

THE CITY OF DAYTONA BEACH
MLK ROADWAY & PEDESTRIAN IMPROVEMENTS-REBID

INVITATION TO BID No. 19303
CONTRACT NO. 2015-085
PROJECT SPECIFIC CONSTRUCTION SERVICES
NIGP COMMODITY CODE 91223, 91226, 91327



THE CITY OF DAYTONA BEACH
PUBLIC WORKS – TECHNICAL SERVICES
P.O. BOX 2451
DAYTONA BEACH, FLA. 32115

ISSUE DATE: January 23, 2019

ITB-Project Specific Construction 8/9/18

Make sure you have registered for the Commodity Code listed above to receive updates for this solicitation. Registration can be completed/updated at <https://purchasing.codb.us> by clicking vendor registration

INVITATION TO BID – PROJECT SPECIFIC CONSTRUCTION SERVICES

The City of Daytona Beach will receive bids for the “MLK ROADWAY & PEDESTRIAN IMPROVEMENTS-REBID”, Invitation to Bid No. 19303, at the City of Daytona Beach Purchasing Division, City Hall Room 146, 301 S. Ridgewood Ave., Daytona Beach, Florida 32114, until **2:00 p.m., on February 26, 2019**, at which time bids will be opened publicly and read aloud. Bids received after said time will be returned unopened.

Sealed bids must be addressed to:

Joanne Flick, Purchasing Agent
The City of Daytona Beach Purchasing Division
301 S. Ridgewood Ave., Room 146
Daytona Beach, Fl., 32114

with “Sealed Bid for MLK ROADWAY & PEDESTRIAN IMPROVEMENTS-REBID , ITB No. 19303” plainly written on the outside of the envelope.

The work generally consists of generally consists of the complete reconstruction of MLK Blvd, (between Orange Ave and International Speedway Blvd), widening the sidewalks to 8-feet on both sides, curb and gutter, new water main and water services, gravity sewer system and sewer laterals, relocating power poles to backside of sidewalk (by FPL), landscaping and irrigation, and street lights. Estimated project magnitude is 2-2.2 million dollars.

Bid Documents may be obtained as pdf files on-line at <http://purchasing.codb.us>. There is no charge for downloading Bid Documents. The Bid Documents and all other Contract Documents, including Drawings and Technical Specifications if applicable, are also on file at the Daytona Beach Purchasing Division, 301 S. Ridgewood Avenue, Room 146, Daytona Beach, Florida, 32114. A complete set of these Documents may be obtained upon payment of \$75, NON-REFUNDABLE. Checks must be made payable to the City of Daytona Beach, Florida. All inquiries and checks pertaining to this project which are mailed should be directed to Post Office Box 2451, Daytona Beach, Florida 32115-2451.

Each bid must be accompanied by **Bid Security** in an amount not less than 10% of the total bid.

A NON-MANDATORY PRE-PROPOSAL CONFERENCE will be held at the Daytona Beach Public Works Conference Room #500, 950 Bellevue Avenue, Daytona Beach, Florida 32114, on January 30, 2019 at 2:00 PM. Interested contractors are *urged* to attend.

The successful contractor will be required to furnish separate 100% Performance and Payment Bonds unless the Contract price is less than \$100,000.

The City reserves the right to reject any and all bids, or any portion of any bid, or to waive any informalities in the bidding.

Bids may be held by the City for a period not to exceed 60 days from the date of opening of bids for the purpose of reviewing the bid and investigating the qualifications of bidders prior to awarding the contract.

By: KIRK ZIMMERMAN, CPPB
CITY OF DAYTONA BEACH
Issue Date: January 23, 2019

INSTRUCTIONS TO BIDDERS – PROJECT SPECIFIC CONSTRUCTION SERVICES

THESE INSTRUCTIONS ARE STANDARD FOR ALL BID SOLICITATIONS FOR PROJECT SPECIFIC CONSTRUCTION SERVICES ISSUED BY THE CITY OF DAYTONA BEACH. THE CITY MAY DELETE, SUPERSEDE, OR MODIFY ANY OF THESE STANDARD INSTRUCTIONS FOR A PARTICULAR SOLICITATION BY USE OF SPECIAL INSTRUCTION SHEETS.

1. BID DOCUMENTS. The Bid Documents consist of the Invitation to Bid; these Instructions; Special Instructions, if any; the Bid Proposal Letter, the Bid Schedule and all other Forms to be completed, signed, and submitted by the Bidder; and all additional documents required to be completed and submitted by the Bidder as part of the Bid.

In making copies of Bid Documents available, the City does so only for the purpose of obtaining Bids and does not confer a license or grant to use the Bid Documents for any other purpose.

2. COMPLETING THE BID. In order for the Bid to be considered complete:

A. The Bid Proposal Letter, the Bid Schedule, and all other required Forms must be completed. All blank spaces must be filled with dark ink or via typing. All corrections and erasures must be initialed by the party submitting the Bid on behalf of the Bidder.

B. All information/documentation that is required to be submitted by this solicitation must be provided in the manner indicated.

C. The Bidder is requested to submit only the Bid Proposal Letter and other Forms, documents, and information specifically required. Any extraneous documents or information submitted by the Bidder will be discarded. The Bidder be asked to sign a written contract only if the City awards a contract to Bidder.

D. Unless Special Instructions are included in this solicitation specifically allowing for partial or lot-by-lot bids where the Bid Schedule only calls for unit prices, the Bidder must provide quotes for all unit prices and extended unit prices (if any) as set forth in the Bid Schedule. If this solicitation allows for partial or lot-by-lot bids, the Bidder must comply with the Special Instructions in completing filling out the unit prices and extended unit prices set forth in the Bid Schedule.

E. The Bid Price (including unit prices and extended prices if applicable), must be stated in numerals.

F. If this solicitation requires unit prices and there is a conflict between the unit prices and the extended totals, the unit price will take precedence. Likewise, discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

G. The Bidder must not submit alternative bids unless this solicitation specifically authorizes alternate bids. If this solicitation specifically allows the submission of alternate bids, the Bidder must submit the standard and the alternative bid in order to be considered responsive.

H. The Bid may not contain qualifications or exceptions of any kinds.

I. All other submittal requirements stated herein must be met.

3. SIGNING THE BID. The Bid Proposal Letter, the Bid Schedule and all other Forms and documents requiring Bidder's signature must contain the original signature of an individual authorized to bind the Bidder. The signature must be located in the space(s) marked for the Bidder's signature. In addition, the person signing the Bid must also sign all of the other Forms to be submitted.

Electronic signatures will not be accepted.

4. REQUESTS FOR INTERPRETATIONS. If the Bidder is in doubt as to the meaning of any of the Bid Documents or other Contract Documents included in this solicitation, the Bidder may submit a written request to the City for an interpretation, care of the Purchasing Agent at the address set forth in the Invitation for delivery of the completed bid. Such requests must be received 10 days prior to bid opening in order to be considered. The City is not obligated to respond to such requests. Any clarification or interpretation issued by the City in the form of a written addendum will be deemed to be a part of the Bid Documents.

No oral clarification or interpretation will be binding.

5. ADDENDA TO BID DOCUMENTS. Prior to bid opening, the City may on the City's own initiative or in response to a request for clarification, furnish addenda for additions or alterations to these Instructions, the Bid Documents, and to any or any Drawings, Specifications, or other Contract Documents previously supplied by the City. In addition, the City may by addenda extend the date scheduled for Bid Opening.

The Purchasing Agent will make reasonable efforts to notify all potential bidders of the issuance of an Addendum. The Purchasing Agent will also post Addenda on the Purchasing Division's web page, <http://purchasing.codb.us>.

However, the Bidder is solely responsible for ensuring that the Bid submitted reflects all such Addenda.

6. BID SECURITY. The Bidder must submit Bid Security equal to 10% of the Bid. The Bid Security will be in the form of a bid bond; or any of the following alternate forms: cashier's check, certified check, money order, notes at par value, U.S. Currency, or U.S. Government Bond. Any Bid Security provided must be in original form; copies are unacceptable. The City has the right to retain the bid security as liquidated damages should the Successful Bidder fail to comply with the terms of the bid. The City will return the bid security to unsuccessful Bidders after the contract award.

Any bid bond provided must be in a form approved or provided by the City, and must be accompanied by sufficient evidence of the issuing agent's authority. The surety company executing the bond must be authorized to do business in the State of Florida. If the bid bond is in an amount greater than \$5,000.00 the surety company executing the bond is listed by the United States Treasury Department as being approved for writing bonds for federal projects on its current list in an amount not less than the required bond amount.

7. BID ENVELOPE. The Bid, including the Bid Proposal Letter, all other required Bid documents, and required bid security, must be returned in an opaque, sealed envelope. The envelope must display the name and address of the Bidder, the bid number and name of the bid/contract as set forth on the Invitation to Bid, and the date and time scheduled for bid opening. The envelope must be addressed to:

Purchasing Agent
City of Daytona Beach
Room 146
301 S. Ridgewood Avenue
Daytona Beach, FL 32114

8. SUBMISSION OF BID. The Bidder must submit the Bid by mail or hand delivery at or prior to the time fixed for bid opening in the Invitation for Bids. A bid submitted after the time fixed for bid opening will not be accepted. The Bid must be delivered to the Purchasing Agent at the address above. A bid submitted to any other location will not be considered. Telephonic, electronic, and faxed bids will not be considered.

9. AMENDMENT AND WITHDRAWAL OF BID. The Bidder may amend or withdraw the Bid at any time prior to bid opening, but only with prior written notice to the Purchasing Agent, submitted in the same manner as the Bid. The notice must be signed by a properly authorized agent of the Bidder.

Mere negligence on the part of the Bidder in preparing the Bid does not constitute a right to withdraw the Bid subsequent to bid opening.

Amendments may be made only through the submission of a complete Bid along with a written statement, signed by the same person who signed the Bid, that the submission is intended to fully replace the Bidder's earlier submission. The City is not required to honor an amendment that fails to comply with this Paragraph 9.

10. DISQUALIFICATION OF BIDDERS.

A. **Only One Bid Permitted:** The Bidder may submit only one Bid. If the Bidder submits more than one bid for the work involved, all bid proposals submitted from the Bidder will be rejected.

B. **Collusion:** If the City determines that collusion exists among bidders, the City will reject the bids of all participants in the collusion.

C. **Scrutinized Companies List:** If the Bidder is found to have submitted a false certification as provided by F.S. Section 238.175(5), or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, the City will have the option to immediately terminate this Contract.

11. BID OPENING. Bid opening will be scheduled at the location and on the date and time specified by the Invitation for Bid, or by any applicable Bid Addenda that the City may issue. At bid opening, the City will open and record the Bid so long as it is proper and has been timely submitted. In recording the Bid the City will state the name of the Bidder and the Bid Price.

The Bidder is solely responsible to ensure that the Bid is time and date stamped by the Purchasing Agent prior to bid opening. Late bids will be rejected and returned unopened.

The Bidder may be present at bid opening but is not required to be present.

12. BID AS OFFER; FIRM PRICING; NO GUARANTEES AS TO QUANTITIES ORDERED. In submitting the Bid, the Bidder certifies that the Bidder is making a firm offer that will remain open for 60 days following Bid Opening unless properly and timely withdrawn by the Bidder prior to Bid Opening in conformance with these Instructions unless the City, in the City's sole discretion, rejects the Bid after Bid Opening. Extensions of time beyond the 60 day-period will only be by agreement of the City, the Successful Bidder, and the surety for the Successful Bidder.

In addition, if this solicitation requests submission of unit prices: (i) all unit prices will be deemed to be held firm for the duration of the Contract, including any extension thereof, unless specifically authorized by the Contract Documents; and (ii) quantities stated are an estimate only and no guarantee is given or implied as to quantities that will actually be required during the contract period.

13. FEDERAL TAXES. The bid price will be exclusive of all federal taxes. If the Bidder believes that certain other taxes are properly payable by the City, the Bidder may list such taxes separately in each case directly below the respective item bid price. Tax exemption certificates will be furnished upon request.

14. BID PRICE INCLUSIVE OF COSTS. The Bid Price is inclusive of all of the Bidder's direct and indirect costs of performing the Work.

15. BIDS AND PUBLIC RECORDS. Sealed bids received by the City pursuant to this solicitation will be temporarily exempt from disclosure in accordance with Florida's Public Records Laws. Thereafter, bids will be open for inspection by any person pursuant to Public Records Law.

If the Bidder believes that the Bid or any portion thereof is permanently exempt from disclosure under the public records laws, the Bidder must state the grounds for this position in CAPITAL LETTERS on a cover sheet accompanying the sealed bid. The Bidder will be contacted prior to the opening of the Bid and a determination will be made as to whether or not it is exempt prior to opening. If a determination is made that it is not exempt from disclosure, the Bidder may in writing request the return of the sealed bid.

16. BID OPENING RESULTS. The Bidder may secure information pertaining to bid opening results on the Purchasing Division webpage <https://purchasing.codb.us> under the "Public Solicitations" link, by visiting the Purchasing Division Office Monday through Friday between 8:00 am and 3:00 pm, or by emailing a request to purchasing@codb.us. Copies of bid tabulation sheets will be furnished upon request and receipt of a valid email address or self-addressed stamped envelope.

17. BIDDER CAPABILITY/REFERENCES. Prior to contract award, the City may require Bidder to show that Bidder has the necessary facilities, equipment, ability, and financial resources to perform the work specified in a satisfactory manner and within the time specified.

In addition, the City may require Bidder to demonstrate that Bidder has experience in work of the same or similar nature as the work required herein, and to provide references satisfactory to the City.

18. REVIEW; BASIS OF AWARD. Bids will be reviewed in accordance with the procedures set forth in these Instructions to Bidders and the applicable provisions of the Purchasing Code, Chapter 30 of the Daytona Beach Code of Ordinances. Any contract awarded pursuant to this solicitation will be made on the basis of the criteria for award of bids provided in the Purchasing Code.

A link to the Code of Ordinances is available on the City's web site, <https://purchasing.codb.us>.

19. LOCAL PREFERENCE. The Purchasing Code, Chapter 30, Code of the City of Daytona Beach provides for a preference to local vendors whenever the application of such a preference is reasonable in light of the dollar-value of proposals received in relation to such expenditures.

As used in City Code, the term, "local vendor" means a person or business entity which has maintained a permanent place of business with full-time employees within the city limits of the City of Daytona Beach for a minimum of six months prior to the date bids or proposals were received for the purchase or contract at issue, which generally provides from such permanent place of business the kinds of goods or services solicited, and which at the time of the solicitation fully complies with state and local laws, including City zoning and licensing ordinances.

Pursuant to City Code, if the lowest responsive bid is submitted by a non-local vendor, and a bid submitted by a local vendor is within 10% of the lowest bid, then these two vendors will each have the opportunity to submit a best and final bid equal to or lower than the amount of the lowest bid within five working days after bid opening. The bid will be awarded to the bidder submitting the lowest responsive bid or final bid. In case of a tie between a local vendor and a non-local vendor, the bid will be awarded to the local vendor.

If the Bidder intends to qualify as a local vendor, the Bidder must complete and sign the Local Vendor affidavit and submit it as part of the Bid. A Bidder who fails to properly complete and sign this affidavit or submit it with the Bid, will not further considered for local preference.

If the Bidder submits a properly completed Local Vendor affidavit as part of its Bid, the City reserves the right to verify that the Bidder meets the definition of Local Vendor, including by requiring the Bidder to supply additional documentation. In all instances, the City will be the final arbiter as to whether the Bidder qualifies for local preference.

With certain exceptions, application of local preference is discretionary. For more information on how the Local Preference may apply, see the Purchasing Code.

20. IDENTICAL TIE BIDS. If there are two or more low responsive bids from responsible bidders that are identical in price and other evaluation criteria, the tie will be awarded to the following in order of preference: a) the bidder qualifying for local preference under Code 30-86; b) the bidder in compliance with the drug free workplace certification requirements set forth in Florida Statutes 287.087; or c) the most responsible bidder as defined under the City Code 30-82 (9)(c).

21. RIGHT TO ACCEPT OR REJECT BIDS. The City will reject bids which contain modifications, qualifications, or exceptions, or which are incomplete, unbalanced, conditional, obscure, or which contain additions not requested, or irregularities of any kind, or which do not comply in every respect with these Instructions to Bidders and the Contract Documents, unless the City in its sole discretion determines that the non-compliance is minor.

The City does not bind itself to accept the minimum bid stated herein, but reserves the right to accept any bid, which in the judgment of the City will best serve the needs and interests of the City.

22. CRA MAY AWARD PURCHASE ORDERS ISSUED PURSUANT TO CONTRACT. In the case of a continuing/term supply or service contract awarded pursuant to this solicitation, if the funds to be used to pay for a portion of the supply or service are from redevelopment trust funds, the Community Redevelopment Agency (CRA) is authorized to issue the purchase order corresponding to the supply or service instead of the City.

23. CITY'S PROJECT-SPECIFIC CONSTRUCTION CONTRACT FORM. The City's contract form for project specific construction projects, which is included in this solicitation, contains additional terms and conditions, including indemnification and insurance requirements, completion deadlines, and liquidated damages, that the Bidder should review prior to submitting the Bid. The City reserves the right to make minor changes to the form contract prior to execution by the successful bidder to correct errors, make other minor formatting changes, or for legal sufficiency. The City will provide the successful bidder the final contract for execution.

24. LICENSES. At time of Bid submittal, the Bidder must hold the required licensure to be the prime contractor for all work to be performed under this solicitation. Any subcontractors or sub-consultants whom the Bidder proposes to use to perform work under this solicitation must also hold the required licensure at the time of Bid submittal. Required licensure must be maintained in full force and effect during the contract term.

25. BIDDER RESPONSIBILITY FOR PREPARATION COSTS. Neither the City nor the City's officers or agents will be liable for the costs incurred by the Bidder in reviewing or responding to this solicitation.

26. POST-AWARD SUBMITTAL REQUIREMENTS. Within 15 business days after the City's issuance of a notice of award, the Successful Bidder must submit each of the following:

- A. A fully-executed contract, using the form provided with or referenced by the notice of intent to award.
- B. Proof of insurance, in accordance with the requirements of the Contract. See the Contract form for more information regarding insurance requirements.
- C. Performance Security, as further described below, in an amount equal to 100% of the Contract Price.

The award is subject to cancellation and the bid security subject to forfeiture if this deadline is not met.

27. PERFORMANCE SECURITY. Performance Security is required unless contract is less than \$100,000.00. Payment and performance bonds may be submitted; or an alternative form of security as specified in Florida Statutes § 255.05(7) may be provided upon the City's prior written approval.

If the Successful Bidder elects to use payment and performance bonds for required Performance Security, the Successful Bidder will use forms provided by the City. Copies of the City's current form bonds will be provided with the Notice of Award. Completed bonds must be originals, not copies, with raised corporate seals included where applicable. The bonds must be accompanied by sufficient evidence of the authority of the issuing agent, including a certified copy of the power of attorney of the person signing the bond on the surety's behalf. The surety company executing the bonds must be must be rated "A" or better by A.M. Best Key Rating Guide, authorized to do business in the State of Florida, and must be listed by the United States Treasury Department Treasury Fiscal Service, Bureau of Government Financial Operations, Federal Register, Part V, latest revision, entitled: "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," as being approved for writing bonds for federal projects on its current list in an amount not less than the required bond amount.

END OF INSTRUCTIONS TO BIDDERS SECTION

SUBMITTAL CHECKLIST

Item(s) Required with Submittal	
	BID PROPOSAL LETTER
	BID SCHEDULE
	NONCOLLUSION AFFIDAVIT OF PRIME BIDDER
	DRUG-FREE WORKPLACE CERTIFICATION
	AFFIDAVIT ON PUBLIC ENTITY CRIMES
	LOCAL VENDOR AFFIDAVIT <i>(only if filing for local preference)</i>
	MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES CERTIFICATION FORM
	MINORITY AND WOMEN OWNED BUSINESS ENTERPRISE OFFICER CERTIFICATION FORM
	Bid Security (10% for all construction bids)
Label the outer most package with the following: Bid Number Date of the Opening Contractor Name and Address	
Item(s) Required after Bid Submittal	
	<u>Certificate of Insurance</u> indicating the coverages outlined in this solicitation, including naming the City as additional insured <i>(requested when Notice of Intent to Award is Issued)</i>
	Contract signed by Authorized Representative of the Vendor <i>(completed contract sent with Notice of Intent to Award)</i>
	Payment & Performance Bonds to be returned as instructed within 15 days after the Notice of Award is issued <i>(P & P Bonds acceptable to the City will be sent with Notice of Award)</i>

BID PROPOSAL LETTER - ITB NO.: 19303

TO THE MAYOR AND COMMISSIONERS
THE CITY OF DAYTONA BEACH, A FLORIDA MUNICIPAL CORPORATION

Dear Mayor and Commissioners:

This Bid is submitted by _____
(insert Bidder's full legal name; include D/B/A if applicable)

Business Address: _____
(include P.O. Box/street address, city, state and zip code)

Business Phone: _____ Business Fax: _____
(include area code) (include area code)

Business Email: _____
(leave blank if n/a)

The undersigned, as BIDDER or BIDDER's authorized representative, hereby declares and affirms each of the following:

1. That BIDDER has had the opportunity to examine the project site(s) and is fully informed in regard to all conditions pertaining to the site(s).
2. That BIDDER is fully informed regarding local conditions where the work will be required.
3. That BIDDER has thoroughly examined all Contract Documents, including Plans and Specifications as applicable, relative to the work to be performed, and that BIDDER is sufficiently knowledgeable of the work to be performed.
4. That BIDDER hereby agrees to furnish all labor, materials, and equipment to do the work in strict accordance with the Contract Documents for the price(s) stated in the attached Bid Schedule.
5. That, subject to the terms and conditions stated in the Contract Documents, BIDDER will perform the work in accordance with the completion date(s) specified in the Contract Documents, and will pay liquidated damages in the amounts specified in the Contract Documents for BIDDER's failure to comply with the completion date(s).
6. That BIDDER agrees to indemnify and hold harmless the CITY any other interests as set forth in the Contract Documents.
7. That insofar as the attached Bid Schedule includes extended unit prices, the use of extended unit quantities will not be construed to be a guarantee that the CITY will purchase such quantities if a contract is awarded; and that, subject to the terms and conditions of the Contract, BIDDER will be entitled to payment only based on the units constructed, installed, or otherwise placed in service.

BID PROPOSAL LETTER -- ITB No.: 19303, cont.

8. That BIDDER has received the following Addenda (*leave blank if inapplicable*):

No. _____ Dated: _____ No. _____ Dated: _____

No. _____ Dated: _____ No. _____ Dated: _____

(*list any additional Addenda by number and date*): _____

9. That, if within the time period specified in the bid solicitation, BIDDER fails to execute the form Contract, provide proof of insurance, and submit (if required) Performance Security, the bid award will be subject to cancellation and the Bid Security provided with this Bid will be subject to forfeiture.

10. That all information provided by BIDDER as part of this Proposal is truthful to the best of BIDDER's knowledge.

11. That BIDDER is (*mark the appropriate box and include the additional information, as applicable*):

An individual person/sole proprietor

A Florida corporation/ limited liability company

A foreign corporation/limited liability company authorized to do business in Florida*
_____ (*specify state of incorporation/formation*)

A Florida limited partnership

A foreign limited partnership authorized to do business in Florida*
_____ (*specify state of incorporation / formation*)

A general partnership**

A joint venture***

Other _____ (*specify, including type of entity*)

* *Attach proof of formation/registry from State of Florida.*

** *Provide on separate, signed sheets(s) of paper, full legal name and address of the partnership; and names of all general partners.*

*** *Provide on separate signed sheet(s) of paper the full legal names of all persons/firms comprising the joint venture.*

BID PROPOSAL LETTER -- ITB NO.: 19303, CONT.

12. That BIDDER has completed and attached all required attachments with this Bid Proposal, including Bid Schedule, Non-Collusion Affidavit, Drug Free Workplace Certification, MWBE Certifications, and Public Entity Crimes Affidavit.

In signing below, I certify that I am the above-named BIDDER or a person duly authorized by BIDDER to bind BIDDER to these terms and conditions.

By: _____
(Signature)

Printed Name: _____

Title: _____

Date signed: _____

Email: _____

BID SCHEDULE - ITB NO. 19303
DR. MARTIN LUTHER KING, JR. BOULEVARD ROADWAY &
PEDESTRIAN IMPROVEMENTS-REBID
PROJECT NO. 2015-085

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
GENERAL BID					
1	General Conditions				
	a. Mobilization and Demobilization	1	LS		
	b. Provide Dewatering Equipment	1	LS		
	c. Furnish & Install Temporary Striping of Road	1	LS		
	d. Submit Certified "As-Built" Drawings	1	LS		
2	Maintenance of Traffic	1	LS		
3	Erosion and Sediment Control	1	LS		
TOTAL GENERAL BID					
WATER MAIN CONSTRUCTION					
4	Remove Existing Pipe				
	a. 14-inch	90	LF		
	b. 2-inch	137	LF		
	c. 10-inch	1,415	LF		
5	Remove Existing Fire Hydrant Assemblies	3	EA		
6	Remove Existing Water Main Service Pipe	21	EA		
7	Furnish & Install Restrained Joint DIP Pipe				
	a. 16-inch	145	LF		
	b. 14"-inch	50	LF		
	c. 10-inch	1,417	LF		
	d. 6-inch	230	LF		
	e. 2-inch	36	LF		
8	Furnish & Install Compact Ductile Iron Fittings				
	a. 6-inch 45° Bend	15	EA		
	b. 10-inch 45° Bend	1	EA		
	c. 16-inch 45° Bend	2	EA		
	d. 10" x 2" Tee	6	EA		
	e. 10" x 6" Tee	9	EA		
	f. 16" Tee	2	EA		
	g. 10" x 6" Reducer	2	EA		
	h. 16" x 10" Reducer	2	EA		
	i. 16" x 14" Reducer	2	EA		

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
9	Furnish & Install Valves and Valve Boxes				
	a. 16-inch Gate	2	EA		
	b. 10-inch Gate	7	EA		
	c. 6-inch Gate	4	EA		
10	Furnish & Install Fire Hydrant Assemblies	5	EA		
11	Cut-ins and Connections to Existing Mains				
	a. 14-inch Cut-in	2	EA		
	b. 10-inch Cut-in	2	EA		
	c. 6-inch Cut-in	1	EA		
	d. 2-inch Cut-in	3	EA		
12	Furnish & Install Service Pipe & Meter				
	a. 1-inch HDPE Water	607	LF		
13	Cleaning and Pigging of Mains	1	LS		
14	Bacteriological Clearance	1	LS		
WATER MAIN CONSTRUCTION SUBTOTAL					
RECLAIMED WATER MAIN CONSTRUCTION					
15	Remove Existing Pipe				
	a. 6" Pipe	126	LF		
	b. 30" PCCP with 24" Sleeve	90	LF		
16	Furnish & Install Restrained Joint PVC Pipe				
	a. 6-Inch	82	LF		
	b. 24-inch	81	LF		
17	Furnish & Install Compact Ductile Iron Fittings				
	a. 6-inch 45° Bend	4	EA		
	b. 24-inch 45° Bend	4	EA		
18	Cut-ins and Connections to Existing Mains				
	a. 24-inch Connection	2	EA		
	b. 6-inch Cut-in	2	EA		
19	Cleaning and Pigging of Mains	1	LS		
RECLAIMED WATER MAIN CONSTRUCTION SUBTOTAL					
SANITARY SEWER CONSTRUCTION					
20	Remove Existing Sanitary Pipe				
	a. Remove Existing 12" Clay Sanitary Pipe	1,438	LF		
	b. Remove Existing 10" Clay Sanitary Pipe	44	LF		
	c. Remove Existing 8" Clay Sanitary Pipe	65	LF		
	d. Remove Existing 8" PVC Sanitary Pipe	17	LF		

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
22	Remove Existing Service Laterals	38	EA		
23	Provide Temporary Sewage Bypassing Equipment	1	LS		
24	Furnish & Install 8-inch SDR-26 PVC Gravity Sewer Main				
	a. 8'-10' Deep	155	LF		
25	Furnish & Install 15-inch SDR-26 PVC Gravity Sewer Main				
	a. 6'-8' Deep	424	LF		
	b. 8'-10' Deep	980	LF		
26	Furnish & Install Manholes				
	a. 4-foot Diameter Standard	6	EA		
	b. Additional Depth over 4 Feet	37	VLF		
27	Connect to Existing Sewer Main				
	a. 8-inch	4	EA		
28	Furnish & Install 6-inch PVC Service Pipe	950	LF		
29	Furnish & Install Service Wye Units				
	a. 15" x 6"	38	EA		
30	Furnish & Install Sewer Cleanout	38	EA		
SANITARY SEWER CONSTRUCTION SUBTOTAL					
DRAINAGE AND ROADWAY					
31	Furnish & Install Storm Drain Pipe				
	a. 12" RCP	189	LF		
32	Furnish & Install Storm Drain Inlets				
	a. Type 9	2	EA		
33	Connect New Pipe to Existing Structure	1	EA		
34	Roadway Removal				
	a. Mill Existing Asphalt and Stockpile for Future Use	5,562	SY		
	b. Remove Existing Concrete Sidewalk & Driveway	2,268	SY		
	c. Remove Existing Curb and Gutter	3,018	LF		
35	Roadway Construction				
	a. Construct 16" Roadway Base/Leveling Course	6,233	SY		
	b. Construct 2.0" Asphalt Structural Course (and overlay)	5,562	SY		
	c. Construct Stamped Asphalt Crosswalks	250	SY		
36	Coordinate with FPL to Remove or Relocate Existing Power Poles During Road and Utility Construction	23	EA		
37	Stabilize Existing Power Poles During Roadway and Utility Construction	7	EA		
38	Furnish & Install Single Post Sign Less Than 12 SF	9	EA		
39	Furnish & Install Thermoplastic, Std., White, Solid, 6"	1,694	LF		
40	Furnish & Install Thermoplastic, Std., White, Solid, 12"	453	LF		

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
41	Furnish & Install Thermoplastic, Std., White, Solid, 18"	27	LF		
42	Furnish & Install Thermoplastic, Std., White, Solid, 24"	170	LF		
43	Furnish & Install Thermoplastic, Std., Yellow, Solid, 6"	1,770	LF		
44	Furnish & Install Thermoplastic, Std., Dbl Yellow, Solid, 6"	1,690	LF		
45	Furnish & Install Painted Curbing, Std., Yellow, Solid	1,770	LF		
46	Furnish & Install Thermoplastic Std., White, Solid, Pavement Markings	2	EA		
ROADWAY AND DRAINAGE SUBTOTAL					
CURBING					
47	Curb Construction - 3400 psi Concrete				
	a. Construct Type D Curb	426	LF		
	b. Construct Type F Curb and Gutter	3,020	LF		
CURBING SUBTOTAL					
SIDEWALKS					
48	Sidewalk Construction - 3400 psi Concrete				
	a. Construct Concrete Sidewalk (Decorative Pattern)	2,605	SY		
	b. Construct ADA Detectable Warnings	12	EA		
SIDEWALKS SUBTOTAL					
LANDSCAPE & IRRIGATION					
49	Irrigation System Complete				
	a. 2-inch irrigation	1	LS		
50	Parking Area Landscaping Complete	1	LS		
LANDSCAPE & IRRIGATION SUBTOTAL					
LIGHTING SYSTEM AND FIBER OPTIC					
51	Lighting and Fiber Optic:				
	a. Conduit, Furnish & Install, Open Trench	2460	LF		
	b. Fiber Optic Cable, F&I, Underground 13-48 Fibers	1434	LF		
	c. Fiber Optic Cable, Remove, Overhead	1284	LF		
	d. Fiber Optic Connection, Install, Slice	80	EA		
	e. Fiber Optic Connection Hardware, F&I, Splice Enclosure	2	EA		
	f. Fiber Optic Connection Hardware, F&I, Splice Tray	10	EA		
	g. Pull & Splice Box, F&I, 13" x 24" Cover Size	18	EA		
	h. Pull & Splice Box, F&I, 24" x 36" Cover Size	3	EA		
	i. Electrical Power Service, F&I, Underground Meter Purchased by Contractor	1	AS		
	j. Electrical Service Wire, Furnish and Install	142	LF		
	k. Electrical Service Disconnect, F&I, Pole Mount	1	EA		

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
51	I. Prestressed Concrete Pole, F&I, Type P-II 12 FT Service Pole	1	EA		
	m. Lighting Conductors, F&I, Insulated, No. 8 - 6	8908	LF		
	n. Load Center, F&I, Primary Voltage	1	EA		
	o. Pole Cable Distribution System, Conventional	14	EA		
	p. Light Pole Complete - Special Design, F&I, Double Arm Shoulder Mount, Aluminum 28'	14	EA		
TOTAL LIGHTING SYSTEM AND FIBER OPTIC					
TOTAL BASE BID (Item Nos. 1 thru 51)					

Submitted by:

Contact Name: (signature)	Contact Name: (printed)
Vendor Name:	Phone:
Address:	Email:

MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

The following information from the Purchasing Code is provided for reference for all bidders:

DIVISION 5. - MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES **Sec. 30-180. - Definitions.**

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning: Bid means all purchase prices sought by procurement methods as described in this chapter. Construction means the process of building, altering, repairing, improving, or demolishing any public structure, building, roadway, or other public improvements of any kind to any public real property. It does not include the routine operation, repair or maintenance of existing structures, buildings or real property.

Contract means all types of city agreements, regardless of what they may be called, for the purchase or disposal of supplies or services or performance of construction with the following exceptions: salaries/employee benefits, taxes, judgments, travels, dues, pensions, utilities, subscriptions, auto allowances, debt service requirements and postage. It includes contracts for a fixed price, costs, cost plus a fixed fee, or incentive contracts, contracts providing for the issuance of job or task orders, leases, letter contracts, and purchase orders.

Good faith efforts includes demonstrations and actions which show that the stated goal was pursued far beyond neutrality; indeed, was pursued intensely. Acting in a manner such that a prudent and reasonable person would conclude that the stated goal would be achieved.

Minority means Blacks, Hispanics, American Indians, Alaskan Natives, Asians, and Pacific Islanders.

Minority business enterprise (MBE) means a business which is 51 percent or more owned by minority group members; or for a publicly owned business the voting stock of which is 51 percent owned by minority group members. The minority group membership must exercise actual day-to-day management and control of the business. The minority business enterprise shall be construed to include only workers employed and paid directly by the minority business enterprise receiving such contract award and equipment owned or rented by the minority business enterprise, with or without operators.

Services means the furnishing of labor, time, or effort by a contractor, not involving the delivery of a specific end product other than reports which are merely incidental to the required performance. This term includes professional services, but does not include employment agreements or collective bargaining agreements.

Supplies means all property, including but not limited to equipment, materials, printing, insurance, and leases, but excluding land or a permanent interest in land. Women business enterprise (WBE) means a business firm which is 51 percent or more owned by women group members; or for a publicly owned business the voting stock of which is substantially 51 percent owned by women group members. The women group membership must exercise actual day-to-day management and control of the business. The women business enterprise shall be construed to include only workers employed and paid directly by the women business enterprise receiving such contract award and equipment owned or rented by the women business enterprise, with or without operators.

Sec. 30-181. - Compliance officer; compliance procedures.

- (a) The city manager shall designate a compliance officer whose duty it shall be to monitor the participation of contractors with the city in contracts for supplies, services, and construction. The compliance officer shall:
 - (1) Prepare a listing of the minority and women business enterprises.

- (2) Assist in implementing compliance guidelines, monitoring and reporting procedures to increase the participation of minorities and women in business contracts with the city and in the work forces of contractors and subcontractors doing business with the city.
 - (3) Assist in determining good faith efforts or lack of responsiveness in the performance of contracts.
 - (4) Report evidence of lack of responsiveness.
 - (5) Perform other duties relating to this article as may be directed by the city manager.
- (b) Nothing in this article shall be construed as requiring the city manager to hire a new or additional employee to fill the position of compliance officer as called for in this section.

Sec. 30-182. - Establishment of goals.

- (a) **Business.** Annually, the city commission shall review the level of MBE/W BE participation in business contracts (i.e., contractors, subcontractors) with the city. The commission may adjust the goals for business contract participation to reflect experience and the relevant availability of MBE/W BE businesses. In reviewing the level of minority and women participation in business with the city, calculation of the rate shall not include amounts for contracts for which no MBE/WBE bid or for which no MBE/W BE meets the specifications.
- (b) **Employment.** Annually, the city commission shall review the level of participation in employment of minorities and women combined in the work forces of its contractors and subcontractors. The commission may adjust the goals for minority and women employment participation to reflect experience and availability of minorities and women with requisite skills.

Sec. 30-183. - Contract awards.

- (a) Contractors doing business with the city shall comply with the goals established in section 30-182 and shall prepare information which reports the MBEs, WBEs utilized, the amount of such awards, and minority and women work force participation and, if such levels and percentages are not achieved, shall provide evidence of good faith efforts made to achieve the goals stated in subsection 30-182(a).
- (b) If a good faith effort cannot be established, the compliance officer shall report such nonresponsiveness. The city commission may review the finding of nonresponsiveness, agree, modify, and/or impose appropriate penalties or institute actions upon the contractor, including but not limited to debarment from the award of present or future contracts to do business with the city for one year and forfeiture of retainage withheld pursuant to the contract.
- (c) Any business owner who shall knowingly engage in any type of subterfuge or deceit to receive a contract award under the terms of this article or who shall attempt to transfer the benefits of this article to persons or firms other than those intended to benefit from the terms of this article shall be permanently barred from receiving any future contractual awards from the city. In addition, the city may declare a forfeiture of retainage withheld pursuant to contract.
- (d) Nothing in this section shall be construed to require the award of a contract to an MBE, W BE, or other purveyor of supplies, services or construction which fails to meet contract specifications or for which the bid is unreasonably priced or for which the bid is not in the best interest of the city nor is the lowest and best bid.

Sec. 30-184. - Failure to maintain employment levels and percentages.

If it is determined by the compliance officer that a contractor with the city has, at any time during the term of the contract, failed to maintain the minority and female employment levels and minority and women-owned business enterprise percentages established pursuant to section 30-182 and also failed to show

good faith effort to maintain such levels and percentages, the compliance officer shall document the noncompliance and report it to the city commission. The city commission may then impose appropriate penalties upon the contractor, including but not limited to debarment from submitting further bids to the city for a period of one year and forfeiture of retainage withheld pursuant to the contract.

Sec. 30-185. - Conformity with applicable laws.

This article shall be construed according to and in conformity with acts of Congress and of the state legislature concerning the bidding and awarding of contracts and with the Charter and this Code. Where sections of this article come into conflict with either federal law, state law, the Charter or this Code, such conflict shall be resolved in favor of applicable federal law, state law and the Charter and Code, in that order.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY**

I. Notice

The Bidder's attention is called to the Equal Opportunity Clause and the Equal Opportunity Specifications set forth herein.

II. Goals

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Minority participation for each trade - 23%
Female participation in each trade - 6.9%

These goals are applicable to all the contractor's construction work performed in the covered area.

III. Compliance

1. The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, Specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a) and its efforts to meet the goal established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor, or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
2. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any sub-contract in excess of \$10,000.00 for construction work under the contract resulting from this solicitation.
3. As used in this notice, and in the contract resulting from, this solicitation, the "covered area" is the Standard Metro Statistical Area.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT
SPECIFICATIONS (EXECUTIVE ORDER 11246)**

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer Identification Number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return. U. S. Treasury Department Form 941.
 - d. "Minority" includes: (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin); (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race); (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan.

Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

END OF SECTION

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF _____)
COUNTY OF _____)

_____, being first duly sworn deposes and says that:

- (1) He is _____ of _____, the Bidder that has submitted the attached Bid;
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Daytona Beach, FL (Local Public Agency) or any person interested in the proposed Contract;
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

By: _____
(Signature)
Name Typed: _____
Title: _____
Bidder: _____

Subscribed and sworn to before me

This _____ day of _____, 20_____

(Signature of Notary Public)
My commission expires: _____

DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL TIE BIDS: - If there are two or more low responsive bids from responsible bidders that are identical in price and other evaluation criteria, the tie will be awarded to the following in order of preference: a) the bidder qualifying for local preference under Code 30-86; b) the bidder in compliance with the drug free workplace certification requirements set forth in Florida Statutes 287.087; or c) the most responsible bidder as defined under the City Code 30-82 (9)(c).

In order to have a drug-free workplace program, a business will:

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

By: _____
(Signature)

Title: _____
(leave blank if sole proprietor)

Date: _____

AFFIDAVIT ON PUBLIC ENTITY CRIMES
(SWORN STATEMENT PURSUANT TO SECTION 287.133(3) (a), FLORIDA STATUTES)

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

This sworn statement is submitted to the City of Daytona Beach

by _____
(insert individual's printed name and title)

for _____ whose business address
(insert name of Bidder)

is _____

- I. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
- II. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.
- III. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
 1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.
- IV. I understand that a "person" as defined in Paragraph 287.133(1)(e), **Florida Statutes**, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

V. Based on information and belief, THE STATEMENT WHICH I HAVE MARKED BELOW is true in relation to the entity submitting this sworn statement (*Place initial of check mark next to applicable statement*):

___ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

(Signature) (Date)

STATE OF _____)
COUNTY OF _____)

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____ who, after first being sworn by me, affixed his/her signature
(Name of individual signing)

in the space provided above on this _____ day of _____, 20_____.

Attest: _____
(Notary Public)

My commission expires: _____

(Notary Seal)

LOCAL VENDOR AFFIDAVIT

Complete and submit this form ONLY if you qualify for local preference as provided in the City of Daytona Beach Purchasing Code.

A copy of the Bidder's Daytona Beach Business Tax Receipt must be submitted with this Affidavit.

NAME OF BIDDER: _____

LOCAL BUSINESS ADDRESS *(street address being used to claim Local Preference, including zip code):*

The undersigned certifies under penalty of perjury each of the following:

The Local Business Address has continuously been used as a Permanent Place of Business with at least one full-time employee since _____.
(Insert date)

The Local Business Address has consistently offered or provided the goods or services being solicited by the City of Daytona Beach during the time referenced above.

The Local Business Address has not been established with the sole purpose of obtaining the advantages that may be granted pursuant to the Local Preference provisions of the City of Daytona Beach Purchasing Code.

Signature *(Must be same person as person signing the Bid Proposal)*

Print Name/Title

Subscribed and sworn to before me

This _____ day of _____, 20____

(Signature of Notary Public)
My commission expires: _____

The City of Daytona Beach reserves authority to require a copy of the corporate charter, corporate income tax filing return, and any other documents(s) to evaluate the Bidder's Local Preference claim.

**MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES
CERTIFICATION FORM**

The Bidder hereby certifies that in accordance with applicable provisions of the Daytona Beach Purchasing Code, Chapter 30, Daytona Beach Code of Ordinances, a good faith effort has been made to contact the following minority and women owned business enterprises:

(Use separate sheet if additional space is needed. If separate sheet is used, include a reference to this form, and sign and date the sheet).

SIGNATURE: _____

NAME TYPED: _____

TITLE: _____

The Bidder further certifies that of the minority and women owned business enterprises contacted, he was unable through a good faith effort to obtain any minority or women owned business enterprise to work on this project.

SIGNATURE: _____

NAME TYPED: _____

TITLE: _____

**MINORITY AND WOMEN OWNED BUSINESS ENTERPRISE OFFICER
CERTIFICATION FORM**

I, _____,

Name of Executive Officer

certify that _____

Name of MBE Officer

has been named Minority and Women Owned Business Enterprise Officer for

Company

Corporation

Date: _____

By: _____

Name Typed: _____

Title: _____

Address: _____

**DRAFT
PROJECT-SPECIFIC CONSTRUCTION CONTRACT
ITB 19303**

THE PARTIES TO THIS CONTRACT are the City of Daytona Beach, a Florida municipal corporation, hereinafter the "CITY" or "OWNER," and >, a >, hereinafter the "CONTRACTOR."

WITNESSETH, that the CONTRACTOR and the CITY agree as follows, for the mutual valuable consideration provided herein:

ARTICLE I. SCOPE OF WORK

The CONTRACTOR will, at its sole cost and expense, provide, perform, and complete the construction project commonly known as "MLK ROADWAY & PEDESTRIAN IMPROVEMENTS-REBID" and more fully described in the Contract Documents, hereinafter the "Work".

ARTICLE II. CONTRACT DOCUMENTS

The Contract Documents are further described in the General Conditions, and if applicable the Supplemental General Conditions. In addition, the Plans, 1/10/2019 and referenced herein are the plans or drawings prepared by McKim & Creed (the "Engineer/Architect" or "E/A"), provided or made available with the CITY's Invitation to Bid, as amended by any addenda to the bid documents, are a part of the Contract Documents. These Plans are not physically attached hereto but are incorporated herein by reference. CONTRACTOR acknowledges receipt of all such Plans.

The Contract Documents are intended to include all information necessary for CONTRACTOR's proper prosecution and timely completion of the Work. CONTRACTOR will prosecute the Work as necessary to produce the results indicated by the Contract Documents. The Contract Documents are complementary, and what is required by one will be as binding as if required by all.

ARTICLE III. COMMENCEMENT AND COMPLETION

The CITY and the CONTRACTOR mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents. To that end, the CONTRACTOR will commence the Work not later than the Commencement Date set forth in the General Conditions, and will diligently and continuously prosecute the Work at such a rate, and with sufficient forces as will allow the CONTRACTOR to achieve Substantial Completion within **240** days after the Commencement Date and Final Completion within **30** days after Substantial Completion, subject only to any adjustments in the Contract Time that may be authorized by Change Orders properly issued in accordance with the Contract Documents. In executing this Contract, CONTRACTOR affirms that the time set for completion is reasonable.

The CITY will suffer financial loss if Final Completion of the Work is not achieved within the Contract Time. Accordingly, and in lieu of actual damages or proof thereof, if CONTRACTOR fails to meet these deadlines, CONTRACTOR will be liable to the CITY for liquidated damages as follows:

In the amount of **\$1584** for each and every day of unexcused delay in achieving Substantial Completion; and

In the amount of **\$792** for each and every day of unexcused delay from the date that Substantial Completion is achieved until Final Completion is achieved.

The CITY will have the right to offset such liquidated damages against any remaining portion of the Contract Price due CONTRACTOR, but will not be limited to the offset if it is insufficient. If the unpaid balance of the Contract Price is less than the amount of the Liquidated Damages, the CONTRACTOR or its Surety must pay the deficiency to the CITY upon demand.

ARTICLE IV. CONTRACT PRICE

Subject to any adjustments that may be authorized pursuant to this Contract, the Contract Price due the CONTRACTOR is \$>_____ for work completed and accepted in accordance with the Contract Documents. The Contract Price represents the CONTRACTOR's sole compensation from the CITY for prosecution of the Work. The Contract Price will be paid in a series of Progress Payments and a Final Payment, and is subject to retainage, as further described in the Contract Documents.

ARTICLE V. PERFORMANCE SECURITY

CONTRACTOR must provide a payment bond and a performance bond, or alternate form of Performance Security in an amount equal to 100% of the Contract Price if the contract price exceeds \$100,000.00.

Additional requirements associated with the provision of Performance Security, including requirements to increase the amount provided, are set forth in the General Conditions and, if applicable, the Supplemental General Conditions.

ARTICLE VI. INDEMNIFICATION

A. CONTRACTOR hereby indemnifies and holds harmless the CITY from and against all liabilities, damages, losses, and costs, including but not limited to reasonable attorneys' fees, arising out of or resulting from the Work provided that the liabilities, damages, losses, and costs are caused in whole or in part by any negligence, recklessness, or intentional wrongful misconduct of CONTRACTOR, any subcontractor, anyone directly or indirectly employed by any one of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. This indemnification agreement is separate and apart from, and in no way limited by, any insurance provided pursuant to this agreement or otherwise.

B. CONTRACTOR indemnifies the CITY against any claim of supplier's or subcontractor's lien (in cases where such payment is not already guaranteed by payment bond). If any claim or lien remains unsatisfied after all payments are made, CONTRACTOR must refund to the CITY all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

C. For purposes of the obligations stated in this Article, references to the CITY include the CITY's officers, employees, and agents.

D. CONTRACTOR's obligations under this Article are made without regard to the availability of insurance of the CITY or the Engineer/Architect.

ARTICLE VII. INSURANCE

A. Required Insurance.

CONTRACTOR will purchase and maintain, at its own expense, the following types and amounts of insurance, primary and non-contributory with the CITY's own insurance, in form and companies satisfactory to the CITY:

1. **Workers' Compensation Insurance** – As required by Florida Statutes, Chapter 440, Workers' Compensation Insurance, for all employees of CONTRACTOR employed at the project site or in any way connected with the Work.

