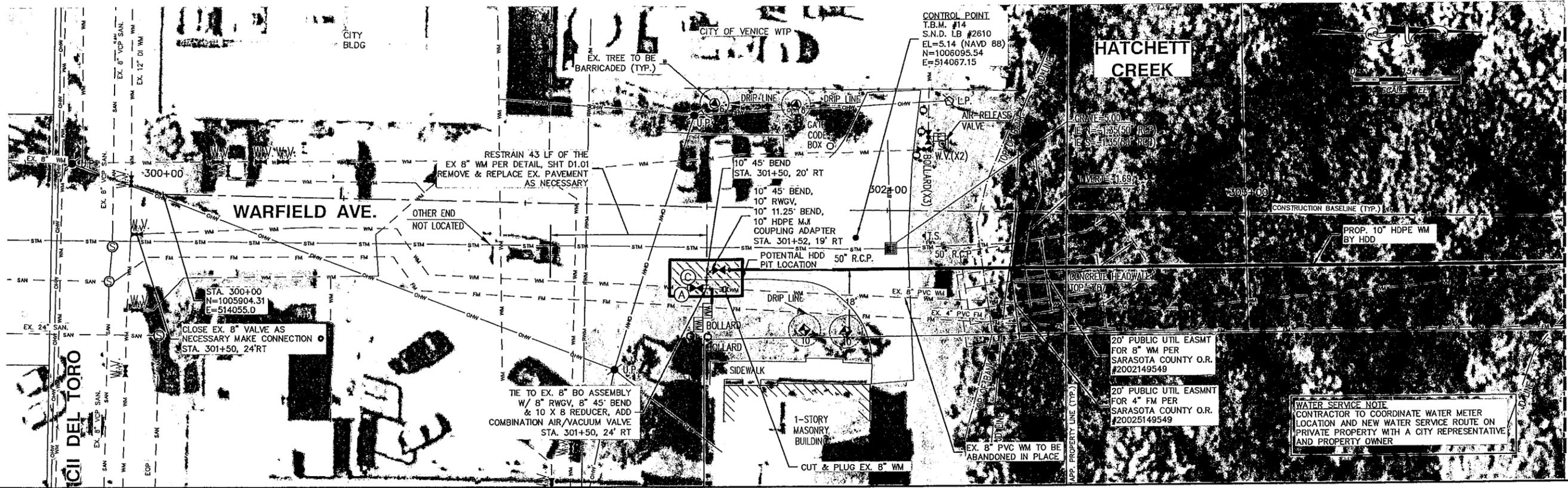
FDEP PERMIT SUBMITTAL
 DEC. 28, 2012

DESIGNED: M.J.G.
 DRAWN: S.L.P.
 CS/DSS: S.L.P.
 CHECKED: S.L.P.

City Of Venice
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 200 North Westfield Avenue
 Venice FL 34285
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 Ph. 941-486-2828

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**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**



MATCHLINE - SEE SHEET C1.15

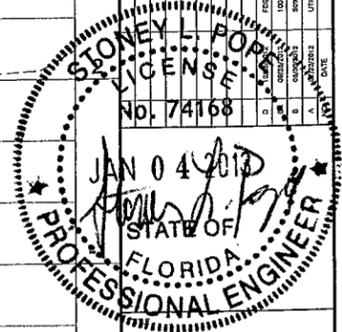
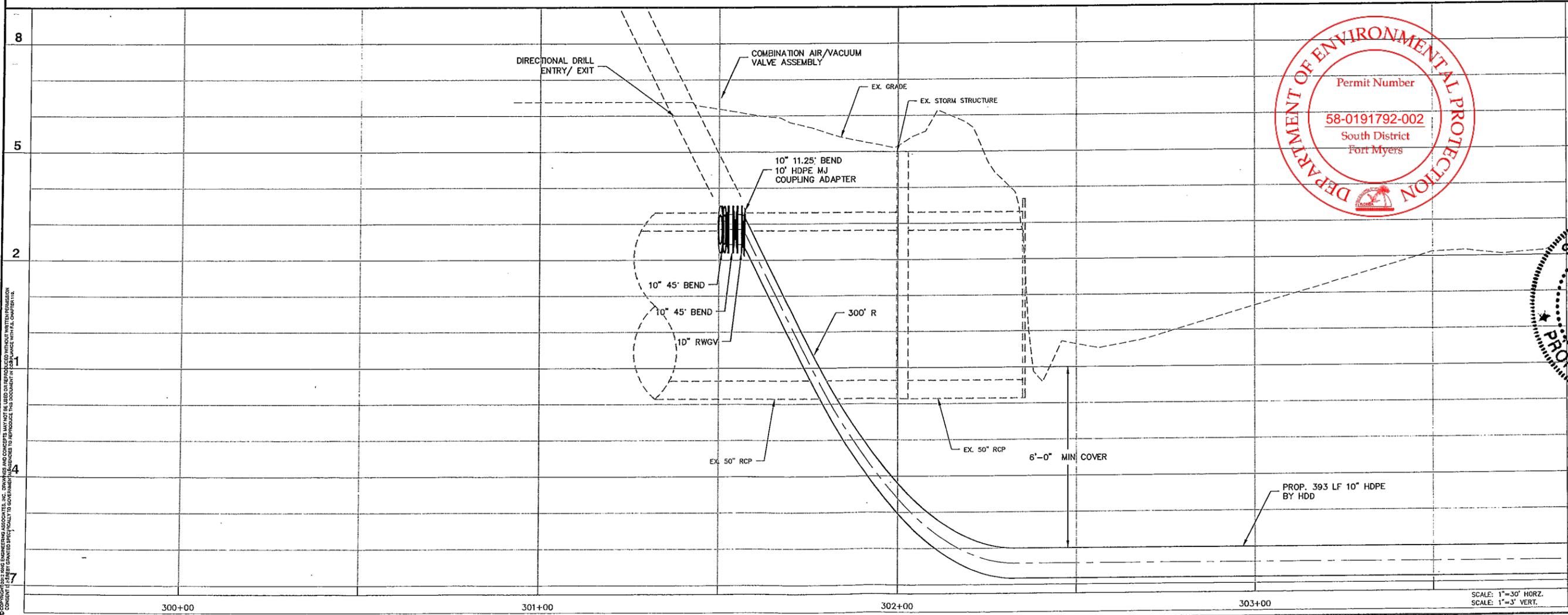
City of Venice
Utility Department
200 North Warfield Avenue
Venice, FL 34285
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Ph: 941-486-8233

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ENGINEERING ASSOCIATES, INC.

**WATER MAIN
REPLACEMENT PROGRAM
PHASE-1**

O:\ENV\ENGL\4799\002\000\Cadd\Cds\C1.14.dwg, January 2, 2013 9:07 AM, CS, King Engineering Associate Inc.



HATCHETT CREEK
CROSSING STA.
300+00 TO STA.
303+89

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.14
DATE JUNE 2012	
SCALE AS SHOWN	
FDEP PERMIT INITIAL DEC. 28, 2012	

SCALE: 1"=30' HORIZ.
SCALE: 1"=3' VERT.



City of Venice
 Utility Department
 200 North Warfield Avenue
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King
 ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number
58-0191792-002

South District
 Fort Myers

STONEY L. FORD
 LICENSED PROFESSIONAL ENGINEER
 No. 74168

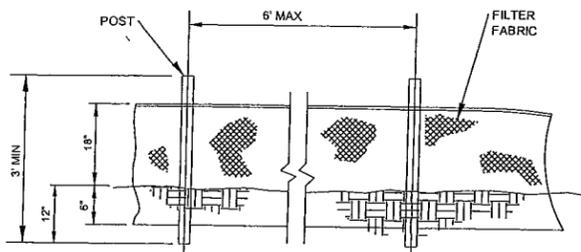
JAN 04 2013
 STATE OF FLORIDA

VERDI ST. STA. 800+00 TO 805+10 AND BEATRICE ST. STA. 1000+00 TO 1005+10

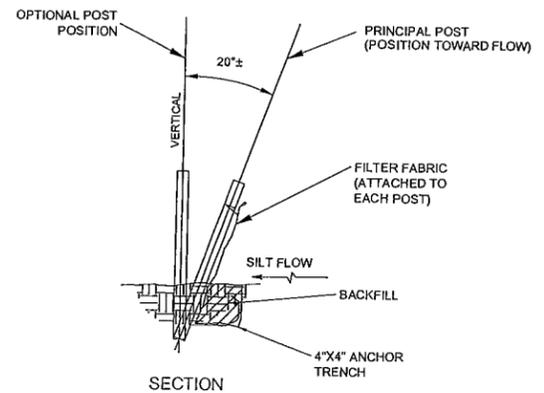
THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. C1.21
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012 249	

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER



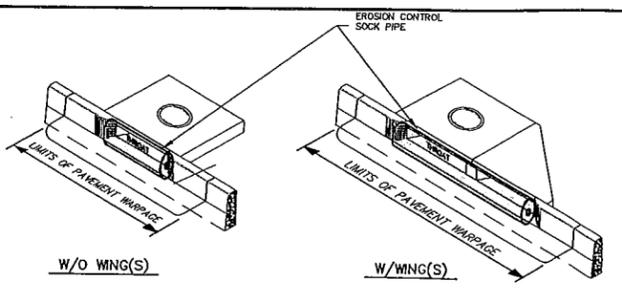
PLAN



SECTION

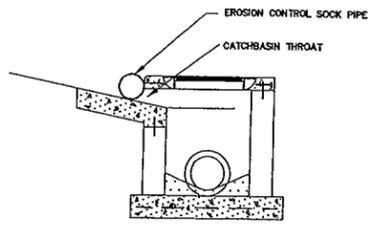
STEEL 1.33 LBS/FT MIN.) POST OPTIONS:
WOOD 2"x4" OR 2 1/2" DIA.

7 SILT FENCE
DS-1 (FDOT INDEX No. 102)

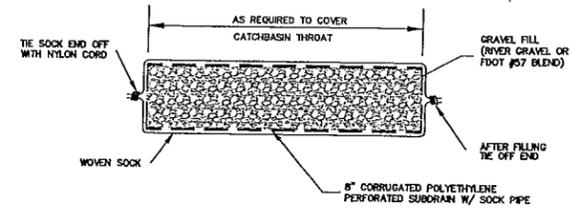


W/O WING(S)

W/WING(S)



SECTION X-X



**CURB INLET FILTER SOCK
SEDIMENTATION CONTROL**

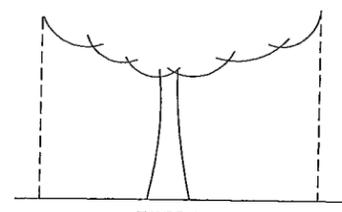


FIGURE A

THE DRIPLINE OF A TREE IS THE IMAGINARY, VERTICAL LINE THAT EXTENDS DOWNWARD FROM THE OUTERMOST TIPS OF THE TREE'S BRANCHES TO THE GROUND (FIG. A)

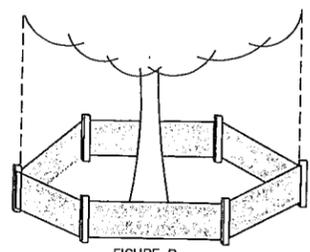
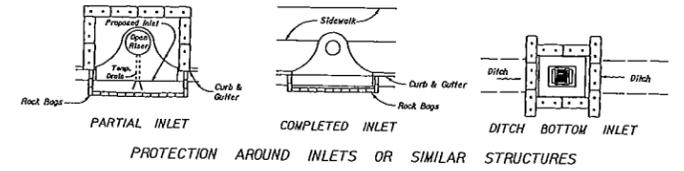


FIGURE B

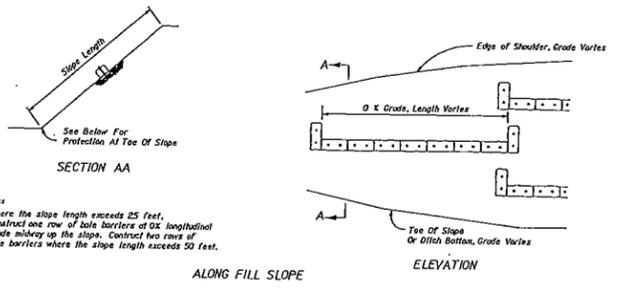
FOUR CORNER UPRIGHT STAKES OF NO LESS THAN 2"x2" LUMBER CONNECTED BY HORIZONTAL MEMBERS OF NO LESS THAN 1"x4" LUMBER; OR UPRIGHT STAKES SPACED AT 5' INTERVALS OF NO LESS THAN 2"x2" LUMBER CONNECTED BY SILT SCREEN FABRIC OR MATERIAL OF COMPARABLE DURABILITY.

NOTE:
DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF A TREE TO REMAIN ON THE SITE.

TREE BARRICADE DETAIL



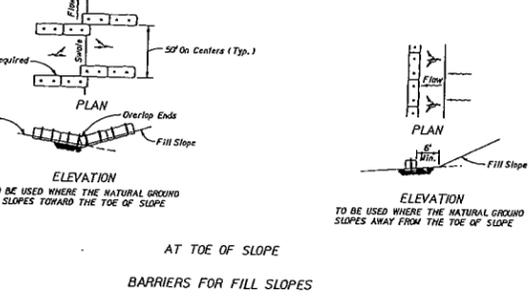
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES



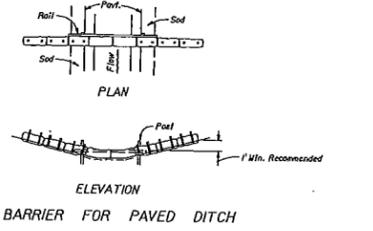
**TYPE I
TYPE II
BARRIERS FOR UNPAVED DITCHES**

NOTES FOR BALED HAY OR STRAW BARRIERS

1. Type I and II barriers should be spaced in accordance with Chart I, Sheet 1.
2. Hay bales shall be trenched 3" to 4" and anchored with 2 - 1" x 2" (or 1" dia.) x 4' wood stakes. Stakes of other material or shape providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project.
3. Rolls and posts shall be 2" x 4" wood. Other materials providing equivalent strength may be used if approved by the Engineer.
4. Adjacent bales shall be luffed (tied) together. Unavoidable gaps shall be plugged with hay or straw to prevent silt from passing.
5. Where used in conjunction with silt fence, hay bales shall be placed on the upstream side of the fence.
6. Bales to be paid for under the contract unit price for Baled Hay or Straw, EA. The unit price shall include the cost of filter fabric for Type I and II barriers. Sand bags shall be paid for under the unit price for Sandbags, EA. Rock bags to be paid for under the contract unit price for Rock Bags, EA.



BARRIERS FOR FILL SLOPES



BARRIER FOR PAVED DITCH



**EROSION CONTROL
& TREE BARRICADE
DETAILS**

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. D1.00
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012 250	

O:\ENV_ENG\4799\02\000\Cadd\Cadd\DETAILS.dwg, December 28, 2012 2:58 PM, TAD, King Engineering Associate Inc.

City Of Venice
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200 North Warfield Avenue
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King
ENGINEERING ASSOCIATES, INC.

**WATER MAIN
REPLACEMENT PROGRAM
PHASE-1**

DESIGNED	MLG	DATE	SEP 11 2012
DRAWN	MLG	DATE	SEP 11 2012
CHECKED	CS/ORS	DATE	SEP 11 2012
APPROVED	SUP	DATE	SEP 11 2012
DATE	SEP 11 2012	DESCRIPTION	UTILITY NOTIFICATION SUBMITTAL

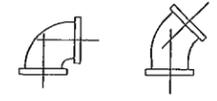
MINIMUM LENGTH (FT) OF FORCE MAIN TO BE RESTRAINED ON EACH SIDE OF FITTING		PIPE SIZE (INCHES)								
FITTING		4	6	8	10	12	16	18	20	24
45 BEND:	H	6	9	12	14	18	21	23	25	29
	VU	4	6	7	9	10	13	15	16	19
	VD	12	20	N/A	32	37	48	53	28	68
22.5 BEND:	H	3	6	7	8	10	11	12	14	
	VU	2	3	4	4	5	6	7	8	9
	VD	7	10	13	15	18	23	26	28	33
11.25 BEND:	H	2	2	3	3	4	5	5	6	7

MINIMUM LENGTH (FT) OF WATER OR REUSE MAIN TO BE RESTRAINED ON EACH SIDE OF FITTING		PIPE SIZE (INCHES)								
FITTING		4	6	8	10	12	16	18	20	24
90 BEND:	H	23	33	43	51	60	76	83	90	104
	VU	6	8	11	13	16	20	22	24	28
	VD	22	30	40	48	56	72	80	87	102
45 BEND:	H	10	14	18	21	25	31	34	37	43
	VU	6	8	11	13	16	20	22	24	28
	VD	22	30	40	48	56	72	80	87	102
22.5 BEND:	H	5	7	8	10	12	15	17	18	21
	VU	3	4	5	6	7	10	11	12	14
	VD	10	15	19	23	27	35	38	42	49
11.25 BEND:	H	2	3	4	5	6	7	8	9	10
	PLUGS:	52	73	96	115	136	174	193	211	246

ABBREVIATIONS: H=HORIZONTAL, VU=VERTICAL UP, VD=VERTICAL DOWN.

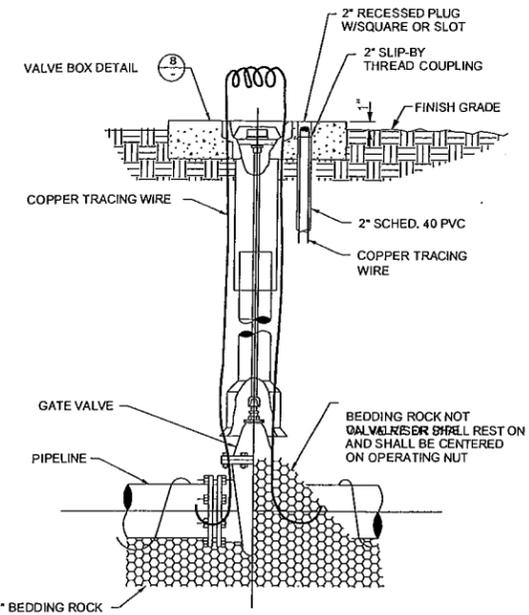
2 PRESSURE MAIN RESTRAINED JOINT TABLES
WSR-3

- NOTES:
- FOR TEE OR REDUCER FITTINGS SUBMIT RESTRAINED JOINT LENGTH CALCULATIONS TO CITY ENGINEER FOR REVIEW AND APPROVAL, USING THE ASSUMPTIONS LISTED
 - RESTRAINED JOINT LENGTH FOR WATER AND REUSE MAINS BASED ON TEST PRESSURE OF 150 PSI. RESTRAINED JOINT LENGTH FOR FORCE (SEWER) MAINS BASED ON TEST PRESSURE OF 100 PSI. CALCULATIONS WERE MADE USING EBAA IRON SOFTWARE (AVAILABLE AT WWW.EBAA.COM) AND THE FOLLOWING ASSUMPTIONS: GRANULAR MATERIAL (GM) SOIL TYPE, TRENCH TYPE 3, BURY DEPTH OF 3 FT, AND SAFETY FACTOR OF 2 TO 1. IF FIELD CONDITIONS DIFFER FROM ABOVE ASSUMPTIONS EOR SHALL PROVIDE CALCULATIONS BASED ON ACTUAL CONDITIONS.
 - RESTRAINED JOINT SHALL BE USED ON ALL JOINTS FROM ANY MAIN TEE TO ANY FIRE HYDRANT ASSEMBLY.
 - THRUST BLOCKS WILL NOT BE ACCEPTED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
 - VALVES SHALL BE RESTRAINED SAME AS PLUGS



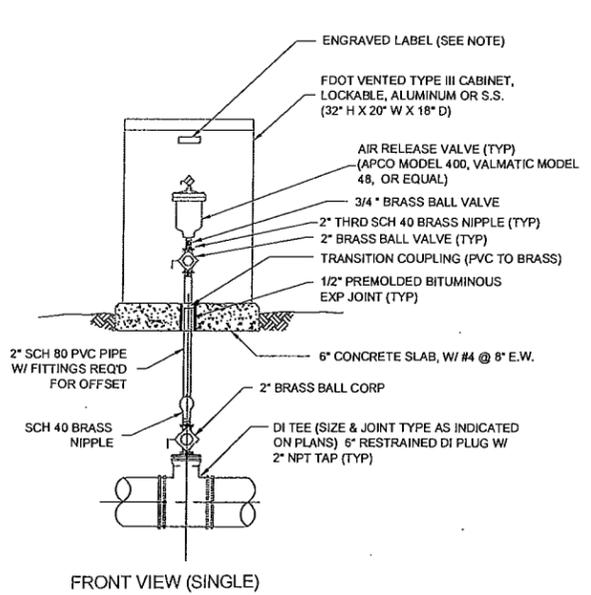
- ALL PIPE FITTINGS SHALL BE COMPACT, DUCTILE IRON.
- ALL APPLICATIONS (RAW, POTABLE, REUSE, SEWER) SHALL BE FUSION BONDED EPOXY COATED INSIDE AND OUT.
- ALL FITTINGS SHALL MEET ANSII/AWWA C116/A21.16 STANDARDS.