The insurance required by this provision will comply fully with the Florida Workers' Compensation Law and include Employers' Liability Insurance with limits of not less than \$500,000 per accident. Any associated or subsidiary company involved in the service must be named in the Workers' Compensation coverage.

2. **Liability insurance – Including Commercial General Liability coverage** for operations, independent contractors, products-completed operations, broad form property damage, collapse and underground, and personal injury on an "occurrence" basis, insuring the CONTRACTOR and any other interests, including but not limited to any associated or subsidiary companies involved in the Work; and **Automobile Liability coverage** insuring claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle used by CONTRACTOR at the project site or in any way connected with the Work.

THE COMMERCIAL GENERAL LIABILITY INSURANCE POLICY WILL NAME THE CITY AS AN ADDITIONAL INSURED. CONTRACTOR'S Commercial General Liability insurance policy shall provide coverage to CONTRACTOR, and CITY when required to be named as an additional insured either by endorsement or pursuant to a blanket additional insured endorsement, for those sources of liability which would be covered by the latest edition of the standard Commercial General Liability Coverage Form (ISO Form CG 00 01) without the attachment of any endorsements excluding or limiting coverage for Products/Completed Operations, Independent Contractors, Property of CITY in Contractor's Care, Custody or Control or Property of CITY on which contracted operations are being performed, Explosion, Collapse or Underground hazards (XCU Coverage, Contractual Liability or Separation of Insureds). When CITY is added as additional insured by endorsement, ISO Endorsements CG 20 10 and CG 20 37 or their equivalent shall be used to provide such Additional Insured status.

The limit of liability will be a combined single limit for bodily injury and property damage of no less than \$1,000,000 per occurrence. If insurance is provided with a general aggregate, the aggregate will be in an amount of no less than \$2,000,000. The Risk Manager may authorize lower liability limits for the automobile policy only, at the Risk Manager's sole discretion.

Unless specifically waived hereafter in writing by the Risk Manager, CONTRACTOR agrees that the insurer will waive its rights of subrogation, if any, against the CITY on of the above-listed types of required insurance coverage.

3. **Builders' Risk** - The CONTRACTOR is required to maintain Builders Risk Insurance on an "all risk" basis, including but not limited to the completed value basis on the insurable portion of the work for the benefit of the CITY, the CONTRACTOR and subcontractors as their interests may appear. The CITY, the CONTRACTOR and any subcontractor insured therein waive all rights against each other for damages caused by fire and other perils to the extent covered by the insurance obtained pursuant to this paragraph.

B. Subcontractors' Insurance. Each of CONTRACTOR's subcontractors will be required to provide insurance in substantially similar form to the insurance required of CONTRACTOR above based on the services they will provide to the project.

C. Proof of Insurance. CONTRACTOR will furnish proof of insurance acceptable to the CITY prior to or at the time of execution of this Contract. CONTRACTOR will not commence Work until all required insurance has been approved by the CITY. CONTRACTOR will furnish evidence of all required insurance in the form of certificates of insurance which will clearly outline all hazards covered as itemized above, the amounts of insurance applicable to each hazard and the expiration dates.

Upon request of the Risk Manager, CONTRACTOR will also provide the CITY copies of the insurance contracts referenced by the certificates.

D. Cancellation and Replacement. CONTRACTOR will file replacement certificates 30 days prior to expiration or termination of any required insurance occurring prior to expiration or termination of this Contract. If such insurance terminates without CONTRACTOR's prior knowledge, immediately upon becoming aware of such termination CONTRACTOR will provide notice to the City's Risk Manager at P.O. Box 2451, Daytona Beach, Florida 32115-2451.

The CITY reserves the right to suspend any or all of the Work until such insurance has been replaced, or to obtain replacement insurance at CONTRACTOR's sole cost.

E. Termination of Insurance. CONTRACTOR will not cancel any required insurance coverage until the work is completed, accepted by the CITY and CONTRACTOR has received written notification from the Risk Manager that CONTRACTOR is authorized to cancel the insurance and the effective date of such authorization. The Risk Manager will provide such written notification at the request of CONTRACTOR if the request is made no earlier than two weeks before the work is to be completed.

The liabilities of CONTRACTOR under this Contract will survive and not be terminated, reduced, or otherwise limited by any expiration or termination of insurance coverage. Neither approval nor failure to disapprove insurance furnished by the contractor will relieve the CONTRACTOR or its sub-contractors from responsibility to provide insurance as required by the contract.

ARTICLE VIII. NOTICES

A. Where the Contract Documents authorize or require the CITY to provide notice to CONTRACTOR, notice may be provided by delivery by hand to CONTRACTOR's designated Superintendent at the Project Site, or in the absence or unavailability of the Superintendent to any other person on the Project Site who holds himself or herself out as managing the Work on behalf of CONTRACTOR, or in lieu of either of these, by written notice to the address provided below.

B. Where the Contract Documents authorize or require CONTRACTOR to provide notice to the CITY, notice may be provided only by written notice to the address provided below.

C. Written notice is valid only if sent by certified United States mail, return receipt requested, facsimile with confirmation receipt required, or by recognized courier such as Federal Express with confirmation receipt requested. All such notices will be deemed to have been duly given and provided on (i) the date of receipt, (ii) upon receipt or refusal of delivery if transmitted by registered or certified mail, return receipt requested, or (iii) the first business day after the date of deposit, if transmitted by reputable overnight courier service, whichever occurs first. Written notices will be sent to the following persons:

If to the CITY:

Attn: Frank Van Pelt, Technical Services
The City of Daytona Beach
950 Bellevue Avenue, Rm 600
Daytona Beach, FL 32114
Fax: 386-671-8620

If to the CONTRACTOR:

Attn: >
>
>[insert street address, not PO Box]
>
Fax:>

provided, however, that either Party may by written notice change the address designated for receipt of written and faxed notices.

ARTICLE IX. DISPUTE RESOLUTION

If a dispute exists concerning this Contract, the Parties agree to use the following procedure prior to pursuing any judicial remedies.

A. **Negotiations Required.** A Party will request in writing that a meeting be held between representatives of each Party within 14 days of the request or such later date that the Parties may agree to. Each Party will attend and will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization. The purpose of this meeting is to negotiate the matters constituting the dispute in good faith. The Parties may mutually agree in writing to waive this step and proceed directly to mediation as described below.

B. **Non-Binding Mediation.** Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. Within 30 days after the procedure described above proves unsuccessful or the Parties mutually waive the procedure, the Parties will submit to a non-binding mediation. The mediation, at a minimum, will provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all Parties for the exchange of points of view and (iii) separate meetings between the mediator and each Party to the dispute for the formulation of resolution alternatives. The Parties will select a mediator trained in mediation skills and certified to mediate by the Florida Bar, to assist with resolution of the dispute. The Parties will act in good faith in the selection of the mediator and give consideration to qualified individuals nominated to act as mediator. Nothing in this Contract prevents the Parties from relying on the skills of a person who also is trained in the subject matter of the dispute or a contract interpretation expert. Each Party will attend and will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization.

If the Parties fail to reach a resolution of the dispute through mediation, then the Parties are released to pursue any judicial remedies available to them.

ARTICLE X. GENERAL PROVISIONS

A. This Contract will be governed by the laws of the state of Florida without regard to any choice of law principles that could result in application of the laws of any other jurisdiction. Venue for any legal action or proceeding arising out of this Contract is exclusively in the federal or state courts in and for Volusia County, Florida. The Parties hereby waive any right to stay or dismiss any action or proceeding brought under or in connection with this Contract that is brought before the above-referenced courts on the basis of *forum non-conveniens*.

B. In case of litigation arising out of this Contract where the meaning of one or more provisions is at issue, the CITY will not be penalized by virtue of its having drafted this Contract. CONTRACTOR has carefully reviewed and had the opportunity to seek advice of legal counsel prior to executing this Contract.

C. The CITY and CONTRACTOR agree that they have knowingly waived the right to trial by jury and have instead agreed that, in the event of any litigation arising out of or connected to this Contract, to proceed with a trial before the court, unless both parties subsequently agree otherwise in writing.

D. In performing the services provided for herein, CONTRACTOR is an independent contractor and not an employee of the CITY.

E. The waiver of any provision of this Contract will not be deemed to be a waiver of any other provision of this Contract. No waiver of any provision of this Contract will be deemed to constitute a continuing waiver unless expressly provided in writing, nor will a waiver of any default be deemed a waiver of any subsequent defaults of the same type. The failure at any time to enforce this Contract, whether the default is known or not, does not constitute a waiver or estoppel of the right to do so.

F. All terms and conditions of this Contract which contemplate a period of time beyond completion or termination, will survive such completion or termination and not be merged therein or otherwise terminated.

G. If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, invalid or unenforceable, that finding will only effect such word, phrase, clause, sentence or provision, and such finding will not affect the remaining portions of this Contract; this being the intent of the Parties in entering into the Contract; and all provisions of the Contract are declared to be severable for this purpose.

H. The undersigned representative of CONTRACTOR affirms that in executing this Contract on behalf of CONTRACTOR, he or she is fully authorized to bind CONTRACTOR to the terms and conditions herein set forth.

I. No CITY officer, employee, or independent consultant who is involved in the development, evaluation, or decision-making process of the performance of any solicitation will have a financial interest, direct or indirect, in the Contract resulting from that solicitation. Any violation of this

provision, with the knowledge, expressed or implied, of CONTRACTOR will render the Contract voidable by the CITY.

J. This Contract represents the entire and integrated agreement between the CITY and CONTRACTOR with respect to the subject matter hereof and supersedes all prior negotiations, representations or agreements, either written or oral.

IN WITNESS WHEREOF, the Parties have executed this Contract on the dates written below.

THE CITY OF DAYTONA BEACH

>CONTRACTOR

By: _____
Derrick L. Henry, Mayor

By: _____
Printed Name: _____
Title: _____

Attest: _____
Letitia LaMagna, City Clerk

Date: _____

Date: _____

Approved as to legal form:

By: _____
Robert Jagger, City Attorney

GENERAL CONDITIONS

ARTICLE 1 – DEFINITIONS AND TERMS

1.1 Defined Terms.

Whenever used in the Contract the following terms have the meanings indicated, which are applicable to both the singular and plural thereof

“50-Percent Completion” means the point at which the OWNER has expended 50% of the Adjusted Contract Price.

“Adjusted Contract Price” means the Contract Price as set forth in the Contract, as previously adjusted by valid Change Order.

“Bid” means the offer of the Bidder.

“Bid Schedule” means the Bid Schedule submitted by CONTRACTOR with the Bid; unless CONTRACTOR was the sole responsive bidder and the Parties have negotiated final pricing as part of the bid solicitation process pursuant to the Purchasing Code, in which instance the term means the Revised Bid Schedule included within the Contract Documents.

“Change Instrument” means a Field Directive or a Change Order.

“Change Order” means a written directive issued by the OWNER authorizing an adjustment in the Contract Price, the Contract Time, the scope of Work, or any other material term or condition of the Contract. When approved by the City Commission, a change order may be in the form of a formal amendment to this Contract.

“City Code” means the City of Daytona Beach Code of Ordinances.

“City Commission” or *“Commission”* means the City of Daytona Beach City Commission.

“City Manager” means the City Manager for the City.

“Commencement Date” means the date established in the Notice to Proceed upon which the Contract Time begins to run; or if no such date is provided in the Notice to Proceed, the date of the Notice to Proceed.

“Construction Contract form” means that part of the titled as “Project-Specific Construction Contract” or something similar, and signed by the Parties.

“Contract” includes all Contract Documents.

“Contract Administrator” means the individual specifically authorized to administer the Contract on the OWNER’s behalf; provided, however that in all instances the City Manager may act as the Contract Administrator.

“Contract Price” means the total compensation due to CONTRACTOR for the Work to be performed under the contract, subject only to those adjustments provided in the Contract Documents.

“Contract Time” means the total period of time stated in the Contract between the Commencement Date and the deadline for Final Completion, subject only to those adjustments provided in the Contract Documents.

“Critical Path” means the longest series of tasks that runs consecutively from the beginning to the end of the Project, as determined by duration and workflow sequence. This longest path sets the managerial standard for how quickly the Project can be completed, given appropriate resources.

“Day” or “Days” means calendar days unless otherwise specifically noted in the Contract Documents.

“Defective Work” or “Nonconforming Work” means Work that:

- (i) Does not conform to the requirements of the Contract;
- (ii) Does not meet the requirements of any inspection, test, or approval as referred to in the Contract or as required by law;
- (iii) Contains defects;
- (iv) Represents a substitute for that required by the Technical Provisions, unless properly approved and authorized as provided in the Contract; or
- (v) Has been damaged or destroyed prior to Final Completion.

“Effective Date” means the date on which this Contract is approved by City Commission.

“E/A” (also, “Engineer/Architect”, “Architect, or “Engineer” as applicable) generally means the professional licensed architect or engineer who develops the criteria and concept for the Project, performs the analysis, and is responsible for the preparation of the Technical Provisions and Plans. The E/A may be the OWNER’s in-house staff or a consultant retained by the OWNER. No contractual relationship is created by this Contract between CONTRACTOR and the E/A.

“Equipment” means the machinery and equipment, together with the necessary supplies for upkeep and maintenance thereof, and all other tools and apparatus necessary for the construction and acceptable completion of the Work.

“Field Directive” means a written order prepared and signed by the OWNER, not involving a change in Contract Price or Contract Time, directing a minor change in the Work where a Change Order is not required.

“Final Completion” means acceptance of the Work by the OWNER as evidenced by its signature upon the Certificate of Final Completion.

“Force Account” means a method for payment of additional Work that is based on CONTRACTOR’s labor, equipment and materials costs with consideration for overhead and profit.

“Force Majeure Event” means conditions or other circumstances, such as acts of God, that: (i) were not foreseen, and could not have been reasonably foreseen, by CONTRACTOR or the OWNER, (ii) are beyond the control of CONTRACTOR and the OWNER, and (iii) materially hinder or interfere with the ability of CONTRACTOR to prosecute the Work; provided, however, that no such condition or circumstance will be a Force Majeure event if it is the result of CONTRACTOR’s fault, negligence, or material breach of this Contract. Examples of Force Majeure events include wars, floods, strikes and labor disputes, unusual delay in transportation, epidemics abroad, earthquakes, and severe adverse weather conditions not reasonably anticipated.

“Hazardous Materials” has the meaning as provided by law.

“Legal Requirements” means, collectively, all applicable federal, state, and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work. The term includes the City Code and other CITY ordinances and regulations.

“Materials” means goods or substances to be incorporated in the Work under the Contract.

“Milestone” means a significant event specified in the Contract Documents relating to an intermediate completion date or time prior to Final Completion of the Work.

“*OWNER*” means the City of Daytona Beach; or, if the form Contract so provides, the Community Redevelopment Agency for the CITY. All references within the Technical Provisions to the “CITY” (whether or not capitalized) are intended to refer to the “OWNER” unless logic dictates otherwise.

“*Plans*” means the plan documents prepared by the E/A and identified in the Table of Contents or otherwise incorporated into the Contract, including reproductions thereof, showing the location, character, dimensions, and details of the Work. The term may also be referred to herein as “drawings,” “contract drawings,” “contract plans,” or similar terms; but not “shop drawings.”

“*Project*” means the subject of the Work and its intended result.

“*Project Site*” or “*Site*” means the land or premises on which the Project is located, and in addition any land and areas identified in and permitted for use by CONTRACTOR by the Contract, subject to conditions that may apply such as for rights-of-way, permits, and easements.

“*The Prompt Payment Act*” means the Local Government Prompt Payment Act, F.S. § 218.70 et seq. (2014), as hereafter amended.

“*Purchasing Code*” means the provisions of Chapter 30 of the City Code.

“*Referenced Standards*” includes standards, standard details, specifications, manuals, regulations or codes of any technical society, organization or association, or of any governmental or quasi-governmental authority referred to in the Contract to describe the nature or quality of any of the Work, whether such reference be specific or by implication, and means the latest standard, standard detail, specification, manual, regulation or code in effect at the time of Bid opening, except as may be otherwise specifically stated in the Contract.

“*Resident Project Representative*” means, where the E/A is a private firm or person under contract with the CITY to act as the E/A, the authorized representative of E/A assigned to the Project Site; and in all other instances, the Contract Administrator.

“*Risk Manager*” means the Risk Manager for the CITY or designee; provided however, that the City Manager may act on behalf of the Risk Manager.

“*Schedule of Values*” means the written breakdown of the Contract Price by Construction Specification Institute divisions or by other format acceptable to the OWNER, prepared by CONTRACTOR for OWNER’s review and approval.

“*Shop Drawings*” means all drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR as required by this Contract.

“*Site-Related Reports*” means any environmental, geotechnical, subsoil, and related reports relating to conditions at the Project Site which were used or made available for the OWNER’s or E/A’s use in creating the Plans.

“*Specifications*” means the Technical Provisions and Plans.

“*Stored Materials*” means delivered materials or equipment that are located at the Project Site, or with the OWNER’s approval at another location, and that have not yet been incorporated into the Work.

“*Subcontractor*” means a person or firm that under a direct contract with CONTRACTOR to perform a portion of the Work, and also unless logic dictates otherwise, sub-subcontractors and persons or firms doing work through such sub-subcontractors.

“*Substantial Completion*” means the completion of the Work, or an agreed upon portion of the Work, so as to allow the OWNER to occupy and use the Project or a portion thereof for its intended purposes.

“*Sub-subcontractor*” means a person or firm who has a direct or indirect contract at any tier with a subcontractor to perform a portion of the Work.

“*Supplemental General Conditions*” means that part of the Contract labeled as such and identified in the Table of Contents or otherwise incorporated into the Contract, that amends and supplements these General Conditions.

“*Supplier*” means a person or firm having a contract with CONTRACTOR or with any subcontractor of any tier to furnish materials to be incorporated in the Work.

“*Technical Provisions*” means those provisions of the Contract containing or referencing required technical specifications and standards. The term includes all such technical specifications and standards of other governmental jurisdictions, or professional association where referenced in the Contract, including any exceptions thereto regardless of whether these are attached to or enumerated within the Contract.

Whenever this Contract refers to but does not include a specific Technical Provision, the reference will be deemed to be to the version of the referenced Technical Provision included in the applicable CITY engineering or utility standard unless logic dictates otherwise.

“*Unilateral Change Instrument*” means a Change Instrument issued by the OWNER and not executed by CONTRACTOR.

“*Unit Price Schedule*” means the Bid Schedule.

“*Working Hours*” means 7:00 am through 6:00 pm, Monday through Friday excluding holidays designated by the CITY.

1.2 Abbreviations. The following abbreviations, when used in the Contract, represent the full text shown.

AAN	American Association of Nurserymen, Inc.
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGC	The Associated General Contractors of America, Inc.
AGMA	American Gear Manufacturers Association
AIA	American Institute of Architects.
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute, Inc.
APWA	American Public Works Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
DIPRA	Ductile Iron Pipe Research Association
EASA	Electrical Apparatus Service Association
EPA	Environmental Protection Agency of the United States Government
FDHR	Florida Division of Historical Resources
FEMA	Federal Emergency Management Agency
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FSS	Federal Specifications and Standards

IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFAS	Institute of Food and Agricultural Sciences
IMSA	International Municipal Signal Association
IPCEA	Insulated Power Cable Engineers Association
ISA	International Society of Arboriculture
ISO	International Organization for Standards
MPO	Volusia County Metropolitan Planning Organization
MSTCSD	Minimum Specifications for Traffic Control Signals and Devices
MUTCD	Manual on Uniform Traffic Control Devices
NACE	National Association of Corrosion Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute for Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
SAE	Society of Automotive Engineers
SJWRMD	St. Johns River Water Management District
SI	International System of Units
SSPC	Society of Protective Coatings
UL	Underwriters' Laboratories
USACOE	United States Army Corps of Engineers
USGS	United States Geological Service

Each of the above abbreviations, when followed by a number or letter designation, or combination of numbers and letters, designates a specification, test method, or other code or recommendation of the particular authority or organization shown. Where the above-referenced abbreviations refer to a written standard, specifications, test method, or other code, the reference will be deemed to be the edition of the code promulgated at the time of Bid opening.

1.3 Use of Terms.

1.3.1 Singular and Plural. The OWNER, E/A, CONTRACTOR, subcontractor, sub-subcontractor, supplier, other contractors, surety, insurer and others may be referred to in the Contract Documents as if singular in number. In the event that more than one person or entity occupies the position referred to and unless otherwise indicated, the term is interpreted to include all such persons or entities.

1.3.2 Technical Terms and Trade Usage. Terms in the Contract which have well-known technical or construction industry meanings and are not otherwise defined are used in accordance with such recognized meanings unless the context clearly indicates otherwise.

ARTICLE 2 –ORGANIZATION AND INTENT OF CONTRACT

2.1 Interpreting the Contract.

2.1.1 Order of Precedence. In cases of conflict or discrepancy among Contract Documents, interpretations will generally be based on the following order of precedence, ranked from highest to lowest priority:

- .1 Change Orders;
- .2 The Construction Contract form;
- .3 Supplemental General Conditions, if any;
- .4 General Conditions;

- .5 Technical Provisions;
- .6 Plans (figured dimensions will govern over scaled dimensions);
- .7 The Invitation to Bid and General and Supplemental Instructions to Bidders, including Addenda thereto;
- .8 The Bid Schedule;
- .9 All other documents required to be submitted and submitted as part of CONTRACTOR's Bid Proposal; and
- .10 All other Contract Documents that are neither listed above nor expressly incorporated into one of the foregoing Contract Documents;

with the understanding that a common sense approach will be used as necessary so that the Contract Documents produce the intended response.

2.1.2 Contract Documents Complementary. The Contract Documents are complementary, and what is required by one is as binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, are of like effect as if shown or mentioned in both.

2.1.3 Intent to Require Completed Project. The intent of the Contract Documents is to require that CONTRACTOR provide all materials and labor, including tools, equipment and supervision, necessary for the proper execution and completion of the Work as a functioning whole or required for a completed Project.

2.1.4 Work Required if Reasonably Inferable. Performance by CONTRACTOR is required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. Where no explicit quality or standards for materials or workmanship are established for the Work, the Work is to be of good quality for the intended use and consistent with the quality of surrounding Work which conforms to the requirements of the Contract Documents and to the standards for construction of the Project generally.

2.1.5 Organization of Drawings and Specifications. Organization of the Drawings around professional disciplines such as civil, architectural, structural, plumbing, mechanical, and electrical, and of the Specifications into divisions, sections, and articles, does not control CONTRACTOR in dividing the Work among sub-contractors or in establishing the extent of Work to be performed by any trade or excuse CONTRACTOR of its obligation to properly allocate and provide for the performance of all Work under the Contract.

2.1.6 Documents Excluded from the Contract. The Contract Documents do not include the Site-Related Reports referenced herein or other documents issued or provided to CONTRACTOR for the information of CONTRACTOR or for reference purposes and which are not specifically incorporated in the Contract Documents.

2.1.7 Titles, Headings, and Capitalization. The titles and headings of the various sections and subsections of these General Conditions and other Contract Documents are intended only as a matter of reference and convenience and in no way define, limit, or prescribe the scope or intent of the Contract Documents. The use, or inadvertent failure to use, capitalization of terms used in the Contract Documents is not intended to define or limit the meaning of the term.

2.1.8 Other Interpretive Rules.

2.1.8.1 Provisions of the Contract Documents that use the active voice-imperative mood writing style are directions to CONTRACTOR and are intended as commands. In such instance, the subject "the Bidder" or "CONTRACTOR" is understood.

2.1.8.2 Provisions of the Contract Documents that use the passive voice writing style are also directions to CONTRACTOR and intended as commands unless logic clearly dictates otherwise.

2.1.8.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

2.2 Referenced Standards.

2.2.1 Standards Incorporated. All Referenced Standards are incorporated into the Contract as fully as if printed and bound with the Specifications, but only to the limited extent that such standards are applicable to the Work.

2.2.2 Availability of Referenced Standards. CONTRACTOR is responsible for obtaining and having available at the Project Site a copy of each Referenced Standard insofar as it is applicable to the Work.

2.2.3 Precedence of Contract Documents Over Referenced Standards. No provision of a Referenced Standard is effective to change (i) the procedures established in the Contract Documents or by any applicable laws or regulations, or (ii) the duties and responsibilities of the OWNER, E/A or CONTRACTOR from those set forth in the Contract Documents; nor is any provision of a Referenced Standard effective to assign to the OWNER or the E/A any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the Contract.

ARTICLE 3 - PRELIMINARY MATTERS

3.1 Pre-Contract Submittals. The OWNER reserves the right to require certain Submittals before executing the Contract. Submittals required before execution of the Contract include, but are not limited to Insurance certificates acceptable to the OWNER as provided in the Contract and any other submittals required by the Bid Documents.

3.2 Project Information. Within ten days after the Effective Date, the OWNER will furnish CONTRACTOR free of charge, two signed, sealed, hard copies and one electronic copy of the Plans in AutoCAD and the Technical Provisions in PDF format, and one copy of each of the Site Related Reports, if any. All Site Related Reports are given to CONTRACTOR for information only, are not warranted as to accuracy, and are not a part of the Contract Documents. CONTRACTOR will not be entitled to rely on the accuracy or the completeness of any information contained in these Reports in performing the Work required herein, or in seeking claims for Contract Price or Contract Time adjustments. It is the CONTRACTOR's responsibility to determine and verify all information provided by OWNER including, but not limited to grades and elevations.

3.3 CONTRACTOR's Review of Contract Documents and Site Related Reports. Before undertaking a project, CONTRACTOR will carefully study the Contract Documents and any Site Related Reports provided by OWNER, to check and verify pertinent figures shown thereon compares accurately to all applicable field measurements. CONTRACTOR will promptly report in writing to the Contract Administrator any conflict, error, ambiguity, or discrepancy that CONTRACTOR discovers and will obtain a written interpretation or clarification from the Contract Administrator before proceeding with any Work affected thereby. CONTRACTOR will be liable to the OWNER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents or Site Related Reports of which CONTRACTOR knew or reasonably should have known.

3.4 Pre-Construction Submittals.

3.4.1 CONTRACTOR will prepare and submit all required pre-construction submittals within 15 Days after the Effective Date, except where the Contract Administrator extends time for submittal in writing. The submittals will include each of the following:

3.4.1.1 A proposed Progress Schedule, developed using Microsoft Project software unless otherwise approved by the Contract Administrator. The Progress Schedule will (i) indicate the times (number of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract, (ii) identify the Critical Path for completing the Work, (iii) identify when all subcontractors will be utilized,

and (iv) take into consideration any Working Hours limitations. The Progress Schedule will contain sufficient detail to indicate that CONTRACTOR has identified all required Work elements and tasks, has provided for a sufficient and proper workforce and integration of subcontractor, has provided sufficient resources and has considered the proper sequencing of the Work required to result in a successful Project that can be completed in accordance with any Milestones and within required completion deadlines.

3.4.1.2 A proposed Schedule of Values, except where the Contract Price is based solely on Unit Prices set forth in the Bid Schedule. The Schedule of Values will be prepared in such a manner that each item of Work is shown as one or more line items on AIA Document G703, Continuation Sheet (latest ed.) or such other form as the OWNER may prescribe, and will contain such detail and be supported by such data as to allow the OWNER and the E/A to substantiate accuracy. Upon approval by the OWNER, the Schedule of Values will be used as the basis for reviewing progress payment requests. After the OWNER has approved the initial Schedule, CONTRACTOR will revise and resubmit for the OWNER's approval, amended Schedules of Values as necessary to reflect adjustments in the Contract Price resulting from approved Change Orders. A schedule of values may be required if a substantial portion of the contract price is a lump sum bid item.

3.4.1.3 An organizational chart showing the principals and management personnel who will be involved with the Work, including each one's responsibilities for the Work.

3.4.1.4 Preliminary Shop Drawings. Shop Drawings will be neat, legible, and drawn to scale. CONTRACTOR will specifically identify any proposed deviations from dimensions, details, and other requirements as provided by the Plans and specifications. When submitting Shop Drawings, CONTRACTOR will also provide a written narrative explanation itemizing each proposed deviation from the Specifications or other Contract requirements. No such deviations will be deemed to be accepted unless they are specifically approved in accordance with the procedures for substitutes and Change Orders.

3.4.1.5 To the extent not set forth in the Contract, a letter designating the Superintendent and, if such designation is required by the Supplemental General Conditions, the Project Manager.

3.4.1.6 A letter designating CONTRACTOR's safety representative, who will be responsible for general safety and excavation safety measures along with certifications or other documentation of the safety representative's qualifications.

3.4.1.7 If applicable, an excavation safety system plan.

3.4.1.8 If applicable, a plan illustrating proposed locations of temporary facilities.

3.4.1.9 A completed Non-Use of Asbestos Affidavit (prior to construction).

3.4.1.10 A map of proposed "haul routes" for delivery of materials and transportation of equipment to the Project Site.

3.4.1.11 A letter designating the Florida Registered Professional Land Surveyor for layout of the Work, if the Work requires the services of a surveyor.

3.4.1.12 Any other documents as required by the OWNER, consistent with the terms of the Contract.

The Supplemental General Conditions (if any) or the Technical Provisions may amplify, waive, or otherwise amend requirements for the above-referenced submittals.

3.4.2 The OWNER will have the right to accept or reject each of the required submittals. The OWNER will provide CONTRACTOR written notice as to any submittals that are rejected, in which instance CONTRACTOR will promptly resubmit them. Alternatively in such instance, the OWNER will have the right but not the obligation to schedule a preconstruction meeting; provided that the preconstruction meeting is scheduled no later than 30 days

after the Effective Date, and the OWNER may delay issuance of the Notice to Proceed until the OWNER and CONTRACTOR have held the meeting.

3.4.3 The OWNER's acceptance of the above-referenced submittals will be deemed to be general only relating solely to their sufficiency and compliance with the intent of the Contract. Such acceptance does not constitute the OWNER's adoption, affirmation, or direction of CONTRACTOR's means and methods, and does not constitute a Change Instrument. OWNER's acceptance of the Progress Schedule will not impose on the OWNER, responsibility or liability for the sequencing, scheduling, or progress of the Work, and will not relieve CONTRACTOR from CONTRACTOR's responsibility for complying with the terms and conditions of this Contract. CONTRACTOR will at all times remain responsible for the factual accuracy of all such submittals.

3.5 Notice to Proceed. No work will proceed until the OWNER has issued a written notice to proceed. The OWNER will issue a Notice to Proceed within 60 days after the Effective Date, provided that CONTRACTOR has submitted all required documents, including insurance and, where applicable Performance Security. The OWNER in its sole discretion may delay issuing the Notice if CONTRACTOR has not completed its preconstruction submittals within that time; or with CONTRACTOR's written concurrence for any other or no reason.

3.6 Limitations on Custody and Use of Plans. CONTRACTOR will not re-use the Plans and Technical Provisions, including modifications thereto, on any other project or for any other client. CONTRACTOR may not own or claim a copyright in the Site-Related Reports, or the Plans or any other Contract Documents. With the exception of the signed Contract Documents, all sets of the above-referenced documents are the property of the OWNER, and will be returned to the OWNER on request or at the completion of the Work prior to issuance of Final Payment.

3.7 Availability of Lands. The OWNER will provide access to the Project Site, secure any easements necessary therefore, and notify CONTRACTOR of any restrictions in such access. The OWNER may identify in the Contract Documents encumbrances or restrictions not of general application which are known by the OWNER and specifically related to use of the Site, but which are not of public record. CONTRACTOR will comply with such encumbrances and restrictions in performing the Work. Permanent easements for the completed facility or for changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents.

ARTICLE 4 – OWNER'S RESPONSIBILITIES

4.1 Contract Administrator. The Contract Administrator is authorized to administer the Contract on behalf of the OWNER, commencing on the Effective Date and terminating on the date CONTRACTOR performance is completed (including final payment) or terminated.

4.1.1 The Contract Administrator's authority is limited as follows:

- .1 Provide direction to CONTRACTOR to ensure satisfactory and complete performance;
- .2 Issue Field Directives;
- .3 Monitor and inspect CONTRACTOR performance to ensure acceptable timeliness and quality;
- .4 Maintain necessary documentation and records regarding CONTRACTOR performance and other pertinent matters;
- .5 Furnish timely written notice of CONTRACTOR performance failures to the City Manager and to the City Attorney, as appropriate;
- .6 Determine acceptance or rejection of CONTRACTOR's performance;
- .7 Approve or reject applications for payment, other than application for final payment;
- .8 Furnish necessary reports to the City Manager;
- .9 Recommend Change Instruments or stop work orders to the City Manager; and

- .10 Recommend termination of Contract or work authorizations for default or convenience to the City Manager.

4.1.2 The authority of the Contract Administrator is limited to the functions set forth above. In particular, the Contract Administrator is NOT authorized to make determinations (as opposed to recommendations) that:

- .1 Alter or modify Contracts;
- .2 Terminate or cancel Contracts;
- .3 Approve, as opposed to recommend, Change Orders or Contract Amendments;
- .4 **Except as expressly provided herein**, interpret ambiguities in Contract language; or
- .5 Approve final applications for payment; or
- .6 Waive the OWNER's contract rights.

4.2 **City Manager.** The City Manager has all of the authority of the Contract Administrator. The City Manager has authority to approve final applications for payment except where approval also requires approval of a change order that is not within the City Manager's authority, below. In addition, the City Manager is authorized to issue (i) Change Orders increasing Contract Price or Contract Time as provided in the Purchasing Code or as specifically authorized by the City Commission; (ii) Change Orders reducing Contract Price or Contract Time; and (iii) stop work orders where reasonably necessary to preserve property or prevent injury.

4.3 **Authority Reserved in City Commission.** All administrative authority not specifically conferred upon the Contract Administrator or City Manager is reserved to the City Commission. Modifications to the Contract required to be approved by the Commission may be in the form of Change Orders or formal amendments, as appropriate.

4.4 **General Obligation to Avoid Delays.** Information or services under the OWNER's control will be furnished by the OWNER with reasonable promptness to avoid delay in orderly progress of the Work. The OWNER will have a reasonable amount of time to investigate site conditions, review submittals, analyze requests for changes, and to make other decisions in the orderly administration of the Contract. CONTRACTOR will notify the OWNER in writing, if the time for the investigation, review, analysis of any submittals, required for changes or otherwise required for the OWNER's decision, impacts in any way the Critical Path of the current approved Progress Schedule.

4.5 **Owner-Provided Inspectors.** The OWNER will provide persons to perform OWNER-required inspections.

ARTICLE 5 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS

CONTRACTOR will obtain any additional temporary construction facilities, stockpiling or storage sites not otherwise provided. CONTRACTOR will be responsible for providing at his own expense and without liability to the OWNER, any additional land and access thereto that may be required for temporary construction facilities, or for storage of materials. CONTRACTOR will be required to obtain approval of any private property owner for such additional lands and access unless specifically provided otherwise in the Contract Documents.

5.1 Subsurface and Physical Conditions.

5.1.1 CONTRACTOR affirms that CONTRACTOR has carefully examined the Plans and the Site-Related Reports, if any. CONTRACTOR acknowledges that the Site-Related Reports are **not** a guarantee of specific site conditions which may vary between boring locations, and that the Project Site is unwarranted.

5.1.2 CONTRACTOR affirms that prior to executing this Contract, CONTRACTOR has had the opportunity to become familiar with the Project Site and the local conditions under which the Project is to be constructed and operated, and to undertake its own geotechnical studies to the extent that CONTRACTOR deems appropriate. CONTRACTOR will not be entitled to any additional time or compensation as a result of any conditions at the Project Site which would have been disclosed to CONTRACTOR by a site visit or by undertaking its own geotechnical studies.

5.1.3 CONTRACTOR will provide the OWNER written notice as soon as reasonably possible, but no later than three days, if unforeseen conditions are encountered at the Project Site which are subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature that differ materially from those normally encountered in the type of work being performed under this Contract. CONTRACTOR may not disturb the conditions until the OWNER conducts an investigation. The OWNER will promptly investigate such conditions.

5.1.3.1 If it is determined that such conditions differ materially and cause an increase or decrease in CONTRACTOR's cost of or time required for performance of any part of the Work, the Contract Administrator will recommend an equitable adjustment in the Contract Price or Contract Time, or both. If it is determined that such conditions are not materially different from those indicated in the Contract Documents, the Contract Administrator will notify CONTRACTOR in writing of such findings and the Contract will not be adjusted.

5.1.3.2 CONTRACTOR will be liable to the OWNER for failure to report any such conflict, error, ambiguity, or discrepancy of which CONTRACTOR knew or reasonably should have known, and for CONTRACTOR's failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents within said three-day period, and for any increases in Project costs, or damages accruing, in association with CONTRACTOR's disturbance of the conditions pending OWNER's investigation.

5.1.4 Notwithstanding any other provision of this Contract, CONTRACTOR is solely responsible for the location and protection of any and all public utility lines and utility customer service lines in the Work area. "Public utility lines" means the utility distribution and supply system, and "utility customer service lines" means the utility lines connecting customers to the utility distribution and collection system. Generally, existing utility customer service line connections are not shown on the Plans. CONTRACTOR will notify "One Call" and exercise due care to locate, mark, uncover and otherwise protect all such lines in the construction zone and any of CONTRACTOR's work or storage areas. CONTRACTOR's responsibility for the location and protection of utilities is primary and non-delegable. CONTRACTOR will indemnify or reimburse such expenses or costs (including fines that may be levied against the OWNER) that may result from unauthorized or accidental damage to all public lines and utility customer service lines in the work area. The OWNER reserves the right to repair any damage CONTRACTOR causes to such utilities at CONTRACTOR's expense. If a public or customer service line is damaged by CONTRACTOR, CONTRACTOR will give verbal notice within one hour and written notice within 24 hours, to the OWNER and to the utility representatives identified on the Plans.

5.1.5 CONTRACTOR will take reasonable precaution to avoid disturbing primitive records and antiquities of archaeological, paleontological or historical significance. No objects of this nature will be disturbed without written permission of the OWNER and the FDHR. When such objects are uncovered unexpectedly, CONTRACTOR will stop all Work in close proximity and notify the OWNER and the FDHR of their presence and will not disturb them until written permission and permit to do so is granted. All primitive rights and antiquities uncovered on the OWNER's property will remain property of FDHR conforming to applicable provisions of Florida Statutes. If the OWNER, in consultation with the FDHR, determines that exploration or excavation of primitive records or antiquities on Project Site is necessary to avoid loss, CONTRACTOR will perform salvage work attendant to preservation. If the Work stoppage or salvage work causes an increase in CONTRACTOR's cost of, or time required for, performance of the Work, the Contract Price or Contract Time will be equitably adjusted subject to compliance with the provisions herein for Changes and Delays.

5.2 Protection of Reference Points. Unless otherwise specified, the OWNER will furnish a base line and a suitable number of bench marks adjacent to the work. From the information provided by the OWNER, CONTRACTOR will develop and make all detailed surveys, stakes, lines, and elevations, as CONTRACTOR deems necessary. CONTRACTOR will carefully protect and preserve benchmarks, reference points, and stakes. If these benchmarks, reference points, or stakes are disturbed or destroyed due to CONTRACTOR's failure to comply with the above-referenced requirement, CONTRACTOR will bear the cost of expenses of relocating and replacing them, including the costs of a Registered Professional Land Surveyor if the OWNER determines the same to be necessary.

5.3 Hazardous Materials.

5.3.1 To the extent provided by applicable law, the OWNER will be responsible for any pre-existing hazardous material uncovered or revealed at the Project Site which was not shown, indicated or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work.

5.3.1.1 CONTRACTOR will immediately stop Work in the affected area and will take all necessary precautions to avoid further disturbance of the materials. CONTRACTOR will also will immediately notify the OWNER and, if required by applicable law or regulations, all government or quasi-government entities with jurisdiction over the Project or Project Site.

5.3.1.2 Upon receiving notice of the presence of suspected Hazardous Materials, the OWNER will take the necessary measures required to ensure that the Hazardous Materials are remediated or rendered harmless. Such necessary measures will include the OWNER retaining qualified independent experts to (i) ascertain whether Hazardous Materials have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that the OWNER will take either to remove the Hazardous Materials or render the Hazardous Materials harmless.

5.3.1.3 CONTRACTOR will be obligated to resume Work at the affected area of the Project only after the OWNER provides written certification that (i) the Hazardous Materials have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. CONTRACTOR will be responsible for continuing the Work in the unaffected portion of the Project and the Project Site.

5.3.1.4 CONTRACTOR will be entitled, in accordance with these General Conditions, to an adjustment in its Contract Price or Contract Time(s) to the extent CONTRACTOR's cost or time of performance have been adversely impacted by the presence of Hazardous Materials.

5.3.2 CONTRACTOR will maintain at the Project Site, available to the OWNER, appropriate information pertaining to all Hazardous Materials brought to the Project Site by CONTRACTOR or any subcontractor, and as may be required by the Supplemental General Conditions, if any. CONTRACTOR will ensure that all such materials are properly labeled or identified, and will properly store, handle and use them at all times. In accordance with federal Hazard Communication Standard (29 CFR § 1910.1200) and all other applicable Legal Requirements, manufacturers and distributors are required to label each Hazardous Material or chemical container, and to provide Material Safety Data sheets to the purchaser. CONTRACTOR will comply with these laws and will provide the OWNER with copies of all relevant documents, including Material Safety Data sheets prior to performance or services or contemporaneous with delivery of goods. CONTRACTOR will provide and designate appropriate and secure areas for their storage and will notify the OWNER of their presence and location at Project Site. CONTRACTOR will not store Hazardous Materials at the Project Site in excess of those reasonably needed for CONTRACTOR's prosecution of the Work, and will properly remove or dispose of all Hazardous Materials, including combustible waste, as soon as possible after completion of the operations in which they are utilized.

5.3.3 No asbestos-containing materials will be incorporated into the Work or brought on Project Site without prior approval of the OWNER. CONTRACTOR will not knowingly use, specify, request or approve for use any asbestos containing materials or lead-based paint without the OWNER's written approval. When a specific product is specified, CONTRACTOR will endeavor to verify that the product does not include asbestos containing material.

5.3.4 CONTRACTOR will be solely responsible for use, storage and remediation of any Hazardous Materials brought to Project Site by CONTRACTOR, subcontractors, sub-subcontractors, suppliers, and anyone else for whom CONTRACTOR is responsible. CONTRACTOR will indemnify, defend and hold harmless the OWNER and the OWNER's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Materials introduced to Project Site by CONTRACTOR, subcontractors, sub-subcontractors, suppliers, or anyone for whose acts they may be liable.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.1 General Responsibilities.

6.1.1 Scope of Work. CONTRACTOR will provide, perform, and complete all necessary work, labor, services, transportation, equipment, materials, apparatus, machinery, tools, fuels, gas, electric, water, waste disposal, information, data and other means and items necessary to accomplish the Project at the Work Site, including measures for sediment control, storm water management, and waste disposal, in compliance with this Contract. CONTRACTOR is required to perform all Work specified in the Contract Documents and reasonably inferable from these Documents as being necessary to produce the intended results.

6.1.2 Quality. All materials and Work will be of good quality for the intended use and consistent with the quality of surrounding Work, and will conform to the requirements of the Contract Documents and to the standards for construction of the Project generally. All materials will be new.

6.1.3 Construction Means and Methods. CONTRACTOR will provide continuous on-site supervision and direction of the Work using CONTRACTOR's best efforts. CONTRACTOR will have control over construction means, methods, techniques, sequences, and procedures, unless the Contract Documents give other specific instructions concerning these matters, and is solely responsible therefore.

6.1.4 Discipline at the Project Site. CONTRACTOR will enforce strict discipline and good order among CONTRACTOR's employees and other persons for whose Work CONTRACTOR is responsible, including CONTRACTOR's employees, subcontractors, sub-subcontractors, and suppliers, and the agents and employees of any of them.

6.1.5 Responsibility for Subordinates. CONTRACTOR is responsible for the acts and omissions of all persons performing portions of the Work at the Project Site, including but not limited to CONTRACTOR's employees, subcontractors, sub-subcontractors, and suppliers, and the agents and employees of any of them.

6.1.6 Assignment, Scheduling and Coordination. CONTRACTOR is solely responsible for and has control over assigning, scheduling and coordinating all portions of the work under the Contract performed by CONTRACTOR's own forces and by its subcontractors, sub-subcontractors, and suppliers, in accordance with the approved Progress Schedule, unless the Contract Documents give other specific instructions concerning these matters.

6.1.7 Obligations Not Relieved. CONTRACTOR is not relieved of its obligations to perform the Work in accordance with the Contract Documents, by the activities or duties of the OWNER or the E/A in the administration of the Contract or of construction, or by tests, inspections, or approvals required or performed by persons other than CONTRACTOR.

6.1.8 Ongoing Duty to Report Problems with Contract Documents. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between any Contract Document and any Legal Requirement or of any such standard, specification, manual, or code or instructions of any manufacturer or supplier, CONTRACTOR will within three days of such discovery report it to the OWNER in writing, and CONTRACTOR will not proceed with the Work affected thereby until a Change Order has been issued. CONTRACTOR will be liable to the OWNER for failure to report any such conflict, error, ambiguity, or discrepancy of which CONTRACTOR knew or reasonably should have known. CONTRACTOR will be liable to the OWNER for CONTRACTOR's failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents within said three-day period.

6.1.9 Inspection of Work. CONTRACTOR will make frequent inspections during the progress of the Work to confirm that work previously performed by CONTRACTOR is in compliance with the requirements of this Contract, and that any portion of Work previously performed by CONTRACTOR or by others is in proper condition to receive subsequent Work.

6.2 Diligent Prosecution. CONTRACTOR will at all times be responsible for the diligent prosecution of the Work so as to complete the Work within the Contract Time.

6.2.1 CONTRACTOR will have an affirmative obligation to rearrange Milestones, notwithstanding the manner in which they are scheduled in the current approved Progress Schedule, as circumstances may require. If in order to meet this obligation CONTRACTOR rearranges the order of Work in a manner that materially departs from the current approved Progress Schedule, CONTRACTOR will within 3 days thereafter provide notice to the OWNER, who may require CONTRACTOR to submit a revised Progress Schedule reflecting the rearrangement. No revised Progress Schedule extending the Contract Time will be approved without the issuance of a Change Order in compliance with the Contract Documents.

6.2.2 CONTRACTOR will carry on the Work and adhere to the current approved Progress Schedule, including during all disputes or disagreements with the OWNER. No Work will be delayed or postponed pending resolution of any disputes or disagreements, except as the OWNER and CONTRACTOR may otherwise agree through a Change Order or Contract amendment.

6.3 Supervision and Superintendence.

6.3.1 CONTRACTOR will supervise the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

6.3.2 CONTRACTOR will have an English-speaking, competent Superintendent on the Work at all times that work is in progress. The Superintendent will be CONTRACTOR's representative on the Work and will have the authority to act on the behalf of CONTRACTOR. All communications given to the Superintendent will be as binding as if given to CONTRACTOR, even where written notice is otherwise required. Either CONTRACTOR or the Superintendent will provide a cellular telephone number and an emergency and home telephone number at which one or the other may be reached if necessary when Work is not in progress. The Superintendent will be an employee of CONTRACTOR, unless waived in writing by the OWNER. If CONTRACTOR proposes a management structure with a Project Manager supervising, directing, and managing construction of the work in addition to or in substitution of a Superintendent, the requirements of these Construction Documents with respect to the Superintendent will likewise apply to any such Project Manager.

6.3.2.1 CONTRACTOR will present the resume of the proposed Superintendent to the OWNER showing evidence of experience and successful superintendence and direction of work of a similar scale and complexity. The OWNER may reject the proposed Superintendent if the OWNER determines that the proposed Superintendent does not have sufficient experience in line with the Work, in which instance CONTRACTOR will propose a different Superintendent for OWNER approval.

6.3.2.2 CONTRACTOR will not replace the Superintendent without written notice to the OWNER. If CONTRACTOR deems it necessary to replace the Superintendent, CONTRACTOR will provide the necessary information for approval, as stated above, on the proposed new Superintendent.

6.3.2.3 CONTRACTOR may designate a qualified substitute Superintendent if the designated Superintendent is temporarily away from the Work, subject to OWNER approval.

6.3.2.4 CONTRACTOR will replace the Superintendent upon the OWNER's request, if the Superintendent is unable to perform to the OWNER's satisfaction.

6.4 Labor, Materials, and Equipment.

6.4.1 CONTRACTOR will employ only orderly and competent workers, skillful in performance of the type of Work required under this Contract. CONTRACTOR will prohibit the use and possess any alcoholic or other intoxicating beverages, illegal drugs, or controlled substances while on the job or on the OWNER's property. Subject to the applicable provisions of Florida law, neither CONTRACTOR, nor subcontractors, suppliers, or other agents of CONTRACTOR, may use or possess any firearms or other weapons while on the job or on the OWNER's property. If the OWNER notifies CONTRACTOR that any officer, employee, subcontractor, supplier, or other agent

is incompetent, disorderly, abusive, or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms in contravention of the applicable provisions of Florida law, or has possessed or was under the influence of alcohol or drugs on the job, CONTRACTOR will immediately remove that person from performing Contract Work, and may not employ that person again on the Work without the OWNER's prior written consent. CONTRACTOR will at all times maintain good discipline and order on- and off-Project Site in all matters pertaining to the Project. CONTRACTOR will pay workers no less than the wage rates established by law, and maintain weekly payroll reports as evidence thereof.

6.4.2 CONTRACTOR will not use any preexisting facilities of the OWNER without the specific written consent of the OWNER, except as indicated in the Contract Documents. CONTRACTOR is solely responsible for temporary facilities and services provided or utilized by CONTRACTOR and will remove those not required to remain at the completion of the Work or any portion thereof, will promptly correct any damage caused by the erection, use or removal of temporary facilities; and will restore the Project Site and any adjacent areas to their original condition or that required by the Contract Documents upon completion of the Work.

6.4.3 CONTRACTOR will store, handle, install, and test all materials in accordance with the manufacturer's or suppliers' most recent instructions and recommendations. CONTRACTOR will promptly notify the OWNER if these instructions and recommendations are in conflict with any provision of the Contract Documents.

6.4.4 All materials and equipment will be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable manufacturer and supplier, except as otherwise provided in the Contract Documents. The Contract Administrator or E/A may require CONTRACTOR to furnish one or more of the following:

6.4.4.1 Satisfactory evidence (i.e., reports of required tests, manufacturer's certificates of compliance with material requirements, mill reports, etc.) as to the kind and quality of materials and equipment.

6.4.4.2 Samples of required equipment and materials prior to having such equipment and materials delivered to the Project Site. Each sample submitted by CONTRACTOR will carry a label giving the name of CONTRACTOR, the Project, and the name of the producer. The accompanying certificate or letter from CONTRACTOR will state that the sample complies with the contract requirements, will give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the OWNER in reviewing the sample promptly. It will also include the statement that all materials or equipment furnished for use in the Project will comply with the samples or certified statements. In addition, the accompanying certificate will include a written narrative explanation itemizing the extent to which the sample deviates from the Specifications or other Contract requirements.

6.4.5 The OWNER will not be required to consider delays in the Work caused by delivery of non-complying materials or equipment, or by late or improper submission test reports or manufacturer's certificates for OWNER approval, as just cause for an extension of the Contract Time. The OWNER's acceptance of any test report, certificate, or sample will be general only and will not constitute a waiver of the OWNER's right to demand full compliance with Contract requirements, nor relieve CONTRACTOR from ensuring full compliance with the Contract.

6.4.6 CONTRACTOR will assign to the OWNER, any rights CONTRACTOR may have to bring antitrust suits against suppliers for overcharges on materials incorporated in the Project growing out of illegal price fixing agreements. CONTRACTOR will cooperate with the OWNER should the OWNER wish to prosecute suits against suppliers for illegal price fixing.

6.4.7. Upon CONTRACTOR's request and the Contract Administrator's written approval, CONTRACTOR may locate stored materials off-site, so long as they are in a bonded and insured facility, accessible to the OWNER, and are clearly marked as OWNER's property.

6.4.8 Title to materials delivered to the Project Site or stored off-site will not be deemed to pass to the OWNER until the OWNER accepts such title by paying for same. The OWNER will be entitled but is not required to request title documentation. Risk of loss will not pass to the OWNER until title passes.

6.5 Concerning Subcontractors, Suppliers, and Others.

6.5.1 CONTRACTOR will retain direct control of and give direct attention to the fulfillment of this Contract. CONTRACTOR agrees not to assign this Contract, by power of attorney or otherwise, without the OWNER's prior written consent.

6.5.2 Unless the Supplemental General Conditions provide otherwise, CONTRACTOR will not subcontract the performance of the entire Project or the supervision and direction of the Work without the OWNER's prior written consent. CONTRACTOR will not employ any subcontractor or other person or organization, whether initially or as a substitute, against whom the OWNER may have reasonable objection. The OWNER will communicate such objections by written notice. CONTRACTOR will not substitute any subcontractor that has been accepted by the OWNER, unless the OWNER first accepts the substitute in writing.

6.5.3 CONTRACTOR will enter into written agreements with all subcontractors and suppliers which specifically bind the subcontractors and suppliers to the applicable terms and conditions of the Contract Documents for the OWNER's benefit. The OWNER reserves the right to specify that certain requirements will be adhered to by all subcontractors and sub-subcontractors as indicated in other portions of the Contract Documents, in which instance these requirements will be made a part of the written agreement between CONTRACTOR and each subcontractor. CONTRACTOR's standard subcontract form is subject to the OWNER's review and approval. Within five working days of the OWNER's request for subcontractor contract documents, CONTRACTOR will provide them to the OWNER.

6.5.4 CONTRACTOR will be fully responsible to the OWNER for all acts and omissions of the subcontractors, suppliers, and other persons and organizations performing or furnishing any of the Work under contract with CONTRACTOR and under contract with CONTRACTOR's subcontractors or suppliers, just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents will create for the benefit of any such subcontractor or other person or organization any contractual relationship between the OWNER and any such subcontractor or other person or organization, nor will it create any obligation on the part of the OWNER or E/A to pay or to see to the payment of any moneys due any such subcontractor or other person or organization except as may otherwise be required by Legal Requirements.

6.5.5 CONTRACTOR will be solely responsible for efficiently scheduling and coordinating the Work of subcontractors and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR in order to avoid any delays or inefficiencies in the prosecution of the Work. CONTRACTOR will require all subcontractors and such other persons and organizations performing or furnishing any of the Work to communicate with the OWNER through CONTRACTOR.

6.5.6 The divisions and sections of the Technical Provisions and the identification of any Plans will not control CONTRACTOR in dividing or delineating the Work to be performed by any specific trade.

6.5.7 CONTRACTOR will pay each subcontractor their appropriate share of payments made to CONTRACTOR not later than ten days of CONTRACTOR's receipt of payment from the OWNER.

6.5.8 To the extent allowed by Florida law, the OWNER will be deemed to be a third party beneficiary to each subcontract and may, if the OWNER elects, following a termination of CONTRACTOR, require that the subcontractor(s) perform all or a portion of unperformed duties and obligations under its subcontract(s) for the benefit of the OWNER, rather than CONTRACTOR; however, if the OWNER requires any such performance by a subcontractor for the OWNER's direct benefit, then the OWNER will be bound and obligated to pay such subcontractor the reasonable value for all Work performed by such subcontractor to the date of the termination of CONTRACTOR, less previous payments, and for all Work performed thereafter. If the OWNER elects to invoke the OWNER's right under this Section, the OWNER will provide notice of such election to CONTRACTOR and the affected subcontractor(s).

6.6 Patent Fees and Royalties.

6.6.1 CONTRACTOR will be responsible at all times for compliance with applicable patents and copyrights encompassing, in whole or in part, any design, device, material, or process utilized, directly or indirectly, in the performance of the Work or the formulation or presentation of its Bid.

6.6.2 CONTRACTOR will pay all royalties and license fees and will provide, prior to commencement of Work hereunder and at all times during the performance of same, for lawful use of any design, device, material or process covered by letters, patent or copyright by suitable legal agreement with the patentee, copyright holder, or their duly authorized representative whether or not the OWNER specifies a particular design, device, material, or process.

6.6.3 CONTRACTOR will defend all suits or claims for infringement of any patent or copyright and will save the OWNER harmless from any loss or liability, direct or indirect, arising with respect to CONTRACTOR's process in the formulation of its Bid or the performance of the Work or otherwise arising in connection therewith. The OWNER reserves the right to provide its own defense to any suit or claim of infringement of any patent or copyright in which event CONTRACTOR will indemnify and save harmless the OWNER from all costs and expenses of such defense as well as satisfaction of all judgments entered against the OWNER.

6.6.4 The OWNER will have the right to stop the Work or terminate this Contract at any time if CONTRACTOR fails to disclose to the OWNER that CONTRACTOR's work methodology includes the use of any infringing design, device, material, or process.

6.7 Permits, Fees. CONTRACTOR will secure and pay for at CONTRACTOR's expense, all permits and licenses of a temporary nature that are required for the prosecution of the Work; provided, however, that the OWNER will reimburse CONTRACTOR for any CITY-required permits unless specified otherwise in the Supplemental General Conditions.

Unless the Supplemental General Conditions provide otherwise, the OWNER will obtain licenses and easements for permanent structures and or permanent changes in existing facilities.

6.8 Construction Operations.

6.8.1 CONTRACTOR will confine operations at the Project Site to those areas permitted by all Legal Requirements, and will not unreasonably encumber the Project Site with materials and equipment. CONTRACTOR will assume full responsibility for any damage to any portion of the Project Site, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. If an adjacent property owner or occupant files a claim because of or in connection with the performance of the Work, CONTRACTOR will promptly settle the claim by negotiation or as otherwise provided by law. CONTRACTOR will indemnify, defend and hold harmless the OWNER and anyone directly or indirectly employed by the OWNER, from and against all claims, costs, losses, and damages (including court costs and reasonable attorney's fees) arising out of or resulting from any claim or action, legal or equitable, brought by any such the owner or occupant against the OWNER, E/A or any other party indemnified hereunder to the extent caused by or based upon performance of the Work or failure to perform the Work.

6.8.2 CONTRACTOR will establish the exterior lines and elevations of all buildings and structures to be erected on the Project Site, and lines and grades of site work such as roads, utilities, and site grading, based on reference points, the location of existing structures and improvements, or benchmarks identified in the site surveys provided by the OWNER. CONTRACTOR will provide a professional certification by a professional engineer or land surveyor as to the actual location of building lines prior to constructing any foundations. CONTRACTOR will establish the building grades, lines, and levels, and column, wall, and partition lines required by subcontractors in laying out the Work. At the completion of the Work, CONTRACTOR will provide another professional certification by a registered engineer or land surveyor as to the location of completed improvements in relation to property lines, building lines, easements, and other boundaries.

6.8.3 CONTRACTOR will not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor will CONTRACTOR subject any part of the Work, the Project Site, or adjacent property to stresses or pressures that will endanger it.

6.8.4 All Work will be performed solely during Working Hours, unless (i) more restrictive hours are required by CITY ordinances or other Legal Requirements governing CONTRACTOR's performance of the Work, or (ii) the Contract Administrator approves expanded Working Hours in writing, such as in the event of emergencies, in which instance the Contract Administrator's approval may be terminated at any time and for any reason without recourse to CONTRACTOR. The OWNER has the right to impose further restrictions on working hours reasonably related to the use of occupied facilities. No delays resulting from compliance with applicable Legal Requirements may form the basis for any claim by CONTRACTOR for delay damages or additional compensation or for any extensions of the Contract Time; any delays arising from restrictions related to the use of occupied facilities are non-compensable and any claims for extensions of the Contract Time relating to them will be filed in accord with Article 11 or the same will be conclusively deemed to have been waived. CONTRACTOR will not permit Work outside of Working Hours without the written consent of the OWNER; such consent, if given, may be conditioned upon payment by CONTRACTOR of the OWNER's additional costs and fees incurred in monitoring such off-hours Work. CONTRACTOR will notify the OWNER as soon as possible if Work will be performed outside such times in the interest of the safety and protection of persons or property at the Project Site or adjacent thereto, or in the event of an emergency. In no event will CONTRACTOR permit Work to be performed at the Project Site without the presence of CONTRACTOR's Superintendent and person responsible for the protection of persons and property at the Project Site and compliance with all Legal Requirements, if different from the Superintendent.

6.8.5 Temporary Utilities. CONTRACTOR, at its own expense, will:

6.8.5.1 Furnish all temporary heat, cooling ventilation, and humidity control including all required apparatus and fuel as may be necessary to protect the Work fully, both during its execution and until Final Completion and acceptance. CONTRACTOR will not use any method of heating, cooling, ventilation, or humidity control of the building unless approved by the OWNER in advance.

6.8.5.2 Provide all temporary on-Site water service required to perform the Work, to assure safety at the Site, and as otherwise required. All temporary services will be removed by CONTRACTOR.

6.8.5.3 Furnish all temporary electric service required to perform the Work, to assure safety at the Site, and as otherwise required.

6.8.5.4 CONTRACTOR will provide and maintain in a neat, sanitary condition such accommodations for the use of CONTRACTOR's employees, subcontractors, and others for whom CONTRACTOR may be responsible, as may be necessary to comply with Legal Requirements, and will commit no public nuisance.

6.8.6 Site Maintenance. During the progress of the Work and on a daily basis, CONTRACTOR will keep the Project Site free from accumulation of waste materials, rubbish, and other debris resulting from the Work. If CONTRACTOR fails to do so in a manner reasonably satisfactory to the OWNER within 48 hours after notice or as otherwise required by the Contract Documents, the OWNER may clean the Project Site and back charge CONTRACTOR for all costs associated with the cleaning. At Substantial Completion, CONTRACTOR will leave the Project Site clean, including but not limited to the cleaning of manholes, inlets, and gravity underground piping systems, and ready for the OWNER's occupancy, and will at this point also remove all temporary buildings, waste, trash, debris, and surplus materials. At Final Completion, CONTRACTOR will remove all tools, appliances, construction equipment, and machinery, in addition to the above-referenced materials, and leave the Project Site clean and ready for OWNER's occupancy. This requirement will not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission for such disposal granted to CONTRACTOR by the OWNER. CONTRACTOR will, at a minimum, restore to original condition all property not designated for alteration by the Contract Documents. If CONTRACTOR fails to clean up at the completion of the Work, the OWNER may do so and the cost thereof will be charged against CONTRACTOR.

6.8.7 Risk of Performance. If CONTRACTOR performs any work involving an apparent error, inconsistency, ambiguity, construction impracticality, omission, or violation of Legal Requirements in the Contract Documents of which CONTRACTOR is aware, or which could reasonably have been discovered by the review required by CONTRACTOR by this Contract, without prompt written notice to the OWNER and the E/A and request

for correction, clarification or additional information, as appropriate, CONTRACTOR does so at its own risk and expense and all claims relating thereafter are specifically waived.

6.9 Legal Requirements.

6.9.1 CONTRACTOR will diligently and promptly call for locates required, in accordance with Sunshine State One Call of Florida requirements.

6.9.2 CONTRACTOR will give all other notices and comply with all other Legal Requirements, including arranging for and obtaining any required inspections, tests, approvals or certifications from any public body having jurisdiction over the Work or any part thereof. Except where these Legal Requirements provide otherwise, neither the OWNER nor the E/A will be responsible for monitoring CONTRACTOR's compliance with any Legal Requirements.

6.9.3 Maintaining clean water, air, and earth or improving thereon will be regarded as of prime importance. CONTRACTOR will plan and execute its operations in compliance with all applicable Legal Requirements concerning control and abatement of water pollution and prevention and control of air pollution, including where applicable the terms and conditions of the CITY's current National Pollutant Discharge Elimination System (NPDES) permit.

6.10 Taxes.

6.10.1 CONTRACTOR will pay only those sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the laws and regulations of the State of Florida in the performance of this Contract.

6.10.2 The OWNER is an exempt organization as defined by Florida Statutes and is therefore exempt from payment of sales and use taxes.

6.11 Maintenance of Records and Documents.

6.11.1 CONTRACTOR will maintain at the Site, available to the OWNER for reference during the progress of the Work, a copy of the current approved Progress Schedule and any approved revisions thereto. CONTRACTOR will keep current records of and mark on a copy of the current approved Progress Schedule the actual commencement date, progress, and completion date of each scheduled activity indicated on the Progress Schedule.

6.11.2 CONTRACTOR will maintain in a safe place at the Project Site, or other location acceptable to the OWNER, one record copy of all Drawings, Specifications, Addenda, Change Instruments and written interpretations and clarifications issued pursuant to this Contract (collectively, "Record Documents") in good order and annotated to show all changes made during construction. The Record Documents and all final samples and final Shop Drawings will be available to the OWNER and E/A for reference during performance of the Work. Upon Substantial Completion of the Work, CONTRACTOR will deliver these Record Documents, and final samples and Shop Drawings, to the OWNER.

6.11.3 To the extent applicable, CONTRACTOR will comply with the requirements of Florida Statutes Section 119.0701, which include the following:

6.11.3.1 Keeping and maintaining public records that the CITY requires for performance of the service provided herein.

6.11.3.2 Upon the request of the City Clerk of the CITY, (i) providing the City Clerk with a copy of requested public records or (ii) allowing inspection or copying of the records, within a reasonable time after receipt of the CITY Clerk's request, at a cost that does not exceed the cost provided in Ch. 119, Florida Statutes, or as otherwise provided by law.

6.11.3.3 Ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law until completion of this Contract, and following such completion if CONTRACTOR fails to transfer such records to the CITY.

6.11.3.4 Upon completion of this Contract, keep and maintain public records required by the CITY to perform the service. CONTRACTOR will meet all applicable requirements for retaining public records. All records stored electronically must be provide to the CITY upon request from the CITY Clerk, in a format that is compatible with the CITY's information technology systems.

6.11.3.5 IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTRACTOR MUST CONTACT THE CITY CLERK, WHOSE CONTACT INFORMATION IS AS FOLLOWS:

(Phone)	386 671-8023
(Email)	clerk@codb.us
(Address)	301 S. Ridgewood Avenue Daytona Beach, FL 32114

6.11.4 Nothing herein will be deemed to waive CONTRACTOR's obligation to comply with Section 119.0701(3)(a), Florida Statutes, as amended by Chapter 2016-20, Laws of Florida (2016).

6.12 Safety and Protection.

6.12.1 CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Upon request, and prior to installation of measures, CONTRACTOR will submit a site security plan to the OWNER. By reviewing the plan or making recommendations or comments, the OWNER will not assume liability nor will CONTRACTOR be relieved of liability for damage, injury, or loss. CONTRACTOR will take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury, and loss to:

6.12.1.1 The public;

6.12.1.2 All persons on the Project Site or who may be affected by the Work;

6.12.1.3 All the Work and materials and equipment to be incorporated therein, whether in storage on or off Project Site; and

6.12.1.4 Other personal property, fixtures and other items at the Project Site or adjacent thereto, including, but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.

6.12.2 CONTRACTOR will comply with the Occupational Safety and Health Administration's (OSHA) Excavation Safety Standard, 29 U.S.C § 651 et seq., 29 C.F.R. 1926.650 Sub Part P., and the Trench Safety Act, Section 553.60 et seq. In addition CONTRACTOR will comply with all other applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss, and will erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR will notify owners of adjacent property and of underground facilities, and utility owners when prosecution of the Work may affect them, and will cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in Subparagraphs 6.12.1.3 and 6.12.1.4, above, caused, directly or indirectly, in whole or in part, by CONTRACTOR, any subcontractor, or any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, will be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or

Specifications or to the acts or omissions of the OWNER, or E/A, or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the faults or negligence of CONTRACTOR or any subcontractor, supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and protection of the Work will continue until such time as all the Work is completed and the OWNER has issued a Certificate of Final Completion (except as otherwise expressly provided in connection with Substantial Completion). Without limitation, CONTRACTOR will comply with the following specific provisions:

6.12.3 CONTRACTOR will designate in writing a qualified and experienced safety representative at Project Site whose duties and responsibilities will be the prevention of accidents and the maintaining and supervising of safety precautions and programs. Upon request of the OWNER, CONTRACTOR will provide certifications or other documentation of the safety representative's qualifications.

6.12.4 CONTRACTOR will be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at Project Site in accordance with Legal Requirements.

6.12.5 CONTRACTOR will comply with the following requirements in emergencies:

6.12.5.1 In emergencies affecting the safety or protection of persons or the Work at Project Site or adjacent thereto, CONTRACTOR, without special instruction or authorization from the OWNER or E/A, is obligated to act reasonably to prevent threatened damage, injury or loss and to mitigate damage or loss to the Work. CONTRACTOR will give the OWNER telephone notification as soon as reasonably practical and a prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the express provisions of this Contract Documents have been caused thereby. If the OWNER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Change Order will be issued; otherwise the OWNER will not be responsible for CONTRACTOR's emergency action.

6.12.5.2 Authorized agents of CONTRACTOR will respond immediately to call-out at any time of any day or night when circumstances warrant the presence on Project Site of CONTRACTOR or his agent to protect the Work or adjacent property from damage, restriction or limitation or to take such action or measures pertaining to the Work as may be necessary to provide for the safety of the public. Should CONTRACTOR or CONTRACTOR's agent fail to respond and take action to alleviate such an emergency situation, the OWNER may direct other forces to take action as necessary to remedy the emergency condition, and the OWNER will deduct any cost of such remedial action from the funds due CONTRACTOR under this Contract.

6.12.5.3 If there is an accident involving injury to any individual or damage to any property on or near the Work, CONTRACTOR will provide to the Contract Administrator verbal notification within one hour and written notification within 24 hours of the event and will be responsible for recording the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining medical reports, police accident reports and other documentation that describes the event. CONTRACTOR will provide the OWNER copies of such documentation within 48 hours of the event.

6.12.5.4 CONTRACTOR will cooperate with the OWNER in any investigation of any such incident. CONTRACTOR will immediately report such incidents to any other governmental or quasi-governmental authorities having jurisdiction over safety-related matters as may be required by law.

6.13 Indemnification.

6.13.1 Any obligation of CONTRACTOR to indemnify or hold harmless under this Contract will not be limited in any way by any limitation on the amount or type of damages, or compensation or benefits payable by or for CONTRACTOR or any such subcontractor, supplier, or other person or organization for whom CONTRACTOR may be responsible under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.13.2 Any obligation of CONTRACTOR to indemnify and hold harmless under this Contract, will not extend to the liability of the OWNER, E/A, E/A's consultants, and their officers, directors, partners, employees or

agents, when caused primarily by negligent preparation of maps, drawings, surveys, designs or specifications upon which is placed the applicable state-authorized design professional seal of the OWNER, E/A, or OWNER's or E/A's consultant's, officers, directors, partners, employees or agents.

6.13.3 If CONTRACTOR fails to follow the OWNER's directives concerning use of Project Site, scheduling or course of construction, or engages in other conduct which proximately causes damage to property based on inverse condemnation or otherwise, then and in that event, CONTRACTOR will indemnify the OWNER against all costs resulting from such claims.

6.13.4 If CONTRACTOR unreasonably delays progress of the Work being done by others on Project Site so as to cause loss for which the OWNER becomes liable, then CONTRACTOR will indemnify the OWNER from and reimburse the OWNER for such loss.

6.14 Survival of Obligations. All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with this Contract, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Contract.

6.15 Losses from Natural Causes. Unless otherwise specified, all loss or damage to CONTRACTOR arising out of the nature of the Work to be done or from action of the elements, floods or from unforeseeable circumstances in prosecution of the Work or from unusual obstructions or difficulties which may be encountered in prosecution of the Work, will be sustained and borne by CONTRACTOR at its own cost and expense.

6.16. Notice of Claim. Should CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of OWNER or of any of OWNER's employees or agents or others for whose acts OWNER is liable, CONTRACTOR must file a claim within 30 calendar days of the event giving rise to such injury or damage. The provisions of this Section will not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or statute of repose.

6.17 Financial Records.

6.17.1 For purposes of this Section 6.17, "financial records" means all records generated by or on behalf of CONTRACTOR and each Subcontractor and supplier of CONTRACTOR, whether paper, electronic, or other media, which are in any way related to performance of or compliance with this Contract, including, without limitation:

- .1 Accounting records;
- .2 Written policies and procedures;
- .3 Subcontract files (including proposals of successful and unsuccessful Bidders, Bid recaps, etc.);
- .4 Original estimates and estimating work sheets;
- .5 Correspondence;
- .6 Change Order files (including documentation covering negotiated settlements);
- .7 Back charge logs and supporting documentation;
- .8 General ledger entries detailing cash and trade discounts earned, insurance rebates and dividends;
- .9 Lump sum agreements between CONTRACTOR and any Subcontractor or supplier;
- .10 Records necessary to evaluate: Contract compliance, Change Order pricing, and any Claim submitted by CONTRACTOR or any of its payees; and
- .11 Any other CONTRACTOR record that may substantiate any charge related to this Contract.

6.17.2 CONTRACTOR will allow the OWNER, and the OWNER's authorized representatives, to inspect, audit, and reproduce all Records generated by or on behalf of CONTRACTOR and each subcontractor and supplier, upon the OWNER's written request. Further, CONTRACTOR will allow the OWNER, and the OWNER's authorized representatives, to interview any of CONTRACTOR's employees, all Subcontractors, all suppliers, and all of their respective employees.

6.17.3 CONTRACTOR will retain all its Records, and require all its subcontractors and suppliers to retain their respective Records, during this Contract and for three years after final payment, until all audit and litigation matters that the OWNER has brought to the attention of CONTRACTOR are resolved, or as otherwise required by law, whichever is longer. The OWNER's right to inspect, audit, or reproduce Records, or interview employees of CONTRACTOR or its respective subcontractors or suppliers, exists during this Contract, and for three years after final payment, until all audit and litigation matters that the OWNER has brought to CONTRACTOR's attention are resolved, or as otherwise required by law, whichever is longer, and at no cost to the OWNER, either from CONTRACTOR or any of its subcontractors or suppliers that may furnish Records or make employees available for interviewing.

6.17.4 CONTRACTOR must provide sufficient and accessible facilities during its normal business hours for the OWNER to inspect, audit, or reproduce Records, or all three, and to interview any person about the Records.

6.17.5 CONTRACTOR must insert these requirements in each written contract between CONTRACTOR and any subcontractor or supplier and require each subcontractor and supplier to comply with these provisions.

ARTICLE 7 - OTHER WORK

7.1 Coordinating Other Work. The OWNER may perform other work related to the Project at Project Site by the OWNER's own forces, or let other contracts for the Project or Project Site, or have other work performed by utility owners. CONTRACTOR and the OWNER agree to and will use best efforts to cooperate and coordinate the Work with others performing work and other work related to the Project in order to avoid conflicts and delays in the Work. If CONTRACTOR believes that delay or additional cost is involved because of such action by the OWNER, CONTRACTOR may make a Claim as provided in Article 11.

7.2 Proper and Safe Access by Other Contractors. CONTRACTOR will afford other contractors and each utility owner (and the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the Project Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and will properly connect and coordinate the Work with theirs. CONTRACTOR will do all cutting, fitting, patching, and finishing of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR will not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the OWNER and the other contractors whose work will be affected. CONTRACTOR will promptly remedy damage wrongfully caused by CONTRACTOR to completed or partially completed construction or to property of the OWNER or separate contractors.

7.3 CONTRACTOR's Inspection and Reports. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR will inspect such other work and promptly report to the OWNER in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in such other work.

7.4 Progress Schedules. The OWNER will provide for coordination of the activities of the OWNER's own forces, of each separate CITY contractor, and of any other utility owners performing work in relation to the Work of CONTRACTOR, who will cooperate with them. CONTRACTOR will participate with the OWNER any other contractors retained by the OWNER, in reviewing their construction progress schedules when directed to do so. On the basis of such review, CONTRACTOR will make any revisions to the current approved Progress Schedule deemed necessary after a joint review and mutual agreement. The agreed-upon progress schedules will then

constitute the progress schedules to be used by CONTRACTOR, the OWNER, and any other contractor retained by the OWNER until subsequently revised.

7.5 Improper Timing or Delays. Costs caused by delays or by improperly timed activities or defective construction will be borne by the party responsible therefore.

ARTICLE 8 – WARRANTIES

8.1 General Warranty.

CONTRACTOR warrants that the Work and all of its components will be free from defects and flaws in design, workmanship, and materials for the duration of the General Warranty Period described below; will strictly conform to the requirements of the Contract; and will be fit, sufficient and suitable for the purposes expressed in, or reasonably inferred from, the Contract. This general warranty is in addition to any other warranties expressed or implied by law, which are hereby reserved unto the OWNER.

8.1.1 General Warranty Period. The General Warranty Period will be one year from Substantial Completion, except for those items of equipment or those aspects of work placed in service or approved by the OWNER after Substantial Completion, in which instance the warranty for the particular equipment or aspect of work will be one year from the date of OWNER approval; provided, however, that the General Warranty Period for particular equipment placed in continuous service before Substantial Completion may start to run from an earlier date, if expressly provided in this Contract.

8.1.2 Duty to Correct. CONTRACTOR will correct any and all defects that defects in material or workmanship which may appear during the General Warranty Period, even if discovered after the General Warranty Period, by repairing (or replacing with new items or new materials, if necessary) any such defect at no cost to the OWNER, within a reasonable period of time, and to the OWNER's satisfaction.

8.1.3 General Warranty is Absolute. The only exceptions to the General Warranty will be defects or damage caused by abuse, modification or improper maintenance or operation by persons other than CONTRACTOR or CONTRACTOR's subcontractors, sub-subcontractors or suppliers; or normal wear and tear under normal usage. In all other respects the General Warranty will be absolute.

8.2 Special Warranties. CONTRACTOR will furnish all additional special warranties required by this Contract no later than Substantial Completion. The OWNER may require special warranties in connection with the approval of accepted equals and other substitute materials, equipment, methods, and procedures, and in connection with Work which is defective or nonconforming.

8.3. Limitation as to Certain Equipment. As to any equipment which the OWNER has reserved the sole right to have installed, the Warranties under this Article 8 will extend to ensure that the equipment is installed according to the Plans and Technical Provisions, and that any manufacturer or product warranties are conveyed to the OWNER; but in such instance CONTRACTOR will not be held liable for the operating performance of such equipment.

8.4 Relation to Specific Correction Provisions and Other Remedies. CONTRACTOR's general warranty and any additional or special warranties are not limited by CONTRACTOR's obligations to specifically correct Defective/Nonconforming Work, nor are they limited by any other remedies provided in the Contract Documents. CONTRACTOR will also be liable for any damage to property or persons (including death), including consequential and direct damages, relating to any breach of the General Warranty or any additional or special warranties required.

8.5 Third Party Warranties. CONTRACTOR will obtain and assign or transfer to the OWNER, all product warranties available from manufacturers or suppliers of materials to be used in the Project. CONTRACTOR will also obtain and assign or transfer to OWNER, any additional third party warranties as to materials or methods as specified in the Contract Documents. The OWNER's acceptance of any assigned warranties or guaranties will be a precondition to final payment and will not relieve CONTRACTOR of any of CONTRACTOR's guaranty or warranty obligations under this Contract.

ARTICLE 9 – E/A'S STATUS DURING CONSTRUCTION

9.1 Applicability. The provisions of this Article will apply only where the Contract Documents specifically authorize a consultant of the OWNER to act as the E/A to review and modify Technical Provisions, Plans, and other technical specifications associated with the Work. In all instances in which there is no such specific authorization, the provisions of this Article will have no effect, and any authorization or delegation within the Contract Documents to the E/A, will be deemed to be to the Contract Administrator. In addition, where the Contract Documents contain language specifically authorizing a consultant of the OWNER to act as E/A, the OWNER retains the right to assign or assume such authority upon written notice to CONTRACTOR.

9.2 The OWNER's Sole Benefit. The assignment, if any, of any authority, duties or responsibilities to the E/A under this Contract, or under any agreement between the OWNER and the E/A, or any undertaking, exercise or performance thereof by the E/A, is intended to be for the sole and exclusive benefit of the OWNER and not for the benefit of CONTRACTOR, subcontractor, supplier, or any other person or organization, or for any surety or employee or agent of any of them.

9.3. CONTRACTOR Remains Responsible. The E/A will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto. The E/A is not responsible for any failure of CONTRACTOR to comply with laws and regulations applicable to the furnishing or performing the Work. The E/A is not responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with this Contract. Failure or omission of the E/A to discover, or object to or condemn any defective Work or material will not release CONTRACTOR from the obligation to properly and fully perform the Contract.

9.3.1 The E/A is not responsible for the acts or omissions of CONTRACTOR, or of any subcontractor, any supplier, or of any other person or organization performing or furnishing any of the Work.

9.3.2 If the OWNER and E/A agree, the E/A will review each Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals and other documentation required to be delivered, but only to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals that the results certified indicate compliance with, this Contract.

9.4 Applicability to E/A's Agents. The limitations upon authority and responsibility set forth in this Article 9 will also apply to the E/A's consultants, Resident Project Representative and assistants.

9.5 Visits to Project Site. If the OWNER and E/A agree, the E/A will make visits to the Project Site at intervals appropriate to the various stages of construction as E/A deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, the E/A will endeavor for the benefit of the OWNER to determine, in general, if the Work is proceeding in accordance with this Contract. The E/A will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The E/A's efforts will be directed toward providing for the OWNER a greater degree of confidence that the completed Work will conform generally to this Contract. On the basis of such visits and on-site observations, E/A will keep the OWNER informed of the progress of the Work and will endeavor to guard the OWNER against Defective Work. The E/A's visits and on-site observations are subject to all the limitations on the E/A's authority and responsibility set forth in this Article 9.

9.6 Resident Project Representative. If the OWNER and E/A agree, E/A will furnish a Resident Project Representative to assist the E/A in providing more continuous observation of the Work. The responsibilities and authority and limitations of any such Resident Project Representative and assistants will be as provided in this Article 9 and in the Supplemental General Conditions. The OWNER may designate another representative or agent to represent the OWNER at Project Site who is not the E/A, E/A's consultant, agent or employee.

9.7 Clarifications and Interpretations. The E/A may determine that written clarifications or interpretations of the requirements of the Technical Provisions (in the form of drawings or otherwise) are necessary. Such written clarifications or interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents, will be issued with reasonable promptness by the OWNER and will be binding on the OWNER and CONTRACTOR. If the OWNER or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times, the OWNER or CONTRACTOR may make a Claim therefore as provided in these General Conditions.

9.8 Recommendations as to Defective Work. The E/A will recommend that the OWNER disapprove or reject Work which the E/A believes to be defective, or believes will not produce a completed Project that conforms to this Contract or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by this Contract.

ARTICLE 10 – ACCEPTED EQUALS AND SUBSTITUTIONS

10.1 Accepted Equals. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item, the specification or description is intended to require the item named, unless the Contract Documents, in specifying the name, specifically authorize the use of functionally equivalent item through the use of terms such as “as equal,” “or equal,” or “equivalent.” For purposes herein, an item is only “functionally equivalent” if it is available at the same or lower cost, and if it is sufficiently similar to the item specified, including as to durability, warranty, acquisition time, and availability, so that no change in related Work will be required, and no change in the useful life, maintenance, repair cost, or quality of the completed work is anticipated.

10.2 CONTRACTOR May Propose Substitutions. CONTRACTOR may propose a substitution for any item of material or equipment, and for any means, method, technique, sequence, or procedure of construction, specified in the Contract Documents. CONTRACTOR’s will propose such substitutes at CONTRACTOR’s sole cost and expense, and at CONTRACTOR’s sole risk as to disruptions to the Critical Path of the current approved Progress Schedule. CONTRACTOR will provide OWNER sufficient data and documentation to allow the OWNER to review the proposal.

10.3 OWNER’s Evaluation. The OWNER will be allowed a reasonable time within which to evaluate each proposal made by CONTRACTOR pursuant to this Section. The OWNER will be the sole judge of acceptability. No accepted equal or substitute will be ordered, installed, or utilized until the OWNER’s review is complete, which will be evidenced by a Change Instrument. The OWNER may require CONTRACTOR to furnish at CONTRACTOR’s expense a special performance guarantee or other surety bond with respect to any accepted equal or substitution or for any other delay or disruption to the Critical Path of the Project Schedule attributable to any such substitution. The OWNER will not be responsible for any delay due to review time for any proposed substitution, unless such an extension is due to CONTRACTOR, consistent with the requirements of this Contract for changes and delays. The OWNER will not be responsible for increased costs associated with the review or approval of a proposed substitution, unless the increase is required as provided in association with changes and delays. In any event, no such extension or increase will be deemed provided unless specified in the Change Instrument approving the substitution.

10.4 CONTRACTOR to Remain Responsible. The OWNER’s acceptance of a substitution will not relieve CONTRACTOR from primary responsibility and liability for the suitability and performance of any proposed substitute item or substituted method or procedure, and will not relieve CONTRACTOR from its primary responsibility and liability for curing Defective Work and performing warranty work, which CONTRACTOR will cure and perform, regardless of any claim CONTRACTOR may choose to advance against the OWNER or manufacturer.

ARTICLE 11 – DELAYS AND ADJUSTMENTS TO CONTRACT TIME AND CONTRACT PRICE

11.1 Delay. Delays are classified in one of the following categories:

11.1.1 An excusable delay is a delay caused by a Force Majeure event. An excusable delay may entitle CONTRACTOR to an extension of Contract Time but not an increase in Contract Price.

11.1.2 A compensable delay is a delay which is caused solely and exclusively by acts or omissions of the OWNER, excepting actions taken by the OWNER to protect the public health or safety or to conform to law. A compensable delay may entitle CONTRACTOR to both an extension of Contract Time and an increase in Contract Price.

11.1.3 An unexcused delay is any delay other than an excusable or compensable delay. An unexcused delay entitles CONTRACTOR to no adjustment to Contract Time or Contract Price.

11.2 Events Not Constituting a Delay. The following events will not be considered an excusable delay of any kind even though they are not anticipated by CONTRACTOR, not within CONTRACTOR's control, and are not reasonably foreseeable:

11.2.1 Events that pose no delay to items of Work on the Critical Path of the current approved Progress Schedule.

11.2.2 Events that would not prevent CONTRACTOR from achieving Final Completion before the expiration of the Contract Time, where CONTRACTOR may otherwise accelerate other items of Work without undue expense.

11.2.3 Weather, unless the weather is more severe than the adverse weather normally anticipated for the Project Site for the month in question, based on a generally accepted source of data such as the National Weather Service.

11.2.4 Events, including actions of the OWNER, that impact Critical Path activity, because the activity was previously delayed due to unexcused delays.

11.3 Notice of Delay Required. CONTRACTOR will provide written notice of any actual or prospective delay promptly, and in no event later than ten days after the occurrence of the event giving rise to such delay. CONTRACTOR will give the notice to both the E/A and the Contract Administrator within the specified time. In the case of a continuing delay, CONTRACTOR will provide an initial notice and a further notice at each progress meeting throughout the duration of the delay. The notice will contain all of the specific information required in the following Subsection.

11.4 Contents/Supporting Documents. CONTRACTOR's notice of delay will identify those portions of the current approved Progress Schedule affected by the delay and will include an estimate of the cost and probable effect of the delay, if any, on the progress of the Work. Supporting documentation will include, but is not limited to:

11.4.1 A written detailed statement of the reasons and causes for the delay;

11.4.2 Inclusive dates of the delay;

11.4.3 Specific trades and portions of the Work affected by the delay;

11.4.4 Status of Work affected before commencement of the delay;

11.4.5 Effect of the delay on available "float" time;

11.4.6 A Critical Path Method (CPM) analysis demonstrating that the delay has affected an activity then on the Critical Path at the time of the occurrence of the delay as shown on the most current approved Progress Schedule; and

11.4.7 If CONTRACTOR claims that the delay is an excusable delay or compensable delay, evidence that the delay was unforeseeable, beyond CONTRACTOR's control, and without the fault or negligence of CONTRACTOR or the negligence of anyone for whose acts CONTRACTOR is responsible including any subcontractor, sub-subcontractor or supplier; and in the case of a compensable delay, was caused solely and

exclusively by the acts or omissions of the OWNER (excepting actions taken by the OWNER to protect the public health or safety or to conform to law) or anyone for whose acts the OWNER is responsible, and which are unreasonable under the circumstances involved and not reasonably within the contemplation of the parties.

11.5 Failure to Comply with Notice Requirements. The notice required by this Article 11 operates as a condition precedent to the assertion of any claim for extension of Contract Time, increase in Contract Price, or damages by CONTRACTOR. If CONTRACTOR fails to give the OWNER timely written notice of a claim as required by this Article 11, CONTRACTOR will be deemed to have waived the claim, and the OWNER will have no further liability respecting the claim.

11.6 Review and Adjustment of Schedules. Upon receipt of a notice from CONTRACTOR of the occurrence of a delay complying with the requirements of this Article, the OWNER will review the current approved Progress Schedule to determine (i) whether the delay is in fact an excusable or compensable delay, and (ii) whether any adverse effects of the delay can be overcome by an adjustment in the Progress Schedule, including the application of any unused "float" time available in the Schedule. The OWNER may require CONTRACTOR to submit a more detailed Progress Schedule than previously required in order to permit the OWNER to evaluate the delay. Based on such review, CONTRACTOR will, if required by the OWNER, submit for the OWNER's approval a revised Progress Schedule, which minimizes the adverse effects of the delay.

11.7 Limitation on Adjustments Due to Delays Generally. No extension of the Contract Time or increase in the Contract Price will be allowed for an unexcused delay. No extension of the Contract Time or increase in the Contract Price will be made to the extent that performance is, was or would have been suspended, delayed or interrupted by another cause for which CONTRACTOR is responsible. No increase in the Contract Price will be made to the extent performance was or would have been suspended, delayed or interrupted by another cause for which the OWNER is not solely and exclusively responsible.

11.8 Additional Limitations on Adjustments to Contract Time Due to Delays. No extension of Contract Time will be provided where, notwithstanding a Force Majeure event or other claimed delay, CONTRACTOR may achieve Final Completion within the Contract Time through adjustments to the current approved Progress Schedule.

11.9 Additional Limitations on Adjustments to Contract Price Due to Delays. Any obligation on the part of the OWNER to pay CONTRACTOR for compensable delay is solely intended to reimburse CONTRACTOR for actual expense arising out of the compensable delay. No consequential damages will be allowed to CONTRACTOR in connection with any claimed delays. Damages for compensable delay will be determined by the Force Account method set forth in Subsection 13.3.2.

11.9.1 Standby equipment costs will not be allowed during periods when the equipment would have otherwise been idle. Standby equipment time will not exceed more than eight hours per day, 40 hours per week, and 176 hours per month. Standby equipment costs will be paid at 50 percent of the applicable Rental Rate Blue Book rates and calculated by dividing the monthly rate by 176, multiplying the result by the number of standby hours and multiplying that number by the regional adjustment factor and the rate adjustment factor contained in the Blue Book. Operating costs will not be allowed.

11.10 Liquidated Damages Due to CONTRACTOR's Delays. Liquidated Damages, if any, are set forth in the Contract form.

11.11 No Damages are Due to CONTRACTOR for Prevention of Early Completion. CONTRACTOR represents that its Bid includes all costs, overhead and profit which may be incurred throughout the Contract Time, including the period between Substantial and Final Completion. Accordingly, CONTRACTOR may not make any claim for delay damages based in whole or in part on the premise that CONTRACTOR would have completed the Work prior to the expiration of the Contract Time but for any claimed delay.

11.12 Acceleration to Avoid Delays. If CONTRACTOR's progress is not maintained in accordance with the current approved Progress Schedule, or the OWNER determines that CONTRACTOR is not diligently proceeding with the Work or has evidence reasonably indicating that CONTRACTOR will not be able to conform to the current approved Progress Schedule, CONTRACTOR will, promptly and at no additional cost to the OWNER, take all

measures necessary to accelerate its progress to overcome the delay and ensure that there will be no further delay in the progress of the Work and notify the OWNER thereof. Any extension of working hours requires approval of the OWNER, which will not be unreasonably withheld but may be subject to reasonable conditions including payment for additional or overtime services of the OWNER the Architect/Engineer and any other applicable consultants, testing or regulatory agency costs.

ARTICLE 12 – CHANGES

12.1 Materially Different Site Conditions. For purposes herein, “materially different site conditions” means conditions that are different from those indicated in the Contract Documents, that are unknown to CONTRACTOR, and that could not be reasonably anticipated based upon on the following: (i) typical soil or subsurface conditions for the area in which the Project Site is located; (ii) site visits CONTRACTOR made, or was encouraged or permitted to make by the Bid Documents, prior to Bid submission; or (iii) a careful review of any Site-Related Reports.

12.1.1 CONTRACTOR may be entitled to an increase in Contract Time for materially differing site conditions as an excusable delay as provided in Article 11, subject to the exclusions and conditions of that article including notice requirements.

12.1.2 CONTRACTOR may also be entitled to an increase in Contract Price for materially different site conditions, where these conditions will require additional labor or materials, or both, exceeding the amount estimated in the Schedule of Values or Bid Schedule, as applicable, by 5% or more, provided, that CONTRACTOR complies with the notice requirements in Section 12.3. In such instance, the basis for adjusting Contract Price is set forth in Section 13.3.

12.2 Materially Different Structural Conditions (Remodeling or Renovation Contracts). If this is a Contract for a remodeling or renovation of an existing structure and CONTRACTOR encounters materially different conditions in the structure (not as to the Site or subsurface conditions) from those indicated in the Contract Documents provided by the OWNER as part of the Bid or Proposal Documents, CONTRACTOR will give written notice thereof to the OWNER and the E/A promptly before conditions are disturbed and in no event later than ten days after first observing such conditions. Failure of CONTRACTOR either (i) to provide notice before disturbing the existing conditions or (ii) failure to give notice within ten days of first observing such conditions is conclusively deemed a waiver of any claim relating to such conditions.

12.2.1 Investigation and Determination. The E/A will promptly investigate any alleged differing conditions as to the structure (but not as to the Site or subsurface conditions) and provide a written report of its findings to the OWNER. If the OWNER finds that the conditions of the structure differ materially and require a change in the Work and cause an increase or decrease in CONTRACTOR’s cost of, or time required for, performance of any part of the Work, the OWNER may make an adjustment in the amount payable to CONTRACTOR or the Contract Time, as applicable. If the OWNER determines that the conditions of the structure are not materially different or that no change in the terms of the Contract is justified, the OWNER will so notify CONTRACTOR in writing.

12.3 Constructive Changes and Disputed Adjustments.

12.3.1 Notice to the OWNER and E/A. CONTRACTOR will advise the OWNER and the E/A in writing promptly and in no event later than ten days after (i) issuance of any interpretation, clarification, instruction, direction or order whether orally or in writing from either the OWNER or the E/A, or (ii) the occurrence of any event or discovery of any condition (including any condition as provided in Section 12.1 and if applicable, 12.2), which CONTRACTOR believes or has reason to believe entitles CONTRACTOR to an increase in the amount payable to CONTRACTOR or an extension of the Contract Time; and except in the case of an emergency involving possible loss of life or bodily injury or significant property damage, the required written notice will be provided prior to proceeding with the Work. Failure of CONTRACTOR to provide such notice constitutes an acceptance of the interpretation, clarification, instruction, direction, order, event, or condition without adjustment to the Contract Price or the Contract Time and a conclusive waiver of any claim relating to the same. In order to be valid, a claim for an adjustment of Contract Price or Contract Time must contain the specific adjustment requested and must be supported by a detailed explanation of the basis for the claim. In addition to be valid, a claim for increase in

Contract Time must be supported by the documentation specified in Subsection 11.4, and a claim for an increase in the Contract Price must be documented and calculated as specified in Subsection 13.3.2. Failure of CONTRACTOR to object as and when specified in this Subsection is deemed an acceptance of interpretation, clarification, instruction, direction or order as issued and a waiver of any claim by CONTRACTOR to any adjustment to the Contract Price or the Contract Time.

12.3.2 Disputed Adjustments. All disputed adjustments under this Contract will be determined in accordance with the Contract, Article IX if, as conditions precedent thereto, CONTRACTOR has timely provided all notices and objections required under the terms of the Contract.

ARTICLE 13 - CHANGE INSTRUMENTS

13.1 Introduction.

13.1.1 The OWNER may issue a Change Instrument to require changes in the Work without invalidating the Contract.

13.1.1.1 A Field Directive may be issued to require minor changes in the Work that, in the OWNER's view, do not change the Scope of Work, present a delay, or require an adjustment to Contract Time or Contract Price. Examples of such situations where Field Directives may be appropriate are unanticipated field conditions or unavailability of specified materials and equipment.

13.1.1.2 All other changes to the Work will require the issuance of a Change Order issued in conformance with these General Conditions.

13.2 Change Order Required for Contract Time and Contract Price Adjustments. Adjustments to Contract Time or Contract Price will be granted only through a properly-issued Change Order.

13.3 Change Orders Adjusting Contract Price. All Change Orders adjusting Contract Price will be invalid unless approved in accordance with the authority provided by the Purchasing Code.

13.3.1 Basis for Contract Price Adjustment. Subject to any federal procurement standards that may apply if the Project is a federally funded project, in which case the standards will govern to the extent of conflict, a Change Order may provide for an adjustment in the Contract Price based only on one of the following methods:

.1 Unit Prices as stated in the Bid Schedule.