7 PIPE FITTINGS
WSR-3



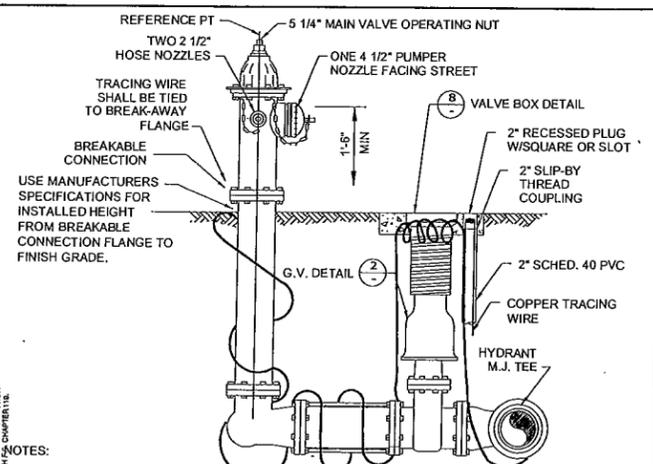
- NOTES:
- GATE VALVES SHALL BE RESILIENT WEDGE-TYPE MANUFACTURED BY MUELLER, AMERICAN VALVE, OR EQUAL. ALL GATE VALVES SHALL BE FUSION BONDED EPOXY COATED (INTERIOR AND EXTERIOR) MEET ANSII/AWWA C550, AND BE NSF61 CERTIFIED.
 - FOR VALVES LARGER THAN 12" IN DIAMETER AN OFFSET GEAR ACTUATED OPERATOR IS REQUIRED.
 - VALVE SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, PURPLE = REUSE)

2 GATE VALVE DETAIL
WSR-1 SCALE: NONE (WATER AND REUSE ONLY)



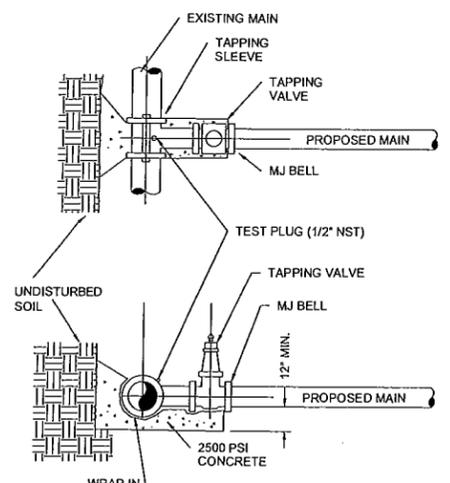
- NOTES:
- ENGRAVED LABEL W/ 1/4" LETTERS, WHITE ON BLACK, MOUNTED W/ 2 ALUM RIVETS ON INSIDE BACK PANEL ABOVE ARV WITH WORDS "POTABLE WATER"
 - S.S. = STAINLESS STEEL

ABOVE GROUND AUTOMATIC COMBINATION AIR RELEASE VALVE (CAV)
SCALE: NONE



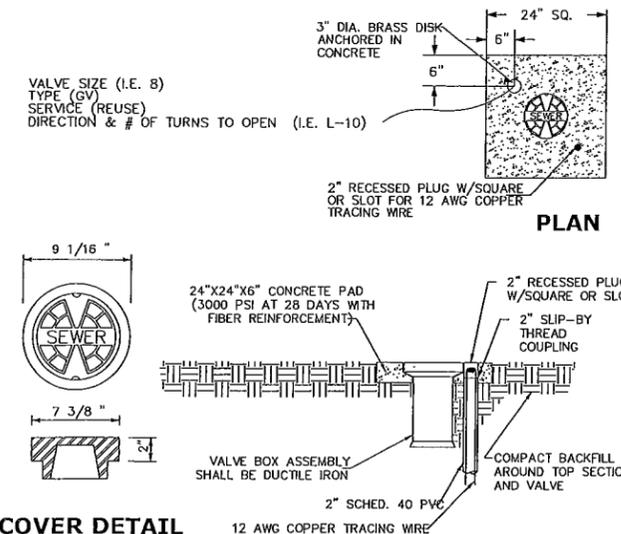
- NOTES:
- POTABLE WATER FIRE HYDRANTS SHALL BE PAINTED "SAFETY YELLOW" (BENJAMIN MOORE- URETHANE ALKYD GLOSS ENAMEL #M2215).
 - REUSE FIRE HYDRANTS SHALL BE PAINTED PANTONE PURPLE 522C AND TAGGED WITH A PERMANENT LABEL "RECLAIMED WATER-DO NOT DRINK."
 - HYDRANT SHALL BE MUELLER SUPER CENTURIAN MODEL A423, AMERICAN B84BV OR CLOW MEDALLION WITH BREAK-AWAY FEATURE. ALL BOLTS SHALL BE SS (BONNET, SAFETY FLANGE, SHOE).
 - RESTRAINED JOINTS SHALL BE USED BETWEEN TEE AND HYDRANT.
 - BAG HYDRANT UNTIL MAINS PASS.
 - ALL WEEP HOLES SHALL BE PLUGGED.
 - PER FLORIDA ADMINISTRATIVE CODE 62-555.314 (4) HYDRANT LOCATED AT LEAST 3' OR MORE FROM ANY STORM WATER PIPE OR DITCH. AT LEAST 6' OR MORE FROM ANY SANITARY SEWER STRUCTURE.
 - FOR CLEARANCE ISSUES, PLEASE REFER TO CURRENT FLORIDA FIRE PREVENTION CODE REQUIREMENTS.
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, PURPLE = REUSE)
 - FIRE HYDRANT ASSEMBLY SHALL BE BEDDED IN 8" OF #57 STONE OR EQUIVALENT.
 - FIRE HYDRANT ASSEMBLY INCLUDES GATE VALVE.

4 FIRE HYDRANT ASSEMBLY
WSR-1 SCALE: NONE



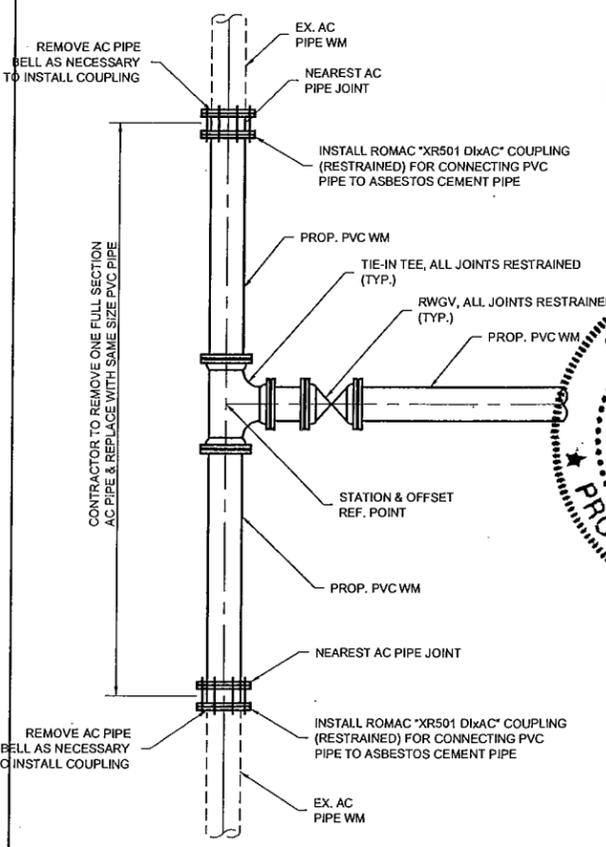
- NOTES:
- EXISTING MAIN SHALL NOT BE TAPPED UNTIL THE ASSEMBLED SLEEVE AND VALVE ARE TESTED IN PLACE AT A MINIMUM OF 150 PSI FOR THIRTY MINUTES.
 - UPON SUCCESSFUL TAPPING SLEEVE PRESSURE TEST (NOTE 1), THE THRUST BLOCK SHALL BE POURED AND HAVE SET FOR 24 HRS PRIOR TO TAPPING. READY-MADE THRUST BLOCKS CAN BE USED WITH CITY APPROVAL.
 - STAINLESS STEEL TAPPING SLEEVE SHALL BE FORD. ALL HARDWARE SHALL BE STAINLESS STEEL. GASKETS SHALL BE VIRGIN SBR COMPOUND FOR WATER SERVICE.
 - GATE VALVES SHALL BE RESILIENT WEDGE-TYPE MANUFACTURED BY MUELLER OR AMERICAN VALVE. ALL GATE VALVES SHALL BE FUSION BONDED EPOXY COATED (INTERIOR AND EXTERIOR) MEET ANSII/AWWA C550, AND BE NSF61 CERTIFIED.

5 TAPPING SLEEVE AND VALVE DETAIL
WSR-1 SCALE: NONE



- NOTES:
- PAVED AREAS: SET CONCRETE PAD AND COVER FLUSH WITH FINISHED PAVEMENT SURFACE.
 - UNPAVED AREAS: SET PAD AND COVER 1 INCH ABOVE FINISHED GRADE.
 - VALVES LOCATED IN DITCH AND OVER 4' DEPTH (LINE) MUST USE TRENCH ADAPTER VALVE BOX (AMERICAN FLOW CONTROL).
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, GREEN = SEWER, PURPLE = REUSE)
 - PRE-CAST PADS MAY BE USED WITH CITY APPROVAL.

8 VALVE BOX DETAIL
WSR-1 SCALE: NONE



- REMOVE AC PIPE BELL AS NECESSARY TO INSTALL COUPLING

AC PIPE TIE-IN DETAIL
SCALE: NONE

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Venice, FL 34285
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Engineering License #2610

King
ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

STONEY L. PO...
LICENSE #...
No. 74168

JAN 04 2013
STATE OF FLORIDA
PROFESSIONAL ENGINEER

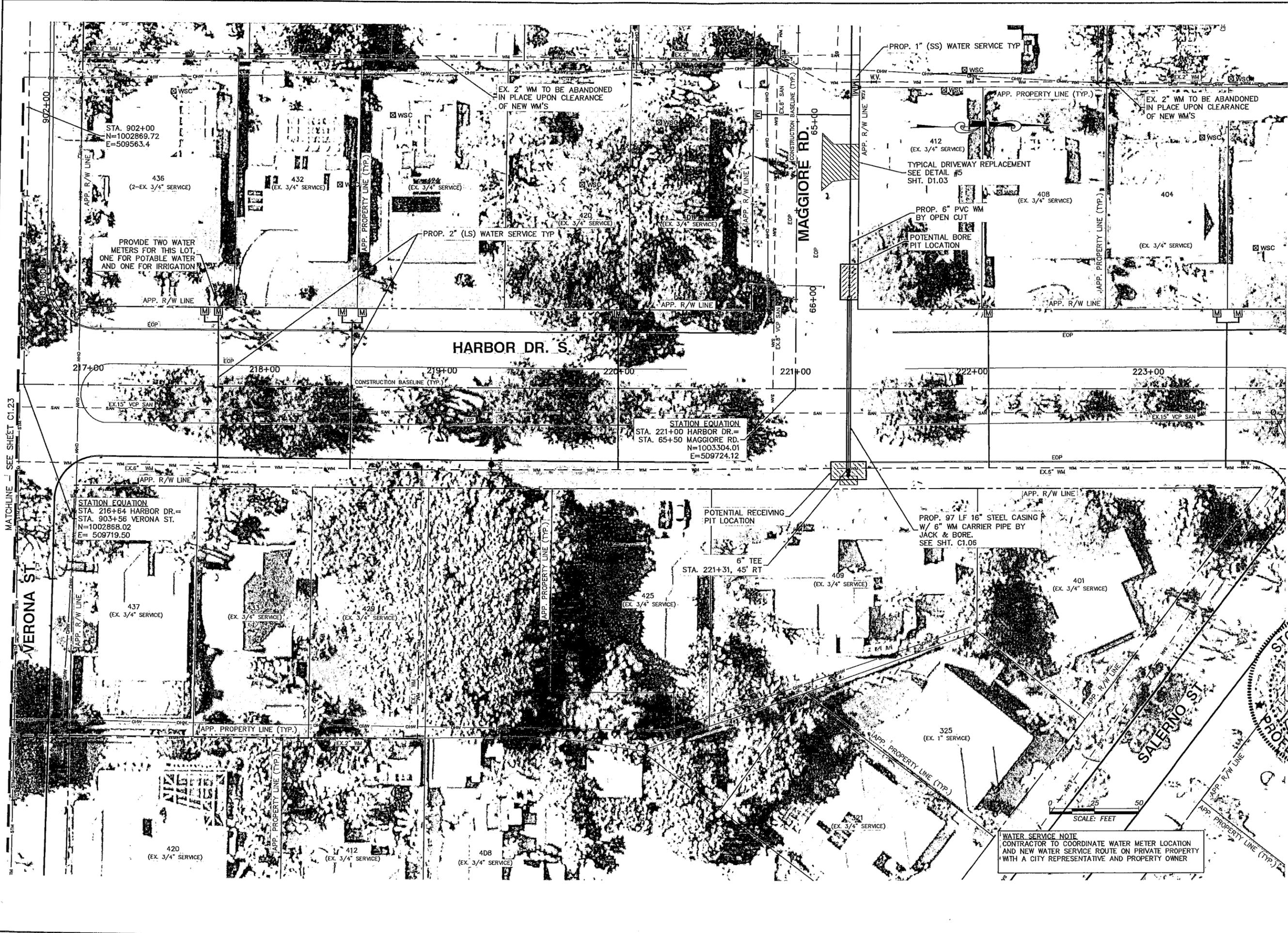
POTABLE WATER DETAILS (1)

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000 SHEET NO. D1.01
DATE: JUNE 2012
SCALE: AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012/51

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DESIGNED: MGS
ENGINEER: CSJORS
DATE: SLP

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**WATER MAIN
REPLACEMENT PROGRAM
PHASE-1**

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number

58-0191792-008

South District
Fort Myers

STONEV L. POPE
LICENSED PROFESSIONAL ENGINEER
No. 74168

JAN 04 2013

STATE OF FLORIDA

PROFESSIONAL ENGINEER

HARBOR DR. S. STA.
216+60 TO 223+78

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000

DATE: JUNE 2012

SCALE: AS SHOWN

SHEET NO. C1.24

254

FDEP PERMIT SUBMITTAL
DEC. 28, 2012

WATER SERVICE NOTE
CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER

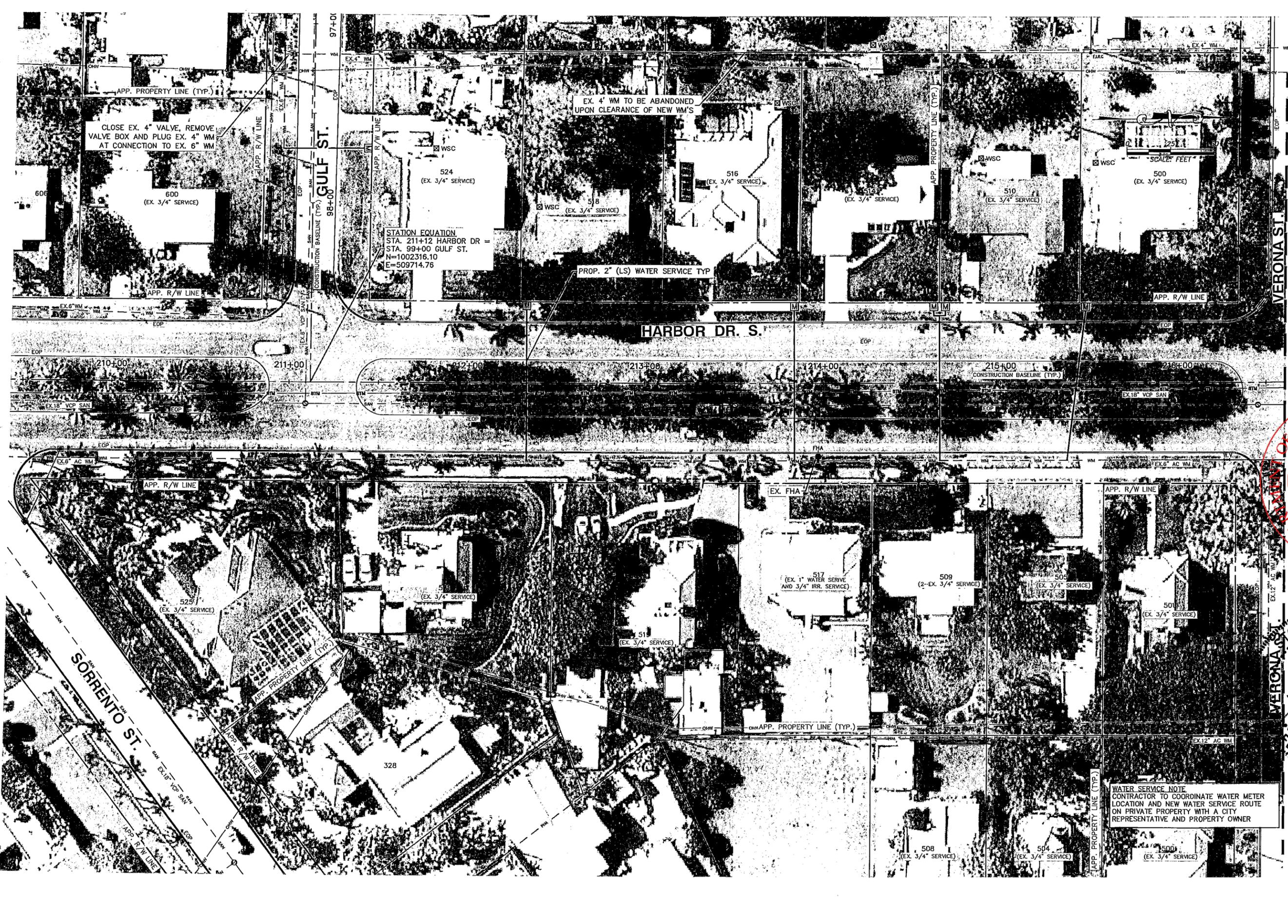
SCALE: FEET
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STATION EQUATION
STA. 221+00 HARBOR DR. =
STA. 65+50 MAGGIORE RD.
N=1003304.01
E=509724.12

STATION EQUATION
STA. 216+64 HARBOR DR. =
STA. 903+56 VERONA ST.
N=1002868.02
E= 509719.50

MATCHLINE - SEE SHEET C1.23

C:\Users\jking\OneDrive\Documents\Projects\2013\123.dwg, January 4, 2013 8:56 AM, OS, King Engineering Associate Inc.



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**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

Permit Number
58-0191792-002
 South District
 Fort Myers

MONEY L. PORTER
 LICENSED PROFESSIONAL ENGINEER
 No. 74168
 JAN 04 2012
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

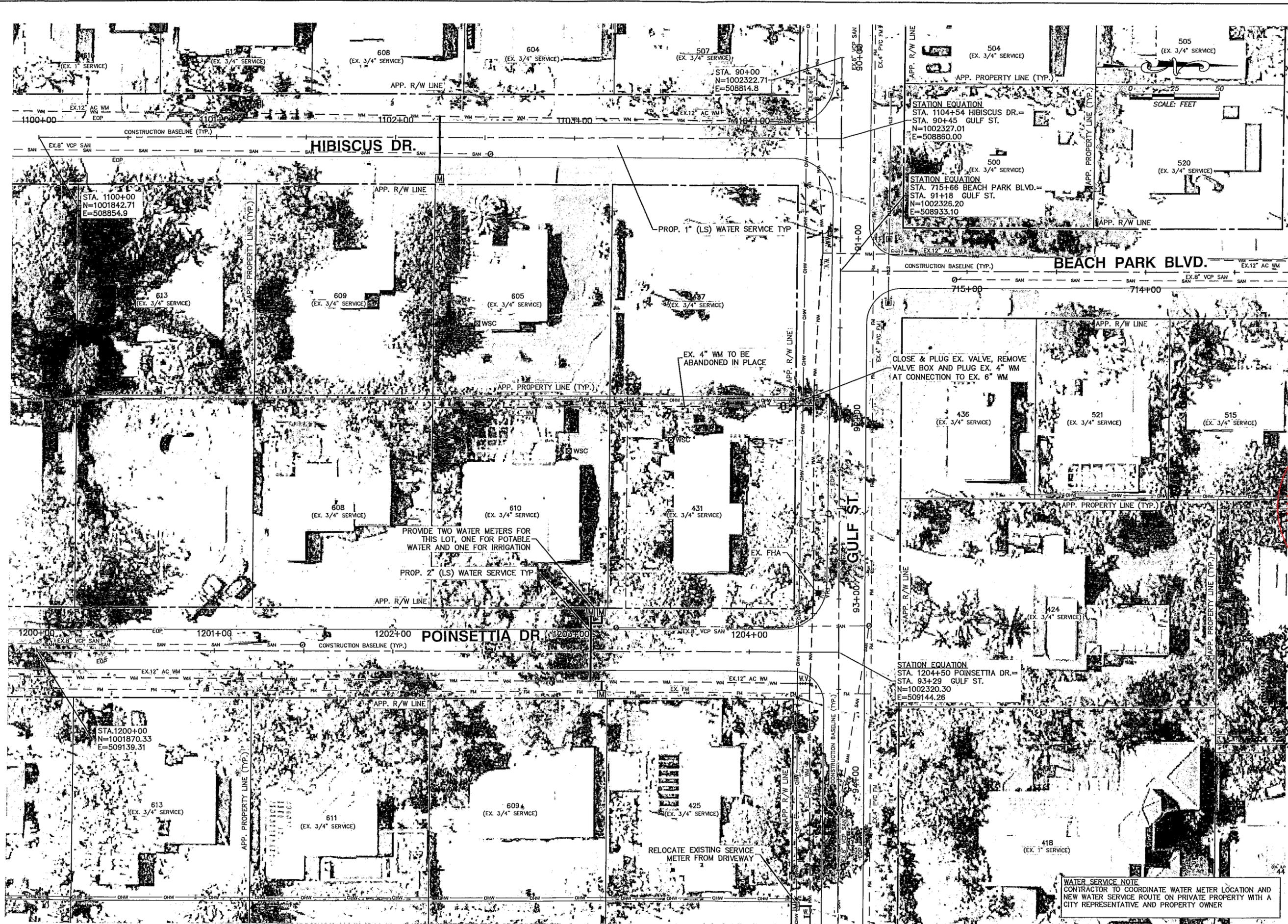
HARBOR DR S. STA.
 209+43 TO 216+60

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JOB NO.	4799-002-000	SHEET NO.	C1.23
DATE	JUNE 2012	SCALE	AS SHOWN
DATE		SCALE	255

FDP PERMIT SUBMITTAL
 DEC. 28, 2012

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DESIGNED: MUG
 DRAWN: MUG
 CHECKED: CS/ORS
 SLIP: GZ

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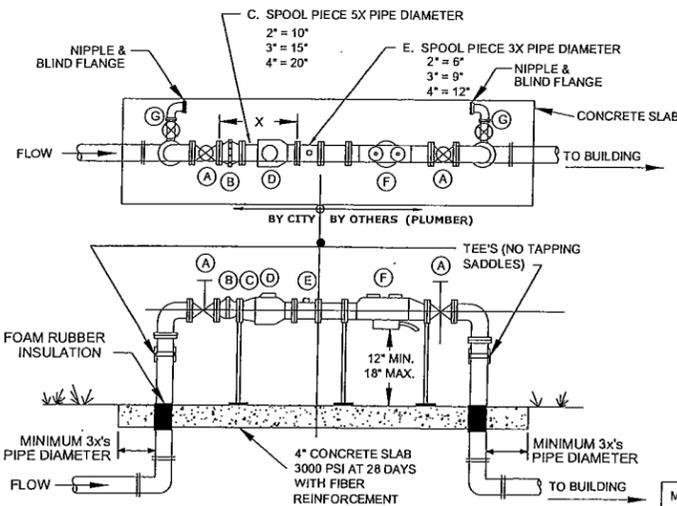
**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Permit Number
58-0191792-002
 South District
 Fort Myers

STONE L. POPP
 LICENSE
 NO. 74168
 JAN 04 2013
 ADAM J. ADAMS
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER

HISBICUS DR. STA. 1100+00 - 1104+54 AND POINSETTA DR. STA. 1200+00 - 1204+50	
<small>THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.</small>	
JOB NO. 4799-002-000	SHEET NO. C1.22
DATE JUNE 2012	SCALE AS SHOWN
AS SHOWN	256
<small>FDEP PERMIT SUBMITTAL DEC. 26, 2012</small>	

WATER SERVICE NOTE
 CONTRACTOR TO COORDINATE WATER METER LOCATION AND NEW WATER SERVICE ROUTE ON PRIVATE PROPERTY WITH A CITY REPRESENTATIVE AND PROPERTY OWNER



- (A) FLANGED GATE VALVE
- (B) STRAINER
- (C) SPOOL PIECE
- (D) METER (PROVIDED BY THE CITY)
- (E) SPOOL PIECE
- (F) BACKFLOW PREVENTION ASSEMBLY
- (G) LOCKABLE BALL VALVE

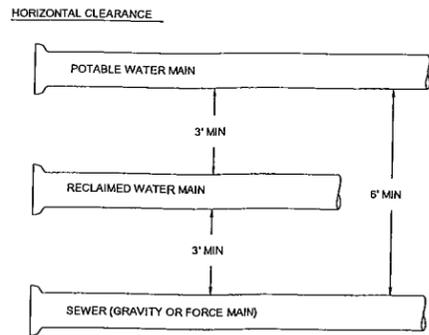
METER SIZE (IN.)	X (IN.)
3/4"	7 1/2"
1"	11"
1 1/2"	13 1/8"
2" PD	17"
2" COMPOUND	15 1/4"
3"	17"
4"	20"

METER SIZE (IN.)	BY-PASS SIZE
3/4"	3/4"
1"	3/4"
1 1/2"	1"
2"	1 1/2"
3"	2"
4"	3"

- NOTES:
- 1.) EITHER 90-DEGREE OR 45-DEGREE FITTINGS MAY BE USED WITH THE REQUIRED LENGTH OF RESTRAINED JOINT FITTINGS.
 - 2.) B. F. P. A. SHALL BE REDUCED PRESSURE TYPE. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE APPROVED BY THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AND/OR ASSE 1013.
 - 3.) ALL CONCRETE PENETRATIONS SHALL REQUIRE PIPE TO BE WRAPPED WITH INSULATING MATERIAL.
 - 4.) VALVES SHALL BE NON-RISING STEM TYPE.
 - 5.) ALL METERS 1 1/2" & UP WILL HAVE FLANGES.
 - 6.) PIPE BETWEEN TAP & ISOLATION VALVE SHALL BE C900 PVC OR DUCTILE.
 - 7.) THE WATER METER AND BACKFLOW PREVENTER SHALL BE THE SAME SIZE.
 - 8.) 2" AND SMALLER METERS REQUIRE A LOCKABLE CURB STOP. 3" AND LARGER METERS WILL HAVE A FLANGED WHEEL HANDLE GATE VALVE.
 - 9.) NO SPOOL PIECE REQUIRED FOR 3/4", 1", OR 1 1/2".
 - 10.) ALL COMMERCIAL AND MULTI FAMILY UNIT METERS MUST BE ABOVE GRADE. BACKFLOW PREVENTION ASSEMBLY NOT REQUIRED FOR REUSE METER.