.2 A fixed not-to-exceed or lump sum agreed to by the OWNER and CONTRACTOR and stated in the Change Order, properly itemized and supported by sufficient substantiating data to permit evaluation which will be limited to estimated costs of labor, materials, supplies and equipment, rental cost of machinery and equipment, additional bond cost, plus a fixed fee for profit and overhead (which includes office overhead and site-specific overhead and general conditions) of 10% if the Work is performed by CONTRACTOR, or 5% if the Work is performed by a subcontractor or sub-subcontractor. The subcontractors' or sub-subcontractors' overhead and profit in turn will not exceed 10%. The total percentage of overhead and profit payable by the OWNER (to both CONTRACTOR and all sub tier subcontractors), regardless of the sub-tier which performs the work, will not exceed 15%.

.3 Actual costs, properly itemized, plus a profit factor, using the Force Account method set forth in Section 13.3.2.

.4 In the absence of an agreement between the OWNER and CONTRACTOR, the OWNER will determine the amount of the Contract Price Adjustment using any of the methods outlined in Subsections 13.3.1.1 – 13.3.1.3, above, whichever will result in the lowest cost to the OWNER.

.5 No cost will be included in a Change Order for time spent preparing the Change Order, nor will costs be included for an estimate of time to negotiate the Change Order costs for machinery, tools, or equipment.

13.3.2 Force Account Method for Contract Price Increases. Before using the Force Account method provided for herein, the OWNER and CONTRACTOR agree to negotiate a Change Order using the other methods identified in Subsection 13.3.1, above, as appropriate, to determine the adjustment in the Contract Price. If neither of these methods can be agreed upon before a change in the Work is commenced which will result in an adjustment in the Contract Price, then the change in the Work will be performed by a Change Order using the Force Account method, and payment will be made as follows:

13.3.2.1 For all personnel, CONTRACTOR will receive actual field cost wage rates for each hour that said personnel are actually engaged in such Work, as substantiated by its certified payroll, to which will be added an amount equal to 15% of the sum thereof as compensation for CONTRACTOR's and any effected subcontractor's total overhead and profit. No separate charge will be made by CONTRACTOR or its subcontractor(s) for organization or overhead expenses. CONTRACTOR will also receive an amount equal to 55% of the wages paid personnel, excluding the 15% compensation provided above, for CONTRACTOR's and any effected subcontractor's cost of premiums on liability insurance, workers' compensation insurance, social security and unemployment insurance. The actual cost of CONTRACTOR's bond(s) on the extra Work will be paid based on invoices from surety. No charge for superintendence will be made unless considered necessary and ordered by the OWNER.

13.3.2.2 CONTRACTOR will receive the actual cost, including freight charges, of the materials used and installed on such Work, to which costs will be added a sum equal to 20% thereof as compensation for CONTRACTOR's and any effected subcontractor's total overhead and profit. In case material invoices indicate a discount may be taken, the actual cost will be the invoice price minus the discount.

13.3.2.3 For machinery, trucks, power tools, or other similar equipment (the "equipment") agreed to be necessary by the OWNER and CONTRACTOR, the OWNER will allow CONTRACTOR the applicable daily, weekly or monthly rate as given in the latest edition of the "Rental Rate Blue Book" as published by EquipmentWatch (1-800-669-3282) for each hour that said equipment is in use on such work, which rate includes the cost of fuel, lubricants and repairs. The established equipment rates will be paid for each hour that the equipment is utilized in the Work. If the equipment is used intermittently during the Work, full payment for an eight-hour day will be made if the equipment is not idle more than four hours of the day. If the equipment is idle more than four hours in a day, then payment will be made only for the actual hours worked. No additional compensation will be allowed on the equipment for CONTRACTOR's or any affected subcontractor's overhead and profit. The OWNER may accept an actual rental invoice in lieu of the method of calculation set forth in this Paragraph for equipment rented exclusively for Force Account Work or for equipment not included in the Rental Rate Blue Book.

13.3.2.4 The compensation provided for herein, will be received by as payment in full for work done pursuant to the Change Order and will include use of small tools, and total overhead expense and profit. CONTRACTOR and the OWNER will compare records of work done by Change Order at the end of each day. Copies of these records will be made upon forms provided for this purpose by the OWNER and signed by both the OWNER and CONTRACTOR, with one copy being retained by the OWNER and one by CONTRACTOR. Refusal by CONTRACTOR to sign these records within two working days of presentation does not invalidate the accuracy of the record.

13.3.3 Additional Performance Security in Conjunction with Change Order. The CITY may require CONTRACTOR to increase or supplement previously-provided Performance Security to cover any additional costs of performing services required under a Change Order that increases Contract Price, commensurate with such additional cost. In such instance, any compensation due CONTRACTOR for CONTRACTOR's cost of providing such increase or supplement will be reflected in the Change Order or otherwise borne by CONTRACTOR.

13.4 Payment for Work Covered by Change Order. Additional monies due CONTRACTOR pursuant to a valid Change Order providing for an adjustment to the Contract Price, will be paid for in accordance with the

Progress Payment schedule established by the Contract, in which case payment will be subject to retainage requirements set forth in the Contract; or at the time of Final Payment.

13.5 Absence of Proposed Adjustments. If a Change Instrument is silent as to any adjustment to the Contract Price or the Contract Time, it will be conclusively presumed that none is intended and none will be allowed unless CONTRACTOR files an objection as and when specified in the following Subsection.

13.6 Action upon Receipt of Change Instrument. Upon receipt of a Change Instrument, CONTRACTOR will promptly proceed with the change in the Work involved.

13.6.1 CONTRACTOR will advise the OWNER in writing, promptly and in any event no later than ten days after issuance of the Unilateral Change Instrument, of CONTRACTOR's objection (i) to the amount or method, if any, provided for in the Change Instrument for adjustment to Contract Price or Contract Time, or (ii) to the absence of any adjustment to the Contract Price or Contract Time. In order to be valid, a claim for an adjustment of Contract Price or Contract Time, must contain the specific adjustment requested, must be supported by a detailed explanation of the basis for the claim. In addition, to be valid a claim for increase in Contract Time must be supported by the documentation specified in Subsection 11.4, and a claim for an increase in the Contract Price must be documented and calculated as specified in Subsection 13.3.1. Failure of CONTRACTOR to object as and when specified in this Subsection is deemed an acceptance of the Unilateral Change Order as issued and a waiver of any claim by CONTRACTOR to any adjustment to the Contract Price or the Contract Time.

13.7 Waiver of Claim. Except for emergencies involving possible loss of life or bodily injury or significant property damage, CONTRACTOR's commencement of the Work that is subject to a Change Instrument will constitute a complete waiver by CONTRACTOR as to such claim regardless of whether CONTRACTOR has within the ten-day period notified the OWNER of a claim consistent with the requirements of Subsection 13.6.1.

13.8 OWNER's Right to Use Third Parties for Additional Work. If the OWNER and CONTRACTOR are unable to negotiate the terms of a Change Order for the performance of additional Work, the OWNER may, at its election, perform such additional Work with its own forces or with another CONTRACTOR and such work will be considered "Other Work."

13.9 OWNER's Right to Accelerate Schedule. The OWNER reserves the right to issue a Change Instrument to accelerate the Work which may be subject to an appropriate adjustment, if any, in the Contract Price. If the OWNER requires an acceleration of the Project Schedule and no adjustment is made in the Contract Price, or if CONTRACTOR disagrees with any adjustment made, any claim an adjustment must comply with the requirements of Subsection 13.6.1 or be deemed to be conclusively waived.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTIONS, REMOVAL AND ACCEPTANCE OF DEFECTIVE WORK

14.1 Access to Work. The OWNER, including the Contract Administrator and other employees and agents, including E/A and E/A's consultants, independent testing laboratories, and governmental agencies having jurisdiction, will each have access to the Work at reasonable times for observing, inspecting and testing. CONTRACTOR will provide them proper and safe conditions for such access, and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

14.2 Tests and Inspections.

14.2.1 CONTRACTOR will give timely notice of readiness of the Work for all required inspections, tests or approvals, and will cooperate with inspection and testing personnel to facilitate required inspections or tests. All testing will be performed by the CONTRACTOR. Only verification testing will be performed by the CITY. CONTRACTOR is not required to enter test results into MAC.

14.2.2 The OWNER will employ and pay for services of an independent testing laboratory to perform all inspections, tests or approvals required by the Contract Documents except:

- .1 For inspections, tests or approvals covered by Paragraph 14.2.3 below;
- .2 That costs incurred with tests or inspections conducted pursuant to Paragraph 14.3.3 below will be paid as provided in Paragraph 14.3.3;
- .3 For re-inspecting or re-testing Defective Work; and
- .4 As otherwise specifically provided in the Contract Documents. All testing laboratories will meet the requirements of ASTM E-329.

14.2.3 If Legal Requirements specifically require any Work (or part thereof) to be inspected, tested, or approved by an employee or other representative of a governmental or related authority, CONTRACTOR will assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith and furnish the OWNER the required certificates of inspection or approval.

14.2.4 CONTRACTOR will also be responsible for arranging and obtaining and will pay all costs in connection with any inspections, tests or approvals required for the OWNER's and E/A's review of materials or equipment to be incorporated in the Work, or of materials, mix designs or equipment submitted for review prior to CONTRACTOR's purchase thereof for incorporation in the Work.

14.3 Uncovering Work.

14.3.1 If any Work (or the work of others) that is to be inspected, tested or approved is covered by CONTRACTOR without written concurrence of the Contract Administrator, or if any Work is covered contrary to the written request of the Contract Administrator, it will, if requested by the Contract Administrator, be uncovered and recovered at CONTRACTOR's expense.

14.3.2 Uncovering Work as provided in Paragraph 14.3.1 above, will be at CONTRACTOR's expense unless CONTRACTOR has given the OWNER timely notice of CONTRACTOR's intention to cover the same and the OWNER has not acted within five working days to such notice.

14.3.3 If the OWNER considers it necessary or advisable that covered Work be observed, inspected or tested, CONTRACTOR will uncover, expose or otherwise make available for observation, inspection or testing that portion of the Work in question, furnishing all necessary labor, material and equipment. If the OWNER determines that such Work is defective, CONTRACTOR will pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and the OWNER will be entitled to an appropriate decrease in the Contract Price, and may make a Claim therefore as provided in these General Conditions. However, if such Work is not found to be defective, CONTRACTOR will be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and CONTRACTOR may make a Claim therefore as provided in these General Conditions.

14.4 The OWNER May Stop the Work.

14.4.1 If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to this Contract, the OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the Work will not give rise to any duty on the part of the OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

14.4.2 If CONTRACTOR fails to correct Defective Work or submit a satisfactory plan to take corrective action, with procedure and time schedule, the OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until cause for such order has been eliminated, or take any other action permitted by this Contract. A notice to stop the Work, based on defects, will not stop calendar or Working Days charged to the Project.

14.5 Correction or Removal of Defective Work. If required by the OWNER, CONTRACTOR will promptly, as directed, either correct all Defective Work, whether or not fabricated, installed or completed, or, if the Work has

been rejected by the OWNER, remove it from Project Site and replace it with Work that is not defective. CONTRACTOR will correct or remove and replace Defective Work, or submit a plan of action detailing how the deficiency will be corrected, within the time frame identified in the notice of Defective Work. CONTRACTOR will pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

14.6 Correction Required. If within the Warranty Period, or such longer period of time as may be prescribed by Legal Requirements or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work, including Work performed after the Substantial Completion date, is found to be defective, CONTRACTOR will promptly, without cost to the OWNER and in accordance with the OWNER's written instructions:

14.6.1 Correct such Defective Work, or, if it has been rejected by the OWNER, remove it from Project Site and replace it with Work that is not defective, and

14.6.2 Satisfactorily correct or remove and replace any damage to other Work or the work of others resulting from the Defective Work.

If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR. The warranty period will be deemed to be renewed and recommenced in connection with the completed items of Work requiring correction.

14.7 Coordination with OWNER. If correction of Defective Work will affect the function or use of the facility, CONTRACTOR will not proceed with correction of Defective Work without prior coordination and approval of the OWNER.

14.8 Acceptance of Defective Work. If, instead of requiring correction or removal and replacement of Defective Work, the OWNER decides to accept it, the OWNER may do so. CONTRACTOR will pay all claims, costs, losses and damages attributable to the OWNER's evaluation of and determination to accept such Defective Work. For purposes of this Section, the OWNER's acceptance of sample materials or equipment will not be deemed to be acceptance of Defective Work. If any such acceptance occurs prior to recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents and compensating the OWNER for the diminished value of the Defective Work. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to the OWNER after a calculation by the OWNER of the diminution in value of the Defective Work.

14.9 The OWNER May Correct Defective Work. If CONTRACTOR fails within a reasonable time after written notice of the OWNER to correct Defective Work, or to remove and replace rejected Work, or if CONTRACTOR fails to perform the Work in accordance with this Contract, or if CONTRACTOR fails to comply with any other provision of this Contract, the OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. If, in the opinion of the Contract Administrator, significant progress has not been made during this seven-day period to correct the deficiency, the OWNER may exercise any actions necessary to remedy the deficiency. In exercising the rights and remedies under this paragraph, the OWNER will proceed expeditiously. In connection with such corrective and remedial action, the OWNER may exclude CONTRACTOR from all or part of Project Site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, and incorporate in the Work all materials and equipment stored at Project Site or for which the OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR will allow the OWNER, its agents and employees, the OWNER's other contractors, E/A and E/A's consultants access to Project Site to enable the OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by the OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions to this Contract with respect to the Work. Such claims, costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's Defective Work. CONTRACTOR will not be allowed an

extension of the Contract Times (or Milestones), or claims of damage because of any delay in the performance of the Work attributable to the exercise by the OWNER of the OWNER's rights and remedies hereunder.

14.10 Testing and Inspections Outside of Working Hours. This Contract contemplates that all testing and inspections will be done during Working Hours as defined herein. Whenever the OWNER is required to test or inspect outside of Working Hours, on weekends, or during Holidays observed by the OWNER, the OWNER will be entitled to a reduction in the Contract Price to the extent of any overtime costs incurred by the OWNER, unless such testing or inspection is required to be performed at that time due to:

14.10.1 Emergency conditions that are not the fault of CONTRACTOR, and subcontractors, sub-subcontractors, suppliers, or other persons for whom CONTRACTOR is responsible;

14.10.2 A Force Majeure event, the OWNER's disruption, or other events which, pursuant to this Contract, would otherwise require an extension of the Contract Time.

14.11 CONTRACTOR Remains Responsible for the Work. The following will not be deemed to be a release of CONTRACTOR's obligation to perform the Work in accordance with this Contract:

14.11.1 Observations by the E/A;

14.11.2 The issuance of a Certificate of Substantial Completion or any payment by the OWNER to CONTRACTOR under this Contract;

14.11.3 Partial use or occupancy of the Work or any part thereof by the OWNER;

14.11.4 Any acceptance by the OWNER or any failure to do so;

14.11.5 Any review of a Shop Drawing or sample submittal;

14.11.6 Any inspection, test or approval by others; or

14.11.7 Any correction of Defective Work by the OWNER.

ARTICLE 15 – PROGRESS PAYMENTS, PARTIAL UTILIZATION AND FINAL COMPLETION

15.1 General Method of Payment. Payment of the Contract Price will be made in a series of Progress Payments and after Final Completion, a Final Payment, in accordance with this Article.

15.1.1 If CONTRACTOR has provided Payment and Performance Bonds, no payment will be made unless and until CONTRACTOR records the bonds and provides the OWNER certified copies of the recorded bonds in accordance with Florida Statutes Section 255.05(b).

15.2 Application for Payment. CONTRACTOR may submit to the OWNER, no more than once a month and no sooner than 30 days following commencement of the Work, an application for payment for those portions of the Work completed as of the date of the application. The OWNER may, by notice, designate a specific day of each month for submission of the application for payment. Each application for payment will be in a form acceptable to the OWNER, and will include the following documentation and information:

15.2.1 The current approved Progress Schedule;

15.2.2 If applicable, the Schedule of Values;

15.2.3 Unless CONTRACTOR has provided payment and performance bonds and recorded them in the public records as provided in Florida Statutes Section 255.05, releases of liens from subcontractors or suppliers;

15.2.4 CONTRACTOR's written certification (i) as to the value of the Work completed, (ii) that partial or final waivers of lien have been received covering all such Work, (iii) and that all prior Progress Payments have been properly applied to the payment or reimbursement of the costs with respect to which they were paid;

15.2.5 If payment is requested on the basis of materials or equipment not incorporated in the Work but delivered and suitably stored at Project Site or at another location agreed to in writing, the application for payment by such bills of sale, data, and other procedures satisfactory to the OWNER substantiating the OWNER's title to such materials or equipment or otherwise protecting the OWNER's interest;

15.2.6 A completed Minority and Women-Owned Business Enterprise (MBE/WBE) Usage Report, using forms provided by the OWNER. CONTRACTOR will complete all blank spaces shown on these Report forms. If no amounts have been paid to MBE/WBE subcontractors, the completed form will so indicate; and

15.2.7 The consent of the surety, if any, to the requested payment.

Each application for payment will be deemed to be a warranty and guarantee by CONTRACTOR that title to all Work, materials and equipment covered by the application, whether incorporated in the Project or not, will pass to the OWNER free and clear of all liens no later than the time of payment to CONTRACTOR.

15.3 Review of Application for Payment. As soon as practicable after receipt of an application for Payment, and within the 20-day period following receipt of the application as provided by the Prompt Payment Act, the OWNER will approve, partially approve, or reject the application. The OWNER will provide written notice if payment is rejected or partially rejected, specifying the deficiency in the application for payment and the action necessary to make the request proper. In addition to rejecting payment of all or a portion of the application for failure to comply with submittal requirements referenced above, the OWNER will have the right to reject all or a portion of the application for any of the following reasons:

15.3.1 Defective Work not remedied;

15.3.2 Third party Claims filed or reasonable evidence indicating probable filing of such Claims;

15.3.3 Unless CONTRACTOR has provided payment and performance bonds and complied procedurally with Florida Statutes Section 255.05, failure of CONTRACTOR to make payments properly to subcontractor or for labor, materials or equipment;

15.3.4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;

15.3.5 Damage to the OWNER or another CONTRACTOR;

15.3.6 Reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

15.3.7 Failure of CONTRACTOR to submit a Schedule of Values in accordance with the Contract Documents, if one is required;

15.3.8 Failure of CONTRACTOR to submit a submittal schedule in accordance with the Contract Documents;

15.3.9 Failure of CONTRACTOR to submit and update a Progress Schedule in accordance with the Contract Documents;

15.3.10 Failure of CONTRACTOR to maintain a record of changes on drawings and documents;

15.3.11 Failure of CONTRACTOR to maintain weekly payroll reports and, as applicable, provide copies of reports in a timely manner upon request of the OWNER;

15.3.12 CONTRACTOR's neglect or unsatisfactory prosecution of the Work, including failure to clean up;
or

15.3.13 CONTRACTOR's failure to comply with the submittal requirements of Section 15.2, above, or with any other provision of this Contract.

If any portion of the application is rejected the OWNER will provide CONTRACTOR a written notice as to the reasons for rejection, within the time frame provided in the Prompt Payment Act. CONTRACTOR will then make the necessary corrections and re-submit the application or portion of application rejected.

15.4 Progress Payments. The OWNER will make payment on an approved or partially approved application, less amounts set aside for retainage within the deadlines provided by the Prompt Payment Act. If CONTRACTOR and the OWNER disagree on the basis or amount of the payment, or if CONTRACTOR is unwilling to make the necessary corrections or modifications and re-submit the Request as to those items rejected by the OWNER, then the OWNER may approve and process the Request by making such adjustments thereto as the OWNER deems appropriate so that CONTRACTOR receives without delay, payment of the amount determined by the OWNER to have been earned and owing to CONTRACTOR.

15.5 Amounts Withheld from Progress Payments. The OWNER will withhold an amount from each such approved progress payment, as follows:

15.5.1 If the Contract Price is \$200,000 or more, the amount of retainage will be determined by the Prompt Payment Act, which as of the Effective Date provides for a 10% retainage until 50-Percent Completion, and a 5% retainage thereafter.

15.5.2 In all other instances, the amount of retainage will be ten percent for each progress payment.

Subject to any limitations that may be imposed by the Prompt Payment Act if applicable, the OWNER will hold all retainage until Final Payment. However, if the Work is near Substantial or Final Completion and delay occurs due to no fault or neglect of CONTRACTOR, the OWNER may pay a portion of the retained amount to CONTRACTOR. CONTRACTOR, at the OWNER's option, may be relieved of the obligation to complete the Work and thereupon, CONTRACTOR will receive payment of the balance due for the work completed and accepted, subject to the conditions applicable to OWNER's termination of work without cause.

15.6 Delayed Payments. Should the OWNER fail to make payment to CONTRACTOR of the amount approved for any application for payment within the time frames provided in the Prompt Payment Act, the OWNER will pay to CONTRACTOR, in addition to amount approved, interest thereon at the rate specified in the Act, from date due until fully paid, which will fully liquidate any injury to CONTRACTOR growing out of such delay in payment.

15.7 Substantial Completion.

15.7.1 When CONTRACTOR considers that the Work, or a portion thereof which the OWNER agrees to accept separately, is substantially complete, CONTRACTOR will notify the OWNER and request a determination as to whether the Work or designated portion thereof is substantially complete. If the OWNER does not consider the Work substantially complete, the OWNER will notify CONTRACTOR giving reasons therefore. After performing any required Work, CONTRACTOR will then submit another request for the OWNER to determine Substantial Completion. If the OWNER considers the Work substantially complete, the OWNER will prepare and deliver a certificate of Substantial Completion which will establish the date of Substantial Completion, will include a punch list of items to be completed or corrected before Final Payment, will establish the time within which CONTRACTOR will finish the punch list, and will establish responsibilities of the OWNER and CONTRACTOR for security, maintenance, heat, utilities, damage to the Work, warranty and insurance. Failure to include an item on the punch list does not alter the responsibility of CONTRACTOR to complete all Work in accordance with this Contract. The Work will not be deemed to be substantially or finally complete until any certificates of occupancy required to occupy the Project are issued. The OWNER and CONTRACTOR will both sign the certificate of Substantial Completion, to evince acceptance of the responsibilities assigned to them in such certificate.

15.8 Partial Utilization. The OWNER will have the option to use any portion of the Work prior to Substantial Completion of the Project where:

15.8.1 The Contract Documents specifically provide for such portion to be partially utilized prior to Substantial Completion; or

15.8.2 Upon the OWNER's request, if CONTRACTOR agrees and, upon joint inspection, the parties agree that the portion of the Work in question is Substantially Complete. In such instance, the OWNER will issue a certificate of Substantial Completion, attaching thereto a punch list of items to be completed or corrected before Final Payment and fixing the responsibility between the OWNER and CONTRACTOR for maintenance, heat and utilities as to that part of the Work.

The OWNER will have the right to exclude CONTRACTOR from any part of the Work which is so certified to be Substantially Complete but the OWNER will allow CONTRACTOR reasonable access to complete or correct items on the punch list.

15.9 Final Inspection and Final Completion. CONTRACTOR will provide the OWNER the Notice of Completion sufficiently in advance of the Completion Date to allow for scheduling of the final inspection and for completion or correction of all Punch List Work before the Completion Date. Upon receipt of CONTRACTOR's Notice of Completion, the OWNER will make a review of the Work and notify CONTRACTOR in writing of all Punch List Work, if any, to be completed or corrected. Following CONTRACTOR's completion or correction of all Punch List Work, the OWNER again review the Work and prepare and deliver to CONTRACTOR either a written notice of additional Punch List Work to be completed or corrected or a written Certificate of Final Completion, signifying final acceptance of the Work.

15.9.1 If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation, at the OWNER's option the OWNER may issue a Certificate of Final Completion on the condition that CONTRACTOR executes a re-vegetation letter, with letter of credit or other guarantee in form and amount satisfactory to the OWNER, to ensure completion of this item. This Work will be accomplished within 120 days of the date of Final Completion of the Work. When permanent erosion control has been established, the OWNER will initiate an inspection for final acceptance of the erosion controls. If the re-vegetation is not completed within the 120 days, the OWNER, at its option, may complete the Work using the posted guarantee.

15.9.2 In all other instances, the OWNER will only be obligated to issue a Certificate of Final Completion accepting the Work as finally complete, when the whole and all parts thereof will have been completed to the satisfaction of the OWNER in full compliance with this Contract.

15.10 Final Application for Payment. As soon as practical after the OWNER's issuance of the Certificate of Final Completion, CONTRACTOR will submit to the OWNER a properly completed application for Final Payment in the form approved or provided by the OWNER. The application will include or attach the following:

15.10.1 Three complete manuals containing all maintenance and operating instructions, warranties, and other associated documents for equipment or other materials that have been installed or otherwise included in the Work;

15.10.2 Record documents (as provided in Paragraph 6.11.2 of these General Conditions);

15.10.3 Unless CONTRACTOR has provided payment and performance bonds and procedurally complied with Florida Statutes, Section 255.05:

15.10.3.1 Legally effective final releases or waivers of liens from CONTRACTOR, and from all subcontractors and sub-subcontractors which performed services for CONTRACTOR and all suppliers of material or equipment to CONTRACTOR;

15.10.3.2 An affidavit that all of CONTRACTOR's debts, and claims, including from all subcontractors, subcontractors, and suppliers in connection with the Work, have been paid or otherwise satisfied;

15.10.4 Complete and legally effective releases or waivers satisfactory to the OWNER of all claims other than claims of subcontractors, Sub-subcontractors, and suppliers, filed in association with the Work;

15.10.5 The consent of the surety, if any, to final payment;

15.10.6 Non-Use of Asbestos Affidavit (After Construction);

15.10.7 Certificate evidencing that required insurance will remain in force after final payment and through the warranty period; and

15.10.8 Any other documentation required pursuant to this Contract.

15.11 If Final Application is Rejected. If the OWNER rejects the request for Final Payment, the OWNER will provide CONTRACTOR written notice stating the reasons therefore within the time required by the Prompt Payment Act.

15.12 Final Payment; Waiver of Claims. Final Payment will be deemed to have taken place when CONTRACTOR or any of its representatives negotiates the OWNER's final payment check, whether labeled final or not, for cash or deposits check in any financial institution for its monetary return. The making and acceptance of Final Payment will constitute:

15.12.1 A waiver of claims by the OWNER against CONTRACTOR, except claims arising from unsettled claims, from Defective Work appearing after final inspection, from failure to comply with this Contract or the terms of any warranty specified therein, or from CONTRACTOR's continuing obligations under this Contract; and

15.12.2 A waiver of all claims by CONTRACTOR against the OWNER other than those which were made in writing through the date that the check for final payment was issued and which are unsettled.

15.13 Partial Final Payment in Extenuating Circumstances. If the OWNER determines that after CONTRACTOR has achieved Substantial Completion, Final Completion is materially delayed through no fault of CONTRACTOR, the OWNER may without terminating this Contract, make payment of balance due for that portion of the Work fully completed and accepted. Such payment will be made under the terms and conditions governing Final Payment, except that it will not constitute a waiver of claims by the OWNER, and will not cause a transfer of title or relieve CONTRACTOR for responsibility for the Substantially Completed Work.

ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION

16.1 The OWNER May Suspend Work Without Cause. At any time and without cause, the OWNER may suspend the Work or any portion thereof for a period of not more than 90 days by written notice to CONTRACTOR which will fix the date on which the Work will be resumed. CONTRACTOR will resume the Work on the date so fixed. CONTRACTOR will be allowed an adjustment in the Contract Price or an extension of the Contract Time, or both, directly attributable to any such suspension if CONTRACTOR makes an approved Claim for such an adjustment as provided herein.

16.2 The OWNER May Terminate Without Cause. Upon seven days' notice to CONTRACTOR, the OWNER may, without cause and without prejudice to any right or remedy of the OWNER, elect to terminate the Contract. In such case, CONTRACTOR will be paid for completed and acceptable Work executed in accordance with this Contract prior to the date of termination, and if the Contract Price is **NOT** based on unit prices, the following:

16.2.1.1 Reasonable demobilization costs;

16.2.1.2 Reasonable anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on the entire Contract not previously paid, unabsorbed overhead, or lost opportunity; and

16.2.1.3 All claims incurred in settlement of terminated contracts with subcontractor and others, including for anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on the entire Contract not previously paid, unabsorbed overhead, or lost opportunity. CONTRACTOR agrees to negotiate in good faith with subcontractors and others to mitigate the OWNER's cost.

16.3 The OWNER May Terminate With Cause.

16.3.1 Upon the occurrence of any one or more of the following events:

- .1 If CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents
- .2 If CONTRACTOR disregards or fails to comply with Legal Requirements;
- .3 If CONTRACTOR disregards the authority of the Contract Administrator or the City Manager;
- .4 If CONTRACTOR makes fraudulent statements;
- .5 If CONTRACTOR fails to maintain a work force adequate to accomplish the Work within the Contract Time;
- .6 If CONTRACTOR fails to make adequate progress and endangers successful completion of the Contract; or
- .7 If CONTRACTOR otherwise materially breaches the Contract;

The OWNER may, after giving CONTRACTOR (and the surety, if any) seven days' notice terminate the Contract. The OWNER, at its option, may proceed with negotiation with surety for completion of the Work. Alternatively, the OWNER may under these circumstances exclude CONTRACTOR from the Project Site and take possession of the Work (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at Project Site or for which the OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as the OWNER may deem expedient. In such case CONTRACTOR will not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by the OWNER arising out of or resulting from completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses and damage exceed such unpaid balance, CONTRACTOR or surety will pay the difference to the OWNER. If a termination for cause is found to be wrongful, the termination will be converted to a termination without cause, and CONTRACTOR's remedy for wrongful termination is limited to the recovery of the payments permitted for termination without cause.

16.3.2 Where CONTRACTOR's services have been so terminated by the OWNER, the termination will not affect any rights or remedies of the OWNER against CONTRACTOR and surety then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by the OWNER will not release CONTRACTOR from liability.

16.4 CONTRACTOR May Stop Work or Terminate. If through no act or fault of CONTRACTOR, the Work is suspended for a period of more than 90 days by the OWNER or under an order of court or other public authority, or (except during disputes) the Contract Administrator fails to forward for processing any mutually acceptable Application for Payment within 30 days after it is submitted, or (except during disputes) the OWNER fails for 60 days after it is submitted to pay CONTRACTOR any sum finally determined by the OWNER to be due, then CONTRACTOR may, upon seven days' written notice to the OWNER, and provided the OWNER does not remedy such suspension or failure within that time, terminate the Agreement and recover from the OWNER payment on the same terms as if OWNER terminated without cause pursuant to this Contract. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if (except during disputes) the Contract Administrator has failed to forward for processing any mutually acceptable Application for Payment within 30 days after it is submitted, or (except during disputes) the OWNER has failed for 60 days after it is submitted to pay CONTRACTOR any sum finally determined by the OWNER to be due, CONTRACTOR may upon seven days' written notice to the OWNER stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of

this Section are not intended to preclude CONTRACTOR from making a Claim for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this Section.

16.5 Discretionary Notice to Cure. In its complete discretion, the OWNER may, but is not required to, provide a Notice to Cure to CONTRACTOR and its surety to cure any of the conditions constituting a breach of Contract or an anticipatory breach of contract and, if required by the OWNER, to attend a meeting with the OWNER, regarding the Notice to Cure, the event of default or the anticipatory breach of contract. The Notice to Cure will set forth the time limit in which the cure is to be completed or commenced and diligently prosecuted. Upon receipt of any Notice to Cure, CONTRACTOR will prepare a report describing its program and measures to affect the cure of the event of default or anticipatory breach of contract within the time required by the Notice to Cure. The CONTRACTOR's report will be delivered to the OWNER at least three days prior to any requested meeting with the OWNER and surety.

16.6 Bankruptcy. If CONTRACTOR declares bankruptcy or is adjudged bankrupt or makes an assignment for the benefit of creditors or if a receiver is appointed for the benefit of creditors or if a receiver is appointed by reason of CONTRACTOR's insolvency, CONTRACTOR may be unable to perform this Contract in accordance with the Contract requirements. In such an event, the OWNER may demand CONTRACTOR or its successor in interest provide the OWNER with adequate assurance of CONTRACTOR's future performance in accordance with the terms and conditions of the Contract. If CONTRACTOR fails to provide adequate assurance of future performance to the OWNER's reasonable satisfaction within ten days of such a request, the OWNER may terminate the Contract for cause or without cause, as set forth above. If CONTRACTOR fails to provide timely adequate assurance of its performance and actual performance, the OWNER may prosecute the Work with its own forces or with other contractors on a time and material or other appropriate basis and the cost of which will be charged against the balance of the Contract Price otherwise due to CONTRACTOR.

16.7 Duty to Mitigate. If the OWNER terminates this Contract or suspends CONTRACTOR's work, CONTRACTOR agrees to and will take all reasonable actions to mitigate its damages and any and all claims which may be asserted against the OWNER.

16.8 Responsibility during Demobilization. While demobilizing, CONTRACTOR will take all necessary and reasonable actions to preserve and protect the Work, the Project Site and other property of the OWNER or others at the Project Site.

16.9 CONTRACTOR to Remove Equipment. In the case of termination of this Contract before completion for any cause whatsoever, CONTRACTOR, if notified to do so by the OWNER, will promptly remove any part or all of his equipment or supplies from the property of the OWNER; failing to, the OWNER will have the right to remove such equipment and supplies at the expense of CONTRACTOR.

16.10 CONTRACTOR to Clean Up Project Site. If either OWNER or CONTRACTOR terminates the Contract before Substantial or Final Completion, CONTRACTOR will leave the Project Site in a clean condition as if Final Completion had been achieved, unless OWNER directs otherwise; and if CONTRACTOR fails to comply clean up the Project Site as required, the OWNER may do so and the cost thereof will be charged against CONTRACTOR.

END OF GENERAL CONDITIONS SECTION

SUPPLEMENTAL GENERAL CONDITIONS

SGC1. ADDITIONAL NPDES REQUIREMENTS.

- A. CONTRACTOR will at all times ensure certification and licensing from the Florida Department of Agriculture and Consumer Services (FDACS) of all of CONTRACTOR's personnel and subcontractors who apply pesticides or herbicides on City property or public right-of-way pursuant to the Contract. All such personnel and subcontractors who apply fertilizer will be trained and certified through the "Green Industry BMP Program" and FDACS; and will have a limited certification for urban landscape commercial fertilizer application under Section 482.1562, F.S
- B. All commercial applicators of fertilizer will have and carry in their possession at all time when applying fertilizer, evidence of certifications by the Florida Department of Agricultural and Consumer Services **and** a Commercial Fertilizer Applicator License as per 5E-14.117(18) FAC.
- C. All Contractors shall comply with the minimum requirements of the Urban Turf Fertilizer Rule RE-1.003(2) FAC.
- D. Fertilizer used will meet Florida-friendly fertilizer requirements pursuant to Section 403.9337 F.S.
- E. Fertilizer and Pesticide application must meet minimum requirements of the most recent edition of the Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries, 2008.
- F. Fertilizer should not be applied within 10 feet of any inlet, curb and gutter, public street, pond, stream watercourse, lake, canal, or wetland as defined by the FDEP Chapter 62-340 FAC. Fertilizer may be applied within 3 ft. of a water body only if the applicator is equipped with a spreader deflector.
- G. A 10-foot wide Low Maintenance Zone is required from any pond, stream, watercourse, canal, ditch, lakes wetland or from the top of a seawall. No mowed or cut vegetative material may be deposited in any water body. Care must be taken to prevent erosion of the surface soils in this Zone. Contractor shall set mechanical mowers to prevent the exposing of bare soil on pond slopes, ditches, wetlands, stream and lakes. This Zone shall be suitably vegetated at all times to ensure soil stability.
- H. Fertilizers applied to turf shall be formulated and applied in accordance with requirements and direction provided by Rule 5E-1.003(2) FAC, Labeling for Urban Turf Fertilizers.
- I. In no case shall grass clipping, vegetative material, and /or vegetative debris be washed, swept or blown off into stormwater drains, curbs and gutters, ditches, conveyance, water bodies, wetlands or sidewalks or roadway. Any material that is accidentally so deposited shall be immediately removed to the maximum extent practicable.
- J. The monthly invoices shall include
- (1) A summary of the type and amount of fertilizer used at each location.
 - (2) A summary of the type and amount of any chemicals and /or pesticides used at each pond, ditch, roadway or park location.

SGC 2. THICKNESS OF EXISTING ASPHALT.

Attachment A, is a 2010 Pavement Evaluation Report of Dr. Martin Luther King Jr. Blvd. from Universal Engineering Sciences and a map corresponding to the Core Samples taken for the report. Core Samples 7, 8, 9, 10, 11, and 12 represent the samples within our project limits of MLK between Orange Ave and International Speedway Blvd.

SGC 3. SUBCONTRACTORS.

The Contractor will, as soon as possible after the signing of the contract, notify the Engineer in writing of the names of all proposed Subcontractors for the work, said Subcontractors to be subject to the approval of the Engineer.

The Contractor agrees that he is as fully responsible to the City for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the City.

The Contractor shall perform with his own organization, work amounting to not less than 40 percent of the total contract amount less the total amount for those contract items designed as specialty work.

In those instances where the primary work to be performed under a contract is specialty work, as designated below, the primary work will not be considered in reducing the amount of work required to be performed by the Contractor.

The Contractor may use Subcontractors to perform: 1) contract items designed as specialty work, and 2) additional work in an amount not to exceed 60 percent of the remaining total contract amount. The Contractor shall have the capability and perform the remaining work under the contract with his own organization. The following work is specifically designated as specialty work:

Grassing & Sodding
Demolition of Structure
Fencing
Roadway Lighting & Appurtenances
Landscaping & Irrigation
Traffic Signalization
Roadway Signing & Pavement Marking
Streetscape Amenities
Sidewalk
Curb & Gutter
Jack & Bore
Buildings

**SECTION 01010
SUMMARY OF WORK**

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. Work under the Contract for Dr. Martin Luther King, Jr. Boulevard Roadway & Pedestrian Improvements Project shall include furnishing all coordination, labor, materials and construction services to complete the project work unless otherwise noted in the Drawings. The primary work shall include constructing new 10” water main, constructing a new 15” sanitary sewer main with manholes; new stormwater piping and structures; complete full width roadway removal and replacement; street lighting; fiber optic, landscaping and appurtenances. The work will take place between Orange Avenue and International Speedway Boulevard.
- B. The entire project consists of three (3) phases of construction, which are shown on the Plans. Contractor may propose alternative phasing plan or phase limits but must prepare revised MOT Plans and get approval from the City. At the start of a phase, the Contractor shall pothole all areas within one phase where potential conflicts exist with the public or franchise utilities. If conflicts do exist, the utilities will be notified so that relocation of the utility may take place. This activity will be concurrent with the Contractor removing and installing utilities within one phase of work. Work will continue within the phase until such time as all utilities have been installed, relocated and removed. Road construction will consist of curb & gutter construction, sidewalk construction where possible, base construction and the installation of the structural course of asphalt. Temporary pavement striping will be applied to the structural course.

During construction, relocation of the private utility poles of the power company will take place and will continue until completed. Once the relocations have been made, the overhead facilities, and poles will be removed. The Contractor must coordinate with the individual private utilities for pole and line relocations within each phase and throughout the project.

1.2 REQUIRED NOTICES TO AGENCIES AND PUBLIC

- A. The CONTRACTOR shall adequately inform in advance the affected businesses, property owners, and utility customers of scheduled temporary utility service disruptions and changes in access. However, access to businesses and residences must be maintained at all times.

1.3 SALVAGED MATERIALS

- A. In the absence of special provisions to the Contract, materials, equipment or supplies that occur will become the property of the CONTRACTOR and shall be removed from the project and disposed of by the CONTRACTOR in areas provided by the CONTRACTOR.
- B. Excess suitable soils not required for the completion of the Work shall belong to the CITY. The CONTRACTOR shall contact the CITY's Technical Services Project Manager at 386/671-8632 to coordinate where excess material will be stockpiled at least five (5) working days in advance of moving the material.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

(Not Applicable, See General Conditions)

END OF SECTION

SECTION 01014
MAINTENANCE OF OPERATIONS

PART 1 – GENERAL REQUIREMENTS

1.1 GENERAL

- A. The intent of these specifications is to have the CONTRACTOR schedule and perform the Work in a manner such that the OWNER can keep existing facilities in continuous dependable operation. It is required as a part of this Contract that the CONTRACTOR adhere to the constraints listed in this Section.
- B. The CONTRACTOR shall:
 - 1. Keep existing facilities in operation unless otherwise specifically permitted in these specifications or approved by the OWNER in writing.
 - 2. Coordinate any system shutdowns with the OWNER and limit the shutdown periods to acceptable times.

1.2 GENERAL CONSTRAINTS

- A. Any temporary work, facilities, roads, walks, protection of existing structures, piping, blind flanges, valves, equipment, etc. that may be required within the CONTRACTOR'S work limits to maintain continuous and dependable operation of existing systems shall be furnished by the CONTRACTOR at no extra cost to the OWNER.
- B. The CONTRACTOR shall schedule the Work in such a manner so that all existing systems are maintained in continuous operation. All short-term system or partial system shutdowns shall be approved in writing by the OWNER. If, in the opinion of the ENGINEER or OWNER, a shutdown is not required in order for the CONTRACTOR to perform the Work, the CONTRACTOR shall utilize alternative methods to accomplish the Work. All shutdowns shall be coordinated with and scheduled at times suitable to the OWNER. OWNER shall be provided a minimum of one-week notice of CONTRACTOR'S need for any system shutdown.
- C. Required shutdowns shall not begin until all materials are on-hand, pre-assembled, as possible, and ready for installation. At a time approved by the OWNER, the shutdown period will commence and the CONTRACTOR shall proceed with the Work continuously, start to finish, until the Work is completed and the system is tested, cleared for service, and ready for operation. If the CONTRACTOR completes all required Work before the specified shutdown period has ended the OWNER may immediately place the system back in service.

- D. The OWNER shall have the authority to order Work stopped or prohibited which would, in his opinion, unreasonably result in stopping or inhibiting the necessary functions of existing utilities.
- E. The OWNER reserves the right to cancel scheduled shutdowns if conditions warrant. Delays to the CONTRACTOR caused by cancellations will be considered in evaluating requests for time extension.

All facilities shall be tested and in operating condition before final tie-ins are made.

1.3 SUBMITTALS

- A. Submit detailed schedule of proposed testing.

1.4 WORK SEQUENCE

- A. The CONTRACTOR shall submit a proposed work sequence two weeks prior to the preconstruction meeting. See section 1310, Construction Schedules for detail of the schedule.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. Explanation of the Measurement and Payment for the bid and pay items is made for information and guidance. The omission of reference to any item in this description shall not, however, alter the intent of the bid form or relieve the CONTRACTOR of the necessity of furnishing such as part of the contract.
- B. Payment shall be made for the items listed on the Bid Schedule on the basis of the work actually performed and completed to the configuration and extent shown on the Drawings, described in the specifications, noted in the construction plans, noted in the Summary of Pay Items and on the Summary of Quantity sheet.
- C. The quantities set forth in the Bid Schedule are approximate and are given to establish a uniform basis for the comparison of bids. The Owner reserves the right to increase or decrease the quantity of any class or portion of the work during the progress of construction in accordance with the terms of the contract.
- D. Unit prices are used as a means of computing the final figures for bid and contract purposes, for periodic payments for work performed, for determining value of additions or deletions and wherever else reasonable.

1.2 COSTS INCLUDED IN PAYMENT ITEMS

- A. No separate payment will be made for the following items. The cost of such work shall be included in the unit price of applicable pay items listed in the Bid Schedule unless otherwise noted in the construction plans:
 - 1. Clearing and grubbing including removal and disposal of all above and below ground improvements, such as but not limited to, trees, brush, residential, commercial, and bridge structures, septic tanks and drain-fields, roadway pavement and concrete, drainage and utility systems, etc., unless otherwise specified.
 - 2. Trench and roadway excavation, including rock and cemented coquina excavation and disposal, excavation and removal of unsuitable soils and unsuitable materials of any nature unless otherwise specified.
 - 3. Any material or equipment required to be installed and utilized for tests.
 - 4. Concrete encasement.
 - 5. Maintaining the existing quality of service during construction.
 - 6. Cleanup.

7. Structure excavation including rock and cemented coquina excavation and disposal, excavation and disposal of unsuitable materials of any nature except as otherwise specified.
8. Dewatering and disposal of surplus water, prevention of sediment and erosion pollution and prevention of flooding
9. Structural fill, backfill, including furnishing, placement, compaction and final grading of suitable fill material, pipe bedding and compacted granular material.
10. The temporary removal and replacement of fences and walls.
11. Foundation and borrow materials, except as otherwise specified.
12. Paved and unpaved roadway restoration or replacement including but not limited to all disturbed improvements within the right of way, adjacent traffic signal system components included within the limits of lump sum work, unless otherwise specified.
13. Maintenance of vehicular and pedestrian traffic including detours and haul routes.
14. Shoring, sheeting and worksite safety.

1.3 SPECIAL BID/PAY ITEM MEASUREMENT & PAYMENT LIST

(Not Applicable)

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 BID ITEMS

BASE BID

Bid Item No. 1a – Mobilization / Demobilization

Definition. Mobilization shall be the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, storage buildings, safety equipment and first aid supplies, sanitary and other facilities, as required by the Contract Documents and applicable laws and regulations. The costs of bonds, required insurance, permits and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall also be included in this item. Demobilization shall be the work of removing temporary facilities from the site. Mobilization/Demobilization shall be limited to a maximum of 5% of the Bid Price.

Payment. Partial payments for this item shall be made in accordance with the following schedule:

Percent of Original Contract Amount Earned	Allowable Percent of the Lump Sum Price for the Item
After Contract Execution	25
10	50
25	75
50	90
100	100

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

Bid Item No. 1b – Provide Dewatering Equipment

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to provide the necessary dewatering equipment for installation of pipe and structures. The dewatering equipment shall include all materials, including pump(s), header pipe, drop pipe, hoses and all other incidentals required for a complete system. The equipment shall be used for as long as necessary in order to achieve a dry trench for material installation.

Bid Item No. 1c – Furnish & Install Temporary Striping of Road

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install temporary road striping. The striping shall consist of paint and follow the criteria found in Specification Section 02580. The striping shall be placed on the first lift (course) of asphalt and shall following the striping details shown on the Drawings.

Bid Item No. 1d – Submit Certified “As-Built” Drawings

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to submit the “As-Built” Drawings, certified by a registered land surveyor or professional engineer. The CONTRACTOR’s attention is directed to Section 01720, Paragraph 1.3, which addresses the requirements and for maintaining up-to-date “As-Built” Drawings. Drawing submittal at the close-out of the project shall follow the requirements stated in Section 01720, Paragraph 3.1.D. Final payment will be withheld until an acceptable set of “As-Built” Drawings are delivered to the City.

Bid Item No. 2 – Maintenance of Traffic

Definition. Maintenance of traffic shall include furnishing all plant, labor, materials and equipment necessary to provide the maintenance of traffic (MOT) required by the Florida Department of Transportation, the City of Daytona Beach, and to provide all other maintenance of traffic required as shown in the Contract Documents.

Payment. Partial payments for this item will be made in accordance with the following schedule:

Percent of Original Contract Amount Earned	Allowable Percent of the Lump Sum Price for the Item
10	10
25	25
50	50
75	75
100	100

Bid Item No. 3 – Erosion and Sedimentation Control

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to provide the required erosion and sedimentation control called out in the specifications and as shown on the detail Drawings of this set.

WATER MAIN CONSTRUCTION

Bid Item Nos. 4 and 15– Remove Existing Pipe

Measurement. The quantity for payment shall be the actual number of linear feet of pipe, of each size, including fittings, that are satisfactorily removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the existing pipe, fittings, and appurtenances, within the limits shown on the Drawings.

Bid Item No. 5 – Remove Existing Fire Hydrant Assemblies

Measurement. The quantity for payment shall be the actual number of fire hydrant assemblies that are satisfactorily removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the fire hydrant assembly. The assembly shall consist of the hydrant, isolation valve, and pipe between the hydrant and tee. The cost to remove the hydrant tee shall be included in the “Remove Existing Pipe” Bid Item.

Bid Item No. 6 – Remove Existing Water Main Service Pipe

Measurement. The quantity for payment shall be the actual number of linear feet of service pipe, including the existing meter, that is satisfactorily removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the service pipe from the main to the meter,

including the curb stop at the meter, and any casing pipe used to sleeve the service pipe under the roadway.

Bid Item Nos. 7 and 16– Furnish & Install Restrained Joint Pipe

Measurement. The quantity for payment shall be the actual number of feet of pipe, of each size and material, that are satisfactorily furnished, installed and restrained, as measured along the length of the centerline of the completed pipeline, without deduction for the length of valves and fittings. Pipe included within the limits of lump sum items will not be measured for payment under this item.

Payment. Payment of the applicable unit price per linear foot shall be full compensation for furnishing all plant, labor, materials and equipment necessary to install the restrained joint pipe, including concrete encasement and all restraining devices and constructing the main complete, including excavation of any type of material, backfilling with suitable material, compaction and testing of the potable water and reuse water mains.

No separate payment will be made for marker tapes or marker wire required to be installed with buried PVC pipes.

Bid Item Nos. 8 and 17– Furnish & Install Compact Ductile Iron Fittings

Measurement. The quantity for payment shall be the number of tons, or decimal part thereof, of fittings satisfactorily furnished and installed. For fittings for use on pipe 48-inch nominal diameter and smaller, fitting weight shall be based on the theoretical weights of body castings, as shown in the tables listed in ANSI/AWWA C153/A21.53, Standard for Ductile-Iron Compact Fittings. For any fittings 48-inch and smaller that compact fittings are not available, fittings weights will be based on the theoretical weights of the body castings listed in AWWA C-110. Weights for glands, bolts and gaskets shall not be included with the payment for fitting weights.

Payment. Payment of the applicable unit price per ton shall be full compensation for furnishing all plant, labor, materials, and equipment necessary to furnish and install fittings complete with connections. Cost for restrained joints and thrust anchorage shall be included in the unit price per linear foot of pipe.

Bid Item No. 9 – Furnish & Install Valves and Valve Boxes

Measurement. The quantity for payment shall be the number of valves, of each size, that are satisfactorily furnished and installed.

Payment. Payment of the applicable unit price for each valve shall be full compensation for furnishing all plant, labor, materials and equipment necessary to install the valve complete with box and cover. The cost to construct the concrete pad around the valve box shall be included within this pay item.

Bid Item No. 10 – Furnish & Install Fire Hydrant Assemblies

Measurement. The quantity for payment shall be the number of fire hydrant assemblies that are satisfactorily furnished and installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to install the fire hydrant assembly. The assembly shall consist of the fire hydrant, hydrant tee, 6-inch isolation gate valve and box, 6-inch pipe between the hydrant and the tee, drainage material and restraining devices.

Bid Item Nos. 11 and 18 – Cut-ins and Connections to Existing Mains

Measurement. The quantity for payment shall be the number of cut-ins or connections satisfactorily completed. Type of cut-in or connection will be identified and paid for on the following basis:

Wet Tap Connection. Connection made with a tapping sleeve and tapping valve, by use of a wet tapping machine: Measurement shall be based upon nominal diameter of main to which tap is made and nominal diameter of branch.

Payment. Payment will be made at the applicable unit price for each size. Such price and payment shall be full compensation for furnishing and installing the tapping sleeve, tapping valve and valve box, and making the tap or cut into the existing main. Other pipe fittings as necessary to complete the connection shall be paid for at the Contract Unit Price for the applicable item.

Cut-in Connection. Cut-in made by cutting the main, installing a fitting, valve, or both, and reconnecting the main by means of additional pipe, fittings or sleeves. Measurement shall be based upon the size of main into which the fitting or valve is inserted.

Payment. Payment shall be paid at the applicable unit price for each size. Such price and payment shall be full compensation for furnishing and installing the cut-in fitting or sleeve or valve and valve box, and making the cut into the existing main. Pipe fittings as necessary to complete the connection shall be paid for at the Contract Unit Price for the applicable item.

Wet Connection. Connection made to existing pipe or fitting by removing a plug or cap and connecting to an existing opening in the main where existing valves are remote from the site of the connection. Measurement will be based on the size of the main to which the connection is made.

Payment. Payment shall be paid at the applicable unit price for each size connection. Such price and payment shall be full compensation for isolating, draining, removing existing plugs or caps, and making the new connection. Valves, pipe and fittings as necessary to complete the connection will be paid for at the Contract Unit Price for the applicable item.

Dry Connection. Connection made to existing pipe or fitting by removing a plug or cap and

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connecting to an existing connection. Measurement shall be based upon the size of the main to which the connection is made.

Payment. Payment shall be made at the Contract Unit Price for each size connection. Such price and payment shall be full compensation for isolating, draining, removing existing plugs or caps and making the new connection. Other valves, pipe and fittings as necessary to complete the connection shall be paid for at the Contract Unit Price for the applicable item.

Special Connection. Connection made to existing pipe in accordance with details shown for a specific connection.

Payment. Payment shall be made at the unit price for each pipe, fittings, valves and connection work within the limits shown that makes a complete connection.

Bid Item No. 12 – Furnish & Install Service Pipe and Meter

Measurement. The quantity for payment shall be the number of linear feet of polyethylene service pipe, of each size and service, including installation of the new meter, that is satisfactorily furnished and installed from the main to the new meter, as measured along the horizontal surface of the ground.

Payment. Payment of the applicable unit price for each valve shall be full compensation for furnishing all plant, labor, materials and equipment necessary to install the new service piping. Service pipe shall include a corporation stop, double strap service saddle on the main, wet tap of the existing main, three feet of looped service pipe at the meter box, new curb stop at the end of the service pipe, tracer wire, pipe excavation and backfill to grade as shown on the detail Drawings. The connection of the new service pipe to the new meter shall be performed by the City of Daytona Beach.

Bid Items Nos. 13 and 19 – Cleaning and Pigging of Mains

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to provide cleaning and pigging of the water, reuse and force mains included in this project. The cleaning and pigging shall follow Section 15045 of these specifications and the detail Drawings which provide information on the temporary cleaning and pigging piping setup.

Bid Item No. 14 – Bacteriological Clearance

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to obtain bacteriological clearance of the reclaimed water mains. Such clearance shall follow the criteria found within Section 02650 of these Specifications. Sample locations shall be those listed in the Volusia County Health Department construction permit.

SANITARY SEWER CONSTRUCTION

Bid Item No. 20– Remove Existing Sanitary Sewer Pipe

Measurement. The quantity for payment shall be the actual number of linear feet of sanitary sewer pipe, at each stage depth, that is acceptably removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to completely remove the existing sanitary sewer pipe at the locations shown on the Drawings. Wye fittings shall be included in the removal cost.

Bid Item No. 21 – Remove Existing Sanitary Sewer Manholes

Measurement. The quantity for payment shall be the actual number of sanitary sewer manholes that are acceptably removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to completely remove and dispose of the manhole, including bottom slab, riser sections, cone section, and frame and cover. Payment shall be based upon the depth of the manhole structure from grade to lowest invert elevation.

Bid Item No. 22 – Remove Existing Service Laterals

Measurement. The quantity for payment shall be the actual number of service lateral pipe, of each size and material that is acceptably removed and disposed of off-site.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to completely remove the existing service lateral pipe from the wye fitting in the main to the cleanout assembly.

Bid Item No. 23 – Provide Temporary Sewage Bypassing Equipment

Payment. Payment of the applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to construct a temporary sewage bypass system. The CONTRACTOR shall operate the bypass system. As a minimum, the system shall contain pumps, piping, control system and auto-dialer connected to CONTRACTOR personnel for notification purposes. Once the new sanitary sewer system has been satisfactorily completed, the temporary system shall be dismantled and removed.

Bid Item Nos. 24 and 25 – Furnish and Install PVC Gravity Sewer Main

Measurement. The quantity for payment shall be the number of linear feet of pipe, of each size, that are acceptable furnished and installed as measured along the centerline of the sewer line from center to center of manhole, for the various stage depths indicated, without deduction for manholes or other structures.

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The depth of the sewer lines will be measured from the level of the average original ground or pavement to the invert of the sewer line by vertical ordinates not over 50 feet apart.

Payment. Payment shall be made at the applicable unit price per linear foot for the size and stage depth indicated in the Bid Form, which payment shall be full compensation for furnishing all plant, materials, labor and equipment required to furnish and install pipe.

The CONTRACTOR's attention is called to the fact that cleanup is considered a part of the work of constructing the sewer mains. No payment will be made for this work until cleanup is essentially completed.

Bid Item No. 26 – Furnish & Install 4-foot Diameter Standard Manholes

Measurement. The basis for measurement under this item shall be considered as a structure consisting of a bottom slab, a top unit with a frame and cover, necessary fittings and appurtenances for lowest pipe to the top of the cover not over 4.0 feet deep. Measurement of total depth will be feet and tenths of feet from the invert of the lowest pipe to the top of the cover. The quantity for payment for the basic manhole unit (including drop manholes) will be the actual number of manholes that are satisfactorily constructed.

Payment. Payment for constructing manholes shall be made at the applicable unit price for each basic structure plus the applicable unit price listed in the Bid Form for each vertical foot for any manhole structure which exceeds a height of 4.0 feet deep. Such price and payment shall be full compensation for furnishing all plant, materials, labor and equipment required to construct the manhole complete with foundation, grout "bench", frame and cover, connections and coatings.

Bid Item No. 27 – Connect to Existing Sewer Main

Measurement. The quantity for payment shall be the actual number of connections to existing sewer mains that are satisfactorily completed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to make the connection to the existing pipe, including any couplings, grout and all other incidentals required for an acceptable connection.

Bid Item No. 28 – Furnish and Install 6-inch PVC Service Pipe

Measurement. The quantity for payment shall be the actual number of linear feet of 6" PVC service piping that is acceptably installed and properly connected for use.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to completely install and connect as shown on the plans.

Bid Item No. 29 – Furnish & Install Service Wye Units

Measurement. The quantity for payment shall be the actual number of lateral fittings, of each size, that are satisfactorily installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to completely install the 8-inch x 6-inch, 10-inch x 6-inch, or 12-inch x 6-inch wye fittings, and any required 1/4 or 1/8 bends and 6-inch plugs.

Bid Item No. 30 – Furnish & Install Sewer Cleanout

Measurement. The quantity for payment shall be the actual number of sewer cleanouts that are acceptably furnished and installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install the new cleanout, at the property line and constructed according to the detail Drawings.

DRAINAGE AND ROADWAY CONSTRUCTION

Bid Item No. 31 – Furnish & Install Storm Drain Pipe

Measurement. The quantity for payment shall be the actual number of linear feet of storm drainage pipe, of each size and material, that is satisfactorily furnished and installed, as measured along the length of the drainage pipe from structure to structure.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to satisfactorily furnish and install the drainage pipe at the locations shown on the Drawings. Also included shall be the cost for silt fencing, excavation, bedding, backfilling, compaction, sloping, sheeting or shoring, and disposal of unsuitable material.

Bid Item No. 32 – Furnish & Install Storm Drain Inlets

Measurement. The quantity for payment shall be the actual number of storm drain inlets, of each type, that are satisfactorily furnished and installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install the precast inlets at the locations shown on the Drawings.

Bid Item No. 33 – Connect New Pipe to Existing Structure

Measurement. The quantity for payment shall be the actual number of connections, of each size, that are acceptably constructed.

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Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to acceptably construct the connection according to the details and at the locations shown on the Drawings. Such payment shall include core drilling and sealing, concrete collars and incidentals necessary to make a complete connection.

Bid Item No. 34 – Roadway Removal

Measurement. The quantity for payment shall be the actual number of square yards of asphalt that is milled and stockpiled for future use in the project; the actual number of square yards of concrete pavement that is removed and disposed of; the actual number of square yards of concrete sidewalk and concrete driveway that are removed and disposed of; the actual number of linear feet of curb and gutter that are removed and disposed of; the actual number of square feet of brick pavers that are satisfactorily removed and replaced with identical material.

Payment. Payment of the applicable unit price for each bid item shall be full compensation for furnishing all plant, labor, materials and equipment necessary to remove the material listed and to either stockpile it for future use or dispose of the material at an approved disposal site.

Bid Item No. 35 – Roadway Construction

Measurement. The quantity for payment shall be the actual number of square yards of base material and asphalt pavement that are satisfactorily constructed.

Payment. Payment of the applicable unit price for each bid item shall be full compensation for furnishing all plant, labor, materials and equipment necessary to construct the new roadway, within the limits shown on the Drawings and according to the cross-section detail Drawing. The cost for any leveling courses of asphalt, priming, sanding, tack coat and all other incidentals shall be included in the costs for the appropriate bid item. Included in this Bid Item shall be the cost for all material testing of any asphalt and all testing required for base construction.

Bid Item No. 36 – Coordinate with FPL to Remove or Relocate Existing Power Poles During Road and Utility Construction

Measurement. The quantity for payment shall be the actual number of power poles that are satisfactorily removed or relocated during construction.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to acceptably remove or relocate the existing power poles during construction of the project. Coordination with the power company is mandatory.

Bid Item No. 37 – Stabilize Existing Power Poles During Roadway and Utility Construction

Measurement. The quantity for payment shall be the actual number of power poles that are satisfactorily stabilized during construction of the project.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to satisfactorily stabilize the existing power poles during construction. Coordination with the power company is mandatory.

Bid Item No. 38 – Furnish & Install Single Post Sign Less than 12 SF

Measurement. The quantity for payment shall be the actual number of single sign post assemblies that are satisfactorily furnished and installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install the Votran signs at the locations shown and according to the details stated in FDOT Item No. 700-20-11.

Bid Item Nos. 39 to 46 – Furnish & Install Thermoplastic Striping and Markings

Measurement. The quantity for payment shall be the actual number of linear feet of striping markings and painted curb that are satisfactorily furnished and installed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment including RPM's necessary to furnish and install the striping, messages and arrows at the locations shown and according to the associated FDOT Standard Specifications.

CURBING

Bid Item No. 47 – Curb Construction

Measurement. The quantity for payment shall be the actual number of linear feet of curb, of each type, that are satisfactorily constructed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to construct the curbing (and curb & gutter) at the locations shown and according to the detail Drawings. Included in this Bid item shall be the cost to perform any concrete testing, including slump, collection of test cylinders, compression testing of cylinders and any other required concrete testing.

SIDEWALKS

Bid Item No. 48 – Sidewalk Construction (Decorative Pattern)

Measurement. The quantity for payment shall be the actual number of square yards of sidewalk and the actual number of ADA detachable warnings that are satisfactorily constructed.

Payment. Payment of the applicable unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to construct the decorative sidewalk and ADA detectable warning surfaces, to 6" thickness, at the locations for driveways and according to the

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Detail Drawings. Sidewalks shall be constructed to 4” thick at all locations where the walk passes under the dripline of saved trees. The handicap transitions shall include all ADA surfaces and requirements. Included in this Bid Item shall be the cost to perform any concrete testing, including slump, collection of test cylinders, compression testing of cylinders and any other required concrete testing.

LANDSCAPE & IRRIGATION

Bid Item No. 49– Irrigation System Complete

Measurement. The quantity for payment shall be Lump Sum for all material, that are satisfactorily furnished, installed and restrained of the centerline of the completed pipeline, without deduction for the length of valves and fittings, fully operational and accepted by the City.

Payment. Payment of the applicable Lump Sum unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to install the pipe, including restraining devices and constructing the irrigation main complete, including excavation of any type of material, backfilling with suitable material, compaction and testing of the irrigation main.

Bid Item No. 50– Parking Area Landscaping

Measurement. The quantity for payment shall be the Lump Sum unit price for all landscaping material that is satisfactorily furnished and installed and accepted by the Landscape Architect and acceptable to the City.

Payment. Payment of the applicable Lump Sum unit price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to furnish and install all plants, and landscape elements.

LIGHTING SYSTEM AND FIBER OPTIC

Bid Item Nos. 51a through 51p – Remove and Replace Street Lights

Payment. Payment of applicable lump sum price shall be full compensation for furnishing all plant, labor, materials and equipment necessary to acceptably remove existing lighting along the corridor and replace it with the new lights at the locations shown and according to the detail Drawings.

Payment shall include light pole, light fixtures, operational elements, pole base, hardware Cable Distribution System, to deliver a fully operational street light system complete, accepted, and ready for use by the City.

Contractor shall include coordination with Clearworld for light replacement and is included within this Lump Sum item.

END OF SECTION

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**DR. MARTIN LUTHER KING, JR. BOULEVARD
ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT**

**SECTION 01026
SCHEDULE OF VALUES**

PART 1 - GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section specifies administrative and procedural support requirements necessary to prepare an acceptable Schedule of Values assignment, if pertinent for processing Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
 2. Submit the Schedule of Values to Owner's Architect and/ or Engineer for approval at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment. Delete subparagraph below if phasing is not required. See Evaluations in Division 1 Section "Summary."
 3. Sub schedules: Where the Work is separated into phases requiring separately phased payments, provide sub schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Bid Form as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Owner/Architect/Engineer.
 - c. Owner's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Submit draft of AIA Document G703 Continuation Sheets.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Bid Form. Provide several line items for principal subcontract amounts,

where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete and shall include the total cost for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
10. Owner will supply to Contractor an accounting code number corresponding to each item number in the bid form. Contractors shall include Owner's accounting number in a column adjacent to the bid item numbering on the Schedule of Values in the Payment application.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect/ Engineer and paid for by Owner.
 1. Contractor to prepare Pay Application after confirming quantities or percent complete work with Owner's construction field representative.
- B. Payment Application Times: Progress payments shall be submitted to Owner at a maximum frequency of one per thirty day period.
- C. Payment Application Forms: Use AIA Document G702/CMA and AIA Document G703 Continuation Sheets as form for Applications for Payment.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit four (4) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application to include City's Minority and Women Owned Business Enterprise Usage form Page BID -12 with each application.
- F. Consent of Surety to Partial Payment: With each Application for Payment, submit a Consent of Surety to Partial Payment, which shall follow the parameters found in HB 897.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Schedule of unit prices.
 5. Submittals Schedule (preliminary if not final).
 6. List of Contractor's principal consultants.
 7. Copies of building permits.
 8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 9. Initial progress report.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 3. Application shall follow criteria contained within the General Conditions.

- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. Evidence that claims have been settled.
 4. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 5. Final, liquidated damages settlement statement.
 6. Application shall follow criteria contained within the General Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01040
COORDINATION

PART 1 – GENERAL

1.1 PROJECT COORDINATION

- A. The CONTRACTOR shall provide for the complete coordination of the construction efforts. This shall include, but not necessarily be limited to, coordination of the following:
1. The work of subcontractors.
 2. The flow of material and equipment from suppliers.
 3. The effort of equipment manufacturers during test and checkout.
 4. Interrelated work with public or private utilities companies.
 5. The interrelated work with the OWNER where tie-ins to existing facilities are required.
 6. The effort of independent testing agencies.
 7. Maintain operation of the existing facilities during tie-ins to piping/equipment.
 8. Maintaining access to business and residences.
 9. Work affecting private property.

1.2 UTILITIES

- A. Prior to construction, the CONTRACTOR shall familiarize himself with the location of all existing utilities and facilities within the Project Site and with the applicable provisions of the General Conditions.

The CONTRACTOR shall notify utility companies at least two weeks, excluding Saturdays, Sundays, and legal holidays, prior to excavation. Utility companies shall be contacted by calling the utility notification center “Sunshine” at 1-800-432-4770. The CITY will furnish to the CONTRACTOR the available records of CITY utilities. The CONTRACTOR shall locate and mark all CITY utilities for his reference and for use by utility companies. The CONTRACTOR shall act as the CITY’s agent for locating and marking CITY underground utilities within the Project limits, in accordance with the Florida Underground Facilities Damage Prevention and Safety Act (FS556).

In all cases where existing utility lines may be interfered with by the Work, the CONTRACTOR shall give a minimum of two weeks’ notice to the owners of such utilities to permit them to relocate the lines prior to construction. Existing utilities have been shown on the Plans insofar as information is reasonably available. However, it will be the CONTRACTOR’s responsibility to preserve all existing utilities whether shown on the Plans or not.

Contractor is required to regularly update and coordinate with the franchise utilities a minimum of once per month.

Contractor is solely responsible for franchise utility coordination.

1.3 DEWATERING AND INSPECTION SURVEY/PLAN

- A. Prior to starting fieldwork and within seven calendar days after the Notice to Proceed date, the CONTRACTOR'S Project Coordinator shall provide the City's Project Manager with the Dewatering and Inspection/Survey Plan. The Plan shall include, but not be limited to, the sequence of dewatering, entry/exit ports to be used for pipe marking and field evaluation, the direction that the pipeline will be inspected/surveyed, the locations where ventilation will be introduced, and dates and times in which field work will be performed. This Plan shall also include the names of the inspection/surveying crew and the company that they work for, the projected start and finish dates, times and progression of each inspection/survey, the number of persons involved in each inspection/survey, and the entry/exit ports that will be used by each inspection/survey crew. The CONTRACTOR shall coordinate his field activities with the City's Project Manager to ensure efficient and coordinated progress.

1.4 REFERENCE

- A. Section 02240: Dewatering (During Construction)

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

(Not Applicable, See General Conditions)

Contractor is required to regularly update and coordinate with the franchise utilities a minimum of once per month.

Contractor is solely responsible for franchise utility coordination.

END OF SECTION

**SECTION 01050
FIELD ENGINEERING**

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. CONTRACTOR shall provide and pay for all field engineering service required for the project. Such work shall include survey work to establish lines and levels and to locate and lay out site improvements, structures, and controlling lines and levels required for the construction of the work. Also included are such Engineering services as are specified or required to execute CONTRACTOR'S construction methods. Engineers and Surveyors shall be licensed professionals under the laws of the state where the project is located.

1.2 GRADES, LINES AND LEVELS

- A. Existing basic horizontal and vertical control points for the project are those designated on the DRAWINGS. 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, 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 proximity of the construction work, CONTRACTOR shall have them referenced and reset by a Land Surveyor qualified under the laws of the state of the project.

1.3 LAYOUT DATA

- A. CONTRACTOR shall lay out the work at the location and to the lines and grades shown on the DRAWINGS. Survey notes indicating the information and measurements used in establishing locations and grades shall be kept in notebooks and furnished to ENGINEER with the record drawings for the project.
- B. For all pipelines which have grades or elevations required, for all pipelines which are indicated to be installed to clear future construction and for all pipelines for which profile elevations are shown, CONTRACTOR shall prepare cut sheets and lay out lines at the locations shown or as directed. He shall verify lengths between junction points shown on the DRAWINGS, and verify the location and elevations of possible conflicts.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01065
PERMITS AND FEES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Scope of Work: Obtain and pay for all permits and licenses including, but not limited to, all construction and Right-of-Way utilization permits.
- B. Permits by CONTRACTOR: CONTRACTOR will apply for and CITY will pay for the following permits:
 - 1. City of Daytona Beach Building Permit and/or Right-of-Way Permit (if applicable)
- C. Permits by CONTRACTOR: CONTRACTOR will apply for and CONTRACTOR will pay for the following permits:
 - 1. NPDES Construction Permit (through FDEP)
- D. Permits by OWNER: The CITY has applied and paid for the following permits:
 - 1. Volusia County Department of Health (Potable Water) (PN-0129387-392-DS)
 - 2. Florida Dept. of Environmental Protection Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System (PN-0342135-004-DWC/CG)
 - 3. St. John’s River Water Management District (Stormwater Management System) Environmental Resource Permit
- E. Copies of the permits obtained by the OWNER will be distributed at the Pre-Construction Conference.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. Project meetings shall be scheduled as needed throughout the progress of the work. ENGINEER shall be responsible for scheduling the meetings, preparing the agenda, distributing written notice of each meeting not less than four days in advance of the meeting date, making physical arrangements for the meeting, presiding at the meeting, recording the minutes (including all significant proceedings and decisions), and reproducing and distributing copies of the minutes to all participants and all parties affected by decisions made.
- B. Representatives attending the meetings shall be qualified and authorized to act on behalf of the entity that they represent.

1.2 PRE-CONSTRUCTION CONFERENCE

- A. A pre-construction conference will be held prior to beginning any work under the Contract. ENGINEER will schedule the conference in consultation with OWNER and CONTRACTOR.
- B. CONTRACTOR shall be ready to submit his anticipated progress schedule, a preliminary schedule of shop drawing submissions, and a preliminary schedule of values of work.
- C. The pre-construction conference will be attended by representatives of OWNER, ENGINEER, utility companies who will be affected by the work, and such of CONTRACTOR'S subcontractors as he wishes to attend.

1.3 PROGRESS MEETINGS

- A. Regular progress meetings shall be held during the construction period. At these meetings the CONTRACTOR shall submit any updated progress schedules, advise OWNER and ENGINEER of any anticipated delays or problems in the progress of the work, and discuss any problems or events which affect the progress.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PROJECT MEETINGS

01200-1 of 1
ISSUED FOR BID

DR. MARTIN LUTHER KING, JR. BOULEVARD
ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT

SECTION 01300 SUBMITTALS

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION OF REQUIREMENTS

- A. The type of submittal requirements specified in this section include but are not limited to the following:
1. Progress Schedules and Reports
 2. Material and Equipment
 3. Shop Drawings
 4. Manufacturer's Data
 5. Samples
 6. General Submittal Requirements
 7. Shop Drawings Required
 8. Certificate of Compliance
 9. Network Analysis

Submittals shall be clear and legible, printed or typed. Submittals received that are not so, shall be returned to be resubmitted when in legible form.

1.2 PROGRESS SCHEDULES AND REPORTS

Progress schedules as required by Article 3.4.1.1 of the General Conditions shall be prepared in the form of a horizontal bar chart unless other format or use of a network analysis system is required. A separate horizontal bar shall be provided for each trade or operation. The first work day of each week shall be identified on the horizontal time scale. Scale and spacing will be such as to allow space for notations and revisions.

Schedules shall show the complete sequence of construction by activity with dates for the beginning and completion of each major element of construction. Projected percentage of completion for each item as of the first day of each month shall be shown.

Revised schedules shall be submitted periodically as changes become apparent.

Progress Reports. The CONTRACTOR shall prepare and submit a monthly progress report. The report shall indicate the progress at the date of submission of each activity shown on his progress schedule. It shall show changes occurring since previous submissions, activities modified since previous submissions, and revised projections of progress and completion. The submittal shall include a narrative report to define: problem areas, anticipated delays, and the impact on the schedule, and corrective action recommended and its effect.

1.3 MATERIALS AND EQUIPMENT DATA (Shop Drawings, Manufacturer's Data and Samples)

Schedules of Shop Drawing submittals shall note any items which require critical timing for maintaining delivery or construction schedules.

Material and equipment data submitted for substitutions shall be handled as specified in Section 01640 - Substitutions and Product Options.

Definitions. Work-related submittals of this section are categorized for convenience as follows:

Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to several projects.

Material and Equipment data includes standard printed information on materials, equipment and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed in the information.

Samples include both fabricated and unfabricated physical examples of materials, equipment and units of work; both as complete units and as smaller portions of units of work; either for limited visual inspection or, where indicated, for more detailed testing and analysis.

Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.

Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standard, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.4 GENERAL SUBMITTAL REQUIREMENTS

Where stated in individual sections, CONTRACTOR shall submit seven copies of Shop Drawings which are to be reviewed by ENGINEER. Upon completion of ENGINEER's review, two copies will be returned to CONTRACTOR.

In all other Sections where Shop Drawings are requested, CONTRACTOR shall submit five copies of Shop Drawings which are to be used by ENGINEER in observing installation of materials or equipment and for Record purposes.

Certificates of compliance shall be provided with Shop Drawing submittal where requested.

Shop Drawings Required. Shop Drawings shall be submitted for only those items listed in the individual Sections of the Specifications. Shop Drawings not required by the Specifications or not having been completely reviewed and corrected by CONTRACTOR will be returned without review or comment.

Certificates of Compliance. Certificate of Compliance required to be furnished by CONTRACTOR or Supplier shall be in the form of an affidavit attesting that the materials, equipment or Work covered by the Certificate conform to the specified requirements, that all tests specified or required have been performed and that all test requirements have been met. Certificates shall be subscribed to and executed before a person authorized to administer oaths.

1.05 NETWORK ANALYSIS

The Critical Path Method (CPM) or other analysis system satisfactory to the ENGINEER shall be used to control the time fixed for completion of the project. The project shall be done in accordance with CPM planning and scheduling. After award of the contract, the CONTRACTOR shall develop a comprehensive network diagram covering the major portions of the work and trades. The diagram shall indicate the priority and inter-dependence of all segments of the work. Each segment shall be reviewed with the ENGINEER to insure reasonably accurate time durations. Time units shall be in days and one day shall be the smallest time unit shown. It shall be the CONTRACTOR's responsibility to insure that all of the work is described and that the diagram correctly represents the sequence in which he plans to do his work and the time in which he expects to do it. Upon completion of this network diagrams, the CONTRACTOR shall have his data processed as required to establish the critical work path and forecast the duration of the work.

During the project, the effect of any change orders shall be evaluated and compared with the original plan and schedule to establish the effect of such changes on the scheduled project completion time.

No later than 30 days after the Notice to Proceed is issued, the CONTRACTOR shall submit his preliminary diagram covering the entire project for review by the ENGINEER.

PART 2 - MATERIALS AND EQUIPMENT
(Not Applicable)

PART 3 - EXECUTION
(Not Applicable)

END OF SECTION

SUBMITTALS

01300-4 of 4
ISSUED FOR BID

DR. MARTIN LUTHER KING, JR. BOULEVARD
ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT

SECTION 01310
CONSTRUCTION SCHEDULES

PART 1 – GENERAL REQUIREMENTS

1.1 GENERAL

- A. Provide construction schedule which conforms to the requirements below, unless otherwise approved by ENGINEER.
- B. Update schedules every month unless otherwise specified or directed by ENGINEER.

1.2 CONTENT

- A. Shop Drawing submittal dates and required approval dates.
- B. Product delivery dates.
- C. Factory and field testing dates.
- D. Dates for beginning and completing each phase of the Work by activity and by trades.

1.3 FORMAT

- A. Type: Horizontal bar chart.
- B. Sheet Size: 8 1/2-inches by 11-inches.
- C. Time Scale: Indicate first date in each work week.
- D. Organization:
 - 1. Group Shop Drawing submittals and reviews into a separate sub-schedule.
 - 2. Group product deliveries into a separate sub schedule.
 - 3. Group construction work into a separate subschedule by activity.
 - 4. Group critical activities which dictate the rate of progress into a separate sub-schedule.
 - 5. Organize each sub-schedule by Specification Section number.
- E. Activity Designations: Show title and related Specification Section number.

1.4 SUBMITTALS

- A. Submit initial schedule at least 20 days prior to submitting first application for a progress payment but no later than 30 days after date of execution of Agreement.
- B. Submit updated schedules at progress meetings. If a schedule remains unchanged from one period to the next, submit a written notice to that effect.
- C. Make submittals to ENGINEER.
- D. Unless otherwise specified, submit two copies of each schedule. One copy will be reviewed by the ENGINEER and returned. The other copy will be retained by the ENGINEER.
- E. Attach a letter of transmittal to each submittal and include the following information in the letter:
 - 1. A listing of items which have changed since the last submittal.
 - 2. Discussion of problems causing delays, anticipated length of delays, and proposed countermeasures.

PART 2 – PRODUCTS
(Not Applicable)

PART 3 – EXECUTION
(Not Applicable)

END OF SECTION

SECTION 01340
SHOP DRAWING PROCEDURES

PART 1 – GENERAL REQUIREMENTS

1.1 GENERAL

- A. Shop Drawing procedures shall conform to requirements of General Conditions, Section 01300, and as described in this Section.

1.2 PROCEDURE

- A. Submit Shop Drawings to: Engineer or Architect of Record as indicated on the Plans.
- B. A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.
- C. At the beginning of each letter of transmittal provide a reference heading indicating the following:
1. OWNER'S Name
 2. Project Name
 3. Contract Number
 4. Transmittal Number
 5. Section Number
- D. If a Shop Drawing deviates from the requirements of the Contract Documents, CONTRACTOR shall specifically note each variation in his letter of transmittal.
- E. All Shop Drawings submitted for approval shall have a title block with complete identifying information satisfactory to ENGINEER.
- F. All Shop Drawings submitted shall bear the stamp of approval and signature of CONTRACTOR as evidence that they have been reviewed by CONTRACTOR. Submittals without this stamp of approval will not be reviewed by ENGINEER and will be returned to CONTRACTOR. CONTRACTOR'S stamp shall contain the following minimum information:

Project Name/ CODB Contract No.: _____

CONTRACTOR'S Name: _____

Date: _____

----- Reference -----

Item: _____

Specifications: _____

Section: _____

Page No.: _____

Paragraph No.: _____

Drawing No.: _____ of _____

Location: _____

Submittal No.: _____

Approved By: _____

- G. A number shall be assigned to each submittal by CONTRACTOR starting with No. 1 and thence numbered consecutively. Re-submittals shall be identified by the original submittal number followed by the suffix "A" for the first re-submittal, the suffix "B" for the second re-submittal, etc.
- H. CONTRACTOR shall initially submit to ENGINEER a minimum of six (6) copies of all submittals that are on 11-inch by 17-inch or smaller sheets (no less than 8 1/2-inch x 11-inch), and one unfolded sepia and 2 prints made from that sepia for all submittals on sheets larger than 11-inch by 17-inch.
- I. After ENGINEER completes his review, Shop Drawings will be marked with one of the following notations:

1. Approved
 2. Approved as Corrected
 3. Revise and Resubmit
 4. Not Approved
- J. If a submittal is acceptable, it will be marked "Approved" or "Approved as Corrected". Three (3) prints or copies of the submittal will be returned to CONTRACTOR.
- K. Upon return of a submittal marked "Approved" or "Approved as Corrected", CONTRACTOR may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- L. If a Shop Drawing marked "Approved as Corrected" has extensive corrections or corrections affecting other drawings or Work, ENGINEER may require that CONTRACTOR make the corrections indicated thereon and resubmit the Shop Drawings for record purposes. Such drawings will have the notation, "Approved as Corrected - Resubmit."
- M. If a submittal is unacceptable, three (3) copies will be returned to CONTRACTOR with one of the following notations:
1. "Revise and Resubmit"
 2. "Not Approved"
- N. Upon return of a submittal marked "Revise and Resubmit", CONTRACTOR shall make the corrections indicated and repeat the initial approval procedure. The "Not Approved" notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, CONTRACTOR shall repeat the initial approval procedure utilizing acceptable material or equipment.
- O. Any related Work performed or equipment installed without an "Approved" or "Approved as Corrected" Shop Drawing will be at the sole responsibility of the CONTRACTOR.
- P. Shop Drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or equipment which are fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

- Q. ENGINEER will review and process all submittals promptly, but a reasonable time should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to CONTRACTOR.
- R. It is CONTRACTOR'S responsibility to review submittals made by his suppliers and SUBCONTRACTORS before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for ENGINEER to determine compliance with the Contract Documents. Incomplete or inadequate submittals will be returned for revision without review.
- S. CONTRACTOR shall furnish required submittals with complete information and accuracy in order to achieve required approval of an item within three submittals. All costs to ENGINEER involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be backcharged to CONTRACTOR, at the rate of 3.0 times direct technical labor cost, by deducting such costs from payments due CONTRACTOR for Work completed. In the event that CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in the reviewing and approval of the substitution will be backcharged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.
- T. Close Out Submittals: Refer to Section 1700 for specific general requirements on the submittal of closeout information, materials, tools, and similar items.
- U. The Shop Drawing Stamp states the following:
- “REVIEW IS FOR GENERAL ARRANGEMENT ONLY AND DOES NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY FOR QUANTITIES, DIMENSIONS, PERFORMANCE OR OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS.”

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01390
COLOR AUDIO-VIDEO PRE-CONSTRUCTION RECORD

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Scope of Work: Prior to commencing the Work, the CONTRACTOR shall have a continuous color audio-video digital recording taken (1) along the entire length of the Project to serve as a record of pre-construction conditions.

1.2 APPROVAL

- A. No construction shall begin prior to review and approval of the audio-video DVD recording covering the Project by the CITY. The CITY shall have the authority to reject all or any portion of the audio-video DVD recordings not conforming to specifications and order that it be redone at no additional charge.
- B. The CONTRACTOR shall reschedule unacceptable coverage within five (5) days after being notified. The CITY shall designate those areas, if any, to be omitted from or added to the audio-video coverage.
- C. The DVD recordings shall not be made more than thirty (30) days prior to construction in any area. All DVD's and written records shall become property of the CITY.

1.3 SUBMITTALS

- A. A copy of the preconstruction video shall be submitted with the first application for payment.

1.4 PROFESSIONAL VIDEOGRAPHERS

- A. The CONTRACTOR shall engage the services of a professional videographer. The color audio-video recording shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction color audio-video documentation.
- B. The videographer shall furnish to the CITY, a list of all equipment to be used for the audio-video recording, i.e., manufacturer's name, model number, specifications and other pertinent information.
- C. The videographer shall furnish the CITY with additional information including the names and addresses of two references that the videographer has performed color audio-video recordings for projects of a similar nature within the last twelve (12) months.

PART 2 – PRODUCTS

2.1 DVD's

- A. Audio-video DVD's shall be new. The DVD used for the recordings shall be professional quality 12 cm color DVD media that conforms to either DVD-R or DVD+R recording standards using high quality DVD video and audio bitrates. Reprocessed disks will not be acceptable. The recorded DVD's shall be compatible for playback with any standard DVD-R or DVD+R player.

PART 3 – EXECUTION

3.1 EQUIPMENT

- A. All equipment, accessories, materials, and labor to perform this service shall be furnished by the CONTRACTOR or professional videographer.
- B. The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the Project as well as those more subjective requirements of high quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, or any other form of picture imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion.
- C. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be more than ten feet (10'). In some instances, audio-video recording coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the CITY.
- D. The color video camera used in the recording system shall record the color signal with a minimum horizontal resolution of 350 lines, a luminance signal to noise ratio of 45 dB, and a minimum illumination requirement of 25-foot candles.

3.2 RECORDED INFORMATION - AUDIO

- A. Each DVD shall begin with the current date, project name and be followed by the general location, i.e., viewing side and direction of progress. The audio tract shall consist of an original live recording. The recording shall contain the narrative commentary of the videographer, recorded simultaneously with its fixed elevation video record of the zone of influence of construction.

- B. The CITY reserves the right to supplement the audio portion of the recording as deemed necessary. A representative of the CITY shall be selected to provide such narrative.

3.3 RECORDED INFORMATION - VIDEO

- A. All video recordings shall, by electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording.
- B. All DVD's and their storage cases shall be identified by DVD index number, project title, and general project location. Each DVD shall have a log of that recording's contents displayed on the storage case of each DVD. The log shall describe the various segments of coverage contained on that DVD in terms of the names of streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers and the date.

3.4 LIGHTING

- A. All recordings shall be done during times of good visibility. No recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.

3.5 SPEED OF TRAVEL

- A. The rate of speed in the general direction of travel of the vehicle used during taping shall not exceed 440 feet per minute (5 mph). Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

3.6 AREA OF COVERAGE

- A. Recordings shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, buildings, vaults, concrete pads, fences, signs, and headwalls within the area covered.

END OF SECTION

SECTION 01400
GENERAL QUALITY CONTROL

PART 1 - GENERAL REQUIREMENTS

1.1. SUMMARY

Specific quality control requirements for the work are indicated throughout the contract documents. The requirements of this section are primarily related to the performance of the work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not necessarily limited to inspection and testing and associated requirements. This section does not specify or modify the CITY's duties relating to quality review and Contract surveillance.

1.2 TESTING LABORATORY SERVICES

1. Arrangements for testing laboratory services will be made by CONTRACTOR. Payment for testing to show compliance with specified requirements will be paid for by CONTRACTOR. CONTRACTOR shall provide and pay for all primary Quality Control per Spec 105 of the 2017 FDOT Standard Specifications for Road and Bridge Construction. OWNER will provide and pay for all Verification Testing." The cost of retesting when materials and workmanship fail to meet specified requirements will be deducted from monies due CONTRACTOR.

1.3 LABORATORY STANDARDS

Testing laboratories shall conform to the applicable requirements of ASTM E329-77 (Latest Edition) STANDARD RECOMMENDED PRACTICE FOR INSPECTION AND TESTING AGENCIES FOR CONCRETE, STEEL AND BITUMINOUS MATERIALS AS USED IN CONSTRUCTION and shall be inspected and approved by the ELF/FC&PA Joint Technical Committee, Inc., or by an equivalent recognized national authority.

Agents of testing laboratories performing field sampling and field testing of concrete shall be certified by the American Concrete Institute as Concrete Field Testing Technicians Grade 1 or by an equivalent recognized national authority for an equivalent level of competence, or shall be licensed Professional Engineers.

1.4 ACCESS FOR INSPECTION

OWNER, ENGINEER and their authorized representatives shall be permitted free access to every reasonable facility for the inspection of all Work, materials and equipment. OWNER and his authorized representatives shall also be permitted to inspect payrolls, invoices for materials and equipment and other relevant data and records.

Authorized representatives of Federal, State or local agencies shall be permitted access to inspect for compliance with applicable laws, regulations and permit requirements.

On projects where Federal or State agency funding is used, authorized representatives of those agencies shall be permitted to inspect all work, materials, equipment, payrolls, records of personnel, invoices for materials and equipment and other relevant data and records.

1.5 INSPECTION OF WORK AWAY FROM SITE

When work to be done away from the construction site is to be inspected on behalf of OWNER during its fabrication, manufacture or testing or before shipment, CONTRACTOR shall give notice to ENGINEER of the time and place where such fabrication, manufacturing, testing or shipping is to be done. Such notice shall be in writing and delivered to ENGINEER in ample time so that the necessary arrangements for the inspection can be made.

1.6 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. The CONTRACTOR will employ and pay for the services of independent testing laboratories to perform required onsite inspections, sampling and tests to include but not be limited to soil density, asphalt density and / or stability, road base and sub grade compaction, stability, etc.
- B. No failure of test agencies, whether engaged by the CITY or CONTRACTOR, to perform adequate inspections of tests or to properly analyze or report results, shall relieve the CONTRACTOR of responsibility for the fulfillment of the requirements of the contract documents. It is recognized that the required inspection and testing program is intended to assist the CONTRACTOR, CITY and governing authorities in the determination of probable compliance with requirements for certain crucial elements of work. The program is not intended to limit the CONTRACTOR in his regular quality control program, as needed for general assurance of compliance.
- C. The CONTRACTOR is responsible for providing all data required by the CITY to ensure that the construction materials and equipment used are in compliance with the contract bid documents and subsequent changes.

1.7 QUALITY ASSURANCE

General Workmanship Standards: It is a requirement that each category of management, tradesman or installer performing the work be prequalified, to the extent of being familiar with the applicable and recognized quality standards for his category of work, and being capable of workmanship complying with those standards. All errors, omissions or

ambiguities that will materially affect the work shall be brought to the CITY's attention as soon as they are discovered.

PART 2 – PRODUCTS

(Not Applicable—see General Conditions)

PART 3 - EXECUTION

3.1 SUBMITTALS - (Not Applicable—see General Conditions)

3.2 LABORATORY STANDARDS

- A. Testing laboratories shall conform to the applicable requirements of ASTM E329-77 (Latest Edition) STANDARD RECOMMENDED PRACTICE FOR INSPECTION AND TESTING AGENCIES FOR CONCRETE, STEEL AND BITUMINOUS MATERIALS AS USED IN CONSTRUCTION and shall be inspected and approved by the ELF/FC&PA Joint Technical Committee, Inc., or by an equivalent recognized national authority.
- B. Agents of testing laboratories performing field sampling and field testing of concrete shall be certified by the American Concrete Institute as Concrete Field Testing Technicians Grade 1 or by an equivalent recognized national authority, or shall be licensed Professional Engineer.

3.3 ACCESS FOR INSPECTION

CITY/ ENGINEER and their authorized representatives shall be permitted free access and every reasonable facility for the inspection of all work, materials and equipment. CITY and his authorized representatives shall also be permitted to inspect payrolls, invoices for materials and equipment. CITY and authorized representatives shall also be permitted to inspect payrolls, invoices for materials and equipment and other relevant data and records. Authorized representatives of Federal, State or local agencies shall be permitted access to inspect for compliance with applicable laws, regulations and permit requirements. On projects where Federal or State agency funding is used, authorized representatives of those agencies shall be permitted to inspect all work, materials, equipment, payrolls, records of personnel, invoices for materials and equipment and other relevant data and records.

3.4 PRODUCT DELIVERY-STORAGE HANDLING

CONTRACTOR shall handle, store and protect new and salvaged project materials and products, including fabricated components, by methods and means which will prevent damage, deterioration and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation.

3.5 PREPARATION FOR INSTALLATION

- A. Pre-Installation Conferences: Well in advance of the installation of every major unit of work which requires coordination with other work, meet at the project site with installers and representatives of manufacturers and fabricators, utility owners and facility owners who are involved in or affected by the unit of work, and in its coordination or integration with other work which has preceded or will follow. Advise the CITY of scheduled meeting dates. At each meeting review the progress of other work and preparations for the particular work under consideration, including the requirements of the contract documents, options, related change orders, purchases, deliveries, shop drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety, inspection and testing requirements, required performance results, recording requirements, and protection. Record the significant discussions of each conference, and the agreements and disagreements, along with the final plan of action. Distribute record of meeting promptly to everyone concerned, including the CITY.
- B. Do not proceed with the work if the associated pre-installation conference cannot be concluded successfully, investigate actions to resolve impediments to the performance of the work, and reconvene the conference at the earliest date feasible.
- C. Installer's Inspection of Conditions; Require the Installer of each major unit of work to inspect the substrate to receive the work, and the conditions under which the work will be performed, and to report (in writing to the CONTRACTOR and CITY) unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.6 COORDINATION OF TEST AGENCY WORK

- A. Afford access and reasonable time in the construction sequence for CITY's inspections and tests to be performed. Cooperate with agencies and provide incidental labor and services needed for the removal and delivery of test samples, and for inspections and taking measurements. Provide patching and restoration services where test samples have been removed. Test agencies, regardless of whether engaged by the CITY or CONTRACTOR, are not authorized to change or negate the requirements of the contract documents. Each agency shall coordinate its assigned work with the construction schedule as maintained by the CONTRACTOR, and shall perform its work promptly so as not to delay the work avoidably. Observances (by agencies) having a bearing on the work shall be

reported to the CITY, in the most expeditious way possible, and shall be recorded in writing by the agency. Test agency personnel shall not interfere with or assume the duties of the CONTRACTOR.

3.7 INSTALLATION QUALITY CONTROL

- A. Manufacturer's Instructions: Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the contract documents.
- B. Inspect each item of materials or equipment immediately prior to installation, and reject damaged and defective items.
- C. Recheck measurements and dimensions of work, as an integral step of starting each installation.
- D. Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion which will ensure the best possible results for each unit of work, in coordination with the entire work. Isolate each unit of work from non-compatible work, as required to prevent deterioration.

END OF SECTION

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION OF REQUIREMENTS

This section specifies the minimum requirements for temporary facilities, utilities to be brought to the site, and control required to enable the construction of the project to progress adequately. The providing of adequate facilities at every stage of performing the work is the CONTRACTOR'S sole responsibility, and is not limited by the requirements of this section.

Except as otherwise indicated, the CONTRACTOR may, at his option, provide stand-alone utility plants to provide needed services, in lieu of connected services from available public utilities, provided such stand-alone plant facilities comply with governing regulations. Prior to availability of temporary utility services, provide trucked-in/trucked-out containerized or unitized services for start-up of construction operations at the site.

Except as otherwise indicated, the costs of providing and using temporary utility services shall be included in the Contract Sum.

1.2 TEMPORARY FACILITIES

The types of utility services required for general temporary use at the project site include the following (other specific services may be required for specific construction methods or operations):

- Electrical Power Service
- Water Service (potable for certain uses)
- Sanitary
- Storm Sewer or Open Drainage/Run-off Control
- Gas (fuel) Service
- Telephone Service

Temporary Electricity. The CONTRACTOR shall provide for a temporary power source for his use during construction and arrange for modification of the permanent power supply by the power company as required. The permanent power supply service will remain as the Owner's account throughout the project.

Temporary Water. The CONTRACTOR shall make all necessary application and arrangements, and pay all fees and charges for water necessary for the proper completion of the project up to the time of final acceptance. The CONTRACTOR shall provide and pay for any temporary piping and connections.

Temporary Sanitary Facilities. The CONTRACTOR shall provide adequate sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved.

The CONTRACTOR shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the OWNER, or on adjacent property.

Termination and Removal. At the time the need for temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than the time of substantial completion, promptly remove the installation unless requested by the ENGINEER to retain it for a longer period. Complete and restore work, which may have been delayed or affected by the installation and use of the temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces. Replace work damaged beyond acceptable restoration.

1.3 TEMPORARY CONTROLS

Noise Control. The CONTRACTOR shall provide adequate protection against objectionable noise levels caused by the operation of construction equipment.

Dust Control. The CONTRACTOR shall provide for adequate protection against raising objectionable dust clouds caused by moving construction equipment, high winds or any other cause.

Water Control. The CONTRACTOR shall provide for satisfactory disposal of surplus water and shall submit a plan to the ENGINEER for his review prior to initiation and implementation of the plan. Prior approval shall be obtained from the proper authorities for the use of public or private lands or facilities for such disposal. CONTRACTOR shall be responsible for obtaining and complying with the requirements of any dewatering or consumptive use permits required by regulatory authorities.