2 WATER & REUSE METER & BACKFLOW PREVENTION ASSEMBLY

COMMERCIAL / MULTI-UNIT MASTER METER (WITH BY PASS)



MINIMUM SEPARATION DISTANCES (FT)

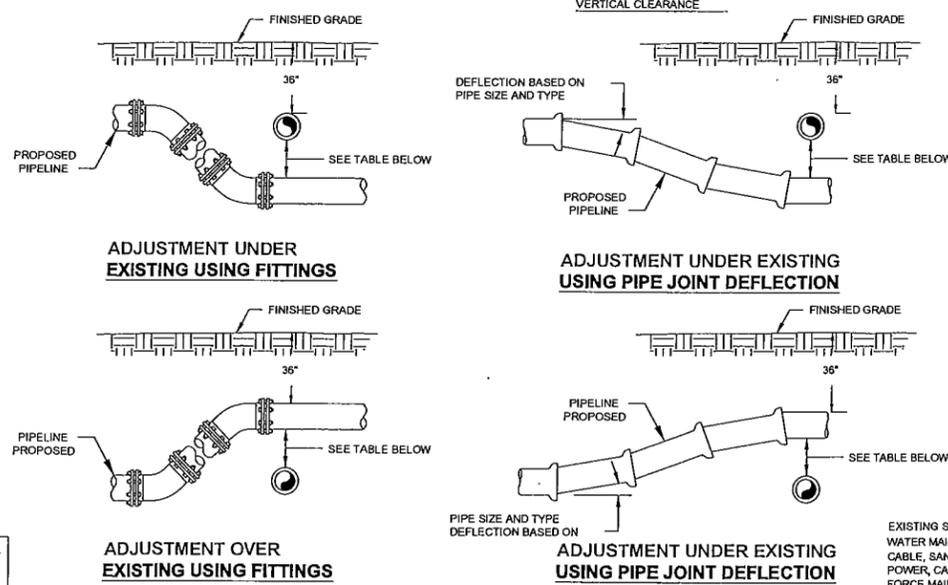
(OUTSIDE OF PIPELINE TO OUTSIDE OF PIPELINE)

PIPELINE TYPE	WATER MAIN	FORCE MAIN	SANITARY SERVICE	REUSE MAIN	STORM WATER	OTHER UTILITIES (TELEPHONE, CABLE, ETC.)
WATER MAIN	3	6	6	3	3	3
FORCE MAIN	6	3	3	3	3	3
SANITARY SEWER	6	3	3	3	3	3
REUSE MAIN	3	3	3	3	3	3
STORM WATER	3	3	3	3	3	3
OTHER UTILITIES	3	3	3	3	3	3

PIPELINE TYPE	WATER MAIN	FORCE MAIN	SANITARY SERVICE	REUSE MAIN	STORM WATER	OTHER UTILITIES (TELEPHONE, CABLE, ETC.)
WATER MAIN	6	12	12	6	6	6
FORCE MAIN	12	6	6	6	6	6
SANITARY SEWER	12	6	6	6	6	6
REUSE MAIN	6	6	6	6	6	6
STORM WATER	6	6	6	6	6	6
OTHER UTILITIES	6	6	6	6	6	6

5 MINIMUM VERTICAL SEPARATION DISTANCES (IN)

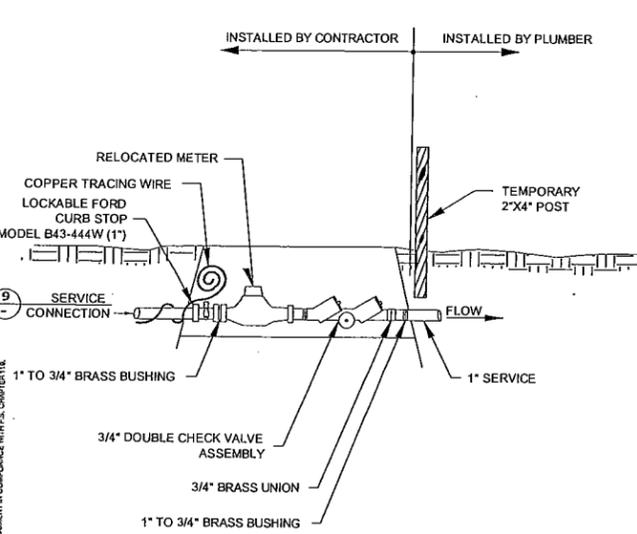
(OUTSIDE OF PIPELINE TO OUTSIDE OF PIPELINE)



ADJUSTMENT UNDER EXISTING USING FITTINGS

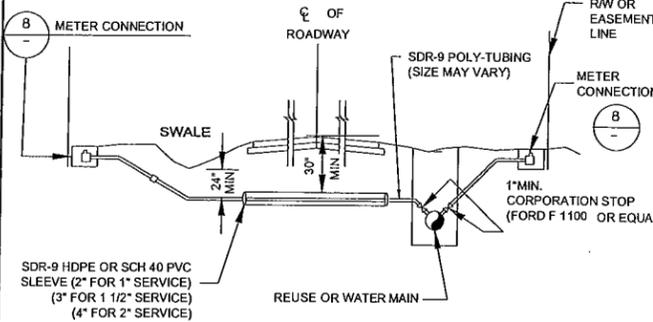
ADJUSTMENT UNDER EXISTING USING PIPE JOINT DEFLECTION

- NOTES:
- 1.) MAXIMUM JOINT DEFLECTION SHALL BE 90% OF MANUFACTURER'S RECOMMENDATION.
 - 2.) WHEREVER POSSIBLE, THE STRATIGRAPHY OF UTILITIES SHALL PLACE SANITARY SEWER AND SEWER FORCE MAINS BELOW RECLAIMED MAINS AND BELOW WATER MAINS, RESPECTIVELY. WHERE WATER MAINS ARE ABOVE GRAVITY SEWERS OR WASTEWATER FORCE MAINS, A VERTICAL CLEARANCE OF 6 INCHES IS ACCEPTABLE.
 - 3.) ACCEPTABLE VARIANCES
 - A. WHERE HORIZONTAL SEPARATION CANNOT BE MAINTAINED, C900 DR14 PVC PIPE SHALL BE USED FOR ONE OF THE PIPELINES.
 - B. WHERE VERTICAL CLEARANCE CANNOT BE MAINTAINED, ONE FULL LENGTH OF DUCTILE IRON PIPE OR DR14 C900 PIPE SHALL BE INSTALLED CENTERED AT THE POINT OF CROSSING.
 - C. WHERE 30" MINIMUM DEPTH OF COVER CANNOT BE MAINTAINED, SPECIAL PROTECTION OR PIPE MATERIAL UPGRADE MAY BE REQUIRED, AT THE DISCRETION OF THE CITY ENGINEER.
 - 4.) NO WATER PIPE SHALL PASS THROUGH, OR COME IN CONTACT WITH ANY PART OF A SANITARY MANHOLE OR STORMWATER STRUCTURE.



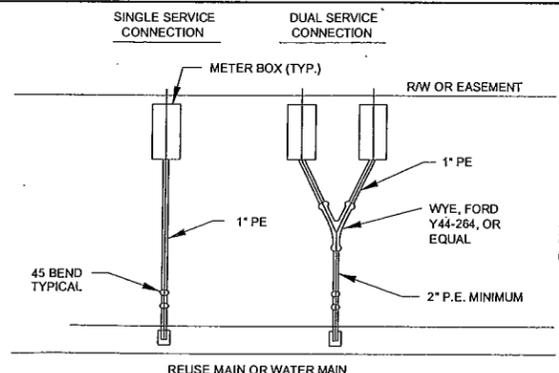
6 RESIDENTIAL WATER METER

RESIDENTIAL USE ONLY



9 SERVICE CONNECTIONS

- NOTES:
1. TAPS SHALL NOT BE CLOSER THAN TWO FEET APART OR WITHIN TWO FEET OF ANY JOINT.
 2. TAPS IN MULTIPLE GROUPS SHALL NOT BE MADE IN THE SAME LONGITUDINAL LINE OF THE PIPE BUT MUST BE STAGGERED VERTICALLY.
 3. TAPPING SADDLE SHALL BE EPOXY COATED, DUCTILE IRON BODY WITH STAINLESS STEEL BAND(S) AND HARDWARE.
 4. BRASS FITTINGS AND BALL VALVES SHALL BE FORD F1100 OR EQUAL.
 5. ALL SERVICES SHALL BE 1" MIN. FROM THE CORPORATION STOP TO THE CURBSTOP. ALL SERVICES SHALL HAVE COPPER TRACING WIRE.
 6. ALL SLEEVE ENDS SHALL BE SEALED WITH FOAM SEAL.
 7. STEEL INSERT STIFFENERS WILL NOT BE ACCEPTABLE.
 8. SLEEVE SHALL BE INSTALLED UNDER THE ROADWAY BY PNEUMATIC BULLET OR DIRECTIONAL DRILL.

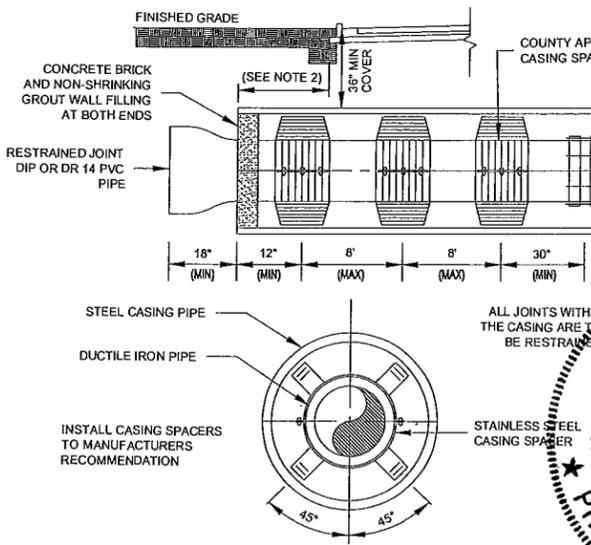


8 METER CONNECTION

RESIDENTIAL USE ONLY

1. A DRILLING BORE LOG SHALL BE SUBMITTED WITHIN SEVEN (7) DAYS OF PERFORMING THE BORE. DEPTHS SHALL BE RECORDED AT A MAXIMUM OF EVERY TEN (10) FEET. RECORD DRAWINGS SHALL INDICATE ELEVATIONS.
2. ALL DBs SHALL BE HIGH-DENSITY POLYETHYLENE (HDPE) WITH DR-11 MINIMUM OR EQUAL.
3. PIPE SHALL BE COLOR-CODED BY THE PIPE MANUFACTURED DURING FABRICATION INDICATING APPROPRIATE SERVICE.
4. AIR RELEASE VALVES SHALL BE INSTALLED ON THE UPSTREAM SIDE OF THE BORE, IF SHOWN ON THE DRAWINGS.
5. WELDED MJ ADAPTERS ARE REQUIRED AT BOTH ENDS OF THE BORE. STEEL INSERT STIFFENERS WILL NOT BE ACCEPTABLE.
6. TRACE WIRES REQUIRED. SECURE TO PIPE PRIOR TO PULLING.
7. ISOLATION VALVE SHALL BE INSTALLED ON BOTH SIDES OF DIRECTIONAL BORE.
8. DIRECTIONAL BORING MUST BE COMPLETED BETWEEN THE HOURS OF 8:00 A.M. AND 3:00 P.M.
9. ALL D.B.'S CROSSING A DITCH/SWALE MUST BE AT LEAST 36" BELOW ACTUAL/DESIGN BOTTOM OF CONVEYANCE.

10 DIRECTIONAL BORING (DB)



11 JACK AND BORE DETAIL

CARRIER PIPE NOMINAL DIAMETER	CASING OUTSIDE DIAMETER	CASING WALL THICKNESS
6"	16"	0.250"
8"	20"	0.250"
10"	24"	0.250"
12"	30"	0.312"
16"	30"	0.312"
20"	36"	0.375"
24"	42"	0.500"
30"	48"	0.500"
36"	54"	0.500"
42"	60"	0.500"

- NOTES:
1. PVC PIPE MAY BE USED UPON APPROVAL BY CITY OF VENICE.
 2. WHERE POSSIBLE, CASING SHALL EXTEND 8' PAST E.O.P. AND NO LESS THAN 6' FROM E.O.P.
 3. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS MAY APPLY.
 4. WOODEN CASING SPACERS ARE NOT ACCEPTED.

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WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

STATE OF FLORIDA
PROFESSIONAL ENGINEER
L. POPE
No. 74168

POTABLE WATER DETAILS (2)

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000
DATE JUNE 2012
SCALE AS SHOWN

SHEET NO. D1.02

FDEP PERMIT SUBMITTAL
DEC. 28, 2012

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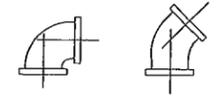
MINIMUM LENGTH (FT) OF FORCE MAIN TO BE RESTRAINED ON EACH SIDE OF FITTING		PIPE SIZE (INCHES)								
FITTING		4	6	8	10	12	16	18	20	24
45 BEND:	H	6	9	12	14	18	21	23	25	29
	VU	4	6	7	9	10	13	15	16	19
	VD	12	20	N/A	32	37	48	53	28	68
22.5 BEND:	H	3	6	7	8	10	11	12	14	
	VU	2	3	4	4	5	6	7	8	9
	VD	7	10	13	15	18	23	26	28	33
11.25 BEND:	H	2	2	3	3	4	5	5	6	7

MINIMUM LENGTH (FT) OF WATER OR REUSE MAIN TO BE RESTRAINED ON EACH SIDE OF FITTING		PIPE SIZE (INCHES)								
FITTING		4	6	8	10	12	16	18	20	24
90 BEND:	H	23	33	43	51	60	76	83	90	104
	VU	6	8	11	13	16	20	22	24	28
	VD	22	30	40	48	56	72	80	87	102
45 BEND:	H	10	14	18	21	25	31	34	37	43
	VU	6	8	11	13	16	20	22	24	28
	VD	22	30	40	48	56	72	80	87	102
22.5 BEND:	H	5	7	8	10	12	15	17	18	21
	VU	3	4	5	6	7	10	11	12	14
	VD	10	15	19	23	27	35	38	42	49
11.25 BEND:	H	2	3	4	5	6	7	8	9	10
	PLUGS:	52	73	96	115	136	174	193	211	246

ABBREVIATIONS: H=HORIZONTAL, VU=VERTICAL UP, VD=VERTICAL DOWN.

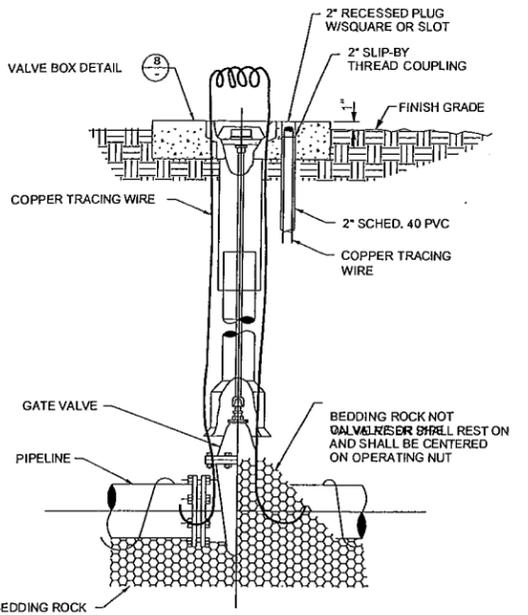
2 PRESSURE MAIN RESTRAINED JOINT TABLES
WSR-3

- NOTES:
- FOR TEE OR REDUCER FITTINGS SUBMIT RESTRAINED JOINT LENGTH CALCULATIONS TO CITY ENGINEER FOR REVIEW AND APPROVAL, USING THE ASSUMPTIONS LISTED
 - RESTRAINED JOINT LENGTH FOR WATER AND REUSE MAINS BASED ON TEST PRESSURE OF 150 PSI. RESTRAINED JOINT LENGTH FOR FORCE (SEWER) MAINS BASED ON TEST PRESSURE OF 100 PSI. CALCULATIONS WERE MADE USING EBAA IRON SOFTWARE (AVAILABLE AT WWW.EBAA.COM) AND THE FOLLOWING ASSUMPTIONS: GRANULAR MATERIAL (GM) SOIL TYPE, TRENCH TYPE 3, BURY DEPTH OF 3 FT, AND SAFETY FACTOR OF 2 TO 1. IF FIELD CONDITIONS DIFFER FROM ABOVE ASSUMPTIONS EOR SHALL PROVIDE CALCULATIONS BASED ON ACTUAL CONDITIONS.
 - RESTRAINED JOINT SHALL BE USED ON ALL JOINTS FROM ANY MAIN TEE TO ANY FIRE HYDRANT ASSEMBLY.
 - THRUST BLOCKS WILL NOT BE ACCEPTED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
 - VALVES SHALL BE RESTRAINED SAME AS PLUGS



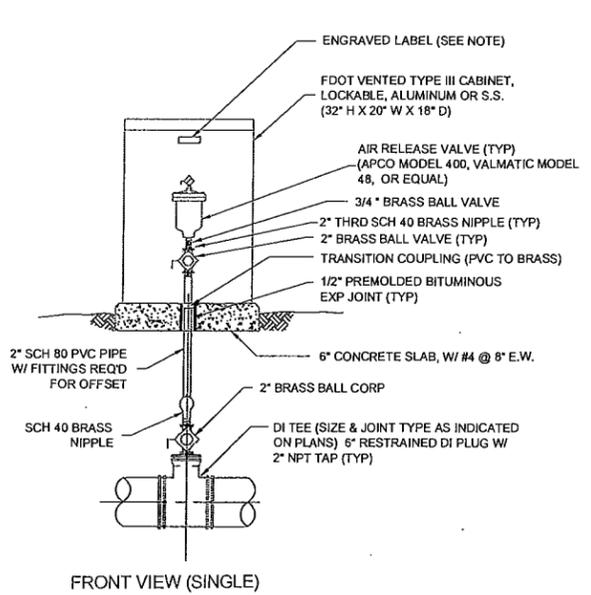
- ALL PIPE FITTINGS SHALL BE COMPACT, DUCTILE IRON.
- ALL APPLICATIONS (RAW, POTABLE, REUSE, SEWER) SHALL BE FUSION BONDED EPOXY COATED INSIDE AND OUT.
- ALL FITTINGS SHALL MEET ANSII/AWWA C116/A21.16 STANDARDS.

7 PIPE FITTINGS
WSR-3



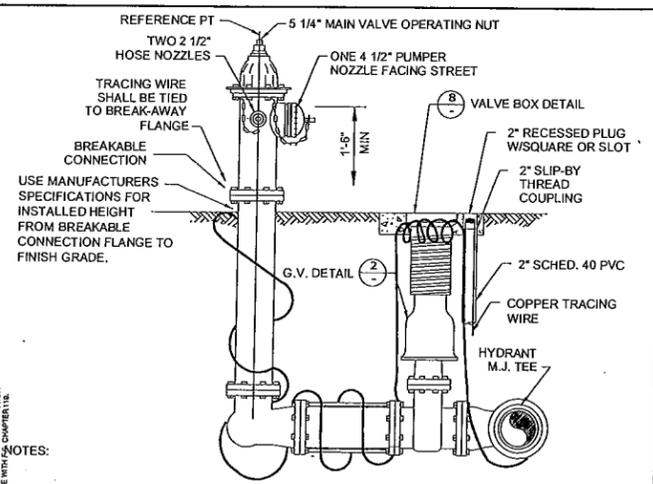
- NOTES:
- GATE VALVES SHALL BE RESILIENT WEDGE-TYPE MANUFACTURED BY MUELLER, AMERICAN VALVE, OR EQUAL. ALL GATE VALVES SHALL BE FUSION BONDED EPOXY COATED (INTERIOR AND EXTERIOR) MEET ANSII/AWWA C550, AND BE NSF61 CERTIFIED.
 - FOR VALVES LARGER THAN 12" IN DIAMETER AN OFFSET GEAR ACTUATED OPERATOR IS REQUIRED.
 - VALVE SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, PURPLE = REUSE)

2 GATE VALVE DETAIL
WSR-1 SCALE: NONE (WATER AND REUSE ONLY)



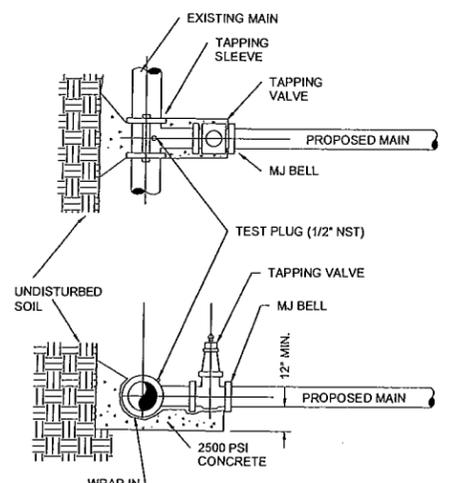
- NOTES:
- ENGRAVED LABEL W/ 1/4" LETTERS, WHITE ON BLACK, MOUNTED W/ 2 ALUM RIVETS ON INSIDE BACK PANEL ABOVE ARV WITH WORDS "POTABLE WATER"
 - S.S. = STAINLESS STEEL

ABOVE GROUND AUTOMATIC COMBINATION AIR RELEASE VALVE (CAV)
SCALE: NONE



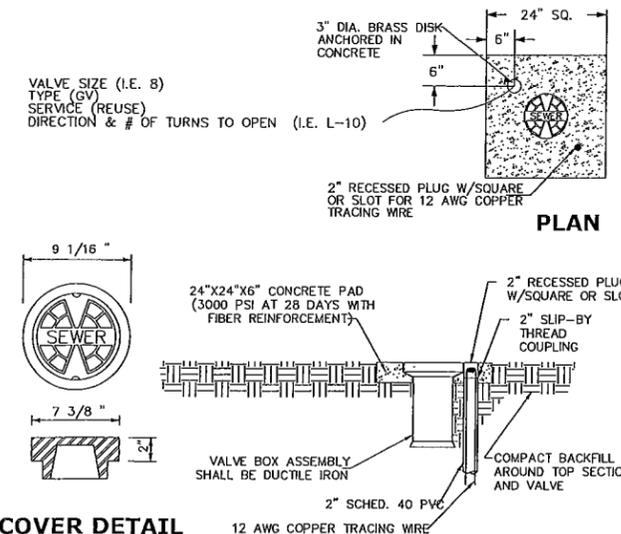
- NOTES:
- POTABLE WATER FIRE HYDRANTS SHALL BE PAINTED "SAFETY YELLOW" (BENJAMIN MOORE- URETHANE ALKYD GLOSS ENAMEL #M2215).
 - REUSE FIRE HYDRANTS SHALL BE PAINTED PANTONE PURPLE 522C AND TAGGED WITH A PERMANENT LABEL "RECLAIMED WATER-DO NOT DRINK."
 - HYDRANT SHALL BE MUELLER SUPER CENTURIAN MODEL A423, AMERICAN B84BV OR CLOW MEDALLION WITH BREAK-AWAY FEATURE. ALL BOLTS SHALL BE SS (BONNET, SAFETY FLANGE, SHOE).
 - RESTRAINED JOINTS SHALL BE USED BETWEEN TEE AND HYDRANT.
 - BAG HYDRANT UNTIL MAINS PASS.
 - ALL WEEP HOLES SHALL BE PLUGGED.
 - PER FLORIDA ADMINISTRATIVE CODE 62-555.314 (4) HYDRANT LOCATED AT LEAST 3' OR MORE FROM ANY STORM WATER PIPE OR DITCH. AT LEAST 6' OR MORE FROM ANY SANITARY SEWER STRUCTURE.
 - FOR CLEARANCE ISSUES, PLEASE REFER TO CURRENT FLORIDA FIRE PREVENTION CODE REQUIREMENTS.
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, PURPLE = REUSE)
 - FIRE HYDRANT ASSEMBLY SHALL BE BEDDED IN 8" OF #57 STONE OR EQUIVALENT.
 - FIRE HYDRANT ASSEMBLY INCLUDES GATE VALVE.

4 FIRE HYDRANT ASSEMBLY
WSR-1 SCALE: NONE



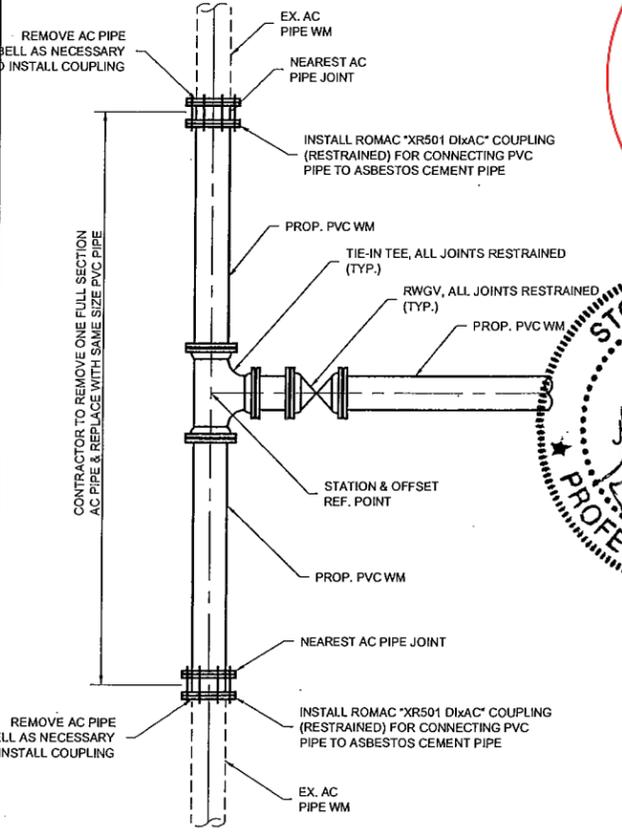
- NOTES:
- EXISTING MAIN SHALL NOT BE TAPPED UNTIL THE ASSEMBLED SLEEVE AND VALVE ARE TESTED IN PLACE AT A MINIMUM OF 150 PSI FOR THIRTY MINUTES.
 - UPON SUCCESSFUL TAPPING SLEEVE PRESSURE TEST (NOTE 1), THE THRUST BLOCK SHALL BE POURED AND HAVE SET FOR 24 HRS PRIOR TO TAPPING. READY-MADE THRUST BLOCKS CAN BE USED WITH CITY APPROVAL.
 - STAINLESS STEEL TAPPING SLEEVE SHALL BE FORD. ALL HARDWARE SHALL BE STAINLESS STEEL. GASKETS SHALL BE VIRGIN SBR COMPOUND FOR WATER SERVICE.
 - GATE VALVES SHALL BE RESILIENT WEDGE-TYPE MANUFACTURED BY MUELLER OR AMERICAN VALVE. ALL GATE VALVES SHALL BE FUSION BONDED EPOXY COATED (INTERIOR AND EXTERIOR) MEET ANSII/AWWA C550, AND BE NSF61 CERTIFIED.

5 TAPPING SLEEVE AND VALVE DETAIL
WSR-1 SCALE: NONE



- NOTES:
- PAVED AREAS: SET CONCRETE PAD AND COVER FLUSH WITH FINISHED PAVEMENT SURFACE.
 - UNPAVED AREAS: SET PAD AND COVER 1 INCH ABOVE FINISHED GRADE.
 - VALVES LOCATED IN DITCH AND OVER 4' DEPTH (LINE) MUST USE TRENCH ADAPTER VALVE BOX (AMERICAN FLOW CONTROL).
 - COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE USED. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, GREEN = SEWER, PURPLE = REUSE)
 - PRE-CAST PADS MAY BE USED WITH CITY APPROVAL.

8 VALVE BOX DETAIL
WSR-1 SCALE: NONE



- CONTRACTOR TO REMOVE ONE FULL SECTION AC PIPE & REPLACE WITH SAME SIZE PVC PIPE
- REMOVE AC PIPE BELL AS NECESSARY TO INSTALL COUPLING

AC PIPE TIE-IN DETAIL
SCALE: NONE

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King
ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

STONEY L. PO...
LICENSE #...
No. 74168

JAN 04 2013
STATE OF FLORIDA
PROFESSIONAL ENGINEER

POTABLE WATER DETAILS (1)

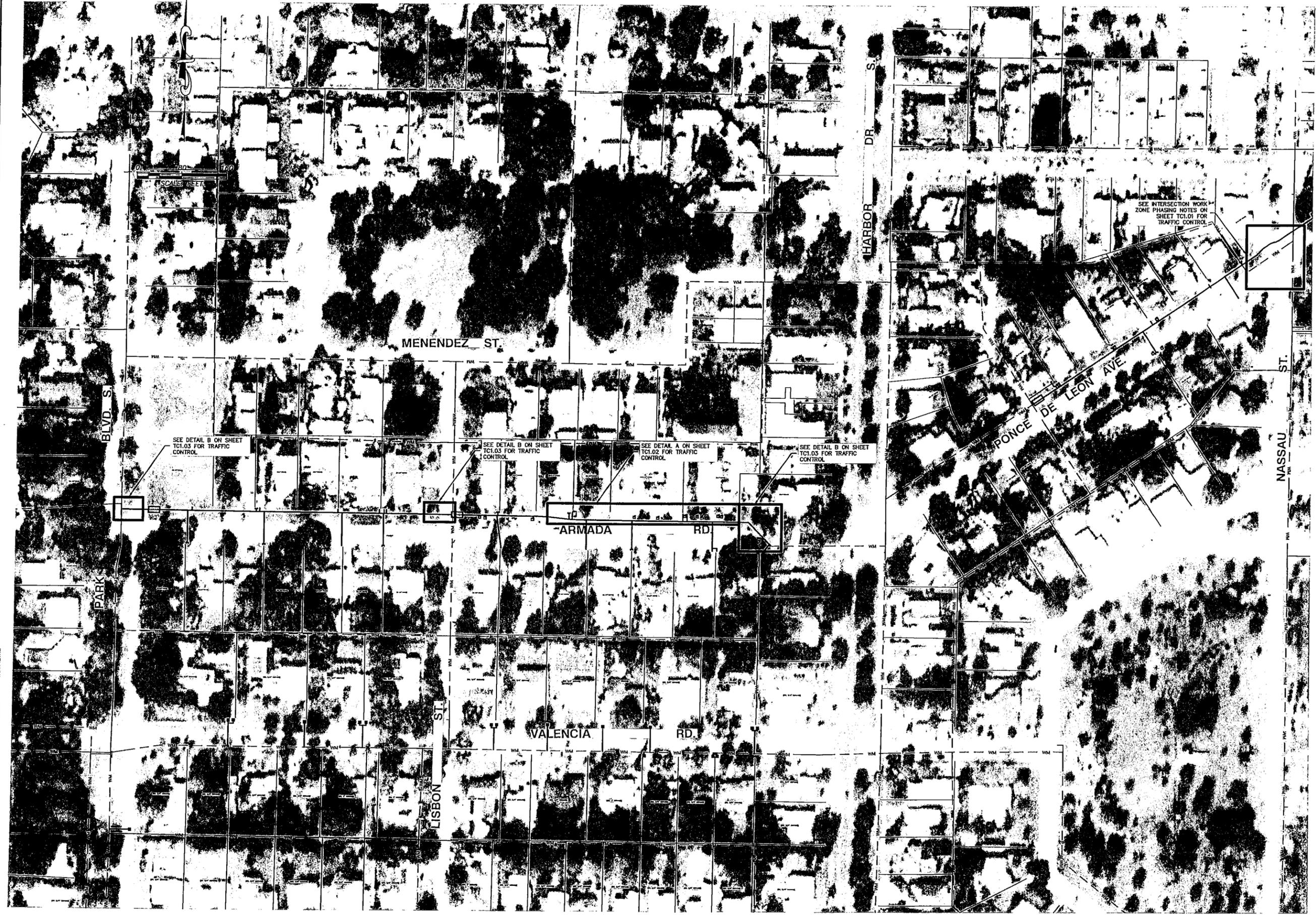
THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000 SHEET NO. D1.01
DATE: JUNE 2012
SCALE: AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012/58

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King
 ENGINEERING ASSOCIATES, INC.

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number
58-0191792-002
 South District
 Fort Myers

TITLE	
TRAFFIC CONTROL PLAN (1)	
THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.	
JOB NO. 4799-002-000	SHEET NO. TC2.01
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012 259	

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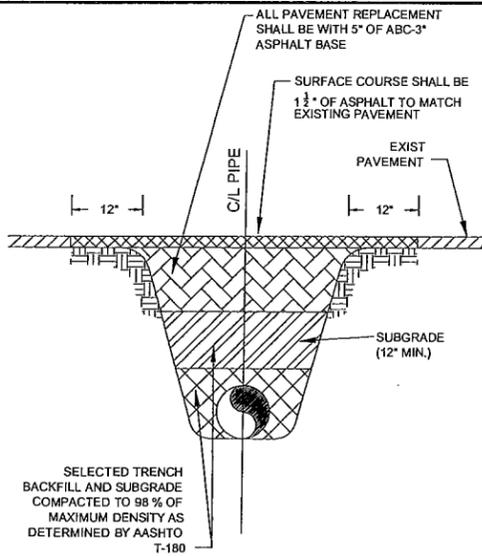
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King
 ENGINEERING ASSOCIATE, INC.

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

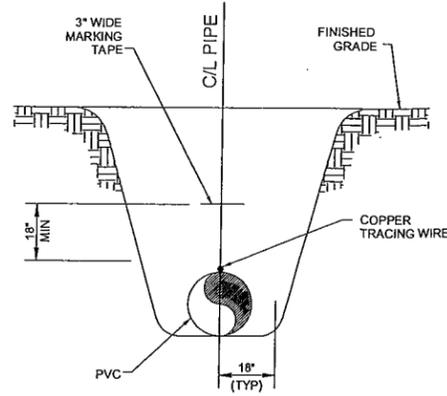


TITLE	
TRAFFIC CONTROL PLAN (2)	
THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.	
JOB NO. 4799-002-000	SHEET NO. TC2.02
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012 260	



- NOTES:
- 1.) ALTERNATIVE BASE COURSE MATERIALS WITH EQUIVALENT STRUCTURAL THICKNESSES WILL BE CONSIDERED. HOWEVER, SHELL IS UNACCEPTABLE. CEMENT TREATED BASE MATERIAL MUST YIELD COMPRESSIVE STRENGTH WITHIN THE RANGE OF 175 TO 275 PSI. CRUSH CONCRETE AGGREGATE MUST HAVE AN LBR ≥ 150 .
 - 2.) REQUIREMENTS FOR INSTALLATION OF PIPELINES IS SHOWN IN DETAIL 1, SHEET 5 OF THESE STANDARDS.
 - 3.) FLOWABLE FILL CONCRETE MAY BE USED IN LIEU OF BACKFILL AND PAVEMENT SUBCOURSES WITH APPROVAL BY THE CITY ENGINEER. DESIGN AND ACCEPTANCE OF FLOWABLE FILL WILL BE GOVERNED BY APPLICABLE FDOT STANDARDS.

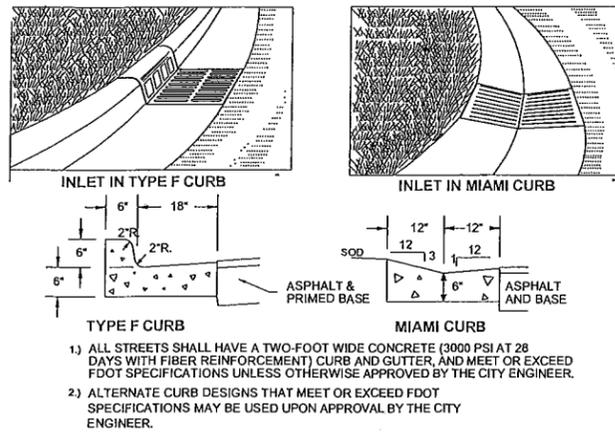
7 PAVEMENT RESTORATION
FOR UTILITY TRENCHES
PS-1



MARKING TAPE AND MESSAGES		
PIPE	TAPE COLOR	MESSAGE
PVC STORM WATER	WHITE	CAUTION STORM WATER OR STORM DRAIN BELOW
POTABLE WATER MAIN	BLUE	CAUTION POTABLE WATER MAIN BELOW
REUSE WATER MAIN	PURPLE	CAUTION REUSE WATER MAIN BELOW
SEWER FORCE MAIN	GREEN	CAUTION SEWER FORCE MAIN BELOW
SEWER & SERVICE LATERALS	GREEN	CAUTION SEWER MAIN BELOW

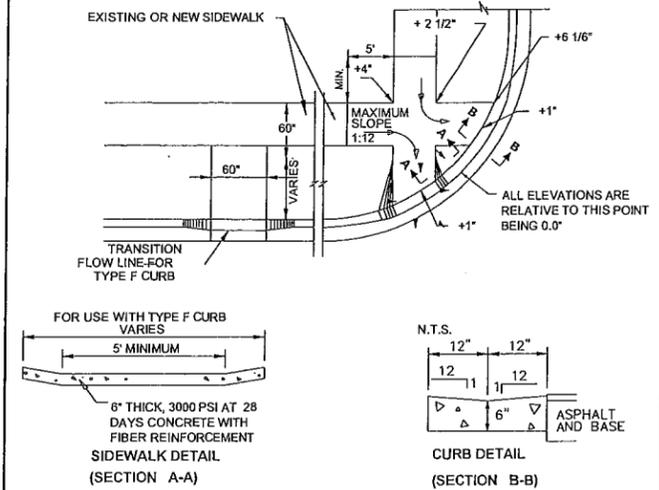
- NOTES:
- 1.) COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE ATTACHED TO TOP OF PIPE AT 20' INTERVALS ON ALL RECLAIMED WATER, FORCE, OR POTABLE WATER MAINS. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, GREEN = SEWER, PURPLE = REUSE)
 - 2.) MINIMUM COVER SHALL BE 30" FROM TOP OF PIPE TO FINISHED GRADE. MAXIMUM COVER SHALL BE 42" FROM FINISHED GRADE UNLESS OTHERWISE APPROVED.
 - 3.) INSTALLATION OF PIPE SHALL BE IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 4.) PAVEMENT RESTORATION SHALL CONFORM WITH DETAIL 7, SHEET 3 OF THESE CITY STANDARDS.
 - 5.) CONFLICTS - UTILIZE 45° BENDS WITH SEPARATION AS PER DETAIL 5, SHEET 6.
 - 6.) ALL UTILITIES (PUBLIC & PRIVATE) THAT CROSS A DITCH/SWALE SHALL BE 36" MIN. BELOW THE ACTUAL/DESIGN BOTTOM OF CONVEYANCE.

1 PIPE TRENCH
SCALE: NONE
WSR-1



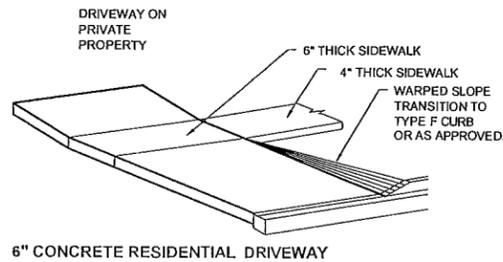
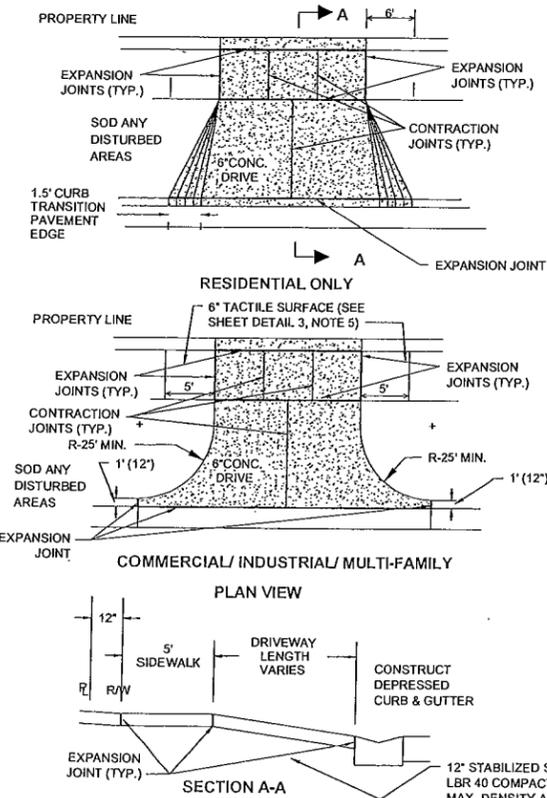
- 4 PAVEMENT STANDARDS**
PS-1
- A.) PUBLIC AND PRIVATE ROADWAYS
- SUBGRADE - TYPE B STABILIZED LBR 40 MIN.
ABC3 - ASPHALT BASE
CTB
CCA
ASPHALTIC CONCRETE
- ALTERNATE PAVEMENT FOR PARKING LOTS ONLY:
SUBGRADE - 12" TYPE B STABILIZED LBR 40 MIN.
PAVEMENT - 6" CONCRETE 3000PSI @ 28 DAYS WITH MAX. 4" SLUMP & FIBER REINFORCEMENT.

4 PAVEMENT STANDARDS
PS-1



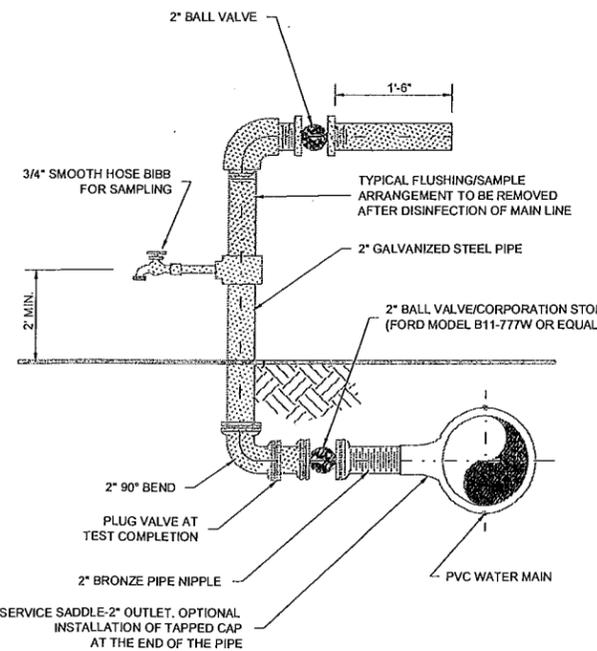
- NOTES:
- 1.) ALL CONCRETE RAMPS SHALL BE 4" THICK, INCREASING TO 6" THICK AT THE CURB FROM A DISTANCE OF 48"
 - 2.) ALL CONNECTIONS TO AN EXISTING SIDEWALK SHALL BE AT AN EXPANSION OR CONTRACTION JOINT
 - 3.) WHERE PEDESTRIAN MOVEMENT CROSSES RAMP, THE MAXIMUM SLOPE SHALL BE 1:12
 - 4.) ALL RAMPS AND WALKS WITHIN THREE FEET OF A FREQUENTLY USED DRIVE (GREATER THAN DUPLEX) SHALL HAVE A TACTILE SURFACE. RAMPS ARE DEFINED AS WALKS WITH A SLOPE GREATER THAN 1:12 AND/OR ADJACENT TO CURBS.
 - 5.) TACTILE SURFACE SHALL BE CAST-IN-PLACE COMPOSITE TACTILE (BRICK RED) (ADA SOLUTIONS OR APPROVED EQUALS), OR CAST-IN-PLACE ULTRA-ADA PADS (BRICK RED) (ULTRA TECH OR APPROVED EQUALS).
 - 6.) ALL MATERIALS & METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE FDOT, "STANDARDS FOR ROAD & BRIDGE CONSTRUCTION". IN ADDITION, CONCRETE SHALL BE 3000 PSI AT 28 DAYS WITH A MAXIMUM 4" SLUMP AND FIBER REINFORCEMENT.

3 TYPICAL HANDICAPPED RAMP
PS-1

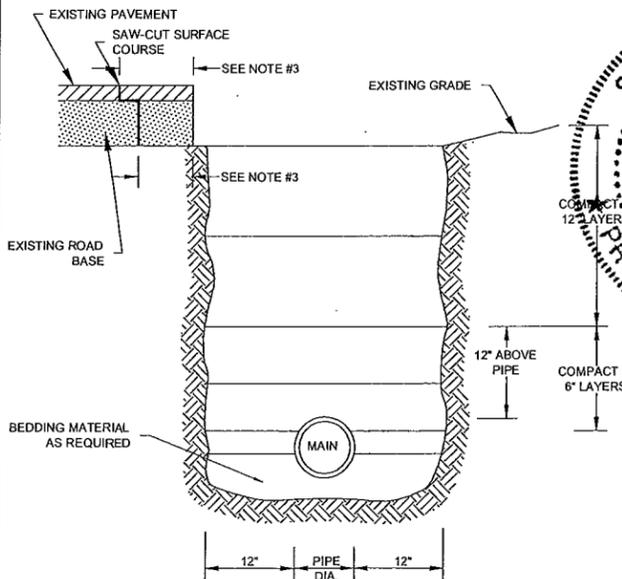


- NOTES:
- 1.) SIDEWALKS SHALL BE CONSTRUCTED OF 3000 PSI AT 28 DAYS CONCRETE (MAXIMUM 4" SLUMP) WITH FIBER REINFORCEMENT.
 - 2.) ALL SIDEWALKS SHALL BE 5' WIDE AND CONSTRUCTED WITH A SLOPE OF 1/4-INCH PER FOOT TOWARD CURB AND GUTTER.
 - 3.) CONTRACTION SAW-CUTS SHALL BE CONSTRUCTED EVERY 5' LENGTH OF SIDEWALK. EXPANSION JOINTS SHALL BE CONSTRUCTED AT 50' INTERVALS.
 - 4.) 1/2-INCH THICK ASPHALTIC FELT OR "PRESSURE TREATED WOOD" SHALL BE PLACED AT EACH EXPANSION JOINT.
 - 5.) EXISTING CURB AND GUTTER SHALL BE REMOVED ONLY AT EXISTING JOINTS.
 - 6.) DRIVEWAY WIDTH AND LOCATION SHALL COMPLY WITH ZONING CODES, SECTIONS 122-446, 62-84, 62-65.
 - 7.) ALL MATERIALS & METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE FDOT, "STANDARDS FOR ROAD & BRIDGE CONSTRUCTION". IN ADDITION, CONCRETE SHALL BE 3000 PSI AT 28 DAYS WITH A MAXIMUM 4" SLUMP AND FIBER REINFORCEMENT.
 - 8.) DRIVEWAY SLOPES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FDOT, "ROADWAY AND TRAFFIC DESIGN STANDARDS", INDEX 515.