Pollution Control. The CONTRACTOR shall provide for adequate protection against polluting any public or private lands, lakes, ponds, rivers, streams, creeks, and other such areas, by the disposal of surplus material in the form of solids, liquids, or gases or from any other cause.

The CONTRACTOR shall evaluate and assess the impact of any adverse effects on the natural environment which may result from construction operations and shall operate to minimize pollution of air, ground or surface waters vegetation, and afford the neighboring

community the maximum protection during and up to completion of the construction project.

The CONTRACTOR shall take sufficient precautions to prevent pollution of streams, lakes and reservoirs with fuels, oils, bitumens, calcium chloride or other harmful materials. He shall conduct and schedule his operations so as to avoid or otherwise prevent pollution of siltation of streams, lakes and reservoirs and to avoid interference with movement of migratory fish.

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

Erosion Control. The CONTRACTOR shall not expose, by construction operations, a larger area of erosive land at any one time than the minimum necessary for efficient construction operations, and the duration of exposure of the uncompleted construction to the elements shall be as short as practicable.

Erosion control features shall be constructed concurrently with other work and at the earliest practicable time.

Paint Splatter Control. The CONTRACTOR shall take precautions necessary to prevent paint splatter and wind-blown splatter from falling on adjacent buildings, vehicles and vehicular traffic and shall be solely responsible for any damage resulting from the work.

Sandblasting, Dust & Debris Control. The CONTRACTOR shall provide for adequate protection of the work area to prevent nuisance and damage to adjacent properties and vehicular traffic from cleaning and sandblasting debris and shall be solely responsible for any damage therefrom.

1.4 STORAGE FACILITIES

All products, materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturer's instructions. Fabricated products shall be stored above the ground on blocking or skids. Products, which are subject to deterioration, shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any products, which will come in contact with potable water, shall be stored off the ground so as to prevent contamination.

The City will refuse to accept, or sample for testing, materials, supplies or equipment that have been improperly stored, as determined by the City. Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site. Delivered materials shall be stored in a manner acceptable to the City before any payment for same will be made.

Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored products to assure that they are maintained under specified conditions, and free from damage or deterioration.

After installation, CONTRACTOR shall provide substantial coverings as necessary to installed products to protect from damage from traffic and subsequent construction operations. Coverings shall be removed when no longer needed.

1.5 QUALITY ASSURANCE:

Regulations: Comply with governing regulations and utility company regulations and recommendations for the construction of temporary utility services; including (but not necessarily limited to) code compliance, permits, inspections, testing, and health and safety compliance.

Comply with pollution and environmental protection regulations for the use of water and other services, and for the discharge of wastes and stormwater drainage from the project site. Comply with whatever "Environmental Impact" commitments may have been made by the owner or previous owners of the site in securing approval to proceed with the construction of the project.

Contractor must control turbidity in rivers or canals so that it does not exceed established background turbidity by more than 50 Jackson Units at a distance greater than 100 feet from the point of work. This shall be done by the use of a "diaper" or screen suspended by floats or other methods approved by the Project Representative.

Standards: Comply with the "Manual of Accident Prevention in Construction" by AGC. Comply with NFPA Code 241 "Building Construction and Demolition Operations".

1.6 OPERATIONS AND TERMINATIONS:

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

Supervision: Enforce strict discipline in the use of utility services. Limit availability to essential uses, so as to minimize wastes. Do not allow the installations to be abused or endangered.

Protection: Prevent water-filled piping from freezing, by ground cover or insulation or by keeping drained, or by temporary heating. Maintain distinct markers for underground lines, and protect from damage during excavating operations.

The Contractor shall provide adequate signs, barricades, flashing lights, flagmen and watchmen and take all necessary precautions for the protection of the work and the safety of the public. Traffic control warning signs and barricades shall be in strict accordance with the provisions of the Florida Department of Transportation, Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility operations, latest revision. All barricades and obstructions shall be protected at night by flashing signal lights which shall be kept burning from sunset to sunrise. Barricades shall be of substantial construction and suitable for night visibility. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist.

The Contractor shall at all times so conduct his work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property, in a manner satisfactory to the City. No road or street shall be closed to the public, except with the permission of the City and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches.

Preservation: Preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Owner.

In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the owner may, after 48 hours' notice to the Contractor, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any moneys due or which may become due the Contractor under this Contract.

The Contractor shall be responsible for the protection of property, in the areas in the vicinity of the project; and for the protection of his equipment, supplies, materials and work, against any damage resulting from the elements, such as flooding, by rainstorm, wind damage, or other elemental cause resulting from the project configuration. The Contractor shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting from same. The Contractor shall provide adequate drainage facilities, tie-downs, or other protection, throughout the Contract period, for the protection of his, the owner's and other properties from such damage.

Termination and Removal: At the time the need for a temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than the time of substantial completion, promptly remove the installation unless requested by the City to retain it for a longer period. Complete and restore work, which may have been delayed or affected by the installation and use of the temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces. Replace work damaged beyond acceptable restoration.

1.7 PRESERVATION OF PROPERTY

Preserve from damage all property along the line of the work, or which is in the vicinity of or in any wise affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the CONTRACTOR, it shall be immediately restored to its original condition by the CONTRACTOR at no cost to the OWNER.

In case of failure on the part of the CONTRACTOR to restore such property, or make good such damage or injury, the OWNER may, after 48 hours' notice to the CONTRACTOR, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the CONTRACTOR under this Contract.

The CONTRACTOR shall be responsible for the protection of property, in the areas in the vicinity of the project; and for the protection of his equipment, supplies, materials and work, against any damage resulting from the elements, such as flooding, by rainstorm, wind damage, or other elemental cause resulting from the project configuration. The CONTRACTOR shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting from same. The CONTRACTOR shall provide adequate drainage facilities, tie-downs, or other protection, throughout the Contract period, for the protection of his, the OWNER'S, and other properties from such damage.

1.8 TRAFFIC REGULATION

Signs, marking barricades and procedures shall conform to the requirements of the Florida Department of Transportation Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations.

The CONTRACTOR shall provide and maintain adequate barricades, construction signs, torches, flashers, guards and flagmen as required in pedestrian and vehicular traffic areas. Regulations of local authorities shall be complied with.

The CONTRACTOR shall provide suitable crossings at street intersections and driveways, and supply such aid as may be required for pedestrians and motorists, including delivery vehicles, to safely negotiate the construction areas. "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.

The CONTRACTOR shall carry on the work in a manner that will cause the least interruption in traffic. Closing to through travel of more than two consecutive blocks, including the cross street intersected will not be permitted without specific authorization of the local street department. Where traffic must cross open trenches, the CONTRACTOR shall provide suitable bridges at street intersections and driveways and provide adequate ingress and egress to dwellings, business facilities, utilities and services. At any time that streets are required to be closed, the CONTRACTOR shall notify law enforcement agencies, fire departments, and parties operating emergency vehicles before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times.

On completion of work, the CONTRACTOR shall remove all debris, excess materials, barricades and temporary work leaving walkways and road clear of obstructions.

Detour routes for the diverting of traffic from the Work Area are limited in the Project Area. The Project Area may be marked "ROAD CLOSED AHEAD - LOCAL TRAFFIC ONLY" to discourage through traffic from using the route. Short areas where work is underway may be closed to traffic, provided detour routes are marked to guide the public around the work area. Where detour routes are not available, flagmen shall be provided to direct one-way traffic through the construction area.

PART 2 - MATERIALS AND EQUIPMENT

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01541
PROTECTION OF THE WORK AND PROPERTY

PART 1 – GENERAL REQUIREMENTS

1.1 GENERAL

- A. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, CONTRACTOR'S actions shall include, but not be limited to, the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other CONTRACTOR or utility service company.
 - 2. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - 3. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
 - 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance.
 - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. CONTRACTOR shall not, except after written consent from proper parties, enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. CONTRACTOR shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at his expense, to a condition equal to that existing before the damage was done.

1.2 BARRICADES AND WARNING SIGNALS

- A. Where Work is performed on or adjacent to any roadway, right-of- way, or public place, CONTRACTOR shall provide barricades, fences, lights, warning signs, danger signals, watchmen, and shall take other precautionary measures for the protection of persons or property and of the Work. Barricades shall be painted to be visible at night.

From sunset to sunrise, CONTRACTOR shall furnish and maintain at least one light at each barricade. Sufficient barricades shall be erected to keep vehicles from being driven on or into Work under construction. CONTRACTOR shall furnish watchmen in sufficient numbers to protect the Work. CONTRACTOR'S responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until the Project is accepted by OWNER.

1.3 TREE AND PLANT PROTECTION

- A. CONTRACTOR shall protect existing trees, shrubs and plants on or adjacent to the site that are shown or designated to remain in place against unnecessary cutting, breaking or skinning of trunk, branches, bark or roots.
- B. Materials or equipment shall not be stored or parked within the drip line.
- C. Temporary fences or barricades shall be installed to protect trees and plants in areas subject to traffic.
- D. Fires shall not be permitted under or adjacent to trees and plants.
- E. Within the limits of the Work, water trees and plants that are to remain, in order to maintain their health during construction operations.
- F. Cover all exposed roots with burlap that shall be kept continuously wet. Cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use in a manner approved by the ENGINEER.
- H. All damaged trees and plants that die or suffer permanent injury shall be removed when ordered by the ENGINEER and replaced by a specimen of equal or better quality.
- I. Coordinate Work in this Section with requirements of other sections herein.

1.4 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
 - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

2. All underground structures known to ENGINEER except water, sewer, electric, and telephone service connections are shown. This information is shown for the assistance of CONTRACTOR in accordance with the best information available, but is not guaranteed to be correct or complete.
3. CONTRACTOR shall explore ahead of his trenching and excavation Work and shall uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption to the services which such structures provide. If CONTRACTOR damages an underground structure, he shall restore it to original condition at his expense.
4. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
5. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, ENGINEER will direct CONTRACTOR in writing to perform the Work, which shall be paid for under the provisions of Article 11 of the General Conditions.

B. Surface Structures:

1. Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. CONTRACTOR shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, CONTRACTOR shall satisfy the ENGINEER that the methods and procedures to be used have been approved by the party owning same.
2. CONTRACTOR shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the OWNER of the damaged structure.

- D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to

facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

1.5 PROTECTION OF FLOORS AND ROOFS

- A. CONTRACTOR shall protect floors and roofs during entire construction period.
- B. Proper protective covering shall be used when moving heavy equipment, handling materials or other loads, when painting, handling mortar and grout and when cleaning walls and ceilings.
- C. Use metal pans to collect all oil and cuttings from pipe, conduit, or rod threading machines and under all metal cutting machines.
- D. Concrete floors less than 28 days old shall not be loaded without written permission of the ENGINEER. No floor, roof or slab shall be loaded in excess of its design loading.
- E. Roofs shall not be loaded without written permission of the ENGINEER.
- F. CONTRACTOR shall restrict access to roofs and keep clear of existing roofs except as required by the new Work.
- G. If access to roofs is required, roofing, parapets, openings and all other construction on or adjacent to roof shall be protected with suitable plywood or other approved means.

1.6 PROTECTION OF INSTALLED PRODUCTS AND LANDSCAPING

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to completion of Work.
- B. Control traffic to prevent damage to equipment, materials and surfaces.
- C. Provide coverings to protect equipment and materials from damage.
 - 1. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.

1.7 PROTECTION OF INSTALLED IMPROVEMENTS

- A. Provide protection of installed improvements to prevent damage. Remove protection when no longer needed, with CITY concurrence, prior to completion of work.
- B. Control construction traffic to prevent damage to equipment, materials and surfaces.

1.8 PROTECTION AGAINST VANDALISM

- A. CONTRACTOR shall protect against vandalism and repair, or remove and replace, any vandalized property as required by the CITY.

END OF SECTION

SECTION 01568
EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets forth the requirements for the control and containment and general prevention of pollution by erosion and sediment resulting from the project work in compliance with environmental regulations of the City, County, Department of Environmental Protection and United States Environmental Protection Agency.
- B. It shall be the CONTRACTOR's responsibility to provide, construct and maintain all sediment and erosion control devices. The CITY shall not be tasked with advising the CONTRACTOR of compliance. However, should the CITY believe the Erosion and Sedimentation Control Plan proposed or installed by the CONTRACTOR to be inadequate, the CITY will send a certified letter to the CONTRACTOR warning the CONTRACTOR of potential environmental concerns. Should the Department of Environmental Protection conduct a field inspection and the CITY be put on notice regarding sediment and erosion controls or pollution condition caused by the project work the CITY will order the project closed until the condition is remediated and sediment and erosion controls are functioning properly.

1.2 SUBMITTALS

- A. CONTRACTOR shall upon request at the Pre-construction meeting submit evidence of an Erosion and Sedimentation Control Plan in accordance with NPDES criteria, prepared by an FDEP certified Stormwater Management Inspector, to the CITY for record prior to beginning work. Each month a record of erosion control measures in place during the previous month will be provided.
 - 1. Should the CITY receive a warning letter from the Department of Environmental Protection, the CITY/ENGINEER will move to issue a Stop Work Order until the Department of Environmental Protection representative has re-inspected the work conditions and given a statement that the project now appears to be in compliance with Chapter 373 of the Florida Statutes and no additional work days will be allowed.
 - 2. The CONTRACTOR shall submit to the CITY in writing the plan of action to prevent erosion and sedimentation problems cited during the project duration.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 GENERAL

- A. CONTRACTOR shall not start work until erosion and sediment control measures are fully in place to prevent pollution of air, water and adjacent property. It shall be the CONTRACTOR's responsibility to provide, construct and maintain all sediment and erosion control devices. The CONTRACTOR shall have an FDEP Certified Stormwater Management Inspector onsite to supervise installation and maintenance of all erosion and sedimentation controls. Best Management Practices shall be used where directed by the CITY.
- B. The CITY shall not be tasked with advising the CONTRACTOR of compliance, but should the CITY believe the Erosion and Sedimentation Control Plan proposed or installed by the CONTRACTOR to be inadequate the CITY will send a certified letter to the CONTRACTOR warning the CONTRACTOR of potential environmental concern. Should the Department of Environmental Protection conduct a field inspection and the CITY be put on notice, the CITY will order the project closed until the erosion and sedimentation control devices are all in place and functioning properly.
- C. Two (2) primary types of silt barriers may be installed in accordance with an action plan prepared by the CONTRACTOR and as noted on the plans; silt barriers installed on the ground, and floating silt-barriers.
- D. Silt barriers (filter fabric) shall be synthetic and contain ultraviolet ray inhibitors and stabilizers.
- E. Hay bales shall not be used for silt barriers, unless maintained during rain events.
- F. Silt barriers shall be maintained in place until all risk of erosion has passed.
- G. Sandbagging shall consist of furnishing and placing sandbags in a configuration that prevents or contains erosion.
- H. Sediment basins shall be constructed as necessary to prevent erosion from leaving the project limits.
- I. Berms may be constructed to divert the flow of water from causing erosion.
- J. Temporary grassing, chemical soil stabilizers or non-erodible coverings will be required to prevent erosion from soil surfaces with an anticipated unprotected exposure to sun and wind of more than 30 days.

3.2 CONTROL OF CONTRACTOR'S OPERATIONS

- A. In the event that it is necessary that the construction operations be suspended due to major storm events, the CONTRACTOR shall use due care secure the construction zone and do everything possible to prevent erosion at the same time preventing flooding of adjacent properties. Should such preventative measures fail, CONTRACTOR shall immediately take all action as necessary to effectively remediate erosion and sedimentation damage. Should the CITY be ordered by the Department of Environmental Protection to upgrade erosion control immediately after the major storm event the CONTRACTOR shall contact the CITY for further consideration of available options.

END OF SECTION

SECTION 01570
TRAFFIC CONTROL

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. The work in this section includes the coordination, implementation and operation of a maintenance of traffic plan, in accordance with the construction plans and permits that provides for the safe execution of the work and the safety of the public while maintaining property access and an effective flow of pedestrian and vehicular traffic.

1.2 SUBMITTALS

- A. The CONTRACTOR shall submit three maintenance of traffic plan sets complying with the M.U.T.C.D., Part IV and the Florida Department of Transportation (FDOT) Roadway and Traffic Design Standards, latest edition, Index No. 600 series as a Pre-Construction Submittal. The Plan must provide for the maintenance of **vehicular and pedestrian traffic**, including public safety and driveway access to properties on all roads and streets during the prosecution of the Work. The CITY shall have the right at any time to require revisions to the Plan and to require CONTRACTOR to take additional steps not reflected on the approved Plan, in order to ensure maintenance of vehicular and pedestrian flow and provide protection against damage to access routes and haul routes.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 TRAFFIC CONTROL

- A. The CONTRACTOR shall be responsible for the implementation of the maintenance of traffic plan. Vehicular and pedestrian traffic including access to businesses and other properties shall be maintained on all roads and streets.
- B. The CONTRACTOR shall coordinate with the CITY's Project Manager and Traffic Operations Manager in preparing the maintenance of traffic plan.
- C. The CONTRACTOR shall provide a Worksite Traffic Supervisor for the duration of the project, to supervise the implementation of the plan. The Supervisor must be trained and certified by a Florida Department of Transportation approved

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traffic safety education provider. Contact information shall be provided at the Pre-Construction meeting.

- D. It shall be the CONTRACTOR's responsibility to restore work site access routes and material haul routes to their pre-construction condition when damages result from the CONTRACTOR's activities.
- E. The CONTRACTOR shall comply with the requirements and permits of the respective right of way owners while working within their right of ways.
- F. No additional compensation shall be made for compliance with these requirements.

END OF SECTION

SECTION 01600
MATERIALS AND EQUIPMENT

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION OF REQUIREMENTS

Materials and equipment furnished by CONTRACTOR shall be new and shall not have been in service at any other installation unless otherwise provided. Materials and equipment shall conform to applicable specifications and standards and comply with the size, make, type and quality specified, or as specifically approved in writing by ENGINEER.

Manufactured and fabricated items shall be designed, fabricated and assembled in accordance with the best engineering and shop practices. Like parts of duplicate units shall be manufactured to standard sizes and gages to be interchangeable.

Two or more things of the same kind shall be identical, by the same manufacturer.

Materials and equipment shall be suitable for service conditions shown or specified.

Equipment which requires auxiliary devices or equipment in order to operate properly shall

have such auxiliary devices or equipment included as a part of its system.

Equipment sizes, capacities and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

Materials and equipment shall not be used for any purpose other than that for which it is designed or is specified.

Where existing materials or equipment is specifically shown or specified to be reused in the work, special care shall be used in removal, handling, storage, and reinstallation, to assure proper function in the completed work.

CONTRACTOR shall arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation.

Salvaged Materials. In the absence of special provisions to the contrary, salvaged materials, equipment or supplies are the property of OWNER and shall be cleaned and stored as directed by ENGINEER.

Manufacturer's Instructions. The installation of all work shall comply with manufacturer's written instructions. CONTRACTOR shall obtain and distribute copies of such instructions to parties involved in the installation including two copies to ENGINEER.

One complete set of instructions shall be maintained at the job site during installation and until completion. All products and equipment shall be handled, installed, connected, cleaned, conditioned and adjusted in accordance with the manufacturer's instructions and specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, such conflicts shall be called to ENGINEER'S attention for resolution and revised instructions.

Equipment Guarantee. All mechanical and electrical equipment, together with devices of whatever nature and all components, which are furnished and/or installed by CONTRACTOR shall be guaranteed. The guarantee shall be against manufacturing and/or design inadequacies, materials and workmanship, improper assembly, hidden damage, failure of devices and/or components, excessive leakage or other circumstances which would cause the equipment to fail under normal design and/or specific operating conditions for a period of one year or such longer period as may be shown and/or specified from and after the date of acceptance of the equipment by OWNER. Each piece of equipment, device or component which shall fail within the above specified term shall be replaced with reasonable promptness by CONTRACTOR without cost to OWNER.

Operating Characteristics. Rotating machinery shall be designed and fabricated to provide satisfactory operation without excessive wear and without excessive maintenance during its operating life. Rotating parts shall be statically and dynamically balanced and shall operate without excessive vibration.

Lubrication System. The minimum design criteria for lubrication of moving parts of the equipment shall include one week of continuous operation during which no lubricants shall be added to the system. The system shall also be designed to receive lubricants whether in operation or shut down, and shall not leak or waste lubricants under either condition. The manufacturer's recommendations of grade and quality and a supply of the lubricants so recommended in quantities sufficient to conduct startup and testing operations shall be furnished with the equipment.

Safety Requirements. Screens, guards or cages shall be provided for all exposed, rotating or moving parts in accordance with accepted practices of applicable governmental agencies.

Nameplates. Each major component of equipment shall have the manufacturer's name, catalog and/or model number, serial number and applicable performance requirements and characteristics embossed, stamped, or engraved on a stainless steel plate securely attached to the item of equipment.

Anchor Bolts. The manufacturer shall provide stainless steel anchor bolts for each piece of equipment furnished.

1.02 TRANSPORTATION AND HANDLING

Materials and equipment shall be loaded and unloaded by methods affording adequate protection against damage. Every precaution shall be taken to prevent injury to the materials or equipment during transportation and handling. Suitable power equipment will be used and the materials or equipment shall be under control at all times. Under no condition shall the materials or equipment be dropped, bumped or dragged. When a crane is used, a suitable hook or lift sling shall be used. The crane shall be so placed that all lifting is done in a vertical plane. Materials or equipment skid loaded, palletized or handled on skidways shall not be skidded or rolled against materials or equipment already unloaded.

Materials and equipment shall be delivered to the job site by means that will adequately support it and not subject it to undue stresses. Contractor shall promptly inspect the products for damage and defects and conformance with the specification. Materials and equipment damaged or injured in the process of transportation, unloading or handling will be rejected and shall be immediately removed from the site.

PART 2 - MATERIALS AND EQUIPMENT
(Not Applicable)

PART 3 - EXECUTION
(Not Applicable)

END OF SECTION

SECTION 01640
SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 – GENERAL REQUIREMENTS

1.1 REQUESTS FOR REVIEW

- A. Requests to review substitute items of material and equipment will not be accepted by the ENGINEER from anyone other than the CONTRACTOR. If the CONTRACTOR wishes to furnish or use a substitute or equivalent items of material or equipment, the CONTRACTOR shall make written application to the ENGINEER for acceptance, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equivalent substance to that specified and be suited to the same use and capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the work will require a change in Drawings or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the ENGINEER in evaluating the proposed substitute. The ENGINEER may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute. The ENGINEER will be the sole judge of acceptability, and no substitute will be ordered or installed without the ENGINEER's prior written acceptance. The CITY may require the CONTRACTOR to furnish at the CONTRACTOR's expense, a special performance guarantee of other surety with respect to any substitute.

1.2 SUBSTITUTION AFTER EXECUTION OF AGREEMENT

- A. After execution of the Agreement, substitution of materials or equipment from Suppliers other than those listed or included in the Agreement will be considered only if it is demonstrated by CONTRACTOR that:
1. The material or equipment proposed for substitution is superior in design, construction and/or efficiency to that of the listed manufacturer or supplier;
 2. The material proposed for substitution is in every way equal to that of the listed supplier, and that availability and/or delivery of listed materials within the time frame scheduled cannot be met; or

3. The material proposed for substitution is in every way equal to that of the listed supplier and is available at a lower cost. In the event such a substitution is allowed, CONTRACTOR shall accept and execute a Change Order reducing the Contract Price by an amount equal to the cost differential.

1.3 ENGINEERS' CHARGES

- A. The Engineers will record time required by the ENGINEER and the ENGINEER'S consultants in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Drawings or Specifications occasioned by the substitution. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the CITY for the charges of the ENGINEER and the ENGINEER'S consultants for evaluating any proposed substitute.

1.4 EQUIPMENT REQUIRING VARIATION IN SPACE

- A. It is intended that the CONTRACTOR shall furnish equipment which may be installed and shall operate properly in the structures as shown. Should the CONTRACTOR select alternate equipment resulting in an alteration to, addition to, enlargement of, or any other changes from the lines, dimensions, and grades shown, the CONTRACTOR shall make such changes or alterations as are required and no additional payment will be made by the CITY for changes in structures occasioned by the selection of alternate equipment. All such variations shall be subject to review and acceptance by ENGINEER.
- B. Equipment requiring supplemental services in addition to those shown or specified in order to fulfill the operating objectives and including additional mechanisms, operating steps and/or controls as compared with specified equipment will not be acceptable.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

(Not Applicable, See General Conditions)

END OF SECTION

SECTION 01700
RECORD DOCUMENTS & CLOSEOUT PROCEDURES

PART 1 - GENERAL REQUIREMENTS

1.1 DESCRIPTION OF REQUIREMENTS

Definition. Closeout is defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by OWNER and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Divisions 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work that have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.2 CLOSEOUT SUBMITTALS

When the ENGINEER finds that the work is acceptable under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

The CONTRACTOR's closeout submittals shall include:

1. Evidence of compliance with requirements of governing authorities.
2. Project Record Documents. The documents shall be submitted as one set of permanent drawings on mylar base material, and one copy of Autocad drawing files.
3. Tests and Balance Reports
4. Operating and Maintenance Data, Instructions to Owner's Personnel.
5. Warranties and Bonds.
6. Keys and Keying Schedule.
7. Spare Parts and Maintenance Materials.
8. Evidence of Payment and Release of Liens.
9. Certificate of Insurance for Products and Completed Operations.

1.3 RECORD DOCUMENTS

General: The general submittal requirements are indicated in Section 01300. Do not use record documents for construction purposes; protect from deterioration and loss in a secure fire-resistive location; provide access to record documents for the City's inspection during normal working hours.

Record Drawings: Final record drawings are to be prepared and sealed by a registered Land Surveyor and shall comply with this specification and Fla. Administrative Code, Chapter

61G17, "Minimum Technical Standards". The CONTRACTOR is to maintain a record of new information which is recognized to be of importance to the Owner, but was for some reason not shown on either the contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change order numbers where applicable. This information is to be provided to the surveyor for incorporation into the final set of as-built drawings. Record drawings shall be provided in their final form on mylar sheets with electronic disc copy of final record in AutoCadd format version deemed acceptable by The City.

Information to be shown for water mains or re-use mains shall include the location of valves, tees, bends and crosses dimensioned to the baseline survey or monument, including the station and offset. Elevations to top of pipe shall be provided every 100'. For situations where the main is being adjusted to avoid conflicts with other utilities (less than 100' in total length), then elevations shall be provided at the beginning of the deflection (i.e. the first bend), middle of the deflection (i.e. the point where the conflict would have occurred with the utility), and the end of the deflection (i.e. the last bend).

Information to be shown for sanitary sewer wyes shall include the distance to the nearest manhole, length of service line, elevation to the top of the service lateral at the right-of-way, and building number served.

Information to be shown for sanitary sewer force mains shall include the location of valves, tees, bends and crosses dimensioned to the baseline survey or monument, including the station and offset. Elevations to top of pipe shall be provided every 100' minimum. For situations where the force main is being adjusted to avoid conflicts with other utilities (less than 100' in total length), then elevations shall be provided at the beginning of the deflection (i.e. the first bend), middle of the deflection (i.e. the point where the conflict would have occurred with the utility), and the end of the deflection (i.e. the last bend).

The CONTRACTOR will be held responsible for the accuracy of such data and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

Documents and samples shall be stored in the CONTRACTOR's field office apart from documents used for construction. The CONTRACTOR shall provide files and racks for storage of documents, and a locked cabinet or secure storage space for storage of samples.

Documents shall be maintained in a clean, dry, legible condition and in good order. Record documents shall not be used for construction purposes.

Each document shall be labeled "PROJECT RECORD" in neat, large printed letters. Information shall be recorded concurrently with construction progress.

No work shall be concealed until required information is recorded. Specifications and Addenda shall have each section legibly marked to record: manufacturer, trade name, catalog

number, and supplier of each product and item of equipment actually installed; and changes made by Field Order or by Change Order.

At contract closeout Record Documents shall be delivered to the ENGINEER for the OWNER. The submittal shall be accompanied with a transmittal letter in duplicate, containing:

1. Date
2. Project title and number
3. CONTRACTOR's name and address
4. Title and number of each Record Document
5. Signature of CONTRACTOR or his authorized representative

1.4 OPERATION AND MAINTENANCE

Operating and Maintenance Data. The CONTRACTOR shall compile product data and related information appropriate for Owner's maintenance and operation of items furnished under the Contract. He shall instruct Owner's personnel in the maintenance and operation of equipment and systems.

Prior to the installation of any item of equipment, operation and maintenance data shall be submitted. Submittal shall be in seven copies in addition to any copies the CONTRACTOR desires returned to him and shall be in addition to the shop drawing submittals.

The submittals shall include but not necessarily be limited to:

1. Manufacturer's specifications.
2. Directions and instructions relating to assembly, installation, operation and maintenance.
3. Control and instrumentation system schematic drawings.
4. Parts list with catalog numbers and other data necessary for ordering replacements.

Operation and maintenance data shall be submitted for each item of equipment, instrumentation and controls for which shop drawing submittals are required.

Spare Parts and Maintenance Materials. The CONTRACTOR shall submit as specified in the individual sections all spare parts and maintenance materials. Such items shall be neatly and safely packaged and conspicuously labeled, in neat, large printed letters as to each packages' content.

In specification sections where various equipment components require different or multiple spare parts, these spare parts shall be packaged separately and labeled accordingly.

1.5 WARRANTIES AND BONDS

The CONTRACTOR shall compile and submit to the ENGINEER in duplicate, for review
RECORD DOCUMENTS AND CLOSEOUT PROCEDURES

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and transmittal to the OWNER, warranties, bonds, service and maintenance contracts as specified in the respective sections of Specifications. Submittal shall be made within ten days after Substantial Completion and prior to final request for payment.

1.6 FINAL STATEMENT OF ACCOUNTING

The CONTRACTOR shall submit a final statement of accounting to the ENGINEER. The statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum
2. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Allowances
 - c. Unit Prices
 - d. Deductions for uncorrected work
 - e. Deductions for liquidated damages
 - f. Deductions for reinspection payments
 - g. Other adjustments
3. Total Contract Sum, as adjusted
4. Previous payments
5. Sum remaining due

1.7 FINAL CHANGE ORDER

The ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.8 FINAL APPLICATION FOR PAYMENT

The CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

1.9 FINAL CLEANING:

General: Provide final cleaning of the work, at the time indicated, consisting of cleaning each surface or unit of work to the normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturers' instructions for cleaning operations. The following are examples, but not by way of limitation, of the cleaning levels required. Remove labels which are not required as permanent labels.

Wipe surfaces of mechanical and electrical equipment clean, remove excess lubrication and other substances.

Clean concrete floors in non-occupied spaces broom clean.

Clean project site (yard and grounds), including landscape, development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.

1.10 REMOVAL OF PROTECTION:

Except as otherwise indicated or requested by the OWNER, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction period.

1.11 COMPLIANCY:

Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site, or bury debris or excess materials on the OWNER's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from the site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of the associated work have become the OWNER's property, dispose or store at the site as directed by the OWNER.

PART 2 - MATERIALS AND EQUIPMENT
(Not Applicable)

PART 3 - EXECUTION
(Not Applicable)

END OF SECTION

SECTION 01720
AS-BUILTS / RECORD DOCUMENTS

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. This Section sets forth the requirements for preparing as-built/record drawings and documents for verification of construction and archiving for future use. CONTRACTOR at his expense shall secure the services of a Florida licensed surveyor to collect data and prepare as-built/record drawings.

1.2 REFERENCE

- A. The preparation work and shall be in accordance with this Section and supplementary details in the City of Daytona Beach Utilities Department Standard Details, latest edition.

1.3 AS-BUILT / RECORD DRAWINGS

- A. As-built/record drawings are required for all public facilities constructed. Prior to construction completion these as-built/record requirements will be reviewed to be certain the CONTRACTOR'S surveyor has a clear understanding of what is required for completion of this work.
- B. As as-built conformance prerequisite for monthly progress payments, the CONTRACTOR shall present the currently updated "as-built" documents for review by the CITY.
- C. In order to ensure that the CITY'S project records are maintained to the highest standards and the information can easily be added to the CITY'S electronic records, the following information is required on all as-built/record drawings:
 - 1. Pavement and curb widths shall be verified and dimensioned for each street at each block (for subdivisions) and as appropriate to confirm paving limits (on site plans).
 - 2. All radii at intersections shall be verified and dimensioned. This information is to be clearly indicated on the as-built/record drawings.
 - 3. Roadway elevations shall be recorded at all grade changes, 100' intervals along roadway, and other intervals as needed along all streets. Street centerline and curb invert elevations shall be recorded as noted.
 - 4. The as-built centerline profile of all streets shall also be shown on the plan and profile so it may be compared to the design profile grade lines. In the event that the as-built centerline longitudinal grade does not meet the CITY minimum standards, additional longitudinal grades of the adjacent curbing and similar roadway cross-section surveys to verify the correct

- cross slope, shall be required to verify that the system will function as originally designed.
5. Storm drainage structures shall be located and/or dimensioned from centerlines or lot lines as appropriate. Each structure shall be located by sub-meter GPS with latitude, longitude and elevation data.
 6. Storm drainage pipe invert and inlet elevations shall be recorded and clearly denoted as as-built information. Design elevations shall be crossed out and as-built information written next to it.
 7. Storm drainage pipe material, length, and size shall be measured and/or verified. This information is to be clearly indicated as being as-built information.
 8. All applicable topographic information pertinent to the on-site drainage system, such as ditches, swales, lakes, canals, etc. that are deemed necessary by the CITY to verify the functional performance of the storm water system, shall be noted. Normally, recording elevations every 100 feet at the top of bank and toe of slope will be required. Measurements shall be taken and recorded in order to accurately tie down these features to the roadway centerlines and to plat lines. Whenever possible, contour lines shall be utilized to graphically describe these topographic features.
 9. Retention areas shall have their top of bank and bottom elevations recorded. Actual measurements shall be taken and dimensions recorded of the size of all retention areas. Measurements shall be done from top of bank with side slopes indicated. Separate calculations shall be submitted to indicate required and provided retention volumes.
 10. Actual materials used and elevations and dimensions of overflow weir structures and skimmers shall be noted on the as-built.
 11. Storm drainage swale centerlines shall be located and elevations of flow line and top of bank shall be recorded every 100 feet. Side slopes shall also be indicated.
 12. Sanitary sewer manholes shall be verified and dimensioned from street centerlines or lot lines as appropriate. All rim and invert elevations shall be verified and recorded. This information shall be clearly indicated as being as-built information. Design elevations shall be crossed out and as-built information written next to it.
 13. For subdivisions, proposed design finish floor elevations shall appear on all subdivision lots on the appropriate plan and profile sheet as well as on the master drainage plan.
 14. Sanitary sewer line lengths, sizes, material, slope, etc., shall be verified and recorded, this information is to be clearly indicated as being as-built information.
 15. Sewer laterals shall be verified and recorded at their clean out locations, stationing and offset distances shall be measured from downstream manholes towards upstream manholes. Invert information at clean out shall be provided, and be located by sub-meter GPS with latitude, longitude and elevation data.

16. Lift stations and force mains shall be verified and dimensioned from street centerlines or lot lines as appropriate. Force main depth and location including valves will be provided and tied to permanent above grade features. Dimensional and elevation information indicated on the approved plan shall be verified and recorded. This information shall be clearly indicated as being as-built information. Buried potable water lines and electrical service lines shall be clearly dimensioned, located, and labeled. Each lift station shall be located by sub-meter GPS with latitude, longitude and elevation data provided.
17. Curb cuts or metal tabs, used to mark sewer laterals, water services and water valves, shall be verified for presence and accuracy of location.
18. Potable and reclaimed water main lines shall be dimensioned off the baseline construction. Water main line material size, length and depth placed shall be noted. Locations of valves shall also be tied to baseline construction. This information shall be clearly indicated as being as-built information.
19. Potable and reclaimed water valves, tees, bends, all services, and fire hydrants shall be located by tying them to baseline construction (Sta. & Offset). Similarly, force main valves, tees and bends shall be located in the same manner. Stationing and offset distances shall be measured from downstream manholes to upstream manholes. All valves and hydrants shall be located by sub-meter GPS with latitude, longitude and elevation data provided.
20. For perpendicular crossings of storm water, sanitary sewer, potable water, or reclaimed water, the as-built plans shall clearly indicate which utilities are located over or under other utilities, as necessary.
21. Any special features such as, concrete flumes, lake banks, walls, fencing, etc. which are a part of the approved construction drawings should also be located and dimensioned.
22. If an approved subdivision plat or site plan shows a conservation easement, the project surveyor should provide the exact location of the specimen tree(s) from the right-of-way or property lines and proposed easement boundaries on the as-built drawing. The as-built location of these trees will help verify the sufficiency of the conservation easement prior to plat recording or certificate of occupancy.
23. When storm water, potable water, reclaimed water, or sanitary sewer improvements are located within an easement, the as-built drawing will accurately depict the location of the easement itself as well as the exact locations of the improvements within the easement. This is required in order to verify that the improvements have been properly located and to ensure that future subsurface excavation to perform remedial repair can be accomplished without disturbance beyond the easement.
24. As-built drawings are to be prepared by a Florida licensed surveyor and shall include a signed certification statement by the Florida licensed

engineer of record. A Mylar set of as-built record drawings shall be provided with a digital copy in a compatible AutoCAD format.

25. Elevations shall be referenced to NGVD 1988 Data. As-built survey information shall be referenced to at least two Florida State Plane east coordinates NAD 83.
26. Benchmark datum utilized monumentation from the North American Vertical Datum of 1929 with elevations adjusted to NGVD 1988 data. Any NAVD 1929 monument within the limits of construction is to be protected.
27. For as-built purposes and this specification, all new utility mains will require standard as-built location that requires latitude and longitude but not sub-meter GPS. However, air release vaults, valve boxes, manholes and catch basins/inlets will require sub-meter GPS.

1.4 SUBMITTALS

- A. CONTRACTOR shall submit each month to CITY the Project Activity Summary that shows current construction activities and a copy of notices to agencies including the CITY regarding road closures as well as a record of events that will be needed in the future.
- B. CONTRACTOR shall submit to CITY as required the proposed shut-off schedule, capping, temporary service scheduling, record of notices to customers and proposed roadway closings.
- C. CONTRACTOR shall submit copies of published notices.
- D. CONTRACTOR shall submit Record Drawings on CD and Mylar. When the As-BUILTS are delivered for clearance of water lines (two paper copies), they will be scheduled for chlorination. CITY will not release the drinking water bacteriological laboratory report to Volusia County Health Department until the As-built information meets CITY requirements. CONTRACTOR will have 60 days from the time the bacteriological samples are collected to submit the as-built Mylar and CD to CITY. Send the two paper copies for approval before making the Mylar. If CONTRACTOR goes past the 60 days, re-chlorination will be required and pay for the bacteriological laboratory report will be required. Below are minimum detail samples of how the As-built drawing information will need to be presented.
- E. These are examples of how to display and label valves, fittings, and pipes on the Drawings (include a location arrow going to the identified object):

20" GATE VALVE
STA. 22+33 (LT.55.0')
LAT. = 29°12'53.009"N

LONG. = 81°04'03.355"w
TOP ELEV. = 27.50
FINISH GROUND ELEV. = 30.50

Pipe Example:

20" DIP WATER MAIN
STA. 22+00 (RT.55.0')
LAT. = 29°12'50.009"N
LONG. = 81°04'26.355"W
TOP OF PIPE ELEV. = 27.50
FINISH GROUND ELEV. = 30.50

(All Bench Marks used must be shown on the Drawings)

Bench Mark Example:

BM#13
STA. 20+33 (LT. 85.5')
3/4" Iron Rod with Plastic Cap...
N = 1,774,373.4058
E = 634,602.7566
LAT. = 29°04'53.355" W
LONG. = 81°04'53.355" W
ELEV. = 32.55

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 GENERAL

- A. All drawings shall be prepared to True State Plane Coordinates. CONTRACTOR shall provide all materials, equipment, labor needed to prepare and submit accurate As-built/Record Drawings.
- B. It is acceptable to CITY if the surveyor utilizes an after the fact approach to collecting and verifying the location and depth by vertical PVC pipes placed by the CONTRACTOR as markers for this purpose. The surveyor shall verify to the accuracy defined in Florida Statutes the As-built conditions and certify the Record Drawings.
- C. CITY shall not be considered the best source of information for valve locations that may have been lost during final grading. The surveyor or CONTRACTOR shall excavate and properly mark all valve boxes and each valve shall have

a tag or color coded to define water, sewer or reuse water valves. The use of temporary PVC pipe markers color coded is acceptable so long as cross references are provided on the Record Drawings to prevent the tops from a water valve being placed on a sewer valve.

- D. THE CONTRACTOR SHALL PROVIDE THE UTILITIES DEPARTMENT ENGINEERING DIVISION THE FINAL AS-BUILT/RECORD DRAWINGS ON CD AND MYLARS. THE AS-BUILT RECORD DRAWINGS SHALL BE PREPARED USING AUTOCAD FORMAT 2010 OR LATER. IN MODEL SPACE THE DRAWING SHALL BE IN FL83-EF STATE PLANE COORDINATES AND SHALL BE ABLE TO BE INSERTED INTO THE CITY'S OVERALL GIS SYSTEM. THE RECORD DRAWINGS SHALL ALSO BE PRINTED ON MYLAR SIGNED AND SEALED AS ALLOWED BY STATE OF FLORIDA REGULATIONS. A DISCLAIMER MAY BE NOTED IN A TRANSMITTAL LETTER PLUS THE SURVEYOR MAY ADD A SPECIAL NOTICE ON EACH SHEET REGARDING THE LOCATION OF THE TRUE ORIGINAL RECORD DRAWINGS OR PLACE LIMITS ON RESPONSIBILITY SHOULD SOMEONE IN THE FUTURE NEED TO MODIFY THE MYLARS.
- E. Identify the source markers for the survey used for Record Drawings.

END OF SECTION

**SECTION 01760
SPARE PARTS AND MAINTENANCE MATERIALS**

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF REQUIREMENTS

- A. The CONTRACTOR shall be responsible for submitting all required spare parts and maintenance materials prior to the completion of the project.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The CONTRACTOR shall submit the required parts and materials that are described in the individual specification sections.

PART 3 – EXECUTION

3.1 PACKAGING

- A. All materials shall be submitted in separate containers/cartons which shall clearly indicate the specification section and the contents of the containers/cartons.

3.2 SUBMITTAL

- A. Submit to the CITY as soon as possible after receipt has been made by the CONTRACTOR. All spare parts shall be submitted to the CITY prior to the completion of the project.

END OF SECTION

DIVISION 2
SITE WORK

SECTION 02010
SUBSURFACE INVESTIGATION

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

- A. A soils investigation report has not been prepared for the site of this work.

1.2 QUALITY ASSURANCE

- A. Bidders should visit the site and acquaint themselves with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but all such investigations shall be performed under time schedules and arrangements approved in advance by the CITY.

PART 2 – PRODUCTS

(Not Applicable)

PART 3 – EXECUTION

(Not Applicable)

END OF SECTION

**SECTION 02110
CLEARING AND GRUBBING**

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. Traffic
 - 1. Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

- B. Protection:
 - 1. Provide temporary fences, barricades, coverings, or other protection to preserve existing items indicated to remain and to prevent injury or damage to persons or property. Provide protection for adjacent properties as required.
 - 2. Restore damaged work to condition existing prior to start of Work.
 - 3. Protect existing trees and vegetation that are indicated to remain from physical damage. Do not store materials or equipment within tree drip line. Use licensed arborist for tree damage repair. Replace damaged trees that cannot be restored to full growth, as determined by arborist, unless otherwise acceptable to the CITY.

- C. Existing Services: Locations indicated are approximate; determine exact location before commencing Work. Coordinate with local utility service requirements and comply with their instructions.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 GENERAL

- A. Site Clearing: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions as indicated or that interfere with new construction. Removal includes digging out stumps and roots, together with subsequent off-site disposal.

- B. Strip and stockpile topsoil that will be reused in the Work.

CLEARING AND GRUBBING

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ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT**

- C. Remove existing improvements, both above-grade and below-grade, to extent indicated or as otherwise required to permit new construction.
- D. Salvable Items: Carefully remove items indicated to be salvaged and store on CITY's premises where indicated or directed.
- E. Control air pollution caused by dust and dirt; comply with governing regulations.
- F. Fill depressions and voids resulting from site-clearing operations. Using satisfactory soil materials, place in maximum 6-inch-deep horizontal layers and compact each layer to density of surrounding original ground.
- G. Grade ground surface to conform to required contours and to provide surface drainage.
- H. Dispose of waste materials, including trash and debris, off CITY's property.
- I. Refer to Section 01010: Summary of Work, Section 1.3B, for instructions on the disposal of excess suitable fill material.
- J. Burning waste materials on site is not permitted.

END OF SECTION

**SECTION 02115
TREE PROTECTION**

PART 1 – GENERAL

1.1 TREE BARICADES

- A. A protective barrier shall be placed around all protected trees and palms prior to land preparation or construction activities within or adjacent to the work zone, including all staging and/or lay down areas. Protective barriers shall be installed as follows:
1. At or greater than the full dripline of all species of Cabbage Palms.
 2. At or greater than the full dripline of all protected native pine trees and other conifer species.
 3. At or greater than two-thirds of the dripline of all other protected species.
 4. At or greater than the full dripline of trees within a specimen tree stand.
- B. Protective barriers shall be constructed using no less than two-inch lumber for upright posts. Upright posts shall be at least four feet in length with a minimum of one foot anchored in the ground. Upright posts shall be placed at a maximum distance of eight feet apart. Horizontal rails shall be constructed using no less than one inch by four-inch lumber and shall be securely attached to the top of the upright post. The project City's representative must approve any variation from the above requirements.
- C. Whenever a protective barrier is required, it shall be in place until all construction activity is terminated. The area within the barrier limits shall remain undisturbed by any activity during construction. Native ground cover and understory vegetation existing within the barriers shall remain throughout construction. Exotic plant species may only be removed by manual labor utilizing hand tools or by other means if authorized in writing by the City's representative.
- D. Prior to the erection of any required protective barrier, all surface foreign material, trash or debris shall be removed from the area enclosed by the barrier, and after erection of the barrier no such material or litter shall be permitted to remain within the protected area. No equipment, chemicals, soil deposits or construction materials shall be placed within such protective barriers.
- E. No signs, building permits, wires, or other attachments of any kind shall be attached to any protected tree or palm.
- F. At all times, due care shall be taken to protect the critical root zone of trees protected by this section, and root pruning requirements shall apply to such trees.

1.2 ROOT PRUNING

- A. Conduits installed under the dripline shall be directionally drilled with a minimum depth of three (3) feet.
- B. Sidewalks under the dripline shall be four (4) inches thick.
- C. If roots are present beyond the limits of the directional drill, the following shall apply:
 - 1. Where proposed construction improvements involve excavation, sidewalk construction, conduit installation and/or impacts to the critical root zone of protected trees, the Contractor shall be required to have an International Society of Arboriculture (ISA) certified arborist perform, or directly supervise root pruning to reduce the impacts of construction. The critical root zone is equivalent to the tree's dripline. Prior to any clearing, grubbing or excavation activities, the affected roots must be severed by clean pruning cuts at the point where grubbing or excavation impacts the root system. Roots can be pruned utilizing specified root pruning equipment designed for that purpose or by hand digging a trench and pruning roots with a pruning saw, chain saw or other equipment designed for tree pruning. Root pruning by trenching equipment or excavation equipment is strictly prohibited. Roots located in the critical root zone that will be impacted by construction activities shall be pruned to a minimum depth of 18 inches below existing grade or to the depth of the proposed impact if less than 18 inches from existing grade.
 - 2. Root pruning shall only be performed by or under the direct supervision of an International Society of Arboriculture (ISA) certified arborist.
 - 3. Root pruning shall be performed using a Doscocil Root Cutting Machine or equivalent. Alternate equipment or techniques must be approved by the City's representative, prior to any work adjacent to trees to be preserved.
 - 4. Tree roots shall not be exposed to drying out. Root ends shall be covered with native soil or burlap and kept moist until final backfill or final grades has been established.

1.3 PROPER TREE PRUNING

- A. All tree pruning and/or root pruning on existing trees to remain shall only be performed by or under the direct supervision of an International Society of Arboriculture (ISA) certified arborist. Furthermore, all tree work shall conform to the American National Standards Institute (ANSI) 2001, American National Standard for tree care operations – Tree, Shrub and other Woody Plant Maintenance – Standard practices (pruning) ANSI A-300.