5 DRIVEWAY AND SIDEWALK DETAILS
PS-1



TEMPORARY 2" BLOW-OFF / SAMPLE POINT ASSEMBLY
SCALE: NONE



TYPICAL TRENCH BACKFILL DETAIL
SCALE: NONE

City of Venice
Utility Department
200 North Warfield Avenue
Venice, FL 34285
Ph. 941-480-3333

2020 University Parkway
Sarasota, Florida 34243
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Fax 941-358-6540
www.kingengineering.com
Engineering License #7610

King
ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Permit Number
58-0191792-002

South District
Fort Myers

STONEY L. POPE
LICENSED PROFESSIONAL ENGINEER
NO. 74168
FLORIDA
STATE OF

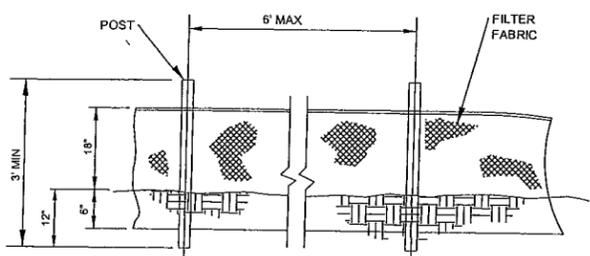
PIPE TRENCHING & PAVEMENT RESTORATION DETAILS

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

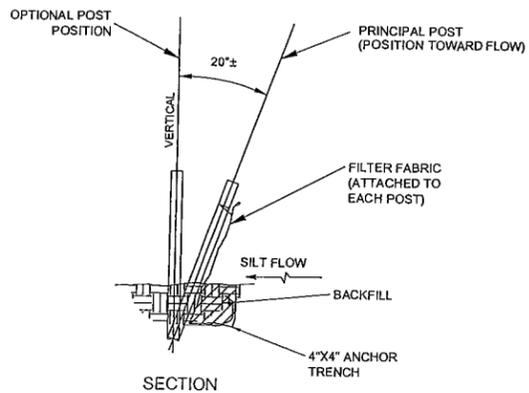
JOB NO. 4799-002-300
DATE: JUNE 2012
SCALE: AS SHOWN

SHEET NO. D1.03

FDEP PERMIT SUBMITTAL
DEC. 28, 2012



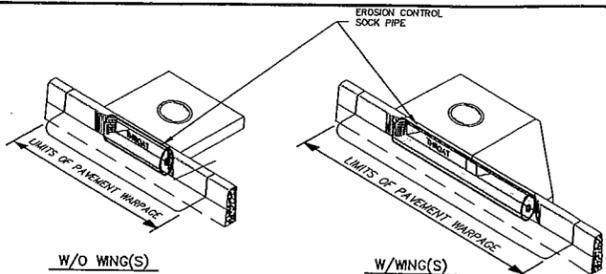
PLAN



SECTION

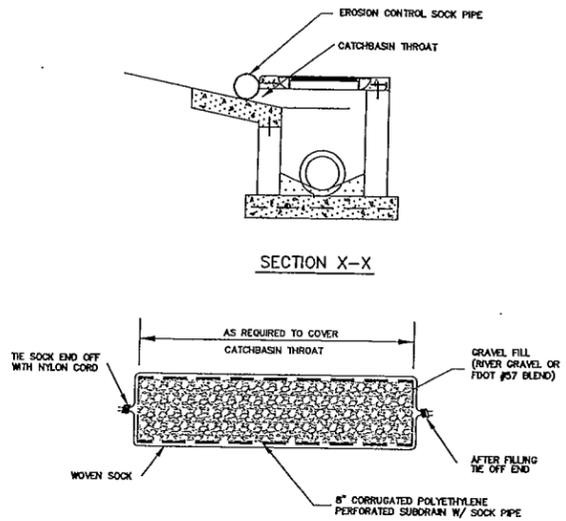
STEEL 1.33 LBS/FT MIN.) POST OPTIONS:
WOOD 2"x4" OR 2 1/2" DIA.

7 SILT FENCE
DS-1 (FDOT INDEX No. 102)



W/O WING(S)

W/WING(S)



SECTION X-X

CURB INLET FILTER SOCK
SEDIMENTATION CONTROL

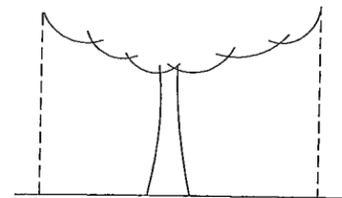


FIGURE A

THE DRIPLINE OF A TREE IS THE IMAGINARY, VERTICAL LINE THAT EXTENDS DOWNWARD FROM THE OUTERMOST TIPS OF THE TREE'S BRANCHES TO THE GROUND (FIG. A)

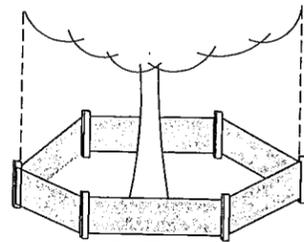
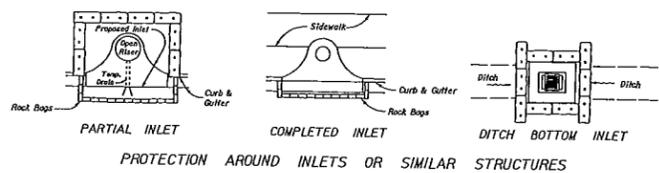


FIGURE B

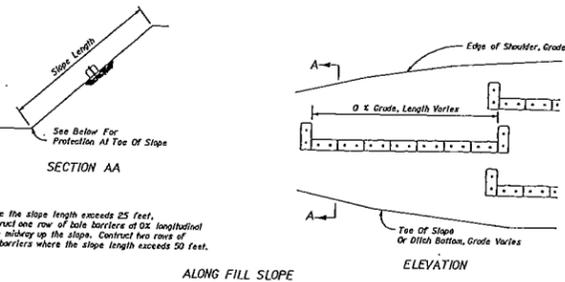
FOUR CORNER UPRIGHT STAKES OF NO LESS THAN 2"x2" LUMBER CONNECTED BY HORIZONTAL MEMBERS OF NO LESS THAN 1"x4" LUMBER; OR UPRIGHT STAKES SPACED AT 5' INTERVALS OF NO LESS THAN 2"x2" LUMBER CONNECTED BY SILT SCREEN FABRIC OR MATERIAL OF COMPARABLE DURABILITY.

NOTE:
DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF A TREE TO REMAIN ON THE SITE.

TREE BARRICADE DETAIL



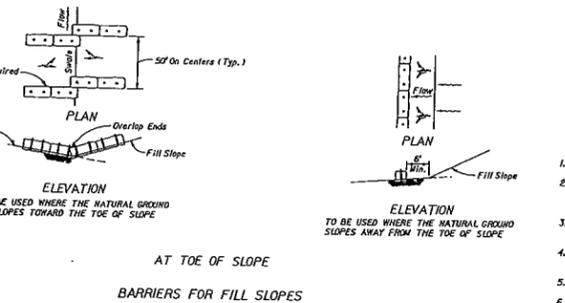
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES



TYPE I
TYPE II
BARRIERS FOR UNPAVED DITCHES

NOTES FOR BALED HAY OR STRAW BARRIERS

- Type I and II barriers should be spaced in accordance with Chart I, Sheet 1.
- Hay bales shall be trenched 3" to 4" and anchored with 2 - 1" x 2" (or 1" dia.) x 4' wood stakes. Stakes of other material or shape providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project.
- Rolls and posts shall be 8" x 4" wood. Other materials providing equivalent strength may be used if approved by the Engineer.
- Adjacent bales shall be lashed firmly together. Unavoidable gaps shall be plugged with hay or straw to prevent silt from passing.
- Where used in conjunction with silt fence, hay bales shall be placed on the upstream side of the fence.
- Bales to be paid for under the contract unit price for Baled Hay or Straw, EA. The unit price shall include the cost of filter fabric for Type I and II barriers. Sand bags shall be paid for under the unit price for Sandbags, CY. Rock bags to be paid for under the contract unit price for Rock Bags, EA.



BARRIERS FOR FILL SLOPES

Notes:
Where the slope length exceeds 25 feet, construct one row of bale barriers of 0x longitudinal grade midway up the slope. Construct two rows of bale barriers where the slope length exceeds 50 feet.

TO BE USED WHERE THE NATURAL GROUND SLOPES TOWARD THE TOE OF SLOPE

TO BE USED WHERE THE NATURAL GROUND SLOPES AWAY FROM THE TOE OF SLOPE



EROSION CONTROL & TREE BARRICADE DETAILS

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. D1.00
DATE JUNE 2012	SCALE AS SHOWN
FDEP PERMIT SUBMITTAL DEC. 28, 2012 265	

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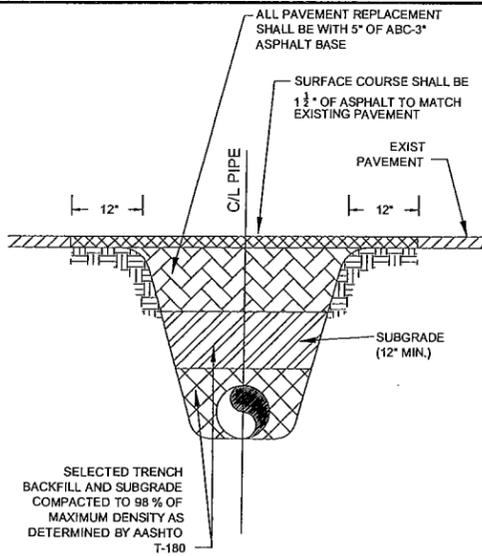
City Of Venice
Utility Department
200 North Warfield Avenue
Venice, FL 34285
Ph. 941-486-3333
Fax. 941-486-3628

2800 University Parkway
Sarasota, Florida 34243
Phone 941-555-6500
Fax 941-555-6540
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Engineering License #6200

King
ENGINEERING ASSOCIATES, INC.

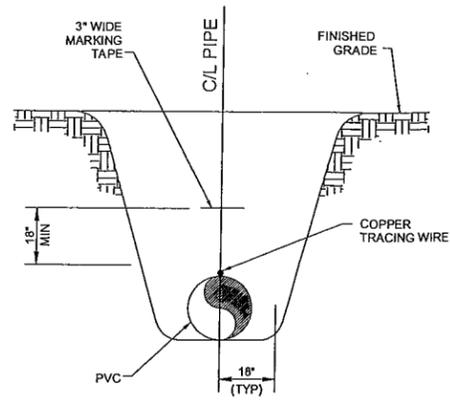
**WATER MAIN
REPLACEMENT PROGRAM
PHASE-1**

DESIGNED	MLG	DATE	
DRAWN			
CHECKED	CS/ORS		
DATE			
BY			
DATE			
DESCRIPTION			



- NOTES:
- 1.) ALTERNATIVE BASE COURSE MATERIALS WITH EQUIVALENT STRUCTURAL THICKNESSES WILL BE CONSIDERED. HOWEVER, SHELL IS UNACCEPTABLE. CEMENT TREATED BASE MATERIAL MUST YIELD COMPRESSIVE STRENGTH WITHIN THE RANGE OF 175 TO 275 PSI. CRUSH CONCRETE AGGREGATE MUST HAVE AN LBR ≥ 150 .
 - 2.) REQUIREMENTS FOR INSTALLATION OF PIPELINES IS SHOWN IN DETAIL 1, SHEET 5 OF THESE STANDARDS.
 - 3.) FLOWABLE FILL CONCRETE MAY BE USED IN LIEU OF BACKFILL AND PAVEMENT SUBCOURSES WITH APPROVAL BY THE CITY ENGINEER. DESIGN AND ACCEPTANCE OF FLOWABLE FILL WILL BE GOVERNED BY APPLICABLE FDOT STANDARDS.

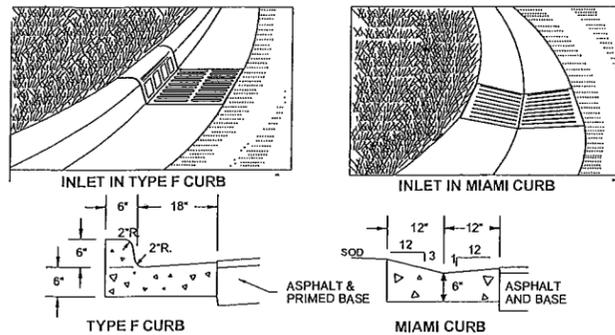
7 PAVEMENT RESTORATION
FOR UTILITY TRENCHES
PS-1



MARKING TAPE AND MESSAGES		
PIPE	TAPE COLOR	MESSAGE
PVC STORM WATER	WHITE	CAUTION STORM WATER OR STORM DRAIN BELOW
POTABLE WATER MAIN	BLUE	CAUTION POTABLE WATER MAIN BELOW
SEWER WATER MAIN	PURPLE	CAUTION SEWER WATER MAIN BELOW
SEWER FORCE MAIN	GREEN	CAUTION SEWER FORCE MAIN BELOW
SEWER & SERVICE LATERALS	GREEN	CAUTION SEWER MAIN BELOW

- NOTES:
- 1.) COPPERHEAD TRACING WIRE PART #1230HS #12 AWG SHALL BE ATTACHED TO TOP OF PIPE AT 20' INTERVALS ON ALL RECLAIMED WATER, FORCE, OR POTABLE WATER MAINS. IT SHALL BE COLOR CODED TO REFLECT WHAT THE PIPE CARRIES. (BLUE = WATER, GREEN = SEWER, PURPLE = REUSE)
 - 2.) MINIMUM COVER SHALL BE 30" FROM TOP OF PIPE TO FINISHED GRADE. MAXIMUM COVER SHALL BE 42" FROM FINISHED GRADE UNLESS OTHERWISE APPROVED.
 - 3.) INSTALLATION OF PIPE SHALL BE IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 4.) PAVEMENT RESTORATION SHALL CONFORM WITH DETAIL 7, SHEET 3 OF THESE CITY STANDARDS.
 - 5.) CONFLICTS - UTILIZE 45° BENDS WITH SEPARATION AS PER DETAIL 5, SHEET 6.
 - 6.) ALL UTILITIES (PUBLIC & PRIVATE) THAT CROSS A DITCH/SWALE SHALL BE 36" MIN. BELOW THE ACTUAL/DESIGN BOTTOM OF CONVEYANCE.

1 PIPE TRENCH
SCALE: NONE
WSR-1



- TYPE F CURB
- 1.) ALL STREETS SHALL HAVE A TWO-FOOT WIDE CONCRETE (3000 PSI AT 28 DAYS WITH FIBER REINFORCEMENT) CURB AND GUTTER, AND MEET OR EXCEED FDOT SPECIFICATIONS UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
 - 2.) ALTERNATE CURB DESIGNS THAT MEET OR EXCEED FDOT SPECIFICATIONS MAY BE USED UPON APPROVAL BY THE CITY ENGINEER.

4 PAVEMENT STANDARDS
PS-1

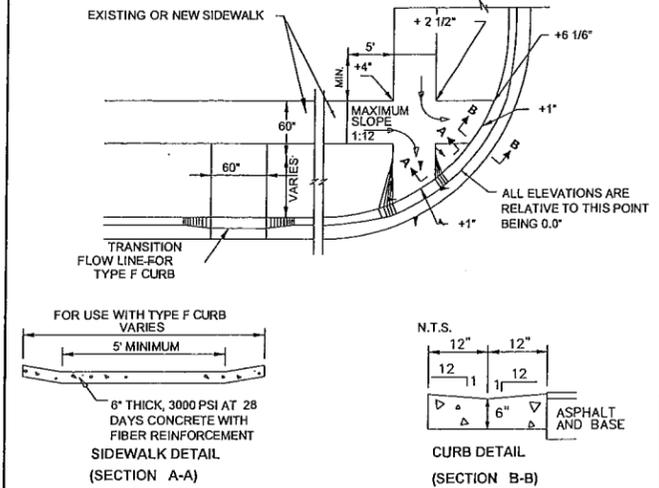
A.) PUBLIC AND PRIVATE ROADWAYS

SUBGRADE - TYPE B STABILIZED LBR 40 MIN.
ABC3 - ASPHALT BASE
CTB
CCA
ASPHALTIC CONCRETE

ALTERNATE PAVEMENT FOR PARKING LOTS ONLY:

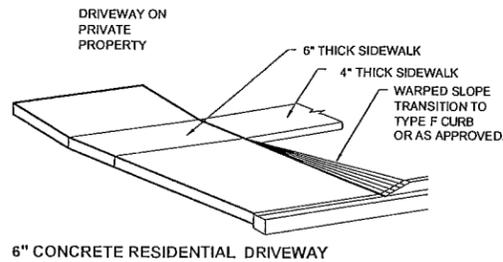
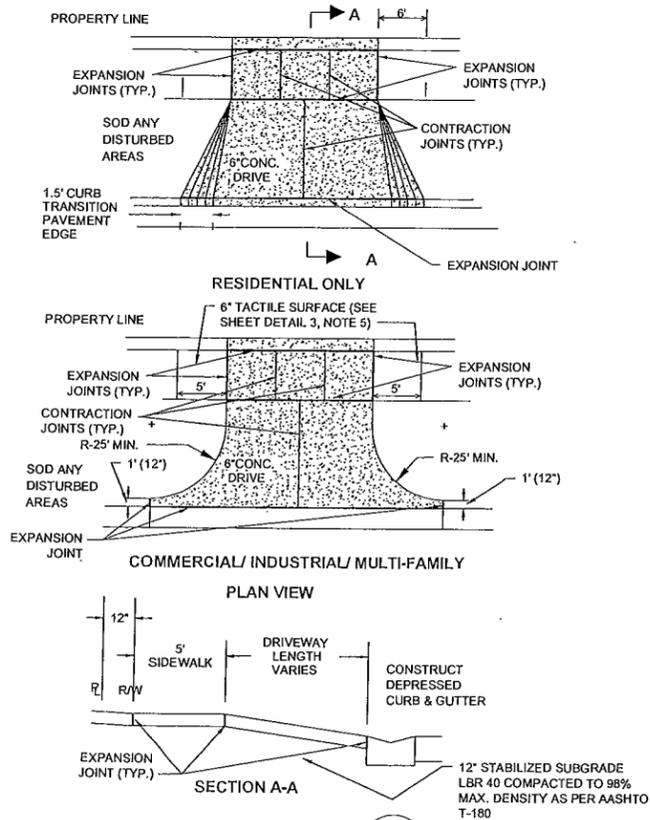
SUBGRADE - 12" TYPE B STABILIZED LBR 40 MIN.
PAVEMENT - 6" CONCRETE 3000PSI @28 DAYS WITH MAX. 4" SLUMP & FIBER REINFORCEMENT.

3 TYPICAL HANDICAPPED RAMP
PS-1



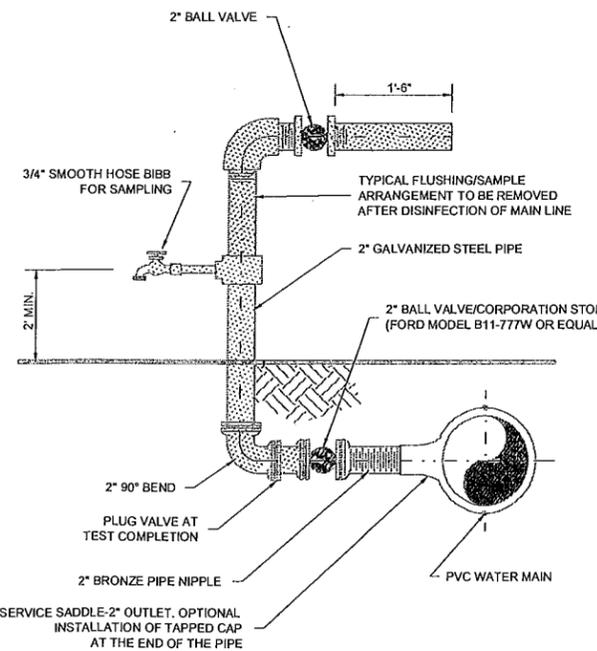
- NOTES:
- 1.) ALL CONCRETE RAMPS SHALL BE 4" THICK, INCREASING TO 6" THICK AT THE CURB FROM A DISTANCE OF 48"
 - 2.) ALL CONNECTIONS TO AN EXISTING SIDEWALK SHALL BE AT AN EXPANSION OR CONTRACTION JOINT
 - 3.) WHERE PEDESTRIAN MOVEMENT CROSSES RAMP, THE MAXIMUM SLOPE SHALL BE 1:12
 - 4.) ALL RAMPS AND WALKS WITHIN THREE FEET OF A FREQUENTLY USED DRIVE (GREATER THAN DUPLEX) SHALL HAVE A TACTILE SURFACE. RAMPS ARE DEFINED AS WALKS WITH A SLOPE GREATER THAN 1:12 AND/OR ADJACENT TO CURBS.
 - 5.) TACTILE SURFACE SHALL BE CAST-IN-PLACE COMPOSITE TACTILE (BRICK RED) (ADA SOLUTIONS OR APPROVED EQUALS), OR CAST-IN-PLACE ULTRA-ADA PADS (BRICK RED) (ULTRA TECH OR APPROVED EQUALS).
 - 6.) ALL MATERIALS & METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE FDOT, "STANDARDS FOR ROAD & BRIDGE CONSTRUCTION". IN ADDITION, CONCRETE SHALL BE 3000 PSI AT 28 DAYS WITH A MAXIMUM 4" SLUMP AND FIBER REINFORCEMENT.

5 DRIVEWAY AND SIDEWALK DETAILS
PS-1

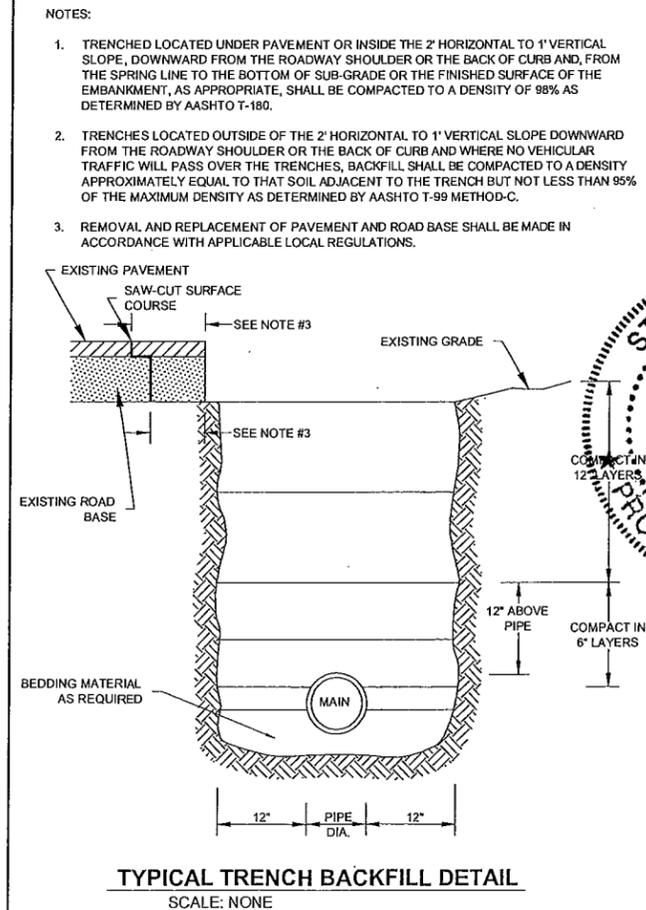


- NOTES:
- 1.) SIDEWALKS SHALL BE CONSTRUCTED OF 3000 PSI AT 28 DAYS CONCRETE (MAXIMUM 4" SLUMP) WITH FIBER REINFORCEMENT.
 - 2.) ALL SIDEWALKS SHALL BE 5' WIDE AND CONSTRUCTED WITH A SLOPE OF 1/4-INCH PER FOOT TOWARD CURB AND GUTTER.
 - 3.) CONTRACTION SAW-CUTS SHALL BE CONSTRUCTED EVERY 5' LENGTH OF SIDEWALK. EXPANSION JOINTS SHALL BE CONSTRUCTED AT 50' INTERVALS.
 - 4.) 1/2-INCH THICK ASPHALTIC FELT OR "PRESSURE TREATED WOOD" SHALL BE PLACED AT EACH EXPANSION JOINT.
 - 5.) EXISTING CURB AND GUTTER SHALL BE REMOVED ONLY AT EXISTING JOINTS.
 - 6.) DRIVEWAY WIDTH AND LOCATION SHALL COMPLY WITH ZONING CODES, SECTIONS 122-446, 62-84, 62-65.
 - 7.) ALL MATERIALS & METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE FDOT, "STANDARDS FOR ROAD & BRIDGE CONSTRUCTION". IN ADDITION, CONCRETE SHALL BE 3000 PSI AT 28 DAYS WITH A MAXIMUM 4" SLUMP AND FIBER REINFORCEMENT.
 - 8.) DRIVEWAY SLOPES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FDOT, "ROADWAY AND TRAFFIC DESIGN STANDARDS", INDEX 515.

5 DRIVEWAY AND SIDEWALK DETAILS
PS-1



TEMPORARY 2" BLOW-OFF / SAMPLE POINT ASSEMBLY
SCALE: NONE



TYPICAL TRENCH BACKFILL DETAIL
SCALE: NONE

City of Venice
Utility Department
200 North Warfield Avenue
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Fax. 941-480-2529

2020 University Parkway
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King
ENGINEERING ASSOCIATES, INC.

WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STONEY L. POPE
LICENSED PROFESSIONAL ENGINEER
NO. 74168
STATE OF FLORIDA
JAN 04 2013

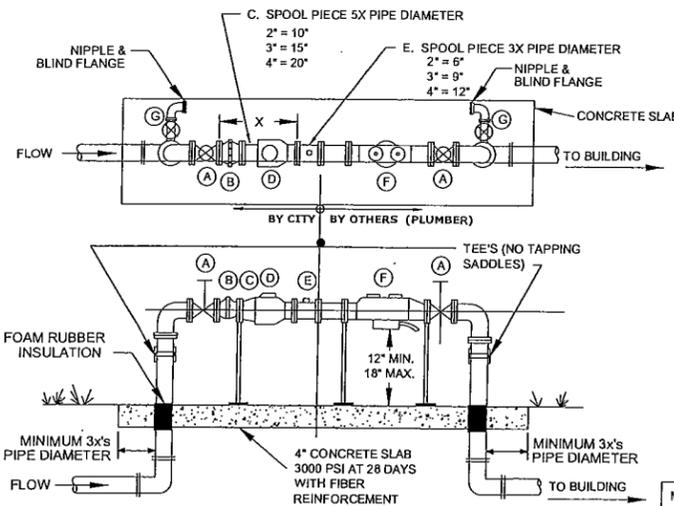
PIPE TRENCHING & PAVEMENT RESTORATION DETAILS

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-300
DATE: JUNE 2012
SCALE: AS SHOWN

SHEET NO. D1.03

FDPE PERMIT SUBMITTAL
DEC. 28, 2012



- (A) FLANGED GATE VALVE
- (B) STRAINER
- (C) SPOOL PIECE
- (D) METER (PROVIDED BY THE CITY)
- (E) SPOOL PIECE
- (F) BACKFLOW PREVENTION ASSEMBLY
- (G) LOCKABLE BALL VALVE

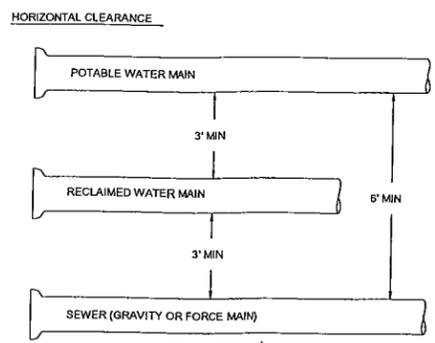
METER SIZE (IN.)	X (IN.)
3/4"	7 1/2"
1"	11"
1 1/2"	13 1/8"
2" PD	17"
2" COMPOUND	15 1/4"
3"	17"
4"	20"

METER SIZE (IN.)	BY-PASS SIZE
3/4"	3/4"
1"	3/4"
1 1/2"	1"
2"	1 1/2"
3"	2"
4"	3"

- NOTES:
- 1.) EITHER 90-DEGREE OR 45-DEGREE FITTINGS MAY BE USED WITH THE REQUIRED LENGTH OF RESTRAINED JOINT FITTINGS.
 - 2.) B. F. P. A. SHALL BE REDUCED PRESSURE TYPE. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE APPROVED BY THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AND/OR ASSE 1013.
 - 3.) ALL CONCRETE PENETRATIONS SHALL REQUIRE PIPE TO BE WRAPPED WITH INSULATING MATERIAL.
 - 4.) VALVES SHALL BE NON-RISING STEM TYPE.
 - 5.) ALL METERS 1 1/2" & UP WILL HAVE FLANGES.
 - 6.) PIPE BETWEEN TAP & ISOLATION VALVE SHALL BE C900 PVC OR DUCTILE.
 - 7.) THE WATER METER AND BACKFLOW PREVENTER SHALL BE THE SAME SIZE.
 - 8.) 2" AND SMALLER METERS REQUIRE A LOCKABLE CURB STOP. 3" AND LARGER METERS WILL HAVE A FLANGED WHEEL HANDLE GATE VALVE.
 - 9.) NO SPOOL PIECE REQUIRED FOR 3/4", 1", OR 1 1/2".
 - 10.) ALL COMMERCIAL AND MULTI FAMILY UNIT METERS MUST BE ABOVE GRADE. BACKFLOW PREVENTION ASSEMBLY NOT REQUIRED FOR REUSE METER.

2 WATER & REUSE METER & BACKFLOW PREVENTION ASSEMBLY

COMMERCIAL / MULTI-UNIT MASTER METER (WITH BY PASS)



MINIMUM SEPARATION DISTANCES (FT)

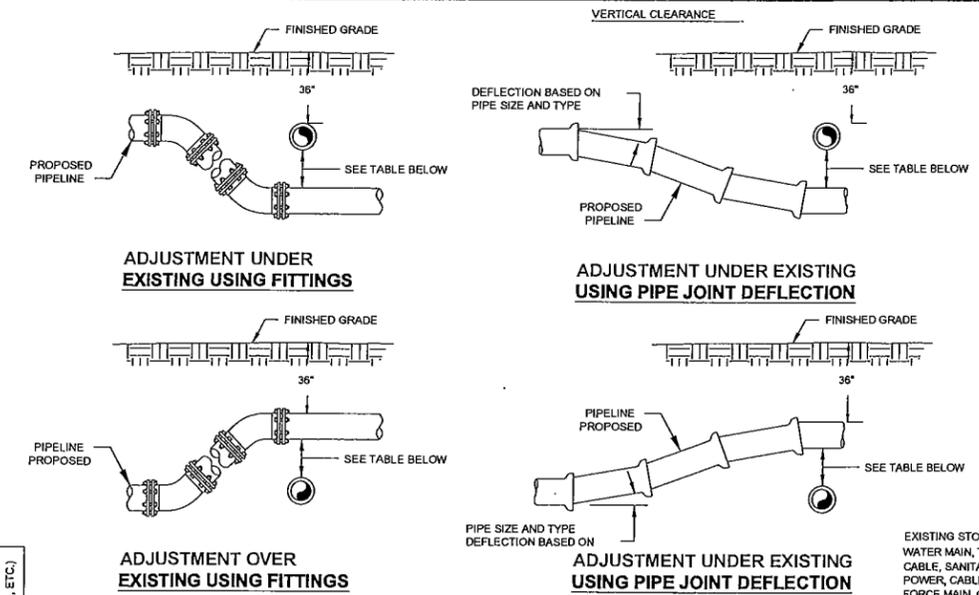
(OUTSIDE OF PIPELINE TO OUTSIDE OF PIPELINE)

	WATER MAIN	FORCE MAIN	SANITARY SERVICE	REUSE MAIN	STORM WATER	OTHER UTILITIES (TELEPHONE, CABLE, ETC.)
WATER MAIN	3	6	6	3	3	3
FORCE MAIN	6	3	3	3	3	3
SANITARY SEWER	6	3	3	3	3	3
REUSE MAIN	3	3	3	3	3	3
STORM WATER	3	3	3	3	3	3
OTHER UTILITIES	3	3	3	3	3	3

	WATER MAIN	FORCE MAIN	SANITARY SERVICE	REUSE MAIN	STORM WATER	OTHER UTILITIES (TELEPHONE, CABLE, ETC.)
WATER MAIN	6	12	12	6	6	6
FORCE MAIN	12	6	6	6	6	6
SANITARY SEWER	12	6	6	6	6	6
REUSE MAIN	6	6	6	6	6	6
STORM WATER	6	6	6	6	6	6
OTHER UTILITIES	6	6	6	6	6	6

MINIMUM VERTICAL SEPARATION DISTANCES (IN)

(OUTSIDE OF PIPELINE TO OUTSIDE OF PIPELINE)



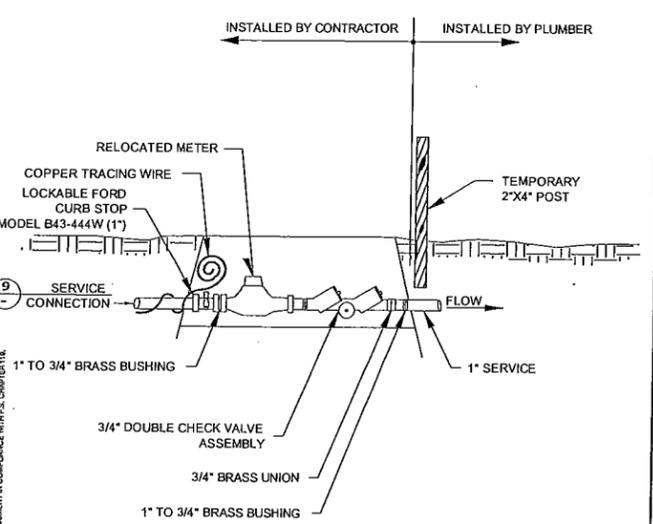
ADJUSTMENT UNDER EXISTING USING FITTINGS

ADJUSTMENT UNDER EXISTING USING PIPE JOINT DEFLECTION

- NOTES:
- 1.) MAXIMUM JOINT DEFLECTION SHALL BE 90% OF MANUFACTURER'S RECOMMENDATION.
 - 2.) WHEREVER POSSIBLE, THE STRATIGRAPHY OF UTILITIES SHALL PLACE SANITARY SEWER AND SEWER FORCE MAINS BELOW RECLAIMED MAINS AND BELOW WATER MAINS, RESPECTIVELY. WHERE WATER MAINS ARE ABOVE GRAVITY SEWERS OR WASTEWATER FORCE MAINS, A VERTICAL CLEARANCE OF 6 INCHES IS ACCEPTABLE.
 - 3.) ACCEPTABLE VARIANCES
 - A. WHERE HORIZONTAL SEPARATION CANNOT BE MAINTAINED, C900 DR14 PVC PIPE SHALL BE USED FOR ONE OF THE PIPELINES.
 - B. WHERE VERTICAL CLEARANCE CANNOT BE MAINTAINED, ONE FULL LENGTH OF DUCTILE IRON PIPE OR DR14 C900 PIPE SHALL BE INSTALLED CENTERED AT THE POINT OF CROSSING.
 - C. WHERE 30" MINIMUM DEPTH OF COVER CANNOT BE MAINTAINED, SPECIAL PROTECTION OR PIPE MATERIAL UPGRADE MAY BE REQUIRED, AT THE DISCRETION OF THE CITY ENGINEER.
 - 4.) NO WATER PIPE SHALL PASS THROUGH, OR COME IN CONTACT WITH ANY PART OF A SANITARY MANHOLE OR STORMWATER STRUCTURE.

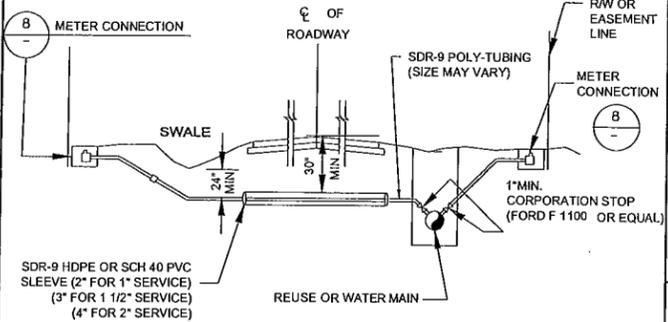
5 UTILITY CONFLICT DETAILS

RES-2



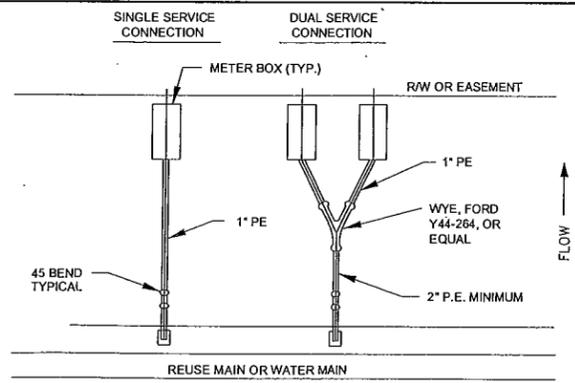
6 RESIDENTIAL WATER METER

RESIDENTIAL USE ONLY



9 SERVICE CONNECTIONS

RES-2



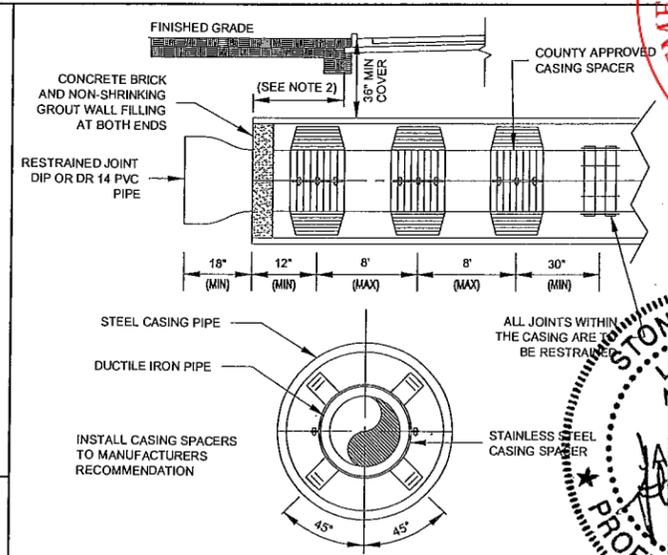
8 METER CONNECTION

RESIDENTIAL USE ONLY

1. A DRILLING BORE LOG SHALL BE SUBMITTED WITHIN SEVEN (7) DAYS OF PERFORMING THE BORE. DEPTHS SHALL BE RECORDED AT A MAXIMUM OF EVERY TEN (10) FEET. RECORD DRAWINGS SHALL INDICATE ELEVATIONS.
2. ALL DBs SHALL BE HIGH-DENSITY POLYETHYLENE (HDPE) WITH DR-11 MINIMUM OR EQUAL.
3. PIPE SHALL BE COLOR-CODED BY THE PIPE MANUFACTURED DURING FABRICATION INDICATING APPROPRIATE SERVICE.
4. AIR RELEASE VALVES SHALL BE INSTALLED ON THE UPSTREAM SIDE OF THE BORE, IF SHOWN ON THE DRAWINGS.
5. WELDED MJ ADAPTERS ARE REQUIRED AT BOTH ENDS OF THE BORE. STEEL INSERT STIFFENERS WILL NOT BE ACCEPTABLE.
6. TRACE WIRES REQUIRED. SECURE TO PIPE PRIOR TO PULLING.
7. ISOLATION VALVE SHALL BE INSTALLED ON BOTH SIDES OF DIRECTIONAL BORE.
8. DIRECTIONAL BORING MUST BE COMPLETED BETWEEN THE HOURS OF 8:00 A.M. AND 3:00 P.M.
9. ALL D.B.'S CROSSING A DITCH/SWALE MUST BE AT LEAST 36" BELOW ACTUAL/DESIGN BOTTOM OF CONVEYANCE.

10 DIRECTIONAL BORING (DB)

RES-2



11 JACK AND BORE DETAIL

RES-2

CARRIER PIPE NOMINAL DIAMETER	CASING OUTSIDE DIAMETER	CASING WALL THICKNESS
6"	16"	0.250"
8"	20"	0.250"
10"	24"	0.250"
12"	30"	0.312"
16"	30"	0.312"
20"	36"	0.375"
24"	42"	0.500"
30"	48"	0.500"
36"	54"	0.500"
42"	60"	0.500"

- NOTES:
1. PVC PIPE MAY BE USED UPON APPROVAL BY CITY OF VENICE.
 2. WHERE POSSIBLE, CASING SHALL EXTEND 8' PAST E.O.P. AND NO LESS THAN 6' FROM E.O.P.
 3. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS MAY APPLY.
 4. WOODEN CASING SPACERS ARE NOT ACCEPTED.

City of Venice
Utility Department
200 North Warfield Avenue
Venice FL 34285
Ph. 941-480-3333
Fax. 941-486-2629

King
ENGINEERING ASSOCIATES, INC.
2920 University Parkway
Stuart, Florida 34233
Phone 941-355-6300
Fax 941-355-6540
www.kingengineering.com
Engineering License #2610

WATER MAIN REPLACEMENT PROGRAM PHASE-1

Permit Number
58-0191792-002
South District
Fort Myers

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STONEY L. POPE
LICENSED PROFESSIONAL ENGINEER
No. 74168

POTABLE WATER DETAILS (2)

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000
DATE JUNE 2012
SCALE AS SHOWN

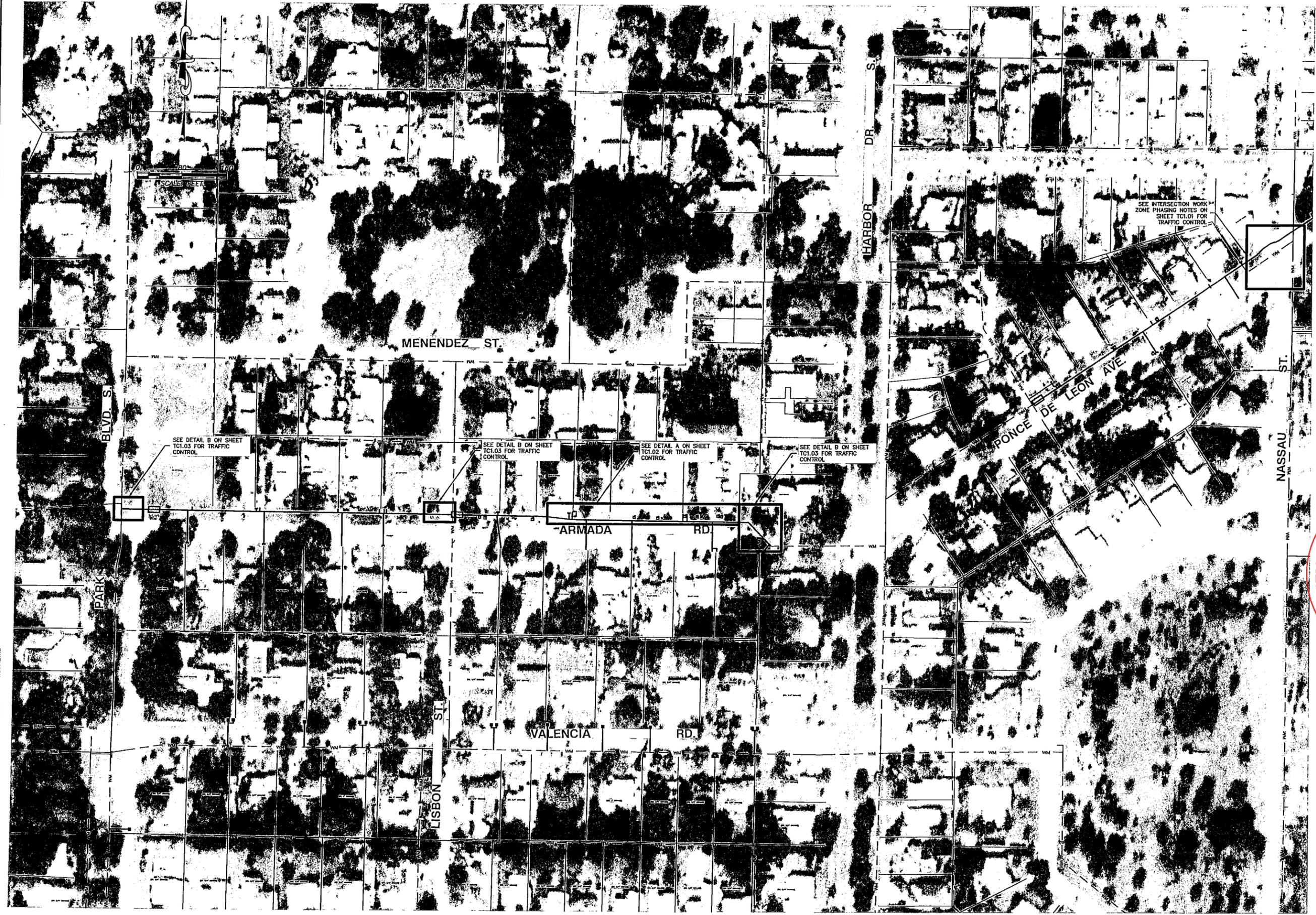
SHEET NO. D1.02

FDEP PERMIT SUBMITTAL
DEC. 28, 2012

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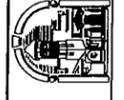
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City Of Venice
 Utility Department
 200 North Warfield Avenue
 Venice FL 34285
 Ph. 941-486-3333
 Fax 941-486-2829

2990 University Parkway
 Sarasota, Florida 34243
 Phone 941-358-6500
 Fax 941-358-6540
 www.kingengineering.com
 Engineering License #2610



King
 ENGINEERING ASSOCIATES, INC.

**WATER MAIN
 REPLACEMENT PROGRAM
 PHASE-1**

Permit Number
58-0191792-002
 South District
 Fort Myers



**TRAFFIC
 CONTROL
 PLAN (1)**

THE SIGNATURE OF THE QUALITY CONTROL OFFICER IN THIS SPACE INDICATES THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED AND THAT CONSTRUCTION IS AUTHORIZED TO COMMENCE.

JOB NO. 4799-002-000	SHEET NO. TC2.01
DATE JUNE 2012	
SCALE AS SHOWN	
FDEP PERMIT SUBMITTED DEC. 28, 2012 272	

REQUIRED FORMS LIST

Each respondent shall return the required information forms as attached:

- Bid Submittal Form
- Proposal Bond
- Local Preference Form
- Qualifications Statement
- Co-operative Procurement with Other Jurisdictions
- Form 3A- Interest in Competitive Bid for Public Business
- Indemnification/Hold Harmless
- FDEP & U.S. EPA Construction Notices of Intent (NOI)
- Statement of References for Contractor
- Contractor's Statement of Sub-contractors
- Drug Free Workplace Certification
- Scrutinized Company Affidavit and Certification
- Non-Collusive Affidavit
- Public Entity Crime Information
- Statement of "No Bid" (if applicable)

All required forms are included in this package. All forms must be filled out and returned with the firm's proposal.