- B. Proper pruning techniques for all lateral branches of protected trees are required. Flush cuts (pruning cuts that remove the branch collar) and stub cuts (cuts that leave a stub on the tree) are improper techniques. Any protected tree that has been improperly pruned will not be recognized as a tree left on the project in a healthy growing condition, and will require replacement consistent with the current City Codes and Ordinances.
- C. No protected tree shall have more than 30 percent of its foliage removed.
- D. No protected tree shall be topped, hat raked or lion-tailed. Any protected tree that has been improperly pruned will not be recognized as a tree left on the project in a healthy growing condition, and will require replacement consistent with the current City Codes and Ordinances.
- E. Tree trunks and limbs shall be protected. The use of tree spikes or other devices that damage trunk and bark tissue on protected trees shall be prohibited. Any protected tree that has been damaged in such a manner will not be recognized as a tree left on the project in a healthy growing condition, and will require replacement consistent with the current City Codes and Ordinances.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

(Not Applicable, See General Conditions)

END OF SECTION

**SECTION 02202
TRENCHING, BACKFILLING AND COMPACTING**

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section includes the requirements for furnishing equipment, labor and materials, and performing all operations necessary and incidental to complete the required work.
- B. Payment for the work described in this Section shall be included in the unit prices for associated applicable items unless otherwise noted in the plans.

1.2 REFERENCES

- A. The requirements of the CITY Utility Department Standard Details, latest edition.
- B. The Florida Department of Environmental Protection Stormwater Erosion and Sedimentation Control Inspector’s Manual, latest edition.
- C. Section 01568: Erosion and Sedimentation Control.
- D. Section 02240: Dewatering (During Construction).

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Earth for Fill and Backfill: Earth used for fill or backfill shall be of such gradation and moisture content that it will compact to the specified density and remain stable.
- B. Pipe Cover Material: Pipe cover material shall consist of durable particles ranging in size from fine to coarse (No. 200 to 1-inch) in size, in a substantially uniform combination. Unwashed bank run sand and crushed bank-run gravel will be considered generally acceptable. Bedding material may be used for cover material.
- C. Special Backfill: Special backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines

D. Suitable Backfill: Suitable backfill shall be the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
GW	Well-graded gravels and gravel-sand mixtures, little or no fines
GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
SW	Well-graded sands and gravelly sands, little or no fines
SP	Poorly graded sands and gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures
ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

E. Unsuitable Materials: Materials which are unsuitable for backfill include stones greater than 6-inches in their largest dimension, pavement, rubbish, debris, wood, metal, plastic, and the following soils, classified by the Unified Soil Classification System, ASTM D-2487:

Group Symbols	Typical Name
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity
PT	Peat, muck, and other highly organic soils

- F. Materials which are unsuitable for backfill will be determined by the ENGINEER or on-site inspector.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. Clearing: The site of the work shall be cleared of all trees, shrubs, paving and objectionable material that interfere with the completion of the proposed work. The CONTRACTOR shall be responsible for the offsite disposal of all clearing debris. Trees and shrubs that will not interfere with construction shall be protected from damage. Clearing shall be considered as an incidental item of excavation unless otherwise noted in the Drawings.
- B. Excavation: Perform excavation of all soils and materials encountered to the dimensions and depths specified or shown on the Drawings as necessary to construct the associated applicable items of work. Undercutting will not be permitted, except when ordered by the CITY. Material suitable for backfill shall be stockpiled near the site. Rock and cemented coquina shall be the property of the CITY and be spoiled outside the area in a neat manner, as directed by the CITY. Other soils and materials unsuitable for backfill shall be disposed of by the CONTRACTOR in areas provided by him. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends or cuts to branches over 1/2” diameter shall be treated with an asphalt base pruning paint. Backfill over exposed roots as soon as possible.
- C. Rock and Cemented Coquina: Where rock and cemented coquina are encountered, the trench bed shall be excavated to a depth of 1/4 of the pipe diameter but in no case less than 4” below the bottom of the pipe. All undercut trench excavation

shall be backfilled with suitable materials and made firm and unyielding as specified in the following paragraphs under Unstable Soils and Materials.

D. Unsuitable Soils and Materials

1. In the event that unsuitable soils and material is encountered at or below the excavation depth specified or shown on the Drawings, the CITY shall be notified. Such material shall be removed, disposed of and replaced with suitable material. The CITY shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe or structure to be supported, and the availability and character of stabilizing materials.
2. Methods and materials used for replacement shall be one of the following as directed by the CITY in writing:
 - a. Suitable earth or sand compacted in the trench. Materials shall be furnished and paid for as a part of the pipe or structure bid item.
 - b. Gravel or crushed limerock compacted in the trench. Materials shall be furnished and paid for as part of the pipe or structure bid item.
 - c. Existing materials, stabilized after removal and then replaced and compacted in the trench and paid for as part of the pipe or structure bid item.

E. Trenching:

1. Keep pipe laying operations as close to the excavation operation as possible during the prosecution of the work. The CITY reserves the right to stop the excavation-at any time when, in its opinion, the excavation is not properly safe-guarded or is opened too far in advance of the pipe laying.
2. Pipe trenches shall be excavated to a depth that will insure a minimum of 36" of cover for all types of pipe, except service laterals. Trenches shall be only of sufficient width to provide a free working space on each side of the pipe. The maximum width of trench at the top of the pipe and at the bottom of the trench shall not be greater than two feet wider than the greatest exterior diameter of the pipe. If this maximum width is exceeded, it shall be the CONTRACTOR's responsibility to provide, at no additional cost to the CITY, such additional bedding or select backfill materials as the CITY may require. The excavation below the spring line shall be made to conform as near as possible to the shape of the lower third of the pipe. To protect the pipe lines from unusual stresses, all work shall be done in open trenches. Excavation shall be made for bells of all pipes and of sufficient depth to permit access to the joint for construction and

inspections. In no case will the bells be used to support the body of the pipe.

3. In order to avoid existing utilities, at times it may be necessary for the pipe to be laid deeper than the minimum cover specified in the preceding paragraph. At such time, the CONTRACTOR will not be allowed extra compensation for additional excavation involved.
4. In case excavation has been made deeper than necessary, a layer of concrete, fine gravel or other material satisfactory to the CITY shall be placed, at no extra cost, to secure a firm foundation for the lower third of each pipe. Where possible, excavated material shall be placed so as not to interfere with public travel. Bridging shall be provided for public travel and to afford necessary access to public or private premises. Bridging shall be considered as part of the excavation operation and shall be supplied at no additional cost to the CITY.

F. Structures Excavation: (For inlets, manholes, valve pits and similar structures)

1. Remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the Drawings, shall be considered as approximate only, and the CITY may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12" in the clear between their outer surfaces and the embankment or timber that may be used to protect them. Backfill of earth under structures will not be permitted. Excess excavation for structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the CONTRACTOR.
2. After excavation for a structure is completed, the CONTRACTOR shall notify the CITY to that effect. No concrete or reinforcing steel shall be placed until the CITY has inspected the depth of the excavation and the character of the foundation material. Materials for roadways, road shoulders, alleys, or driveways, shall be compacted to a minimum of 98% of the maximum density as determined by AASHTO Method T-180.

G. Sheeting and Shoring:

1. The CONTRACTOR shall provide all trench and structural bracing, sheeting or shoring necessary to construct and protect the excavation, existing utilities, structures and private property of all types and as required for the safety of the employees. Sheeting shall be removed or cut off by the CONTRACTOR during backfilling operations as directed by the CITY.
2. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces.

- H. Drainage: Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water that accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the CITY in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level suitable to a residential area. The CONTRACTOR will not be allowed to discharge water into the CITY's storm drainage system without the written approval of the CITY. Approval will be subject to the condition that the storm sewer be returned to its original conditions.
- I. Backfill:
1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipe line is provided. Clean earth, sand, crushed limerock, or other material approved by the CITY shall be used for backfill. Backfill material shall be selected, deposited and compacted so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in six (6) inch layers up to a level at least one foot above the top of the pipe. Backfilling shall be carried out simultaneously on both sides of the pipe.
 2. The remainder of the backfill shall be deposited and compacted by puddling water, flooding or mechanical tampers except in areas where paving is to be placed over the backfilled trench. In these areas, the entire depth of backfill shall be deposited in six (6) inch layers and compacted by hand or mechanical tampers. Rollers are to be operated in Static Mode only. Compaction shall be carried out to achieve a density of at least 98% of the maximum density as determined by ASSHTO Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to one foot over the pipe, as specified, provided the method is first approved by the CITY and the density requirements are met.
 3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300 feet of trench cut. Density tests shall be considered a part of the backfill operation. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately.
- J. Structures Backfill: After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, all forms shall be removed, and the excavation shall be cleared of all trash and debris.

Material for backfilling shall consist of the excavated materials, borrow sand or other approved materials, and shall be free of trash, lumber or other debris. Backfill shall be placed in horizontal layers not to exceed a nine (9) inch thickness and have a moisture content such that a density may be obtained to prevent excessive settlement or shrinkage. Each layer shall be compacted by hand or approved machine tampers with extreme care being exerted not to damage pipe or structures. Backfill shall be placed and compacted evenly against the exposed surfaces to prevent undue stress on any surface.

K. Restorations of Areas Disturbed by Construction:

1. All improvements and natural systems on public or private property which have been damaged, altered or removed during construction, shall be restored in accordance with the respective owner's permit requirements or CITY requirements to conditions equal to or better than conditions existing prior to beginning work unless otherwise noted in the Drawings. Restoration of shoulders shall consist of stabilizing, grading and sodding as directed by the CITY. The cost of doing this work shall be included in the cost of the various applicable items unless otherwise directed in the Drawings. Snapshots as specified in Section 01200: Project Meetings and Video, will be used as an aid in determining conditions prior to construction.
2. Materials for roadways, road shoulders, alleys, or driveways, shall be compacted to a minimum of 98% of the maximum density as determined by ASSHTO Method T-180. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no separate payment will be made unless a separate bid item is provided.

L. Fine Grading:

1. The CONTRACTOR shall within a maximum of two (2) weeks from date of excavation, grade existing surfaces disturbed by construction to provide surfaces suitable for proper use of moving machines.
2. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours shown on the drawings. Lumber, earth clods, rocks and other undesirable materials shall be removed from the site.

- M. Disposal of Materials: Such portions of the excavated soils and materials as needed and as suitable shall be used for backfilling and grading around the completed work to the elevations as shown on the Drawings or as directed. Unsuitable soils and materials shall belong to the CONTRACTOR and be disposed of by the CONTRACTOR in areas provided by the CONTRACTOR.

Excess suitable soils shall belong to the CITY and shall be stockpiled at the location stated in Section 01010: Summary of Work.

- N. Sediment, Erosion and Dust Control: It shall be the responsibility of the CONTRACTOR to take all necessary steps to prevent soil from eroding onto all paved areas and into all natural watercourses, ditches, private properties and the public sewer systems. Streets and haul roads shall be swept by an automatic, self-contained mechanical sweeper. Prevent air and water pollution through dust and dirt control to the satisfaction of the CITY in the following areas:
1. Streets, sidewalks and drives within the limits of the contract and all construction material stockpile and field office site locations.
 2. Any haul roads leading to or away from the project that are used by the CONTRACTOR, his sub-contractors and his material suppliers.
- O. The CONTRACTOR shall comply with the above requirements on a daily basis. If the CONTRACTOR fails to perform the above work in a satisfactory manner, all work, except cleanup operations, will be stopped immediately until the CONTRACTOR has complied with the above requirements to the satisfaction of the CITY.
- P. Cleanup: Debris and waste materials shall be removed from the site as work progresses.

END OF SECTION

**SECTION 02240
DEWATERING (DURING CONSTRUCTION)**

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

- A. Scope of Work: The work to be performed under this Section shall include the design and installation of a temporary wellpoint system to dewater subsurface waters as required. The system shall remain in place until completion of construction.

- B. Related Work Described Elsewhere:
 - 1. Section 01300: Submittals
 - 2. Section 01340: Shop Drawings Procedures
 - 3. Section 02202: Trenching, Backfilling and Compacting

1.2 QUALITY ASSURANCE

- A. Qualifications
 - 1. The temporary dewatering system shall be designed by a firm who regularly engages in the design of dewatering systems and who is fully experienced, reputable and qualified in the design of such dewatering systems. The firm shall have a successful record of operation for a minimum of five (5) years prior to bid date.
 - 2. In lieu of experience, the dewatering firm shall provide a performance and warranty bond for 1.5 times the total installed cost of the temporary dewatering system. This bond shall be executed prior to award and/or contract execution.

- B. Standards: The dewatering of any excavation areas and the disposal of water during construction shall be in strict accordance with all local and state government rules and regulations.

- C. Permits: CONTRACTOR shall be required to obtain and pay for all local and state permits required for installation and operation of the dewatering system and for disposal of water discharged from the dewatering system. CONTRACTOR shall obtain and pay for St. Johns River Water Management District (SJRWMD) permit for project, if required.

1.3 SUBMITTALS

- A. Materials and Shop Drawings: Shop drawings required to establish compliance with the specifications shall be submitted in accordance with the provisions of Section 01300: Submittals, and Section 01340: Shop Drawing Procedures. Submittals shall include at minimum the following:
 - 1. Design notes and drawings.
 - 2. Descriptive literature of the temporary dewatering system.
 - 3. Layout of all piping involved.
 - 4. Bill of materials.

1.4 CRITERIA

- A. The wellpoint system shall be developed to the point that is capable of dewatering such that pipe can be laid and compacted satisfactorily as shown on the Drawings. Each wellpoint system shall be capable of dewatering and maintaining groundwater levels at the respective structures.
- B. Groundwater shall be lowered to be a minimum of 30 inches below the bottom of the pipeline trench.

PART 2 – PRODUCTS

2.1 GENERAL

- A. The equipment specified herein shall be standard wellpoint dewatering equipment of proven ability as designed and manufactured by firms having experience in the design and production of such equipment. The equipment furnished shall be designed, constructed and installed in accordance with the best practices and methods and be sound attenuated for quiet performance.
- B. The use of wrapped underdrains or “socks” for dewatering shall not be allowed unless approval is obtained by the CITY.
- C. The CONTRACTOR shall be required to monitor the performance of the dewatering system during the progress of the work and require such modifications as may be required to assure that the systems will perform satisfactorily. Dewatering system shall be designed in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils and to preserve the integrity of adjacent structures.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Dewatering: The CONTRACTOR shall install a temporary wellpoint dewatering system for the removal of subsurface water encountered during construction of the proposed structures and/or piping.

3.2 PROTECTION AND SITE CLEAN-UP

- A. At all times during the progress of the Work the CONTRACTOR shall use all reasonable precautions to prevent either tampering with the wellpoints or the entrance of foreign material.
- B. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the CONTRACTOR shall obtain the CITY/ENGINEER'S approval of wet trench.
- C. Immediately upon completion of the wellpoint system, the CONTRACTOR shall remove all of his equipment, materials, and supplies from the site of the work, remove all surplus materials and debris, fill in all holes or excavations, and grade the site to elevations of the surface levels which existed before work started. The site shall be thoroughly cleaned and approved by the CITY/ENGINEER.

3.3 DISPOSAL

- A. Water pumped from the trench or other excavation shall be disposed of in storm sewers having adequate capacity, canals or suitable disposal pits, provided that the CONTRACTOR has permission to do so from the CITY of the system or the property.
- B. CONTRACTOR is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the operation.
- C. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the CONTRACTOR'S plan for trench disposal is approved in writing by the CITY/ENGINEER. The CONTRACTOR'S plan shall include temporary culverts, barricades and other protective measures to prevent damage to property or injury to any person or persons.
- D. No flooding of streets, roadways, driveways or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential type mufflers. Where practical and feasible, electrical "drops" should be used in lieu of portable generators.

END OF SECTION

DEWATERING (DURING CONSTRUCTION)

**02240-3 of 3
ISSUED FOR BID**

**DR. MARTIN LUTHER KING, JR. BOULEVARD
ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT**

**SECTION 02500
PAVING**

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

- A. This Section provides paving requirements (by reference) and base and curbing requirements for the roadway resurfacing project.

1.2 QUALITY ASSURANCE

- A. CONTRACTOR shall be responsible for employing an independent testing laboratory to prepare required design mixes and to monitor his quality control procedures. CONTRACTOR shall be responsible for all asphalt plant testing.
- B. CONTRACTOR shall provide a certificate that all materials and workmanship provided by him conform to Contract Requirements.
- C. CITY will retain an independent testing laboratory to field verify quality of materials used in paving work.
- D. Where the “Standard Specifications” require that materials be from a source approved by the Department of Transportation, CONTRACTOR may provide proof of such source approval or he may employ an independent testing laboratory to perform necessary sampling and testing and to certify that all source meets requirements for Department approval.

1.3 REFERENCE STANDARDS

- A. The “Standard Specifications” referred to in this Section are the Florida Department of Transportation, Standard Specifications for Road and Bridge Construction. Those paragraphs in the “Standard Specifications” referring to Measurement and Payment are not applicable to work under this contract.
- B. References to AASHTO shall mean the American Association of State Highway and Transportation Officials.

1.4 SUBMITTALS

- A. Submit Certificate of Compliance with specified requirements in duplicate for CITY’s and ENGINEER’s file.

- B. Design mixes, complete with back-up data, shall be submitted before paving begins in quadruplicate for use by CITY, ENGINEER, Quality Control Laboratory and field inspector.

1.5 JOB CONDITIONS

- A. Alignment and Elevations: Establish and maintain alignment and elevations as shown or specified.
- B. Weather Limitations: Conform to weather limitations specified for each component of the paving system.

PART 2 – PRODUCTS

2.1 STABILIZED SUBGRADE

- A. Materials for use in constructing the stabilized subgrade shall conform to the requirements of Section 160 of the “Standard Specifications”, latest Edition.

2.2 MATERIALS FOR FLOWABLE FILL

- A. Materials for flowable fill shall conform to the requirements of Section 121 of the “Standard Specifications”, latest Edition.

2.3 MATERIALS FOR LIMEROCK BASE COURSE

- A. Limerock materials for the construction of base courses shall conform to the requirements of Section 230 of the “Standard Specifications”, latest Edition.

2.4 MATERIALS FOR GRADED AGGREGATE BASE COURSE

- A. Materials for graded aggregate base (in the form of recycled concrete) shall conform to the requirements of Section 204 of the “Standard Specifications”, latest Edition.

2.5 MATERIALS FOR ASPHALT BASE COURSE

- A. Materials for asphalt base course (ABC-1) shall conform to the requirements of Section 234 of the “Standard Specifications”, latest Edition.

2.6 MATERIALS FOR ASPHALTIC CONCRETE MIXTURES

- A. Materials for use in asphaltic concrete mixtures, Superpave 12.5, shall conform to the requirements listed in “Standard Specifications”, Section 334.

- B. The use of recycled asphaltic concrete will not be allowed for any purpose without written permission of the ENGINEER.
- C. CONTRACTOR shall employ an independent testing laboratory to test materials and prepare a design mix for the type of mix to be used on the project and to monitor plant asphalt production for quality control, as specified by OWNER.
- D. The asphaltic concrete manufacturing plant, used for the asphaltic concrete mixture, shall be a maximum of fifty (50) miles from the project site.

2.7 MATERIALS FOR PRIME AND TACK COATS FOR BASE COURSES

- A. Materials used for prime and tack coats shall conform to the requirements of Section 300 of the “Standard Specifications”, latest Edition.

2.8 CONCRETE CURB AND CURB AND GUTTER

- A. Concrete for use in concrete curb and curb and gutter shall be non-structural concrete conforming to the requirements of Section 520 of the “Standard Specifications”, latest Edition.

2.9 MILLING

- A. Milling of existing asphalt pavement shall comply with Section 327 of the “Standard Specifications”, latest Edition.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine areas where pavements are to be constructed. Ensure that clearing and grubbing has been satisfactorily completed. Verify that subgrade has been constructed to proper elevations and that fill in embankment has been properly compacted.

3.2 STABILIZED SUBGRADE

- A. The stabilized subgrade shall be constructed in accordance with the requirements of Section 160 of the “Standard Specifications”, latest Edition, for a Type B Stabilized Subgrade.
- B. At least 3 inches (loose measurement) of a suitable commercial or local stabilizing material, as described in the “Standard Specifications”, Section 914, shall be mixed into the subgrade for stabilization in accordance with the “Standard Specifications”, Sections 160-1, 3 and 8. The Limerock Bearing Ratio (LBR) shall

be 40. Density tests will be paid for by the CITY except that all retests required due to failure to meet specifications shall be paid for by the CONTRACTOR.

- C. After the subgrade has been prepared, it shall be kept free from ruts, depressions and any damage resulting from the hauling or handling of tools and equipment.

3.3 FLOWABLE FILL

- A. Flowable fill shall be constructed in accordance with the requirements shown in Section 121-5 of the “Standard Specifications”, latest Edition.

3.4 LIMEROCK BASE COURSE

- A. Limerock base course shall be constructed in accordance with the requirements of and to the tolerances shown in Section 200-3 through 200-10 of the “Standard Specifications”, latest Edition.

3.5 GRADED AGGREGATE BASE COURSE

- A. Graded aggregate base shall be constructed in accordance with the requirements shown in Section 204-5 through 204-10 of the “Standard Specifications”, latest Edition.

3.6 MATERIALS FOR ASPHALT BASE COURSE

- A. Asphalt base course (ABC-1) shall be constructed in accordance with the requirements of Section 280-8 of the “Standard Specifications”, latest Edition.

3.7 ASPHALTIC CONCRETE PAVING

- A. Asphaltic concrete mixtures for use in leveling and surface courses shall be prepared, placed, compacted and finished in compliance with Section 330 of the “Standard Specifications”, latest Edition.

3.8 PRIME AND TACK COATS

- A. Equipment for application, preparation of surfaces, weather limitations, methods and rates of application shall conform to the requirements of section 300-3 through 300-7 of the “Standard Specifications”, latest Edition.

3.9 CONCRETE CURB AND CURB AND GUTTER

- A. Concrete curb and curb and gutter shall be constructed in compliance with the requirements of Section 520 of the “Standard Specifications”, latest Edition.

3.10 STREET RECONSTRUCTION

- A. Where street reconstruction is indicated on the Drawings it shall require complete removal of street surface and base and replacement with materials to the limits shown on the Drawings. If existing base and surface contain strips of concrete or asphaltic base used in prior street repairs, these materials shall be completely removed and disposed of by the CONTRACTOR. Where curb and gutter removal is called for on the Drawings, complete removal and disposal shall be accomplished by the CONTRACTOR.
- B. After removal of base material the subgrade shall be tested for bearing value as specified. If the subgrade does not have adequate bearing value it shall be stabilized in accordance with Section 160 of the “Standard Specifications”, latest Edition.

END OF SECTION

**SECTION 02580
ROADWAY AND PAVEMENT MARKING**

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

- A. This Section includes roadway and parking marking as shown on the Drawings and as specified.

1.2 QUALITY ASSURANCE

- A. Standards
1. Materials and workmanship shall conform to the requirements of the following:
 - a. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest edition, hereinafter called the Standard Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Lane Marking Paint
1. Painted pavement markings in accordance with Section 710 of the Standard Specifications.
 2. Thermoplastic traffic stripes in accordance with Section 711 of the Standard Specifications.
 3. Color: White or Yellow as required.
- B. Reflective Paving Markers: Reflective pavement markers shall conform to the requirements of Section 706 of the Standard Specifications.

PART 3 – EXECUTION

3.1 MARKING TRAFFIC STRIPES

- A. Cleaning: Sweep and clean the surface to eliminate loose material and dust.
- B. Application
1. Temporary Pavement: Apply paint in accordance with the Drawings and Section 710 of the Standard Specifications.

2. Final surface Course Pavement: Apply striping in accordance with the Drawings and Section 711 of the Standard Specifications.
 3. Stop Bars: Stop bars shall be provided at all “stop” intersections, as directed in the project manual. Replace all traffic striping to match existing stripes, including sidewalk crossing striping.
- C. Width of Stripe: Unless otherwise shown or directed by the ENGINEER, stripes shall be 6 inches wide; stop bars shall be 24 inches wide, and sidewalk striping shall match existing width.

3.2 REFLECTIVE PAVEMENT MARKERS

- A. Reflective pavement markers shall be installed in accordance with the plans and Section 706 of the Standard Specifications. Reflective markers shall be considered an integral part of Roadway Striping and no separate payment to the CONTRACTOR will be made.

END OF SECTION

SECTION 02605 MANHOLES

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

- A. This Section includes furnishing and installing manholes as shown on the Drawings and as specified.

1.2 QUALITY ASSURANCE

- A. All materials shall be tested for conformance with the specified standards. Reports of tests performed by the Manufacturer or by an independent laboratory shall be furnished with each shipment.
- B. Standards: Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest edition, hereafter called the Standard Specifications; City of Daytona Beach, Standard Details, latest edition.

PART 2 – PRODUCTS

2.1 MANHOLES

- A. Precast Concrete: Precast manholes shall be composed of precast reinforced concrete bases, risers, grade rings, and tops which have been designed and fabricated in accordance with the requirements of ASTM C 478, with the exception that wall thickness shall be eight (8) inches. Materials used in fabrication shall conform to the requirements of the Standard Specifications and the City of Daytona Beach Standard Details. Cement used in construction of precast manhole components shall be Type II Portland cement conforming to the requirements of ASTM C150.
- B. Joint Material:
 - 1. Joint material for use between precast manhole sections shall be cold adhesive preformed plastic gaskets conforming to the requirements of Section 942, Pipe Gaskets, of the Standard Specifications.
 - 2. Pipe manufacturer shall provide connection detail for connecting pipe to manhole. Materials for connection shall be provided with pipe. Pipe connection shall be “Kor-N-Seal” rubber boot type connection, or equal.

- C. Brick (for leveling courses): Brick for construction of manholes shall be solid conforming to the requirements of ASTM C-32, Grade MS or to the requirements of Federal Specification SS-B-656.
- D. Mortar:
 - 1. Mortar for manhole construction shall consist of one part Type II Portland cement and two parts of fine sand with water added for proper consistency. Lime shall not be used in mortar for manholes.
 - 2. Portland cement for use in mortar and grout shall conform to the requirements of ASTM C150, Type II.
 - 3. Sand for use in mortar and grout shall conform to the requirements of ASTM C144.
- E. Manhole Frames and Covers: Manhole frames and covers shall be gray iron castings conforming to the dimensions shown or equivalent foundry patterns. All mating surfaces shall be machined to prevent rocking or rattling of frames and covers. Castings shall be free of cracks, blow holes or swells and shall have a smooth and workmanlike finish. Castings shall conform to the requirements of ASTM A48. Manhole covers shall be of the concealed pickhole design and shall have the use of the line on which it is installed cast in the cover. Manhole frame and cover shall be U.S. Foundry No. 170, or equal.
- F. Coating Materials: Coatings shall follow the requirements stated in the detail Drawings.

PART 3 – EXECUTION

3.1 MANHOLE CONSTRUCTION

- A. Manholes Shall Be Precast Units
 - 1. Precast manholes shall consist of a base unit with opening for the sewer pipe, riser units of various lengths to build the manholes up to the required depth and either concentric cones or eccentric cones providing the support of the manhole ring and cover. The minimum length of the support riser shall be 12-inches. Any modifications necessary to adapt the units to conform to the locations and grades shown or required shall be made without additional compensation.
 - 2. For precast manholes, the base shall be set on a pad of #57 rock to the dimensions shown on the detail Drawings.
 - 3. The top of the cone shall be set between 2-1/2-inches and 12-inches below the bottom of the manhole cover frame so as to provide a minimum of 2-1/2-inches to accommodate future grade changes.

- B. Invert Channels: Invert channels shall be constructed smooth and semicircular in shape conforming to inside of adjacent sewer section. Changes in direction of flow shall be made in a smooth curve of as large a radius as practicable. Changes in size and grade of channels shall be made gradually and evenly. Invert channels shall be formed by one of the following methods: form directly into concrete manhole base, build-up with brick and mortar, lay half tile in concrete or lay full section of sewer pipe through manhole and break out top half. The manhole floor outside of channels shall be made smooth and sloped toward channels.
- C. Free Drop: Free drop in manholes from inlet pipe invert to top of floor outside the channels shall not exceed thirty inches, and standard drop inlets shall be constructed of commercial pipe, fittings and specials in accordance with the details shown wherever free drop exceeds thirty inches unless otherwise shown or directed.
- D. Manhole Frames and Covers: Manhole frames and covers shall be set in a full bed of mortar with the top of the cover flush with or higher than finished grade as directed. Covers shall be stamped "Sewer". Manhole covers shall comply with the City of Daytona Beach Standard Detail for manhole covers.
- E. Steps: Manhole steps shall not be provided.
- F. Interior and Exterior Coatings:
 - 1. Interior surfaces of manholes shall be coated according to the detail Drawings.
 - 2. The exterior of manholes shall be coated according to the detail Drawings.
- G. Connections to Existing Manholes: Pipe connections to existing manholes shall be made so that finished work will conform as nearly as possible to essential requirements for new manhole construction as specified above.

END OF SECTION

SECTION 02611
REINFORCED CONCRETE PIPE FOR GRAVITY SERVICE

PART 1- GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. This Section includes furnishing and installing Reinforced Concrete Pipe for gravity service as shown on the Drawings and as specified.

1.2 HANDLING AND STORAGE

- A. Pipe, fittings, and accessories shall be loaded and unloaded by lifting with hoists or skidding in order to avoid shock or damage. Under no circumstances shall such material 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 internal lining of the pipes.
- B. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings, and other appurtenances shall be kept free from dirt or foreign matter at all times.
- C. Gaskets for joints shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.
- D. Inspection: Pipe and appurtenances shall be inspected at the point of delivery. Material found to be defective due to manufacture or damage in shipment shall be rejected. Tests as specified in the applicable material standard may be performed to ensure conformance with the standard.

PART 2- MATERIALS AND EQUIPMENT

2.1 CIRCULAR PIPE

- A. Pipe shall be cast vibrated, machine-made or flatbed concrete pipe that is designed, manufactured, cured, tested and marked in accordance with the requirements of ASTM Designation C-76. Pipe shall be equivalent to Class III, IV or V, Wall B or C of the proper strength for the depth of cover required. Pipe shall be manufactured in lengths no longer than 16-feet or shorter than 8-feet, except that shorter lengths as required at closures or junctions of structures will be permitted. Pipe with elliptical reinforcing shall be adequately marked to prevent improper placement in the trench. Lift holes or eyes may be provided in each pipe for the purpose of handling.

REINFORCED CONCRETE PIPE FOR GRAVITY SERVICE

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ROADWAY & PEDESTRIAN IMPROVEMENTS PROJECT

- B. Joints shall be of either a bell and spigot or double spigot and sleeve design using round rubber gaskets. The joint shall be so designed and fabricated that when the pipe is laid it shall be self-centering, and when the joint is completed, the gasket will be enclosed on all four surfaces. The gasket shall not be required to support the weight of the pipe, but shall keep the joint tight under all normal conditions of service, including expansion, contraction and earth settlement.
- C. Joints and gaskets shall conform to the requirements of ASTM C443.

2.2 ELLIPTICAL PIPE

- A. Pipe shall be cast vibrated, machine made or flatbed elliptically shaped concrete pipe designed, manufactured, cured, tested and marked in accordance with ASTM C507.
- B. Pipe shall be of the proper strength for the depth of cover involved and shall be manufactured in lengths not longer than 16 feet nor shorter than 8 feet, except that shorter lengths as required at closures or junctions with structures will be permitted.
- C. Pipe designed for placement with the major axis horizontal shall be designated as "Vertical Elliptical" and shall be so marked.
- D. Joints for elliptical pipe shall be cold adhesive, preformed plastic gaskets conforming to Standard Specifications for Road and Bridge Construction of Florida Department of Transportation, Section 942, paragraph 942-2.

PART 3- EXECUTION

3.1 UNDERGROUND STRUCTURES AND CONFLICTS

- A. Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care shall be exercised to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of work and interfere so that an alteration of the plans is required, the CITY/ENGINEER will alter the drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions.
- B. When crossing existing pipelines or other structure, alignment and grade shall be adjusted as necessary, with the approval of the CITY/ENGINEER to provide clearance as required by federal, state or local regulations or as deemed necessary by the CITY/ENGINEER to prevent future damage or contamination of either structure.

3.2 ALIGNMENT AND GRADE

- A. The pipelines shall be laid and maintained to the lines and grades established by the drawings and specifications, with manholes, service connections, fittings, and appurtenances at the required locations unless otherwise approved by the CITY/ENGINEER. All concrete pipe joints shall be wrapped with filter fabric.

3.3 TRENCH CONSTRUCTION

- A. The trench shall be excavated to the required alignment, depth, and width. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified. Trenches shall be of such extra width, when required, to permit the placement of timber supports, sheeting, bracing and appurtenances.
- B. Holes for the bells shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.
- C. When excavation of rock is encountered all rock shall be removed to provide a clearance of at least 6-inches below and on each side of all pipe for pipe sizes 24-inches or smaller, and 9-inches for pipe sizes 30-inches and larger. When excavation is completed, a bed of sand, crushed stone or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the previously mentioned depths, leveled, and tamped. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris or subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation. This installation procedure shall be followed when gravel formation containing loose boulders greater than 8-inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point or rock, boulder, and stones of sufficient size and placement which, in the opinion of the CITY/ENGINEER could cause a fulcrum point.
- D. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.

- E. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 3-inches, or to the depth ordered by the CITY/ENGINEER and replaced under the directions of the CITY/ENGINEER with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
- F. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the CITY/ENGINEER, it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the CITY/ENGINEER.
- G. Pipe cutting for the insertion of fittings, or closure pieces shall be done in neat, workmanlike manner without creating damage to the pipe or lining.

3.4 TESTING

- A. After completion of installation, perform testing for gravity sewers in accordance with requirements of Section 02661: Pressure Testing of Piping.

END OF SECTION

SECTION 02616
DUCTILE IRON PIPE AND FITTINGS FOR PRESSURE SERVICE

PART 1 – GENERAL REQUIREMENTS

1.1 SCOPE OF WORK

- A. This Section includes furnishing and installing buried pressure piping systems.

1.2 QUALITY ASSURANCE

- A. Pipe fittings and components shall be manufactured in the USA in accordance with the listed standards and requirements of this specification.

1.3 SUBMITTALS

- A. The CONTRACTOR shall submit shop drawings as required in Section 01340: Shop Drawing Procedures.

1.4 HANDLING AND STORAGE

- A. All pipe, fittings, and accessories shall be loaded and unloaded by lifting with hoists or skidding in order to avoid shock or damage. Under no circumstances shall such material 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 internal lining of the pipes.
- B. Materials, if stored, shall be kept safe from damage. Pipe to be used for potable water service shall be stored so as to prevent contamination by animals and their wastes. The interior of all pipe and fittings shall be kept free from dirt or foreign matter at all times.
- C. Pipe shall not be stacked higher than the limits shown in the tables in AWWA C600. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe in tiers shall be alternated: bell, plain end, bell, plain end.
- D. At least two rows of 4-inch x 4-inch timbers shall be placed between tiers and chocks affixed to each end in order to prevent movement.
- E. Gaskets for joints shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis. Joint bolts shall be handled and stored in a manner that will ensure proper use with respect to types and sizes.

PART 2 – MATERIALS AND EQUIPMENT

2.1 DUCTILE-IRON PIPE

- A. Pipe for Trench Installation: Pipe for pressure service to be installed in trenches shall be ductile-iron designed in accordance with ANSI/AWWA C150/A21.50. Pipe shall conform to the requirements of ANSI/AWWA C151/A21.51. Pipe shall have push-on joints conforming to the requirements of ANSI/AWWA C111/A21.15. Pipe Pressure Class and Trench Type shall conform to the following:

BURIED DUCTILE-IRON PIPING		
	Pipe Size (in.)	Pressure Class
Water	3-12	350
	14 and greater	350
Sanitary	3-24	350
	30 and greater	250

- B. Pipe for Installation on Supports: Pipe for pressure service to be installed on supports shall be flanged ductile-iron piping conforming to the requirements of ANSI/AWWA C115/A21.15 with a minimum thickness of Class 53. Flanges shall be ductile-iron.

2.2 FITTINGS

- A. Fittings 3-inch through 48-inch diameter shall be mechanical joint ductile-iron compact fittings conforming to the requirements of ANSI/AWWA C153/A21.53. Cast iron fittings above 48-inch or which there is not a compact fitting available, shall conform to the requirements of ANSI/AWWA C110/A21.10.
- B. Fittings shall be provided with joints suitable for use with the pipe with which they are to be installed.

2.3 RESTRAINED JOINTS

- A. Restrained Joints: Restrained joints shall be of the essentially boltless type which rely on metal lugs, rotating retainer rings, or stainless steel gaskets for joint restraint. All welded retainer rings shall be factory installed. Generally joints shall be of the type which can be removed without damage to the joint if necessary to separate the joint after the initial installation. Stainless steel gasket type insert type shall be limited to locations not normally subjected to possible joint separation. A restrained joint shall be installed on each side of all buried valves. The length of restrained joints shall be as detailed on the Drawings. Ductile-iron retainer glands shall not be accepted.

- B. Restrained joints connecting ductile-iron pipe to ductile-iron pipe or fittings shall be Megalug Joint Restraint as manufactured by EBBA Iron, Inc. or equal.

2.4 GASKETS

- A. Gaskets for use with mechanical or push-on joints shall conform to the requirements of ANSI/AWWA C111/A21.11.
- B. Gaskets for use with flanged joints shall be of rubber, either ring or full-face, 1/8 inch thick and shall conform to the dimensions shown in the Appendix to ANSI/AWWA C115/A21.15.

2.5 BOLTS AND NUTS

- A. Bolts and nuts for use with flanged joints shall be hex-head conforming to the requirements of ANSI B18.2.1 and B18.2.2.
- B. Bolts for use with mechanical joints shall be tee-head bolts with hexagonal nuts conforming to the requirements of ANSI/AWWA C111/A21.11.

2.6 COATINGS

- A. Coatings: Pipe and fittings which are to be buried or installed in concealed locations shall have a bituminous coating approximately 1 mil thick applied to the outside. The finished coating shall be continuous, smooth, neither brittle when cold nor sticky when exposed to the sun and shall be strongly adherent to the pipe.
- B. Identification Painting of Reuse Pipe
 - 1. Exterior of Ductile Iron Pipe for reuse applications shall be painted purple. Paint shall completely cover the exterior of pipe. Purple striping is not acceptable.
 - 2. Pipe and fittings in interior or exposed locations which are to be painted shall be furnished with no exterior coating or with a primer coat which will be compatible with the finish coat to be applied.

2.7 INTERIOR LININGS

- A. Potable Water or Effluent Reuse Service
 - 1. Cement Mortar Lining: Pipe and fittings which are to be used for potable water service or effluent reuse water service shall have a cement mortar lining conforming to the requirements of ANSI / AWWA C104 / A21.4.

2.8 POLYETHYLENE ENCASUREMENT

- A. Polyethylene encasement shall be used on all ductile iron pipe. It shall be tube or flat sheet type conforming to the requirements of ANSI / AWWA C105 / A21.5. Polyethylene encasement tube shall conform to the following color schematic.
- B. In addition to encasement, ductile iron pipe for reuse shall be fully painted as per paragraph 2.6 of this specification section.

Reuse Water Service	Purple
Potable Water	Blue
Sanitary Sewer Service	Green

PART 3 – EXECUTION

3.01 INSPECTION

- A. Inspect for defects, damage, dirt and debris in pipe. Clean if necessary. Discard and remove defective materials. Reject materials found unsatisfactory.

3.02 TRENCH CONSTRUCTION

- A. Excavation: Excavate trenches as specified in Section 02202.
- B. Alignment and Grade: Lay pipelines to lines and grades established by Drawings and Specifications, with fittings and valves at the required locations unless otherwise approved by the CITY/ENGINEER. Valve-operating stems shall be oriented to allow proper operation.
- C. Underground Conflicts: Prior to excavation, investigate to the extent necessary to determine the location of existing underground structures and conflicts. Exercise care to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of the work and interfere so that an alteration of the Drawings is required, the CITY/ENGINEER will alter the Drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the CITY/ENGINEER, to provide clearance as required by federal, state, or local regulations or as deemed necessary by the CITY/ENGINEER to prevent future damage or contamination of either structure.
- D. Trench Preparation:
 - 1. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench

- at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified.
2. Holes for the bells shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that slight depressions may be provided to allow withdrawal of pipe slings or other lifting tackle.
 3. When excavation of rock is encountered, all rock shall be removed to provide a clearance of at least 6 inches below and on each side of all pipe, valves, and fittings for pipe sizes 24-inches or smaller, and 9-inches for pipe 30-inches and larger. When excavation is completed, a bed of sand, crushed stone or earth that is free from stones, large clods, or frozen earth shall be placed on the bottom of the trench to the previously mentioned depths, leveled, and tamped. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris or subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation.
 4. This installation procedure shall be followed when gravel formations containing loose boulders greater than 8-inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point of rock, boulder, or stones of sufficient size and placement which, in the opinion of the CITY/ENGINEER could cause fulcrum point.
 5. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.
 6. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 3-inches, or to the depth ordered by the CITY/ENGINEER and replaced under the directions of the CITY/ENGINEER with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
 7. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the CITY/ENGINEER, it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the CITY/ENGINEER.

3.03 PIPE INSTALLATION

- A. Provide and use proper implements, tools, and facilities for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be lowered carefully into the trench by means of a derrick, ropes, or other suitable tools or equipment in such a manner as to prevent damage to pipeline material and protective coatings and linings. Under no circumstances shall pipeline materials be dropped off or dumped into the trench. Dewater trench prior to installation of the pipe.
- B. Examine all pipe fittings, valves, and other appurtenances carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the CITY/ENGINEER who may prescribe corrective repairs or reject the materials.
- C. Remove all lumps, blisters, and excess coating from the socket and plain ends of each pipe. Wipe the outside of the plain end and the inside of the bell clean, dry and free from dirt, sand, grit, or any foreign material before the pipe is laid.
- D. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.
- E. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
- F. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the CITY/ENGINEER. When practical, the plug shall remain in place until the trench is pumped completely dry. Care shall be taken to prevent pipe flotation should the trench fill with water.
- G. Trench width at the top of pipe, bedding conditions, and backfill placement and compaction shall be such that design loadings on the pipe will not be exceeded.
- H. Joint Assembly: Pipe joints shall be assembled in accordance with the Manufacturer's instructions and the requirements of ANSI/AWWA C600.
- I. Pipe Deflection: When it is necessary to deflect pipe from a straight line in either the vertical or horizontal plane, or where long radius curves are permitted, the amount of deflection shall not exceed that shown in ANSI/AWWA C600.
- J. Pipe Cutting: Cutting pipe for the insertion of valves, fittings, or closure pieces shall be done in a neat, workmanlike manner without creating damage to the pipe or lining. Ductile cast iron may be cut using an abrasive pipe saw, rotary wheel

cutter, guillotine pipe saw, milling wheel saw, or oxyacetylene torch. Cut ends and rough edges shall be ground smooth and for push-on joint connections, the cut end shall be beveled.

- K. Restrained Joints: All plugs, caps, tees and bends shall be suitably restrained by restrained joints as specified.
- L. Thrust Restraint Design Pressure: Thrust restraint design pressure shall be equal to 1.5 times the design pressure of the line or 150 psi, whichever is greater.

3.04 TESTING

- A. Test completed piping system in accordance with the requirements of Section 02661: Pressure Testing of Piping.

END OF SECTION

SECTION 02622
PLASTIC PIPE FOR GRAVITY SERVICE

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. This Section includes furnishing and installing Plastic Pipe and Fittings for gravity service as shown on the Drawings and as specified.

1.2 REFERENCES

- A. The CITY's Utility Department standard Details, latest Edition, shall apply.

1.3 SUBMITTALS

- A. Submit three (3) sets of manufacturer's specifications for pipe and fittings.

1.4 HANDLING AND STORAGE

- A. All pipe, fittings and accessories shall be loaded and unloaded by lifting with hoists or by skidding in order to avoid shock or damage. Under no circumstances shall materials be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior of the pipe.
- B. Materials, if stored, shall be kept safe from damage. The interior as well as all sealing surfaces of all pipe, fittings, and other appurtenances shall be kept free from dirt or foreign matter at all times.
- C. Pipe stored outside and exposed to prolonged periods of sunlight shall be covered with canvas or other opaque material. Air circulation shall be provided under covering.
- D. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. Pipe shall not be stored close to heat sources.
- E. Gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis. Mechanical-joint bolts shall be handled and stored in a manner that will ensure proper use with respect to types and sizes.

PART 2 – PRODUCTS

2.1 PVC PIPE

- A. PVC gravity sanitary pipe shall be green SDR 26 ASTM, D-3034 where a minimum of 4 feet of cover is provided and the burial depth is less than 10 feet. For burial depths of 10 feet or greater C900/C905 DR-25 minimum Pressure Class shall be used.
- B. Fittings and pipe shall be best quality meeting AWWA and ASTM recommended material, performance and manufacturing specifications. Wall thickness must meet established standard. Plugs for use at the end of service pipe shall be PVC.
- C. Joints: Pipe and fittings shall have integral wall bell and spigot joints with flexible elastomeric seals. Joints shall provide a permanent seal against exfiltration or infiltration. The gasketed joint shall be designed so that when assembled the elastomeric gasket located within the bell is compressed radially on the pipe spigot to form a positive seal. The joint shall be designed to avoid displacement of the gasket from the joint during assembly and when in service. If a lubricant is required to facilitate assembly, it shall have no detrimental effect on the gasket or on the pipe.
- D. Gaskets: Gaskets shall be molded into a circular form or extruded to the proper section and then spliced into circular form. They shall consist of a properly processed high grade elastomeric compound of natural rubber, a synthetic elastomer or a blend of both. The gasket shall provide an adequate compressive force against the sealing surfaces of the bell and spigot so as to affect a positive seal under all combinations of joint tolerances. The gasket shall be the only element depended upon to make the joint flexible and water-tight.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. All pipe and appurtenances shall be examined at the point of delivery. Material found to be defective due to manufacture or damage in shipment shall be rejected. Tests as specified in the applicable material standard may be performed to ensure conformance with the standard.

3.2 TRENCH CONSTRUCTION

- A. Alignment and Grade: The pipelines shall be laid and maintained to the lines and grades established by the Drawings and Specifications, with fittings, service

connections, manholes and appurtenances at the required locations unless otherwise approved by the CITY/ENGINEER.

- B. **Underground Conflicts:** Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care shall be exercised to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of work and interfere so that an alteration of the plans is required, the CITY/ENGINEER will alter the Drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the CITY/ENGINEER, to provide clearance as required by the CITY/ENGINEER to prevent future damage or contamination of either structure.
- C. **Trench Construction:** The trench shall be excavated to the required alignment, depth, and width. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified. Trenches shall be of such extra width, when required, to permit the placement of timber supports, sheeting, bracing and appurtenances.
- D. **Material for use in the pipe embedment zone** shall be Class I, Class II or Class III material as identified in ASTM D2321, Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe. Bedding material shall be of the Class required to support the trench backfill loads for the depth of cover shown with maximum long term deflection limited to 5.0 percent and compaction ranges of 90 percent Standard Proctor Density. If material meeting this requirement is not available from the trench, satisfactory material shall be furnished and placed without additional compensation.
- E. **Holes for the bells** shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.
- F. **When excavation of rock is encountered**, all rock shall be removed to provide a clearance of at least 6-inches below and on each side of all pipe and fittings. When excavation is completed, a bed of sand, crushed stone, or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the previously mentioned depths, leveled, and tamped. These clearances

and bedding procedures shall also be observed for pieces of concrete or masonry and other debris of subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation. This installation procedure shall be followed when gravel formations containing loose boulders greater than 8 inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point of rock, boulder, or stones of sufficient size and placement which, in the opinion of the CITY/ENGINEER could cause a fulcrum point.

- G. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.
- H. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 3-inches, or to the depth ordered by the CITY/ENGINEER and replaced under the directions of the CITY/ENGINEER with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
- I. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the CITY/ENGINEER it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the CITY/ENGINEER.

3.3 PIPE INSTALLATION

- A. Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the work. All pipe and fittings shall be lowered carefully into the trench by means of suitable tools or equipment in such a manner as to prevent damage to pipeline materials. Under no circumstances shall pipeline materials be dropped or dumped into the trench. The trench shall be dewatered prior to installation of the pipe.
- B. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.
- C. The outside of the plain end and the inside of the bell shall be wiped clean and dry and be free from dirt, sand, grit, or any foreign material before the pipe is laid.