Failure to do so will result in the firm being considered non-responsive and their proposal will be disallowed.

BID ITEMS: WATER MAIN REPLACEMENT PROGRAM – PHASE 1

Item No.	Estimated Quantity	Unit	Description (Print or Type in Words)	Unit Bid Price (In Numbers)	Total Amount (In Numbers)
BASE BID ITEMS					
1	2,255	LF	6" Water Main Installed by HDD Method		
2	445	LF	8" FPVC or 10" HDPE Water Main Installed by HDD Method (at Hatchett Creek)		
3	45	LF	10" Water Main Installed by Open Cut Method		
4	20	LF	8" Water Main Installed by Open Cut Method		
5	2,295	LF	6" Water Main Installed by Open Cut Method		
6	80	LF	4" Water Main Installed by Open Cut Method		
7	97	LF	16" Steel Casing with Ductile Iron Carrier Pipe Installed by Jack and Bore Method		
8	990	LF	4" HDPE or PVC Casing Installed by HDD Method		
9	1	EA	Combination Air/Vacuum Valve Assembly		
10	2.8	TN	Ductile Iron Fittings		
11	2	EA	10" Resilient Wedge Gate Valves with Box		
12	1	EA	8" Resilient Wedge Gate Valves with Box		
13	10	EA	6" Resilient Wedge Gate Valves with Box		
14	4	EA	6" Tapping Sleeves and Valves		
15	1	EA	8"x6"Tapping Sleeve and Valve		
16	7	EA	Fire Hydrant Assemblies		
17	34	EA	Water Services With New Meter Box (Near Side Single)		
18	17	EA	Water Services With New Meter Box (Near Side Tandem)		
19	31	EA	Water Services With New Meter Box (Far Side Single)		
20	21	EA	Water Services With New Meter Box (Far Side Tandem)		
21	6	EA	Water Services Without New Meter Box (Near Side Single)		
22	1	EA	Water Services Without New Meter Box (Near Side Tandem)		
23	7	EA	Water Services Without New Meter Box (Far Side Single)		
24	1	EA	Water Services Without New Meter Box (Far Side Tandem)		
25	60	EA	New Dual Check Valve Assemblies		
26	10	EA	Relocated RPZ Assemblies		
27	141	EA	New Water Service Connections from Meter Assemblies to Existing Buildings		
28	1	LS	Abandonment of Existing Water Mains		

29	2,940	SY	Asphalt Restoration (Within City of Venice Right of Way)		
30	731	SY	Asphalt Restoration (Within Sarasota County Right of Way)		
			BASE BID SUBTOTAL		
31	1	LS	Maintenance of Traffic and Traffic Control		
32	1	LS	General Conditions, Mobilization and Demobilization (Max: 5% of Base Bid Subtotal)		
33	1	LS	Indemnification	\$10.00	\$10.00
34	1	LS	Owner's Allowance	\$50,000	\$50,000
35	1	LS	Permit Fee Allowance	\$15,000	\$15,000
			BASE BID TOTAL		

TOTAL BID PRICE written in words:
Name and address of bidding firm:
Signature and title of authorized individual signing bid

PROPOSAL BOND

**Not to be completed if a certified check is submitted.*

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned,

_____ as Principal,

and _____ as Surety

are held and firmly bound unto the City of Venice, Florida, in the sum of

_____ \$_____, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that if the attached Proposal of Principal and Surety for work specified as:

all as stipulated in said Proposal, by doing all work incidental thereto, in accordance with the plans and specifications provided heretofore, all within Sarasota County, is accepted and the bidder shall within ten (10) days after notice of said award, enter into a contract, in writing, and furnish the required Performance Bond with surety or sureties to be approved by the Director of Purchasing, this obligation shall be void; otherwise the same shall be in full force and virtue by law and the full amount of this Proposal Bond will be paid to the City as stipulated or liquidated damages.

Signed this _____ day of _____, 2013.

Principal

Surety

Principal must indicate whether corporation, partnership, company, or individual.

The person signing shall, in his own handwriting, sign the Principal's name, his own name, and his title. The person signing for a corporation must, by affidavit, show his authority to bind the corporation.

HOW DO I DETERMINE “LOCAL PREFERENCE”

The following questions will help you determine local preference for your company. Please answer questions 1 through 4 **FIRST**. If you answer **NO** to any questions 1 through 4, local preference does **NOT** apply.
ONLY if you answer **YES** to questions 1 through 4, may you proceed to question 5.
If you answer **YES** to any questions 5 through 7, local preference applies.
If you are unsure of how to answer any questions, please contact the City of Venice’s Purchasing Department at 941-486-2626.

Questions 1 – 4

1. Have you paid a local business tax either to Sarasota, DeSoto or Charlotte County (Manatee County does not have a local business tax) authorizing your company to provide goods or services described in this solicitation ?

YES ___ If “yes”, proceed to question 2.

NO ___ If “no”, **STOP, local preference does not apply.**

* If the name on the local business tax receipt is not the same as the name on the bid/solicitation submittal, local preference does not apply.

2. Does your company maintain a permanent physical business address located within the limits of Sarasota, Manatee, DeSoto or Charlotte County ?

YES ___ If “yes”, proceed to question 3.

NO ___ If “no”, **STOP, local preference does not apply.**

3. Does your local business office (identified in question 2) have a least one full time employee ?

YES ___ If “yes”, proceed to question 4.

NO ___ If “no”, **STOP, local preference does not apply.**

4. Do at least fifty percent (50%) of your company employees who are based in the local business location (identified in question 2) reside within Sarasota, Manatee, DeSoto or Charlotte County ?

YES ___ If “yes”, proceed to question 5.

NO ___ If no, **STOP, local preference does not apply.**

Questions 5 – 7

5. Is your local business office (identified in question 2) the primary location (headquarters) of your company ?

YES ___ If “yes”, **STOP, local preference applies.**

NO ___ If “no”, proceed to question 6.

6. If the local business office (identified in question 2) is not the primary location of your company, are at least ten percent (10%) of your company’s entire full-time employees based at the local office location ?

YES If “yes”, STOP, local preference applies

NO If “no”, proceed to question 7

7. If your local business office is not the primary location of your company, does at least one corporate officer, managing partner or principal owner of the company reside in Sarasota, Manatee, DeSoto or Charlotte County ?

YES If “yes”, STOP, local preference applies

NO If “no”, local preference does not apply.

QUALIFICATIONS STATEMENT

The undersigned certifies under oath the truth and correctness of all statements and all answers to questions made hereinafter:

SUBMITTED TO: CITY OF VENICE
Procurement- Finance Department
401 W. Venice Avenue
Venice, Florida 34285

CHECK ONE:
 Corporation
 Partnership
 Individual
 Joint Venture
 Other

SUBMITTED BY:
NAME: _____
ADDRESS: _____
PRINCIPLE OFFICE: _____

State the true, exact, correct and complete legal name of the partnership, corporation, trade or fictitious name under which you do business and the address of the place of business.

The correct name of the Offeror is: _____

The address of the principal place of business is: _____

If the Offeror is a corporation, answer the following:

- a. Date of Incorporation: _____
- b. State of Incorporation: _____
- c. President's Name: _____
- d. Vice President's Name: _____
- e. Secretary's Name: _____
- f. Treasurer's Name: _____
- g. Name and address of Resident Agent: _____

If Offeror is an individual or partnership, answer the following:

- a. Date of Organization: _____
- b. Name, address and ownership units of all partners:

- c. State whether general or limited partnership: _____

If Offeror is other than an individual, corporation partnership, describe the organization and give the name and address of principals:

If Offeror is operating under fictitious name, submit evidence of compliance with the Florida Fictitious Name Statute.

How many years has your organization been in business under its present business name?

a. Under what other former names has your organization operated?

ACKNOWLEDGEMENT

State of _____

County of _____

} SS.

On this the _____ day of _____, 2013, before me, the undersigned Notary Public of the State of _____, personally appeared _____ and (Name(s) of individual(s) who appeared before notary) whose name(s) is/are Subscribed to the within instrument, and he/she/they acknowledge that he/she/they executed it.

NOTARY PUBLIC
SEAL OF OFFICE:

NOTARY PUBLIC, STATE OF _____

(Name of Notary Public: Print, stamp, or type as commissioned)

Personally known to me, or Produced Identification: _____ DID take an oath, or DID NOT take an oath

COOPERATIVE PROCUREMENT WITH OTHER JURISDICTIONS

The vendor, by submitting a bid, authorizes other Public Agencies to "Piggy-Back" or purchase equipment or services being proposed in this invitation to bid at prices bid unless otherwise noted on the proposal sheet.

Yes _____ No _____

AUTHORIZED SIGNATURE

By submission of the ITB, the undersigned certifies that:

1. He/She has not paid or agreed to pay any fee or commission, or any other thing of value contingent upon the award of this contract, to any City of Venice, Florida employee or official or to any current consultant to the City of Venice, Florida;
2. He/She has not paid or agreed to pay any fee or commission or any other thing of value contingent upon the award of this contract to any broker or agent or any other person;
3. The prices contained in this proposal have been arrived at independently and without collusion, consultation, communication or agreement intended to restrict competition.
4. He/She has the full authority of the Offeror or to execute the proposal and to execute any resulting contract awarded as the result of, or on the basis of, the proposal.

Authorized Representative: _____

Signature: _____

Title: _____

Company Name: _____

Address: _____

City, State, ZIP: _____

Telephone Number: _____

Fax Number: _____

E-mail address: _____

FORM 3A INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS

LAST NAME — FIRST NAME — MIDDLE INITIAL			OFFICE / POSITION HELD
MAILING ADDRESS			AGENCY
CITY	ZIP	COUNTY	ADDRESS OF AGENCY

WHO MUST FILE THIS STATEMENT

Sections 112.313(3) and 112.313(7), Florida Statutes, prohibit certain business relationships on the part of public officers and employees, their spouses, and their children. See Part III, Chapter 112, Florida Statutes, and/or the brochure entitled "A Guide to the Sunshine Amendment and Code of Ethics for Public Officers and Employees" for more details on these prohibitions. However, Section 112.313(12), Florida Statutes, provides certain limited exemptions to the above-referenced prohibitions, including one where the business is awarded under a system of sealed, competitive bidding; the public official has exerted no influence on bid negotiations or specifications; AND where disclosure is made, prior to or at the time of the submission of the bid, of the official's or his spouse's or child's interest and the nature of the intended business. This form has been promulgated by the Commission on Ethics for such disclosure, *if and when applicable* to a public officer or employee.

INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS *(Required by § 112.313(12)(b), Fla. Stat.)*

1. The competitive bid to which this statement applies has been / will be (strike one) submitted to the following government agency:		
2. The person submitting the bid is:	NAME ▼	POSITION ▼
3. The business entity with which the person submitting the bid is associated is:		
4. My relationship to the person or business entity submitting the bid is as follows:		
5. The nature of the business intended to be transacted in the event that this bid is awarded is as follows:		
a. The realty, goods, and / or services to be supplied specifically include: _____		

b. The realty, goods, and / or services will be supplied for the following period of time: _____		
c. Will the contract be subject to renewal without further competitive bidding? <input type="checkbox"/> Yes <input type="checkbox"/> No. If so, how often?		
6. Additional comments:		
7. SIGNATURE	DATE SIGNED	DATE FILED

FILING INSTRUCTIONS

If you are a state officer or employee required to disclose the information above, please file this form with the Department of State in Room 316, R.A. Gray Building, 500 South Bronough Street, Tallahassee, Florida 32399-0250. If you are an officer or employee of a political subdivision of this state and are subject to this disclosure, please file the statement with the Supervisor of Elections of the county in which the agency in which you are serving has its principal office.

NOTICE: UNDER PROVISIONS OF FLORIDA STATUTES §112.317, A FAILURE TO MAKE ANY REQUIRED DISCLOSURE CONSTITUTES GROUNDS FOR AND MAY BE PUNISHED BY ONE OR MORE OF THE FOLLOWING: IMPEACHMENT, REMOVAL OR SUSPENSION FROM OFFICE OR EMPLOYMENT, DEMOTION, REDUCTION IN SALARY, REPRIMAND, OR A CIVIL PENALTY NOT TO EXCEED \$10,000.

CE FORM 3A — REV. 1-95

INDEMNIFICATION/HOLD HARMLESS

The elected firm shall (if required by City) defend, indemnify and hold the City, the City's representatives or agents, and the officers, directors, agents, employees, and assigns of each harmless for and against any and all claims, demands, suits, judgments, damages to persons or property, injuries, losses or expenses of any nature whatsoever (including attorneys' fees at trial at appellate level) arising directly or indirectly from or out of any negligent act or omission of the elected firm, its Sub-Offerrors and their officers, directors, agents or employees; any failure of the elected firm to perform its services hereunder in accordance with generally accepted professional standards; any material breach of the elected firm's representations as set forth in the proposal or any other failure of the elected firm to comply with the obligations on its part to be performed under this contract.

Concur _____ Variance _____

I, _____, being an authorized representative of the firm of _____ located at City _____, State _____, Zip Code _____ Phone: _____ Fax: _____. Having read and understood the contents above, hereby submit accordingly as of this Date, _____, 2013.

Please Print Name

Signature

This signed document shall remain in effect for a period of one (1) year from the date of signature or for _____ the contract period, whichever is longer.

CITY OF VENICE, FLORIDA
FDEP & U.S. EPA CONSTRUCTION NOTICES OF INTENT (NOI)

The undersigned bidder acknowledges the requirement of the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) which have published the rules for NPDES General Permits for stormwater discharges from construction sites and said bidder agrees to assist the owner in the preparation of these permits and associated plans. The bidder acknowledges that he has taken these permits and associated construction costs into account in the preparation of his lump sum bid. These permits are mandated under Section 402(p) of the Clean Water Act for “Stormwater Discharge from Construction Activities (including clearing, grading, and excavation activities) that result in the disturbance of five (5) or more acres total land area, including areas that are part of a larger common plan of development or sale.” The EPA has published summary guidance for: “Developing Prevention Plans and Best Management Practices” (EPA 833-R-92-001, October 1992).

The EPA permit format is a *Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity to be covered under a NPDES Permit*, and it is to be submitted according to the NOI instructions. The Stormwater Pollution Prevention Plan which must accompany the NOI must be signed by authorized representatives of the contractor and subcontractors as well as the facility Owner. Copies of the EPA NOI must be provided to state and local agencies who have issued stormwater management, grading, or land alteration permits or approvals.

An NOI must also be submitted to the Florida Department of Environmental Protection, NPDES Stormwater Notices Center, MS 2510, 2600 Blair Stone Road, Tallahassee, FL 32399. FDEP forms may be downloaded from the State’s web site <http://www.dep.state.fl.us/water/stormwater/npdes/> or phone 850-921-9870 if you have questions.

Acceptance of the bid to which this certification and disclosure applies in no way represents the Owner or its Representative has evaluated and thereby determined that the information is adequate to comply with the applicable U.S. EPA or FDEP requirements nor does it in any way relieve the contractor of its sole responsibility to comply with the applicable U.S. EPA and FDEP requirements, including inspection of all control measures at least once each week and following any storm (rainfall) event of 0.5 inches or greater and maintaining reports of each inspection.

Bidder (Company): _____

Name and Title: _____

Address: _____

Telephone: _____

BY SIGNATURE BELOW OF AUTHORIZED REPRESENTATIVE, CONTRACTOR ACKNOWLEDGES RECEIPT OF A COPY OF CITY ORDINANCES 95-12 and 96-09 AND AGREES TO ABIDE BY THE REQUIREMENTS OF SAID ORDINANCES.

Signature: _____ Date: _____

Printed name/title:

ORDINANCE 95-12

AN ORDINANCE OF THE CITY OF VENICE, FLORIDA, AMENDING THE CODE OF ORDINANCES BY AMENDING CHAPTER 9, HEALTH AND SANITATION, ARTICLE IV, DISPOSAL OF EXCRETA, SECTION 9-71, DISCHARGE OF RAW SEWAGE INTO STORMWATER; DELETING ARTICLE V, PROHIBITED STORMWATER DISCHARGES; ADDING CHAPTER 19, WATER AND SEWERS, ARTICLE VI, STORMWATER QUALITY; DELETING CHAPTER 15, STREETS AND SIDEWALKS, ARTICLE IV, EXCAVATIONS, SECTION 15-53, STORM DRAINAGE AND POLLUTION; PROVIDING FOR CONFLICT WITH OTHER ORDINANCES; PROVIDING FOR A SEVERABILITY CLAUSE AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, control of stormwater runoff is necessary from individual lots that do not require a permit from the Southwest Florida Water Management District and requiring compliance with the provisions of the Clean Water Act 33 U.S.C.1251 et.seq., as amended by the Water Quality Act of 1987; and

WHEREAS, the City is desirous of complying with its U.S. Environmental Protection Agency National Pollutant Discharge Elimination System Permit and its Stormwater Master Plan, therefore, stormwater runoff and any discharge to the City storm sewer system will be closely monitored and regulated; and

WHEREAS, the control of stormwater runoff is the responsibility of each individual property owner; and

WHEREAS, the City is desirous of controlling stormwater runoff and insuring compliance with the Comprehensive Plan.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF VENICE, FLORIDA:

SECTION 1. Chapter 9, Water and Sewers, Article IV, Disposal of Excreta, Section 9-71, Discharge of Raw Sewage into Storm Sewer, is amended to read as follows:

Sec. 9-71. Discharge of raw sewage into storm sewer.

It shall be unlawful for any person to discharge raw sewage or to discharge the effluent of and from any septic tank into the storm sewer system of the city or to construct or maintain any system of drainage, pipes, conduits or other apparatus whereby raw sewage or the effluent of and from any septic tank shall or may be discharged into or through the storm sewer system of the city.

SECTION 2. Chapter 9, Water and Sewers, Article V, Prohibited Stormwater Discharges, is deleted in its entirety.

SECTION 3. Chapter 19, Water and Sewers, Article VI, Stormwater Quality is added to read as follows:

ARTICLE VI. STORMWATER QUALITY

Sec. 19-141. Definitions.

As used in this article "industrial stormwater" means stormwater runoff from a site with industrial activities, as defined under 40 CFR Section 122.26(a)(14) U.S. Environmental Protection Agency regulation.

As used in this article "construction sites" refers to all sites.

As used in this article, "illicit discharge" is any discharge of anything other than stormwater to the municipal separate storm sewer system (MS4) or the waters of the State of Florida or the United States.

As used in this article "industrial wastewater" refers to liquids used by an entity in their course of business, that if discharged to the MS4, would degrade the quality of stormwater.

Sec. 19-142. Disposal of industrial stormwater discharges.

The following types of discharges to the municipal separate storm sewer of the city must be controlled as indicated.

(1) **Industrial wastewater/illicit discharge:** Industrial wastewater/illicit discharge may not be discharged to the city's municipal separate storm sewer system.

(2) **Industrial stormwater:** As required to comply with NPDES regulations, the quality of industrial stormwater which is discharged through the city's municipal separate storm sewer system may be subject to regulation or permitting, and any violation of such regulation or permit may be subject to an order to immediately cease such discharge.

Sec. 19-143. Runoff stormwater and Best Management Practice (BMPs) for construction sites.

BMPs shall be implemented as necessary, to insure that all discharges from construction activities are in compliance with the City of Venice EPA/NPDES Stormwater Permit and the Stormwater Master Plan, or the SWFWMD Permit or EPA's NPDES Construction Activity General Permit, whichever is most stringent in its requirements.

Best Management Practices include but are not limited to, the following requirements:

- (a) All site grading shall be conducted in such a manner that all stormwater management facilities located adjacent to the site are not altered in any way which will diminish their designated flow or pollutant removal capacity or the shape of the drainage facility.
- (b) Maintenance of vegetative buffers or use of a silt fence and/or staked hay bales which minimize erosion and retain sediment on site, shall be implemented prior to any construction activities taking place at sites which discharge to surface water or the municipal separate storm sewer system (MS4). These controls, when utilized, shall be secured and properly maintained during construction activities until the site has been stabilized with sod and/or seed and mulch. A double silt fence may be required as an additional measure to insure that discharges from the site are in compliance with water quality standards as established by the EPA/NPDES Stormwater Permit. Undisturbed vegetative buffers shall be maintained intact to the maximum extent possible to reduce erosion and the discharge of sediment from stormwater runoff. All areas of exposed soil shall be stabilized within 72 hours of attaining final grade.
- (c) Storm sewer systems (eg. inlets, pipes and ditches, etc.) adjacent to the site must be protected by a silt fence and/or staked hay bales during construction, to keep solids from entering conveyance systems.
- (d) Vehicles such as concrete or dump trucks and other construction equipment shall not be washed at locations where the runoff will flow directly into a lake, wetland, watercourse or stormwater conveyance system. Special areas must be designated for washing vehicles. In all new subdivisions, a wash area may be established by the owner/developer which can be used by the site contractor and home builders. If established, wash areas shall be located where the wash water will spread out and evaporate or infiltrate directly into the ground, or where the runoff can be collected in a temporary holding or seepage basin. Gravel or rock bases are recommended for temporary holding or seepage basins, to minimize mud generation. Underdrains shall be installed where infiltration basins are provided as required by the owner/developer's engineer or the Southwest Florida Water Management District. Upon completion of the project, the wash areas shall be graded and stabilized and any trash or waste shall be collected and disposed of properly.
- (e) Fuel, chemicals, cements, solvents, paints, topsoil, or other potential water pollutants shall be stored in areas where they will not cause runoff pollution. Toxic chemicals and materials, such as pesticides, paints, and acids, must be stored in accordance with manufacturer's guidelines. Groundwater resources shall be protected from leaching by placing a plastic mat, packed clay, tar paper, or other impervious material on any areas where toxic liquids are to be opened and stored.
- (f) A minimum of one permitted driveway must be established prior to construction and shall be used as the only access for ingress/egress during construction in order to provide minimum disturbance of drainage facilities and vegetative cover on site.

Sec. 19-44. Owner responsibility for stormwater runoff.

- (a) The control of stormwater runoff is the responsibility of each individual property owner.
- (b) Any property owner constructing or causing to be constructed any building which requires an elevated slab and the elevation of the building pad is higher than that of adjoining properties, will control stormwater runoff during construction. Likewise, any property that is filled more than twelve inches above the adjacent property must provide additional control measures for stormwater during construction. Upon completion of the work, all stormwater runoff shall flow to its natural preconstruction drainage swale, ditch, etc., or be retained in a retention or detention pond(s) designed and constructed for that purpose.
- (c) For any construction where the elevation of the building pad or site fill will be higher than adjoining properties, construction plans certified by a professional engineer registered with the State of Florida, retained by the property owner, will be provided to the City prior to issuance of a building permit.
- (d) Any single lot not covered under Southwest Florida Water Management District rules, exceeding forty-five percent in impervious coverage (including buildings, drives, sidewalks, patios, etc.) shall require stormwater retention facilities to be designed by a Florida registered engineer. The design is to meet the City of Venice EPA/NPDES Permit requirements for quantity and quality of treatment.
- (e) The property owner's engineer will be required to certify to the City Engineer that construction was completed in accordance with the certified plans, prior to issuance of a Certificate of Occupancy.

(f) All improvements to property affecting stormwater drainage must be done in compliance with the City's Comprehensive Plan.

Sec. 19-145. Illicit discharges.

It shall be unlawful for any person to discharge anything other than stormwater into the city's municipal separate storm sewer system whether such discharges occur through piping connections, runoff, exfiltration, infiltration, seepage, or leaks. No person may maintain, use, or establish any direct or indirect connection to any storm sewer owned by the city that results in any discharge in violation of any provision of federal, state, city, or other law or regulation. This provision is retroactive to January 1, 1995, and applies to connections made prior to the effective date of this provision, regardless of whether made under a permit, or other authorization, or whether permissible under laws or practices applicable or prevailing at the time the connection was made.

No materials other than those composed entirely of stormwater shall be disposed of, dumped, or spilled into the city's municipal separate storm sewer system, whether such materials are in a solid or liquid form.

Sec. 19-146. Inspections.

It shall be the duty of the city engineer or designee to carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance with this article.

SECTION 4. Chapter 15, Streets and Sidewalks, Article IV, Excavations, Section 15-53, Storm Drainage and Pollution, is deleted in its entirety.

SECTION 5. To the extent of any conflict between the provisions of this Ordinance, and any other Ordinance, Resolution, or Agreement of the City of Venice, Florida, the provisions of this Ordinance shall prevail.

SECTION 6. Severability. If for any reason a provision of this Ordinance or the application thereof to any person, group of persons, or circumstances is held invalid, the invalidity shall not effect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end the provisions of the Ordinance are severable.

SECTION 7. Effective Date. This Ordinance shall take effect immediately upon its adoption, as required by law.

PASSED BY THE COUNCIL OF THE CITY OF VENICE, FLORIDA, THIS 23RD DAY OF MAY, 1995.

First Reading: May 9, 1995 - Final Reading: May 23, 1995 - ADOPTION: May 23, 1995

ATTEST: /s/LORI STELZER, CMC, CITY CLERK /S/ MERLE L. GRASER, MAYOR

I, LORI STELZER, City Clerk of the City of Venice, Florida, a municipal corporation in Sarasota County, Florida, do hereby certify that the foregoing is a full and complete, true and correct copy of an Ordinance duly adopted by the Venice City Council, at a meeting thereof duly convened and held on the 23rd day of May, 1995, a quorum being present.

WITNESS my hand and the official seal of said City this 24th day of May, 1995.

/S/ LORI STELZER, CMC, CITY CLERK Approved as to form: /S/ ROBERT C. ANDERSON, CITY ATTORNEY

ORDINANCE 96-09

AN ORDINANCE OF THE CITY OF VENICE, FLORIDA, AMENDING THE CODE OF ORDINANCES BY AMENDING CHAPTER 19, WATER AND SEWERS, ARTICLE VI, STORMWATER QUALITY, SECTION 19-141, DEFINITION FOR INDUSTRIAL STORMWATER, SECTION 19-146, INSPECTIONS, PROVIDING FOR CONFLICT WITH OTHER ORDINANCES; PROVIDING FOR A SEVERABILITY CLAUSE AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Venice is responsible for the conservation, management, protection, control, use and enhancement of stormwater within its corporate limits, and for the acquisition, management, maintenance, extension, and improvement of the stormwater systems in the City; and

WHEREAS, the Environmental Protection Agency/National Pollutant Discharge Elimination System (EPA/NPDES) permit requires certain amendments to the existing Ordinance and extension of inspection authority on private properties.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF VENICE, FLORIDA:

SECTION 1. Chapter 19, Water and Sewers, Article VI, Stormwater Quality, Section 19-141, Definition, for Industrial Stormwater is amended to read as follows:

Sec. 19-141. Definitions.

As used in this article, "industrial stormwater" means stormwater runoff from a site with industrial activities, as defined under 40 CFR Section 122.26 (a) (b) (14), U.S. Environmental Protection Agency regulation.

SECTION 2. Chapter 19, Water and Sewers, Article VI, Stormwater Quality, Section 19-146, Inspections, is amended to read as follows:

Sec. 19-146. Inspections.

It shall be the duty of the city engineer or designee to carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance with this article. The city engineer or his duly authorized agents may enter at all reasonable times in or upon any private or public property for the purpose of inspecting and investigating conditions and practices which may be a violation of this ordinance, regulation or permit. The city engineer may, whenever necessary, make an inspection of construction sites to enforce any of the provisions of this ordinance, regulation or permit issued hereunder, or whenever an authorized official has reasonable cause to believe there exists any condition constituting a violation of this ordinance, regulation or permit issued hereunder. The city engineer shall inspect the work and shall require the owner to obtain services to provide adequate on-site inspection. If the city engineer finds that eroded soils are leaving the construction site, the city engineer may direct the owner(s) or his agents or his contractor on the site by written order to install any and all erosion controls that are deemed necessary to prevent said soil erosion from migrating off site. Notwithstanding the existence or pursuit of any other remedy, the City may maintain an action in its own name in any court of competent jurisdiction for an injunction or other process against any person to restrain or prevent violations of this ordinance.

SECTION 3. To the extent of any conflict between the provisions of this Ordinance, and any other Ordinance, Resolution, or Agreement of the City of Venice, Florida, the provisions of this Ordinance shall prevail.

SECTION 4. Severability. If for any reason a provision of this Ordinance or the application thereof to any person, group of persons, or circumstances is held invalid, the invalidity shall not effect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end the provisions of the Ordinance are severable.

SECTION 5. Effective Date. This Ordinance shall take effect immediately upon its adoption, as required by law.

PASSED BY THE COUNCIL OF THE CITY OF VENICE, FLORIDA, THIS 26TH DAY OF MARCH, 1996.

First Reading: March 12, 1996 - Final Reading: March 26, 1996 - ADOPTION: March 26, 1996

ATTEST: /s/LORI STELZER, CMC, CITY CLERK

/S/ MERLE L. GRASER, MAYOR

I, LORI STELZER, City Clerk of the City of Venice, Florida, a municipal corporation in Sarasota County, Florida, do hereby certify that the foregoing is a full and complete, true and correct copy of an Ordinance duly adopted by the Venice City Council, at a meeting thereof duly convened and held on the 26th day of March, 1996, a quorum being present.

WITNESS my hand and the official seal of said City this 27th day of March, 1996.

/S/ LORI STELZER, CMC, CITY CLERK Approved as to form: /S/ ROBERT C. ANDERSON, CITY ATTORNEY.

STATEMENT OF REFERENCES
FOR CONTRACTOR

NAME OF CONTRACTOR: _____

BUSINESS ADDRESS: _____

How many years have you been engaged in the business under the present firm name? _____

List previous business experience: _____

List at least three construction references:

(1) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(2) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(3) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(4) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

**CONTRACTOR'S STATEMENT OF
SUBCONTRACTORS TO BE USED FOR THIS WORK**

NAME OF CONTRACTOR: _____

BUSINESS ADDRESS: _____

CURED-IN-PLACE PIPE INSTALLER:

Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

PROPOSED CIPP PRODUCT: _____

REQUIRED PRODUCT & INSTALLER COMMERCIALY ACCEPTABLE DOCUMENTATION
ATTACHED: YES _____ NO _____

LIST SUBCONTRACTORS TO BE USED IN THE PROJECT:

(1) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(2) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(3) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(4) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

DRUG FREE WORKPLACE CERTIFICATION

If identical tie bids exist, preference will be given to the vendor who submits a certification with their bid/proposal certifying they have a drug-free workplace in accordance with Section 287.087, Florida Statutes. The drug-free workplace preference is applied as follows:

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

As the person authorized to sign this statement, I certify that this firm complies fully with the following requirements:

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

Contractor's Name Signature

SCRUTINIZED COMPANY AFFIDAVIT AND CERTIFICATION

State of _____ }
County of _____ } SS.

Florida Statutes §287.135 (2013) prohibits local governments from contracting with Scrutinized Companies for contracts valued at one million dollars (\$1,000,000.00) or greater, subject to certain exceptions.

Before me, the undersigned authority, personally appeared:

_____ who, being first duly sworn, deposes and says that:

1. I am the _____ (*Owner, Partner, Officer, Representative or Agent*) of _____ that has submitted the attached proposal (“Bidder”).
2. I am fully informed respecting the Bidder.
3. I have read and am familiar with the requirements of Florida Statutes §287.135 (2013).
4. The Bidder is not on the Scrutinized Companies with Activities in Sudan list or the Scrutinized Companies with Activities in Iran Petroleum Energy Sector list as defined in Florida Statutes §215.473, nor does it have business operations in Cuba or Syria, and is therefore eligible to submit this bid or proposal.
5. Under penalties of perjury, I declare that I have examined this affidavit and certification and to the best of my knowledge and belief, it is true, correct, and complete.

Signed, sealed and delivered this _____ day of _____, 2013.

By: _____
—

Sworn to and subscribed before me this ___ day of _____, 2013, by _____ who is personally known to me or has produced his/her driver's license as identification.

Notary Public - State of _____
Print Name: _____
Commission No: _____

NON-COLLUSIVE AFFIDAVIT

State of _____

County of _____

} SS.

_____ being first duly sworn, deposes and says that:

1. He/she is the _____, (Owner, Partner, Officer, Representative or Agent) of _____ the Offeror that has submitted the attached Proposal;
2. He/she is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;
3. Such Proposal is genuine and is not a collusive or sham Proposal;
4. Neither the said Offeror nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Offeror, firm, or person to submit a collusive or sham Proposal in connection with the Work for which the attached Proposal has been submitted; or have in any manner, directly or indirectly sought by agreement or collusion, or have in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference with any Offeror, firm, or person to fix the price or prices in the attached Proposal or of any other Offeror, or to fix any overhead, profit, or cost elements of the Proposal price or the Proposal price of any other Offeror, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposal Work.

Signed, sealed and delivered in the presence of:

By: _____

(Printed Name)

(Title)

ACKNOWLEDGEMENT

State of _____

County of _____

On this _____ day of _____, 2013, before me, the undersigned Notary Public of the State of _____, personally appeared _____ and (Name(s) of Individual(s) who appeared before notary) whose name(s) in/are Subscribed to the written instrument, and he/she/they acknowledge that he/she/they executed it.

NOTARY PUBLIC, STATE OF _____

NOTARY PUBLIC
SEAL OF OFFICE:

(Name of Notary Public: Print, stamp, or type as commissioned)

Personally known to me, or Produced Identification: _____ DID take an oath, or DID NOT take an oath

PUBLIC ENTITY CRIME INFORMATION

A person or affiliate who has been placed on the State of Florida’s convicted vendor list following a conviction for a public entity crime may not submit a BID/ITB proposal on a contract to provide any goods or services to a public entity, may not submit a response on a contract with a public entity for services in the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a Contractor, supplier, Sub-Contractor, or Contractor under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in **Section 2876.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.**

I, _____, being an authorized representative of the firm of _____, located at City: _____ State: _____ Zip: _____, have read and understand the contents of the Public Entity Crime Information and of this formal BID/ITB package, hereby submit our proposal accordingly.

Signature: _____

Date: _____

Phone: _____

Fax: _____

Federal ID#: _____

NO BID RESPONSE

IMPORTANT: If you choose not to submit a bid for the attached "Invitation To Bid," please complete and return this form only on/before bid closing date. Failure to respond will result in your company being negatively registered as non-responsive. In the event five (5) "no responses" are posted, you will be automatically dropped from our mailing list for future solicitations for the described product/service.

Thank you for taking this opportunity to help us update and improve the solicitation process.

Bid Open/Close Date: **November 14, 2013 at 2:00 PM**

Bid Number: **2975-13**

Description: **Water Main Replacement Program- Phase I**

Contact: Jon Mayes, Procurement- Finance Dept.

Please check the appropriate response. We respectfully submit "No bid" for the following reason(s):

- 1. We are unable to meet the required delivery date
- 2. We cannot provide a product to meet the required specifications.
- 3. We no longer provide the requested product.
- 4. We do not represent the required brand name product.
- 5. The bid closing date does not allow adequate time to prepare a response.
- 6. The specifications are too restrictive.
- 7. We have chosen not to do business with the City
- 8. Other (feel free to provide our response on your company letterhead.)

Company Name _____ Vendor No. _____

Authorized Signature _____

Print Name _____

Title _____

Date _____ Telephone No. _____

SAMPLE CONTRACT

THIS CONTRACT, pursuant to City Council approval granted on _____, is made and entered into this _____ day of _____, 2013, by and between the CITY OF VENICE, 401 West Venice Avenue, FLORIDA, hereinafter referred to as the City, and (Firm's official name and address), of the City of _____, County of _____, and State of _____, hereinafter referred to as the Contractor.

W I T N E S S E T H:

THAT FOR and in consideration of the mutual covenants and obligations hereafter set forth, the parties hereto agree as follows:

(1) The contract documents consist of this contract, standard general conditions, supplemental conditions, special conditions, technical specifications, drawings, bid proposal, payment and performance bonds, all of which are hereby made a part of this agreement.

(2) The Contractor shall perform all the work required by the contract documents for the following described project:

City Bid # 2975-13: Water Main Replacement Program- Phase I

(3) The work to be performed under this contract shall be completed within 150 calendar days of the issuance of the Notice To Proceed by the City.

(4) The City shall pay the Contractor for the performance of the work, subject to the terms and conditions of the contract documents and any written change orders, the contract sum of: (Money amount) dollars and 00/100.

(5) Time is of the essence in this contract. In the event that the work is not completed within the required time, then from the compensation otherwise to be paid to the Contractor, the City may retain the sum of **One-Thousand, Five-Hundred and Thirty-Two Dollars (\$1,532.00)** per day for each calendar day that the work remains uncompleted beyond the time limit, which sum shall represent the actual damage which the City will have sustained per day by failure of the Contractor to complete the work within the required time, said sum not being a penalty but being the stipulated damages the City will have sustained in the event of such default by the Contractor.

(6) In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, sex, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, lay-off or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post hereafter in conspicuous places, available for employees or applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non-discrimination clause. The Contractor further agrees to insert the foregoing provisions in all contracts hereunder, including contracts or agreements with labor unions and/or workers' representatives, except subcontracts for standard commercial supplies or raw materials.

(7) Contractor agrees to comply with Florida's public records law by keeping and maintaining public records that ordinarily and necessarily would be required by the public agency in order to perform the service; by providing the public with access to public records on the same terms and conditions that City would provide the records and at a cost that does not exceed the cost provided by Florida law; by ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed excepts as authorized by law; and by meeting all requirements for retaining public records and transferring, at no cost, to City all public records in possession of Contractor upon termination of this contract and destroying any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements.

(8) This contract and the contract documents constitute the entire agreement of the parties and may not be changed or modified, except by a written document signed by both parties hereto. This contract shall be binding upon the successors and assigns of the parties.

(9) Scrutinized Companies: Pursuant to Section 287.135, Florida Statutes, this contract may be terminated at the option of the City if the company is found to have submitted a false certification as provided under Subsection 287.135(5), Florida Statues, or has been placed on the scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, Florida Statues. The CITY agrees to comply with the requirements of Section 287.135, Florida Statutes in connection with the implementation of the PROJECT.

IN WITNESS WHEREOF, the parties to the agreement have hereunto set their hands and seals and have executed this agreement, the day and year first above written.

(SEAL)

ATTEST: CITY OF VENICE
IN SARASOTA COUNTY, FLORIDA

CITY CLERK BY: _____

ATTEST: CONTRACTOR

BY: _____

Signed by (typed or printed)

Signed by (typed or printed)

Approved as to Form and Correctness

David Persson, City Attorney

SURETY BONDS

At the time of executing the contract documents, the successful proposer shall append to this sheet separate performance and payment bonds each equal to one-hundred percent (100%) of the contract amount. Said bonds become an integral part of these contract documents and shall meet the following requirements:

1. Surety bonds submitted shall be written by a surety company that is approved by the City Finance Director and authorized to do business in the State of Florida, shall be accompanied by evidence of the authority of the issuing agent, and shall be on a form to be approved by the City Attorney. No bond in an amount greater than \$5,000 required by the City Charter, the Ordinances of The City of Venice, or the laws of the State of Florida shall be approved by the City Finance Director unless the surety company executing the bond is listed by the United States Treasury Department as being approved for writing bonds for Federal projects and its current list in an amount not less than the amount of the bond tendered to The City of Venice.

2. Both the separate payment and performance bonds shall be in the general form of AIA documents A311. Additionally, the payment bond shall state as follows:
“This bond is issued in compliance with Section 255.05, Florida Statutes (1994 Supp.), as may be amended. A claimant, except a laborer, who is not in privity with the contractor and who has not received payment for his labor, materials, or supplies shall, within 45 days after beginning to furnish labor, materials, or supplies for the prosecution of the work, furnish the contractor with a notice, that he intends to look to the bond for protection. A claimant who is not in privity with the contractor and who has not received payment for his labor, materials, or supplies shall, within 90 days after performance of the labor or after complete delivery of the materials or supplies, or with respect to rental equipment, within 90 days after the date that the rental equipment was last on the job site available for use, deliver to the contractor and to the surety written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment. No action for the labor, materials, or supplies may be instituted against the contractor or the surety unless both notices have been given. No action shall be instituted against the contractor or the surety on the payment bond or the payment provisions of a combined payment and performance bond after 1 year from the performance of the labor or completion of delivery of the materials or supplies. A claimant may not waive in advance his right to bring an action under the bond against the surety. In any action brought to enforce a claim against a payment bond under this section, the prevailing party is entitled to recover a reasonable fee for the services of his attorney for trial and appeal or for arbitration, in an amount to be determined by the court, which fee must be taxed as part of his costs, as allowed in equitable actions.”

**GIVE THIS INFORMATION TO YOUR SURETY TO AID IN
PREPARATION OF BONDS**

PUBLIC WORKS PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, a _____ Corporation, as Principal, hereinafter called Contractor; and _____, a corporation of the State of _____, a surety, hereinafter called Surety, are held and firmly bound unto the City of Venice as Obligee, hereinafter called the City in the amount of: _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated the _____ day of _____, 2013, entered into a Contract with the City for the following described project:

ITB# 2975-13: Water Main Replacement Program- Phase I

which contract is incorporated by reference herein and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly make payments to all persons supplying Contractor labor, materials and supplies, used directly or indirectly by the Said Contractor or Subcontractors in the prosecution of the work provided for in said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in anyway affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED FURTHER, that this bond is issued pursuant to Section 255.05, Florida Statutes, and reference is hereby made to the notice and time limitations in said statute for making claims against this bond.

PROVIDED FURTHER, that any suit under this bond must be instituted before the expiration of one (1) year from the performance of the labor or completion of delivery of the materials or supplies.

PROVIDED FURTHER, no right of action shall accrue on this bond to or for the use of any person or corporation other than the City named herein and those persons or corporations provided for the Section 255.05, Florida Statutes, their heirs, executors, administrators, successors or assigns.

Signed and sealed this _____ day of _____, A.D., 2013.

CONTRACTOR

By: _____

IN THE PRESENCE OF:

INSURANCE COMPANY

By: _____
Agent and Attorney-in-Fact

PUBLIC WORKS PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, _____, _____ as Principal, hereinafter called Contractor; and _____, a corporation of the State of _____ as surety, hereinafter called Surety, are held and firmly bound unto the City of Venice as Obligee, hereinafter called the City, in the amount of _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated the _____ day of _____, 2013, entered into a Contract with the City for the following described project:

ITB# 2975-13: Water Main Replacement Program- Phase I

which contract is by reference incorporated herein and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly and faithfully perform Contract during the original term thereof and any extensions thereof which may be granted by the City with or without notice to the Surety and during any guarantee or warranty period, including the obligation to correct any latent defects not discovered until after acceptance of the project by the City, and if he shall satisfy all claims and demands incurred under said Contract and shall fully indemnify and save harmless the City, its agents, Engineer and employees from all losses, damages, expenses, costs and Attorney's Fees, including appellate proceedings which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City may incur in making good any default, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED FURTHER, whenever Contractor shall be, and declared by the City to be in default under the Contract, the City having performed its obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions; or
- (2) Obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions and upon determination by the City and Surety of the lowest responsible bidder, arrange for a contract between such bidder and City and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the City to Contractor under the Contract and any amendments thereto, less the amount properly paid by the City to the Contractor.

PROVIDED FURTHER, the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the contract documents accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Contract documents.

PROVIDED FURTHER, any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due; except that, when the action involves a latent defect, suit must be instituted within four (4) years from the time the defect is discovered or should have been discovered with the exercise of due diligence.

PROVIDED FURTHER, no right of action shall accrue on this bond to or for the use of any person or corporation other than the City, its successors or assigns.

Signed and sealed this _____ day of _____, A.D., 2013.

IN THE PRESENCE OF:

CONTRACTOR

By: _____

INSURANCE COMPANY

By: _____
Agent and Attorney-in-Fact

CONTRACTOR'S RELEASE OF LIEN

BEFORE ME, the undersigned authority in said County and State, appeared _____, who being first duly sworn, deposes and says that he is _____ of _____ a company and/or corporation authorized to do business under the laws of Florida, which is the contractor on Project known as City of Venice Bid # **2975-13**, located in the City of Venice, County of Sarasota, Florida, under contract with the City of Venice, dated the _____ day of _____, 2013, that the said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said contract has been complied with in every particular by said contractor and that all parts of the work have been approved by the City Engineer; that there are no bills remaining unpaid for labor, material or otherwise, in connection with said contract and work, and that there are no suits pending against the undersigned as contractor or anyone in connection with the work done and materials furnished or otherwise, under said contract.

DEPONENT further says that the final estimate which has been submitted to the City simultaneously with the making of this affidavit, constitutes all claims and demands against the City on account of said contract or otherwise, and that acceptance of the sum specified in said final estimate will operate as a full and final release and discharge of the City from any further claims, demands or compensation by contractor under the above contract.

DEPONENT further agrees that all guarantees under this contract shall start and be in full force from the date of this release as spelled out in the contract documents.

Signature: _____

Printed Name:

STATE OF FLORIDA)
COUNTY OF)

Signed before me this _____ day of _____, 2013,
by _____ who is personally known to me or has produced
_____ as identification.

Notary Public
My Commission Expires:
Commission Number:

WE, the _____, having heretofore executed a performance bond and a payment bond for the above named contractor covering project and section as described above in the sum of (\$ _____) _____ Dollars, hereby agree that the Owner may make full payment of the final estimate, including the retained percentage, to said contractor.

IT IS fully understood that the granting of the right to make the payment of the final

estimate to said contractor and/or his assigns, shall in no way relieve this surety company of its obligations under its bonds, as set forth in the specifications, contract, and bonds pertaining to the above project.

IN WITNESS WHEREOF, the _____ has caused this instrument to be executed on its behalf by its _____, and/or its duly authorized attorney in fact, and its corporate seal to be hereunto affixed, all on this _____ day of _____, A.D., 2013.

Surety Company

Attorney in Fact

Power of Attorney must be attached if executed by Attorney in Fact.

STATE OF)

COUNTY OF)

BEFORE ME, the undersigned authority, appeared _____, who is personally known to me or has produced _____ as identification, and who executed the foregoing instrument in the name of _____ as its _____ and the said _____ acknowledged that he executed said instrument in the name of _____ as its _____ and/or _____, for the purpose therein expressed and that he had due and legal authority to execute the same on behalf of said _____, a corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____ this _____ day of _____, 2013.

Notary Public

My Commission Expires:

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT NO: **ITB# 2975-13**

PROJECT: **Water Main Replacement Program- Phase I**

CONTRACTOR CONTRACT DATE

CONTRACT FOR

Project or Specified Part Shall Include:

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified part of a project is the date when the work is sufficiently completed, in accordance with the Contract Documents, so that the project or specified part of the project can be utilized for the purpose for which it was intended.

TO: (Contractor)

DATE OF SUBSTANTIAL COMPLETION: _____

The work performed under this contract has been inspected by authorized representatives of the City of Venice and the contractor, and the project or specified part of the project, is hereby declared to be substantially completed on the above date.

A tentative list of items to be completed or corrected is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the contractor to complete all the work in accordance with the contract documents. These items shall be completed by the contractor within _____ days of Substantial Completion.

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as noted below. The responsibilities between the Owner and the Contractor for maintenance shall be as set forth below.

CITY OF VENICE

By:

Date: _____

The contractor accepts the foregoing Certification of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

Contractor Authorized Representative

Date: _____

RESPONSIBILITIES:

OWNER:

CONTRACTOR:

EXCEPTIONS AS TO GUARANTEES AND WARRANTIES:

ATTACHMENTS (Identify)