- D. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
- E. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the CITY/ENGINEER. When practical, the plug shall remain in place until the trench is pumped completely dry. Care shall be taken to prevent pipe flotation should the trench fill with water.
- F. Trench width at the top of pipe, bedding conditions, and backfill placement and compaction shall be such that design loadings on the pipe will not be exceeded.
- G. Joint Assembly: Pipe joints shall be assembled in accordance with the manufacturer's instructions.
- H. Pipe Deflection: Vertical deflection shall be monitored by the use of a rigid "Go-No-Go" device. The device shall be pulled by hand through each section (manhole to manhole). The pulling motion shall be smooth and easy so as to avoid jamming the device if an obstruction is encountered in the line. When the device is not able to go forward, the distance shall be measured from the last manhole and recorded. The device shall then be pulled backwards and that section of sewer main uncovered and recompacted according to these specifications. The "Go-No-Go" device shall be constructed to measure a maximum 5.0-percent deflection.
- I. Pipe Cutting: Cutting pipe for the insertion of fittings or closure pieces shall be done in a neat, workmanlike manner without creating damage to the pipe. Ends shall be cut square and perpendicular to the pipe axis. Burrs shall be removed from spigots and ends shall be smoothly beveled. Field cut ends shall be marked for proper depth of joint assembly.
- J. Manhole Connections: Plastic pipes shall be connected to manholes in accordance with the details shown and as specified in Section 02605: Manholes.

3.4 TESTING

- A. Testing of pipelines shall be in accordance with Section 02661: Pressure Testing of Piping.

3.5 TELEVISIONING OF PIPE LINES

- A. Televisioning of pipelines greater than 4 inches in diameter shall be in accordance with Section 02661: Pressure Testing of Piping.

END OF SECTION

SECTION 02623
PLASTIC PIPE FOR PRESSURE SERVICE

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. This Section includes materials and methods of installation of Plastic Pipe for Pressure Service used in Piped Utility Systems.

1.2 SUBMITTALS

- A. Three certified copies of the tests made by the manufacturer or by a reliable commercial laboratory shall be submitted to the ENGINEER with each shipment of pipe.

1.3 HANDLING AND STORAGE

- A. All pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists or by skidding in order to avoid shock or damage. Under no circumstances shall materials be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior of the pipe.
- B. Materials, if stored, shall be kept safe from damage. The interior as well as all sealing surfaces of all pipe, fittings, and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage or freezing.
- C. Pipe stored outside and exposed to prolonged periods of sunlight shall be covered with canvas or other opaque material. Air circulation shall be provided under covering.
- D. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. Pipe shall not be stored close to heat sources.
- E. Gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis. Mechanical-joint bolts shall be handled and stored in a manner that will ensure proper use with respect to types and sizes.

PART 2 – PRODUCTS

2.1 PLASTIC PIPE FOR REUSE SERVICE

- A. Pipe for pressure service shall be Class 12454-A or B rigid PVC compound in accordance with the requirements of ASTM D1784. Pipe and appurtenances for use in potable water systems shall bear the seal of approval for potable water use of the National Sanitation Foundation or other accredited testing laboratory.
- B. PVC pipe having a nominal diameter less than 2 inches shall be made of 2000 psi hydrostatic design stress compounds designated PVC 1120 and shall conform to the applicable requirements of ASTM D1785. Threaded pipe and fittings shall be Schedule 80. Threaded fittings shall conform to ASTM D2464. Unthreaded pipe and fittings shall be Schedule 40 with solvent cemented joints. Cemented joints and fittings shall comply with ASTM D2466 and D2855.
- C. Pressure pipe for reuse service 4 inches through 12 inches in diameter shall conform to the requirements of AWWA C900 for PVC 1120 pipe with cast iron pipe equivalent outside diameter. Pipe shall be DR18; colored Pantene Purple 522C for reclaimed water service. Pipe may be furnished with plain ends for use with elastomeric-gasket couplings or with one end plain and one end with a gasket bell. Couplings and gaskets shall be furnished with the pipe. Gaskets shall conform to ASTM D3139. Nontoxic gasket lubricant shall be as specified by the pipe manufacturer.
- D. Pressure pipe for reuse service 14 inches through 36 inches in diameter shall conform to the requirements of AWWA C 905 for PVC 1120 pipe with cast iron pipe equivalent outside diameter. Pipe 16-inch through 24-inch shall have minimum wall thickness equivalent to a dimension ratio (DR) of 18 unless otherwise shown. Color of pipe shall be Pantene Purple 522C. Pipe 30-inch through 36-inch shall have a minimum wall thickness equal to a dimension ratio (DR) of 18 unless otherwise shown. Pipe may be furnished with plain ends for use with elastometric gasket couplings or with one end plain and one end with a gasket bell. Couplings and gaskets shall be furnished with the pipe. Gaskets shall conform to ASTM 1869. Non-toxic gasket lubricant shall be as specified by the pipe manufacturer.

2.2 RESIDENTIAL SERVICE LINE PIPING

- A. Reuse Service Piping: All single residential reuse water services shall be 1 inch. Services shall be CTS 3408 high density polyethylene tubing rated for a minimum of 200 psi with DR 9 (CTS). The tubing shall have a virgin high density polyethylene center for which the manufacturer shall furnish a certificate of purity. The tubing shall be lavender in color and shall have the words “Reclaimed

Water” permanently printed on the outside. The tubing shall have U.V. protection and shall not be affected by direct sunlight. The tubing shall comply with or exceed the applicable standards of ASTM D1248, D3350, D2239, D2737, N.S.F.-14 and AWWA C901 and shall come with a lifetime warranty. Approved sizes: 3/4”, 1”, 1-1/2” and 2” diameters. Acceptable manufacturers: Endot Endocore RWT or approved equal. All polyethylene tubing for reuse services in paved areas shall be installed in a 2-inch diameter minimum sleeve. Sleeve shall be PVC SCH 40 pipe, purple in color. Sleeve shall extend a minimum of 2 feet behind back of curb.

- B. Potable Water Service Piping: All single residential potable water services shall be 1 inch. Polyethylene tubing shall be used in accordance with the following specifications: Polyethylene tubing shall be CTS 3408 high density tubing, blue in color, and rated for a minimum of 200 psi with DR of 9 (CTS). The tubing shall have a virgin high density polyethylene center for which the manufacturer shall furnish a certificate of purity. The tubing shall have U.V. protection and shall not be affected by direct sunlight. The tubing shall comply with or exceed the applicable standards of ASTM D1248, D3350, D2239, D2737, N.S.F.-14 and AWWA C901 and shall come with a lifetime warranty. Acceptable manufacturers: Endot Endopure or approved equal. All polyethylene tubing for potable water services in paved areas shall be installed in a 2-inch diameter minimum sleeve. Sleeve shall be PVC SCH 40 pipe, blue in color. Sleeve shall extend a minimum of 2 feet behind back of curb.

2.3 MARKING SYSTEM

- A. All PVC pipe shall have 3-inch metallized pipe location tape located 18 inches directly above the pipe and UF #12 solid insulated copper wire attached to the pipe.

2.4 RESTRAINED JOINTS

- A. Restrained Joints
1. Restrained joints for use with PVC pipe shall consist of retainer glands fabricated of ductile-iron conforming to ASTM A536. The gland shall be such that it can replace the standard mechanical joint gland and can be used with the standardized mechanical joint bell conforming to ANSI/AWWA A21.11/C111 and ANSI/AWWA A21-53/C153. The retainer glands shall have a pressure rating equal to that of the PVC pipe on which it is used.
 2. PVC push-on joints adjacent to restrained fittings shall be restrained using harness restraint devices. This harness restraint shall be split to enable installation of the restraint after the spigot has been installed into the bell.

The restraint shall consist of a split ring that fits behind the bell, a split restraint ring that installs on the spigot and a number of tie bars to connect the other two parts. Restraint components shall be of ductile-iron conforming to ASTM A536. The restraint ring shall consist of a plurality of individually activated gripping surfaces to hold the spigot and maximize restraint capability.

3. Twist off nuts, sized same as the tee-head bolts shall be used to insure proper actuating of restraining devices.

2.5 FITTINGS

- A. Fittings for use with PVC pipe 3-inches through 48-inches in diameter shall be mechanical joint ductile-iron compact fittings conforming to the requirements of ANSI/AWWA C153/A21.53. Cast iron fittings above 48-inch or which there is not a compact fitting available, shall conform to the requirements of ANSI/AWWA C110/A21.10. Bolts for use with mechanical joints shall conform to the requirements of the joint standard. Fittings shall be suitable for a working pressure of 150 psi.
- B. Exterior Coating
 1. Fittings for buried service and fittings for installation in exposed locations which are not to be painted shall be coated with a bituminous coating approximately 1 mil thick. The finished coating shall be continuous, smooth, neither brittle when cold nor sticky when exposed to the sun and shall be strongly adherent to the pipe.
 2. Fittings in exposed locations which are to be painted shall be primed with a universal shop primer suitable for use under the finish paint specified. Ductile iron fittings shall be painted purple to signify reuse service.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Excavation: Excavate trenches as specified in Section 02202.
- B. All pipe and appurtenances shall be examined at the point of delivery. Material found to be defective due to manufacture or damage in shipment shall be rejected. Tests as specified in the applicable material standard may be performed to ensure conformance with the standard.

3.2 TRENCH CONSTRUCTION

- A. Alignment and Grade: The pipelines shall be laid and maintained to the lines and grades established by the Drawings and Specifications, with fittings, valves and hydrants at the required locations unless otherwise approved by the ENGINEER. Valve-operating stems shall be oriented to allow proper operation. Hydrants shall be installed plumb.
- B. Underground Conflicts: Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care shall be exercised to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of work and interfere so that an alteration of the plans is required, the CITY/ENGINEER will alter the Drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the CITY/ENGINEER, to provide clearance as required by the CITY/ENGINEER to prevent future damage or contamination of either structure.
- C. Trench Construction: The trench shall be excavated to the required alignment, depth, and width. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified.
- D. PVC pipe shall be installed with pipe bedding and a compacted envelope as shown on the drawings. Material used as bedding and in the pipe envelope (pipe embedment zone) shall be Class I, Class II or Class III material as identified in ASTM D-2321. Bedding material shall consist of 4-inches minimum of non-cohesive granular material placed uniformly under the pipe. Bedding material shall be lightly compacted.
- E. Material within the haunching area shall be compacted to 98% density according to AASHTO T-180. Excessive compaction shall be avoided if any distortion of the pipe wall is observed. Material above the haunching area may be native material if free of particles larger than 1-1/2-inches. At least 6-inches of backfill material shall be placed over the top of the pipe before compacting directly over the crown of the pipe.
- F. Holes for the bells shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that a

slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

- G. When excavation of rock is encountered, all rock shall be removed to provide a clearance of at least 6-inches below and on each side of all pipe, valves and fittings. When excavation is completed, a bed of sand, crushed stone, or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the previously mentioned depths; leveled, and tamped. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris of subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation. This installation procedure shall be followed when gravel formations containing loose boulders greater than 8-inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point or rock, boulder, or stones of sufficient size and placement which, in the opinion of the CITY/ENGINEER could cause a fulcrum point.
- H. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.
- I. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 4-inches, or to the depth ordered by the CITY/ENGINEER and replaced under the directions of the CITY/ENGINEER with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
- J. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the CITY/ENGINEER it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the CITY/ENGINEER.

3.3 PIPE INSTALLATION

- A. Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the work. All pipe, fittings, and valves, and hydrants shall be lowered carefully into the trench by means of suitable tools or equipment in such a manner as to prevent damage to pipeline materials. Under no circumstances shall pipeline materials be dropped or dumped into the trench. The trench shall be dewatered prior to installation of the pipe.

- B. The sealing surface of the pipe, the inside of the bell and the gasket shall be cleaned immediately before assembly.
- C. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.
- D. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
- E. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or other means approved by the CITY/ENGINEER. When practical, the plug shall remain in place until the trench is pumped completely dry. Care shall be taken to prevent pipe flotation should the trench fill with water.
- F. Trench width at the top of pipe, bedding conditions, and backfill placement and compaction shall be such that design loadings on the pipe will not be exceeded.
- G. Joint Assembly: Pipe joints shall be assembled in accordance with the manufacturer's instructions.
- H. Pipe Deflection: When it is necessary to deflect pipe from a straight line in either the vertical or horizontal plane, or where long radius curves are permitted, the amount of deflection shall not exceed that recommended by the manufacturer.
- I. Pipe Cutting
 - 1. Cutting pipe for the insertion of valves, fittings, or closure pieces shall be done in a neat, workmanlike manner without creating damage to the pipe. Ends shall be cut square and perpendicular to the pipe axis.
 - 2. Burrs shall be removed from spigots and ends shall be smoothly beveled. Field cut ends shall be marked for proper depth of joint assembly.
- J. Locate Tape: Install all plastic pipe with a locator tape of the type specified.
- K. Locate Wire: Install all locator wire of the type specified.
- L. Thrust Restraint
 - 1. All plugs, caps, tees, and bends, unless otherwise specified, shall be provided with reaction backing, or restrained joints as specified.
 - 2. Thrust-restraint design pressure shall be equal to 1.5 times the design pressure of the line.

3.4 TESTING

- A. After completion of installation, perform testing in accordance with requirements of Section 02661: Pressure Testing of Piping.

END OF SECTION

**SECTION 02641
PIPE CLEANING AND PIGGING**

PART 1 – GENERAL REQUIREMENTS

1.1 SCOPE OF WORK

- A. CONTRACTOR shall be required to clean all pressure mains 6 inches and larger by pigging prior to testing.
- B. Provide all supervision, labor, tools, transportation, material and equipment necessary to clean new water mains, using Polly Pigs and an approved Polly Pig procedure. Install all items required, provide Polly Pig launching and retrieval devices as required and furnish all swabs and Polly Pigs required for thorough removal of foreign materials.

1.2 QUALIFICATIONS

- A. The materials and work specified herein shall be furnished and performed by firms who are fully experienced, reputable, and qualified in the manufacture, installation and use of the specified items.

1.3 SUBMITTALS

- A. The CONTRACTOR shall provide evidence of qualification by providing copies of his/her state certification or license to perform such work as herein described and shall provide verifiable references upon request.

1.4 CONTRACTOR RESPONSIBILITIES

- A. Supervision: There shall be on-site at all times during the work, one superintendent with a minimum of three years supervisory experience in cleaning new and old pressure piping.
- B. Cleaning: Cleaning shall be performed using swabs or Polly Pigs to remove all foreign objects and, for old pipe, restore the original flow characteristics without abrading the interior walls of the pipe.
- C. Equipment:
 - 1. The CONTRACTOR shall furnish pig launching equipment which will minimize the CONTRACTOR's or CITY'S need to provide for additional valving, fittings and auxiliary water supplies. Said equipment shall be of the latest design and construction and shall include the means to maintain

- constant monitoring of the in-line flows and pressures of the system being cleaned and the constant location of the cleaning pigs in the system.
2. The CONTRACTOR shall maintain on site for the duration of the project and have available for immediate use an electronic Polly Pig detector with the appropriately sized cavity Polly Pig for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage, and to find “lost” valves and other disparities within the system.
 3. The CONTRACTOR shall also have available auxiliary centrifugal pumps for cleaning.
- D. Testing: The CONTRACTOR shall perform pre-cleaning and post-cleaning flow testing to determine sizes, types, densities and numbers of pigs and/or swabs to be used to establish the means and procedures to properly and safely clean the piping, to evaluate the system and to measure the effects of the cleaning operation.
- E. Communication: The CONTRACTOR shall provide radio communication and job site transportation between launching and retrieval points.
- F. Report upon Completion: The CONTRACTOR shall provide a written report upon completion of line cleaning to outline and detail information acquired during the cleaning progress about the system to confirm existing information.

PART 2 – PRODUCTS

2.1 POLLY PIGS

- A. Furnish Polly Pigs in sufficient numbers and sizes of appropriate densities, coatings and configurations to properly clean the system(s) prior to the system(s) being put into service.
- B. Polly Pigs shall be those as manufactured by Knapp Polly Pigs of Houston, Texas, or approved equal.

2.2 EQUIPMENT

- A. Furnish and install Polly Pig launching and retrieval devices as required.
- B. Launching and retrieval device shall be fabricated, designed and manufactured according to ANSI standards and capable of withstanding working pressures of 150 psig.

PART 3 – EXECUTION

3.1 PREPARATION

- A. The CONTRACTOR shall request approval from CITY a minimum of three (3) working days in advance for coordination of the pigging and flushing operation due to the additional water resource demand on the CITY system. At CITY discretion night time operations may be specified.

3.2 LINE PIGGING AND FLUSHING

- A. Equipment shall be installed in accordance with manufacturer's recommendations.
- B. Evaluation of new and existing pipeline conditions, selection of the cleaning pigs, cleaning and flushing shall be provided by personnel thoroughly trained, knowledgeable and experienced in the technology and procedures required for the proper and safe "pigging" of this system.
- C. Cleaning of lines less than 6 inches inside diameter shall be accomplished by thorough flushing of the line using a CITY approved water source. Cleaning of lines 6 inches inside diameter or greater shall be accomplished using a flexible polyurethane foam pipeline cleaner, commonly known as a "pig", manufactured for cleaning pressure lines. The pig shall be new and have a turning pattern, for use in water systems. It shall have a resilient peripheral surface that engages with the inner cylindrical wall of the pipe to maintain a sliding seal. The pig may have one or more sealing surfaces. This seal is maintained for propelling and must be abrasive resistant.
- D. When necessary, the pig shall also have abilities to scratch, scrape, plow and jet to assist in cleaning and flushing the pipe of debris. The pig shall rotate for longer wear and be able to reduce itself to a minimum of 65% of its original cross-sectional area. It must then be able to return to its original form while maintaining its seal and ability to clean.
- E. The pig shall have the ability to negotiate fabricated mitered bends, short radius bends, short radius elbows, tees, crosses, and multi-dimensional pipe sizes and valves.
- F. Flushing and cleaning shall be performed with the CITY's representative in attendance. After passing through the pipeline, the CITY's representative shall determine if subsequent pigging and flushing must be performed.
- G. The CONTRACTOR shall provide all required material, labor, special fittings, connections, traffic control and temporary facilities necessary to accomplish the

PIPE CLEANING AND PIGGING

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work. Night work may be required. The CONTRACTOR shall perform such night work at no additional cost to the CITY.

- H. New and existing piping shall be thoroughly cleaned of all material, sand, grit, gravel, stones, fluids, construction debris, threats to its sanitation, and other items that can generally be construed as “foreign” material and that would not be found in a properly cleaned system. This cleaning shall provide a smooth interior periphery of the pipe as a consequence of the cleaning procedure and will result in a conduit or pipe virtually free of any material and fluids, other than those used for the cleaning procedure, within the system.

END OF SECTION

**SECTION 02645
FIRE HYDRANT ASSEMBLIES**

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. This Section includes furnishing and installing fire hydrant assemblies consisting of the fire hydrant, a mechanical joint gate valve with a valve box, restrained joint pipe for connecting the hydrant and valve to the branch in the main and gravel for drainage around the hydrant as shown on the Drawings and as specified.

1.2 QUALITY ASSURANCE

- A. Standards: Fire hydrants shall conform to the requirements of ANSI/AWWA C 502, AWWA Standard for Dry Barrel Fire Hydrants and conform to City Standards.
- B. Available Manufacturers: Subject to compliance with requirements, fire hydrant manufacturers offering products which may be incorporated in the work are limited to the following:
1. American Flow Control – B-84-B
 2. Kennedy – Guardian K-81-A (remove chains from hydrant caps)
 3. Mueller Company – A-423
 4. Clow Company – Medallion

PART 2 – PRODUCTS

2.1 FIRE HYDRANT

- A. A fire hydrant assembly shall consist of a fire hydrant, the ductile iron pipe connecting the hydrant to the water main, the gate valve and box between the hydrant and the water main, accessories, gravel and pipe joint restraints.
- B. Fire hydrants shall be of the breakaway traffic type construction with a 6” pipe connection, 5¼” valve opening, two 2½” and one 4½” steamer connections. Hydrants shall be designed for 150 psi testing pressure and shall conform to AWWA Specification C502-73. All working parts shall be bronze. All hose threads shall be National Standard threads. The 2½” outlets shall be V-threads, 7½” threads per inch and 3 1/6” outside diameter of the male thread. The 4½” steamer nozzle shall have four threads per inch and 5¾” outside diameter of the male threads. Fire hydrants shall be self draining. Design material and workmanship shall be of the latest stock pattern ordinarily produced by the Manufacturer.

- C. Hydrants shall be silver from the manufacturer and only be painted by CITY personnel after CITY accepts ownership. The CITY personnel will assign an ID number and record data on each hydrant for CITY records. No old fire hydrants will be accepted.
- D. Fire Hydrants shall be provided with a special lubricant sealed bonnet assembly to assure lubrication of operating parts and to seal operating thread from water when the hydrant is open.
- E. Opening hydrant shall be by turning the operating nut to the left (counter-clockwise).
- F. Bury length of hydrant shall be as such as to provide the required depth below the surface for the main and allow the clearance above finished grade shown for the hydrant nozzles.

2.2 CONNECTING PIPE AND FITTINGS

- A. Pipe for connections between the main, the auxiliary valve and the hydrant shall be 6-inch diameter ductile iron connecting pieces suitable for restraining joints from separation. Connecting pieces shall be provided with rotatable gland on one end. Fittings installed in the main for hydrant connections shall have a branch with rotatable ductile iron mechanical joint gland. Joint connections shall be made with standard mechanical joint bolts and gaskets.

2.3 GATE VALVES AND VALVE BOXES

- A. Gate valves for use in fire hydrant assemblies shall be six-inch gate valves with mechanical joint ends. Gate valves and boxes shall conform to the requirement specified in Section 15100.

2.4 GRAVEL

- A. Gravel for use around hydrant drains shall be size 5 gravel, stone or slag conforming to the requirements of Section 901, Coarse Aggregate of the Florida Department of Transportation Standard Specification for Road and Bridge Construction.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine hydrants for direction of opening, nozzle threading, operating-nut and cap-nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage, and cracks. Reject defective hydrants.

3.2 INSTALLATION

- A. Install hydrants at locations shown as directed.
- B. Install all hydrants plumb and with nozzles parallel with, or at right angles to, the curb, and with the pumper nozzle facing the curb.
- C. Set hydrants to the established grade, with the centerline of the fire hose connection at least 18 to 21 inches above finish grade or as shown on the detail Drawings.
- D. When a hydrant is set in soil that is pervious, provide drainage at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand, from the bottom of the trench to at least 6-inches above the waste opening in the hydrant and to a distance of one-foot around the elbow.
- E. When a hydrant is set in clay or other impervious soil, a drainage pit 2 feet by 2 feet by 2 feet shall be excavated below each hydrant and filled with coarse gravel or crushed stone mixed with coarse sand, under and around the elbow of the hydrant and to a level of 6-inches and above the drain port.
- F. Place and compact backfill around hydrant from base to ground surface.

3.3 TESTING

- A. Test hydrant installation as part of piping system in which it is installed.

END OF SECTION

**SECTION 02650
DISINFECTION OF WATER MAINS**

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. This Section sets forth the specific requirements including materials and methods to disinfect potable water mains, document the process and acquire a State of Florida Department of Environmental Protection/Volusia County Health Department clearance for use.

1.2 REFERENCES

- A. Section 02661; CITY Utilities Department Standard Details, latest edition; AWWA C 651; and ancillary applicable standards shall apply.

PART 2 – PRODUCTS

(Not Applicable, General Conditions may apply)

PART 3 – EXECUTION

3.1 PROCESS

- A. Upon completion of the new water main, pipe shall be cleaned and pressure tested in accordance with the latest edition of the CITY Utilities Department Standard Details and Section 02661.
- B. Provide two paper copies of the water as-built/Record Drawings and one CD of the AutoCAD file for approval before disinfection/chlorination can be scheduled.
- C. Once the as-built/ Record Drawings have been approved, disinfection/chlorination can be scheduled and will be coordinated through the Utility Inspector and Utilities Department Laboratory. CITY staff will operate all existing system valves.
- D. The CONTRACTOR is responsible for the installation of sampling points and on-site work associated with testing and sampling points.
- E. The CITY Utilities Department staff will collect samples only for water mains within the right of way or utility easements that will be public. Private water systems will not be sampled by CITY staff.
- F. Once the samples have passed in accordance with State of Florida Department of Environmental Protection/Volusia County Health Department regulations, a PDF copy of the bacteriological test report will be sent to the Engineer of Record. The

Engineer of Record will then fill out a water main clearance application for the CITY's Utilities Department to file for water main clearance.

- G. Furnish one (1) Mylar set of the Water As-Builts/ Record Drawings to the CITY's Utilities Department.
- H. Upon clearance by Volusia County Health Department, the water line may be placed in service by CITY.

3.2 JOB CONDITIONS

- A. The CONTRACTOR shall review the field conditions prior to placing a bid for this project and evaluate the testing schedule that will be required. To the maximum extent possible the CONTRACTOR shall schedule field tests as soon as possible to allow segments of the system to be cleared for use and to allow pavement replacement to begin.
- B. The CONTRACTOR shall submit a chlorination/disinfection testing plan to the CITY for each segment of the new system to be tested prior to moving on to another section. The plan shall be coordinated with and found to be acceptable by the CITY a minimum of two (2) weeks in advance of the requested testing time to verify that a partial clearance or approval will be allowed.

3.3 FINAL FIELD TESTING

- A. The CONTRACTOR shall notify the CITY at least three (3) business days in advance of beginning tests. In the case of water main pigging operations, chlorination operations and tests the CONTRACTOR must secure advance approval from the Utilities Department Water System Manager. (NOTE: BECAUSE WATER MAIN FLUSHING INCREASES WATER DEMANDS, THE WATER MANAGER MAY NOT ALLOW TESTS TO BE PERFORMED DURING NORMAL WORKING HOURS.)

3.4 FIELD TEST STANDARDS FOR WATER MAINS

- A. The CONTRACTOR shall take adequate regulatory agency compliant precautions to prevent water pollution from the discharge of pigging and disinfection water offsite. Appropriate treatment shall be provided onsite. A plan for de-chlorinating the super-chlorinated disinfection water shall be provided to the CITY for review and acceptance a minimum of seven (7) days prior to disinfection taking place. The super-chlorinated disinfection water shall not be allowed to remain in the water main for more than seventy-two (72) hours. If the super-chlorinated disinfection water remains in residence for more than seventy-two (72) hours the water main system will be considered damaged and will require replacement and re-testing by the CONTRACTOR at no additional cost to the CITY.

- B. Pressure tests shall be conducted after laying and to the extent practicable on the entire system before backfilling. Pressure piping and valves shall be statically tested at 150 psig. The test pressure shall be maintained for an uninterrupted minimum time period of four (4) hours and be measured at the high point in the line. Hydrostatic testing shall be performed per Section 5.2 ANSI/AWWA C600-99. All air shall be expelled from the line before applying the test pressure. Exposed pipe, joints and other potential leak sources shall be carefully examined for leaks.
- C. Acceptance of the piping installation shall be determined on the basis of testing allowances defined in the AWWA C600-99 standard. If any test of installed pipe discloses a testing allowance greater than that specified in Section 5.2.1.6, repairs or replacements shall be accomplished in accordance with these specifications.
- D. The CITY will conduct random reviews of the in line valves and water services to be certain that the total water main has been fully pressure tested.

END OF SECTION

**SECTION 02661
PRESSURE TESTING OF PIPING**

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Scope of Work: This section specifies the leakage and pressure testing of piping.
- B. Testing Records
 - 1. Provide record of each piping installation during the testing. These records shall include:
 - a. Date of test.
 - b. Identification of pipeline tested or re-tested.
 - c. Identification of pipeline material.
 - d. Identification of pipe section tested.
 - e. Test pressure
 - f. Remarks: Leaks identified (type and location), types of repairs, or corrections made.
 - g. Certification by CONTRACTOR that the leakage rate measured conformed to the Specifications.
 - h. Signature of Project Manager witnessing pipe test.

1.2 SUBMITTALS

- A. Submit five (5) copies of the test records to the CITY upon completion of the testing.

1.3 REFERENCES

- A. The CITY Utilities Department, Standard Details, latest edition.
- B. AWWA C 651 and ancillary applicable standards and manufacturer's recommended standards shall apply.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Testing fluid shall be water, unless specified otherwise.

- B. All testing shall be performed in accordance with applicable AWWA Standards (C-600) latest edition.

2.2 MATERIALS AND EQUIPMENT

- A. Provide pressure gauges, pipes, pipe fittings, bulkheads, hydraulic force pumps, meters and graduated containers to perform the hydrostatic testing.
- B. Pressure gauges used shall have been calibrated just prior to their use.

PART 3 – EXECUTION

3.1 TESTING PREPARATION

- A. Pipes shall be in place and anchored before commencing pressure testing.
- B. Conduct hydrostatic tests on exposed and above ground piping after the piping has been installed and attached to the pipe supports, hangers, anchors, expansion joints, valves and meters.
- C. Before conducting hydrostatic tests, flush pipes with water to remove dirt and debris.
- D. Test new pipelines which are to be connected to existing pipelines by isolating the new line from the existing line by means of pipe caps, plugs, special flanges, or blind flanges. After the new line has been successfully tested, and all other tests/certifications/releases have been obtained, remove caps or flanges and connect to the existing piping.
- E. CONTRACTOR shall seek approval from the CITY for scheduling tests at least 72 hours in advance of the desired time frame. In the case of flushing, disinfection or pigging operations and/or tests, the Utilities Department Water System Manager will determine the time period (night or day) when these operations and tests are allowed to be conducted in order to minimize the negative impacts of additional water volume demands.

3.2 PIPE FLUSHING

- A. General
 - 1. All pressure mains shall be thoroughly flushed of sand and debris prior to pressure leakage testing. Pigging will be required for all pressure piping 6-inches or larger in size. Refer to Section 02641.
 - 2. Follow manufacturer's recommendations for use of "pig" in cleaning the line and conduct flushing and cleaning with CITY's representative in

attendance. After passing through the pipeline the CITY's representative shall determine if subsequent pigging and flushing must be performed.

3. The field pigging operation shall clearly establish that the piping is adequately cleaned.
4. All pipe and fittings used to launch and receive the pigs shall be removed at no additional cost to the CITY. The cost for constructing the pig launch and receiving piping shall be included as part of the pipe installation cost unless a separate line item is found in the bid form.
5. At the CITY's direction, flushing without pigging will be used on gravity systems and pipes with an inside diameter less than 6-inches.

3.3 HYDROSTATIC TESTS (DUCTILE IRON, PVC AND PCCP PIPE)

A. General

1. Hydrostatic tests shall consist of a pressure test and a leakage test. Hydrostatic tests shall be conducted on all newly installed pressure pipes, joints, valves and all service lines from tapped connection of main to the curb stops. AIR TESTING of pressure pipes WILL NOT BE PERMITTED under any circumstance. Tests may be made on sections not exceeding 2,000 feet, or as field conditions dictate. Length of the pipe to be tested shall be acceptable to the CITY. CONTRACTOR shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required.
2. The CONTRACTOR may conduct hydrostatic tests after the trench has been partially backfilled with the joints left exposed for inspection for his informational purposes only. The hydrostatic tests for acceptance shall only be conducted after the trenches have been completely backfilled and compacted as specified. Where any section of pipe is provided with concrete thrust blocking or encasement, pressure test will not be made until at least seven days have elapsed after the thrust blocking is installed. If high-early cement is used for the concrete thrust blocking, the time may be reduced to 3 days if the CITY concurs that the concrete has cured and reached adequate strength. When testing mortar-lined or PCCP pipe, fill the pipe to be tested with water and allow it to soak for at least 48 hours to absorb water before conducting the pressure test.

- B. Testing Criteria: All pipe sections shall be pressure tested. Water mains and reuse mains shall be subjected to a hydrostatic pressure of 150 psi for a duration of 4 hours. Force mains shall be subjected to a hydrostatic pressure of 100 psi for a duration of 2 hours. If during the test, the integrity of the tested line is in question, the CITY may require a 6-hour pressure test. The basic provisions of AWWA C-600 and C-605/M23 shall be applicable.

C. Procedure for Pressure Test: Each section of pipe to be tested, as determined by the CITY, shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, and appropriate valves installed to ensure bleeding of all air from the main. If defective pipes, fittings, valves, or hydrants are discovered in consequence of this pressure test, all such items shall be removed and replaced by the CONTRACTOR with sound material and the test shall be repeated until satisfactory results are obtained. Provisions of AWWA C600 and C605/M23, where applicable, shall apply.

D. Procedure For Leakage Test

1. After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Applicable provisions of AWWA C600 and C605/M23 shall apply.
2. For DUCTILE IRON PIPE, allowable leakage in gallons per hour shall not be greater than that determined by the formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where:

- L = Allowable leakage, in gallons per hour.
- S = Length of pipe tested, in feet.
- D = Nominal diameter of the pipe, in inches.
- P = Average test pressure during leakage test, in pounds per square inch (gauge).

3. For PVC pipe, allowable leakage in gallons per hour shall not be greater than that determined by the formula:

$$L = \frac{ND(P)^{1/2}}{7,400}$$

Where:

- L = Allowable leakage, in gallons per hour.
- N = Number of joints in the length of pipeline tested.
- D = Nominal diameter of the pipe, in inches.
- P = Average test pressure during leakage test, in pounds per square inch (gauge).

4. Leakage is defined as the quantity of water to be supplied in the newly installed pipe or any valved section under test, which is necessary to maintain the specified leakage test pressure after the pipe has been filled

with water and the air expelled. Should any test of pipe installed disclose leakage greater than that allowed, CONTRACTOR shall locate and replace or repair the defective joints, pipe or valve until the leakage from subsequent testing is within the specified allowance.

3.4 HYDROSTATIC TESTS (HDPE PIPE)

A. General

1. CONTRACTOR shall test pipelines installed under this Contract in accordance with these specifications prior to acceptance of the pipeline by the CITY. All field tests shall be made in the presence of the CITY. Except as otherwise directed, all pipelines shall be tested. All piping to operate under liquid pressure shall be tested in sections of approved length. The pressure testing of an HDPE line section shall be tested separately from the PVC and DIP line sections. Where impractical, the HDPE test section shall include only a minimum amount of PVC and ductile iron pipe within the test section. If at all possible, the PVC and DIP test sections shall be left exposed during the pressure test for visual leakage observation. For these tests, the CONTRACTOR shall furnish clean water, suitable temporary testing plugs or caps, and other necessary equipment, and all labor required. If the CONTRACTOR chooses to pressure test against an existing CITY water main / valve, the new water main must be disinfected prior to connection to the CITY line. The CITY will not be responsible for failure of the pressure test due to the existing valve leaking. The CITY may elect to furnish suitable pressure gauges for these tests. If not, the CONTRACTOR will furnish suitable pressure gauges, calibrated by an approved testing laboratory, which increments no greater than 2 psi. Gauges used shall be of such size that pressures tested will not register less than 10 percent or more than 90 percent of the gauge capacity. All valved sections shall be hydrostatic tested to insure sealing (leak allowance) of all line valves.
2. Unless it has already been done, the section to pipe to be tested shall be filled with potable water and air shall be expelled from the pipe. If blow-offs or other outlets are not available at high points for releasing air, the CONTRACTOR shall provide 1-inch [minimum taps and blow-off valves (at the 12:00 position)], as necessary. The cost of constructing blow-off valves and plugging them, after a successful pressure test, shall be included in the unit price bid amount for the HDPE pipe.

B. Testing Criteria

1. Hydrostatic testing shall consist of a 150 psig test pressure for water and reuse water, and 100 psig for force main, based on the elevation of the highest point of the line or section under test. Pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the CITY.

The pump, pipe connection and all necessary apparatus shall be furnished by the CONTRACTOR and shall be subject to the approval of the CITY.

2. Maximum duration for pressure test, including initial and final phase of the test, shall not exceed eight (8) hours. If the test is not completed due to leakage, equipment failure, etc., depressurize the test section, and then allow it to “relax” for at least eight (8) hours before bringing the test section up to test pressure again.

C. Procedure For Pressure Test

1. Initial Phase of Pressure Testing: First, all air must be removed from the test section. The pressure test shall be completed after the line is backfilled. If possible, all flanged or mechanical joint valves and fittings shall be left exposed for visual leak inspection. If possible all PVC and DIP test sections shall be left exposed for visual leak inspection. Initially, the pressure within the test section shall be raised to approximately 160 psi and then allowed to be idle (no additional make-up water / pressure to be injected), for approximately 3 hours. During this 3-hour period, the test section shall be allowed to stabilize and come to an equilibrium stage. No additional make-up water / pressure shall be applied to the test section during this 3-hour stabilization period unless the line pressure drops below 140 psi. In this case, make-up water / pressure shall only be applied to the test section to maintain a minimum of 140 psi (during the 3-hour stabilization period).
2. Final Phase of Pressure Testing: The final phase of the pressure test shall involve applying make-up water / pressure to achieve an “Initial test pressure” of 150 psi (minimum) / 155 psi (maximum). The test section is then allowed to be idle (no make-up water / pressure is added) for a period of 2 hours. After this 2-hour period, make-up water / pressure is applied and measured to re-establish the “initial test pressure.” The quantity of water utilized to re-pump the line shall be measured and compared to the allowable quantities as determined by TABLE 1, shown below. If the actual make-up water quantity is equal to or less than the allowable amount, the pressure test passes. If the actual make-up water quantities are greater than the allowable amount, the pressure test fails.

TABLE 1: ALLOWABLE MAKE-UP AMOUNT (HDPE) PIPE	
Nominal Pipe Size (inches)	Make-up Water Allowance (U.S. Gallons /100 ft. of Pipe) 2-Hour Test
6	0.30
8	0.50
10	0.65
12	1.15
14	1.40
16	1.65
18	2.15
20	2.75
22	3.50
24	4.40
26	5.00
28	5.55
30	6.35
32	7.15
34	8.10
36	9.00
42	11.55
48	13.50
54	15.70

3. In the event a section fails to pass the tests, the CONTRACTOR shall do everything necessary to locate, uncover (even to the extent of uncovering the entire section), and replace the defective pipe, valve, fitting or joint. Visible leaks shall be corrected regardless of total leakage. Lines which fail to meet these tests shall be retested as necessary until test requirements are complied with. All testing shall be performed at the CONTRACTOR’S expense.

3.5 TESTS FOR NON-PRESSURE PIPING

- A. General: Testing of non-pressure gravity flow pipe shall be accomplished by infiltration or exfiltration testing. Non-pressure piping which has a crown elevation below the groundwater table shall be tested by measuring the infiltration. Non-pressure piping which has a crown elevation above the groundwater table shall be tested by measuring the exfiltration. The gravity system shall, at the CONTRACTOR’S expense, be televised along its entire length. A copy of the television inspection shall be provided to the CITY
- B. Infiltration Testing: The CONTRACTOR shall identify and prepare each section of piping to be tested. The designated piping shall be monitored for a minimum period

of four (4) hours. Any accumulated liquid shall be measured; the line shall not be accepted until this measured quantity is less than 25 gallons per inch of diameter of pipe per mile of pipe per 24 hours. All buried leaks shall be located and repaired immediately and retested. All visible leaks must be repaired regardless of the measured leakage.

- C. Exfiltration Testing: The CONTRACTOR shall close all openings in the section of pipe to be tested. The hydrostatic water level of the pipe system shall be raised to a height equal to the maximum design submergence, but in no case less than 3 feet above the highest point in the line. The closed system shall be maintained for a minimum duration of 4 hours. Any loss of volume shall be noted. The line will not be accepted until this measured quantity is less than 25 gallons per inch of diameter of pipe per mile of pipe per 24 hours. All buried leaks shall be located and repaired as soon as possible. All visible leaks must be repaired regardless of the measured leakage.
- D. Low Pressure Testing: If impractical to conduct the infiltration or exfiltration tests as specified, the line can be pressurized for low pressure air testing. The air test shall be made by attaching an air compressor or testing apparatus to a suitable opening. After closing all other inlets and outlets to the system, force air into the system until there is a uniform gauge pressure of 5 psi. This pressure shall be held constant without introduction of additional air for a period of at least 30 minutes.
- E. Mandrel Testing: Perform mandrel testing throughout the entire length of the gravity pipe system. The mandrel size shall be 95% of the inside diameter of the pipe.
- F. Manhole Testing: The allowable limits of infiltration or exfiltration of manholes shall not exceed a rate of 0.165 gallons per manhole per hour.
- G. Re-Testing: Should any test fail, necessary repairs shall be accomplished by the CONTRACTOR and the test repeated until within the established limits. The CONTRACTOR shall furnish the necessary labor, water and all other items required to conduct the required testing and shall perform the necessary system repairs required to comply with the specified test.

3.6 TESTS FOR VALVES

- A. General: All valves shall be tested according to the following criteria:
 - 1. Butterfly and plug valves shall be tested in accordance with AWWA C504.
 - 2. Ball valves shall be tested in accordance with AWWA C507.
 - 3. Gate valves shall be tested in accordance with AWWA C509 and C515.

END OF SECTION

SECTION 02801
RESTORATION OF SURFACE IMPROVEMENTS

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. This Section includes the restoration of lawn areas, roadways, walks and any other existing improvement affected by the proposed work, as shown on the Drawings and as specified.

1.2 QUALITY ASSURANCE

- A. Standards
1. Florida Grades and Standards for Nursery Plants, Part 1:
 2. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction (latest Edition), hereinafter called the Standard Specifications.

PART 2 – PRODUCTS

2.1 PLANTS

- A. Existing damaged plants shall be replaced by plants of equal type, quality and size whenever possible. All new plants shall be sound, healthy, vigorous and free from defects, decay, disfiguring, bark abrasions, plant diseases, insect pests, their eggs or larvae.
- B. Existing plants may be removed, preserved, and replaced at the CONTRACTOR'S option. Plants shall be handled by an approved nursery.
- C. Plants shall be watered and cared for until new growth appears. Dead and dying plants shall be immediately replaced. Plants used shall be in accordance with the "Grades and Standards", Florida No. 1 or better.
- D. Replace any material which dies within a year after contract completion with new material.
- E. Plants shall conform to the sizes indicated by the OWNER.

2.2 WATER

- A. The water used in the performance of this Contract shall be of drinking water quality, clean and free from injurious amounts of oil, acid, alkali, or organic matter.

2.3 PLANTING MIXTURE

- A. The planting mixture, when required, shall consist of a thorough mixture of 40% peat and 60% sand. The peat shall be Florihome peat or equivalent and the sand shall be clean and free from debris of any kind.

2.4 FERTILIZER

- A. Fertilizer shall be pelletized 8-8-8, or equivalent.

2.5 LIMEROCK BASE COURSE

- A. Limerock for base course construction shall conform to the requirements of Section 911 of the Standard Specifications.

2.6 ASPHALTIC CONCRETE STRUCTURAL COURSE AND SURFACE COURSE MATERIALS

- A. Asphaltic concrete for structural course and surface course applications shall be Type S-3, conforming to the requirements of Section 331 of the Standard Specifications.

2.7 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete used in the construction of sidewalks shall have a compressive strength of 3,000 psi at 28 days and shall conform to the requirements of Section 03300.

PART 3 – EXECUTION

3.1 LANDSCAPING RESTORATION

- A. Lawn Areas: Any lawn area affected by the required work shall be restored to a condition equal to or better than the conditions existing before the commencement of work. Grass areas disturbed by CONTRACTOR shall be restored with sod.

- B. Water: Water to be used during plant installation shall be furnished by the CONTRACTOR. The existing irrigation system, where damaged, shall be promptly repaired after the installation of the plants.

3.2 PAVEMENT, CURB AND SIDEWALK REMOVAL

- A. Pavement materials shall be removed and separated from other excavated materials. Prior to removal, asphaltic and Portland cement materials shall be saw cut to neat lines parallel to the trench and sufficiently remote from the edge of the trench to prevent settling or breaking off.

3.3 BASE COURSE CONSTRUCTION

- A. Limerock base shall follow the requirements of Section 200 of the Standard Specifications.

3.4 PAVEMENT, CURB AND SIDEWALK REPLACEMENT

- A. Prior to installation of pavement or sidewalks, the entire depth of backfill shall have been fully compacted and tested for conformance with the specified density requirements. Subgrades and base shall be compacted and tested and fully shaped to the necessary elevations and cross-sections to provide the required thickness of pavement.
- B. Asphaltic surfaces shall be prepared, placed, finished and compacted in accordance with the requirements of the Standard Specifications.
- C. Curbs and sidewalks shall be formed with standard forms conforming to the shape and thickness of the items to be replaced. Placing, finishing, protecting and curing shall conform to the requirements of the specified standard.

3.5 TESTS

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

END OF SECTION

SECTION 02802
IDENTIFICATION TAPE AND LOCATING WIRE FOR BURIED PIPE

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

- A. Furnish and install identification tape over the centerline of all buried potable water lines, wastewater force mains, raw water mains, gravity sewers and wastewater effluent reuse mains.
- B. Furnish and attach locating wire to all buried potable water mains, wastewater force mains, raw water mains and reuse mains.
- C. See also Section 02616 for additional pipe locating marker requirements.

1.2 SUBMITTALS

- A. Submit manufacturer's descriptive literature, illustrations, specifications and other pertinent data.

PART 2 – PRODUCTS

2.1 IDENTIFICATION TAPE

- A. Identification Tape for Ductile Iron and Steel Pipe: Identification tape shall be manufactured of inert polyethylene so as to be highly resistant to alkalies, acids and other destructive agents found in soil, and shall have a minimum thickness of 6 mils with a minimum tensile strength of 22 pounds per inch and a maximum adhesive factor of 40 ounces per inch. Tape width shall be 2 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.
- B. Identification Tape for Polyvinyl Chloride Pipe: Identification tape shall be manufactured of polyethylene with a minimum thickness of 4 mils and shall have a 1-mil thick metallic foil core. The tape shall be highly resistant to alkalies, acids and other destructive agents found in soil. Tape width shall be 3 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.
- C. Tape background colors and imprints shall be as follows:

IMPRINT	BACKGROUND COLOR
"Caution Caution – Potable Water Line Buried Below"	Blue
"Caution Caution – Wastewater Force Main Buried Below"	Green
"Caution Caution – Sewer"	Green
"Caution Caution – Reuse Water Main Buried Below"	Lavender
"Caution Caution – Raw Water Main Buried Below"	White

- D. Identification tape shall be "Terra Tape" as manufactured by Reef Industries, Inc., Houston, TX, (800) 231-6074, Allen Systems Inc., Wheaton, IL (800)323-1749, or approved equal.

2.2 LOCATE WIRE

- A. Locate wire shall be #12 UF insulated copper wire.

PART 3 – EXECUTION

3.1 INSTALLATION OF IDENTIFICATION TAPE

- A. Identification tape shall be installed for all buried pressure mains in accordance with the manufacturer's installation instructions and as specified herein.
- B. For potable, raw, reuse water and force mains, identification tape shall be installed 18 inches below final grade over centerline of pipe.

3.2 INSTALLATION OF LOCATE WIRE

- A. Locate wire shall be installed around non-metallic pressure mains in accordance with plan details. Wire shall be extended to top of all valve boxes as shown on plan details.

END OF SECTION

DIVISION 3
CONCRETE

**SECTION 03300
CONCRETE**

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets forth the requirements for concrete, grout and related work required to furnish and install cast-in-place reinforced and unreinforced concrete.
- B. General
 - 1. Reinforced concrete shall be steel reinforced and includes:
 - a. Precast manholes and wet wells.
 - b. Driveways
 - c. Other reinforced concrete structures.
 - d. Encasements, etc.
 - 2. Steel Reinforcement: Includes bars, ties and supports.

1.2 QUALITY ASSURANCE

- A. Source Quality Control
 - 1. Concrete Testing Service
 - a. CONTRACTOR shall employ acceptable testing laboratory to perform materials evaluation, testing and design of concrete mixes.
 - b. CONTRACTOR's laboratory shall also evaluate concrete delivered to and placed at the site.
 - 2. Certificates, signed by concrete producer and CONTRACTOR may be submitted in lieu of material testing when acceptable to CITY and or Engineer of Record.
 - 3. Quality Control: Perform sampling and testing during concrete placement as follows:
 - a. Sampling: ASTM C 172.
 - b. Slump: ASTM C 143, one test for each load at point of discharge
Air Content: ASTM C 31, one for each set of compressive strength specimens.
 - c. Compressive Strength: ASTM C 39, one set for each 50 cubic yards or fraction thereof of concrete; 1 specimen tested at 7 days, 2 specimens tested at 28 days.

4. Report test results in writing to CITY and or Engineer of Record on same day tests are made.
- B. Reference Standards: Comply with the applicable provisions and recommendations of the following, except as otherwise shown or specified:
1. ACI 301, Specifications for Structural Concrete for Building (includes ASTM Standards referred to herein except for ASTM A 36).
 2. ACI 304, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 3. ACI 305, Hot Weather concreting.
 4. ACI 306, Cold Weather Concreting.
 5. ACI 315, Manual of Engineering and Placing Drawing for Reinforced Concrete Structures.
 6. ACI 318, Building Code Requirements for Reinforced Concrete.
 7. ACI 347, Guide to Formwork for Concrete.
 8. ACI 350, Environmental Engineering Concrete Structures.
 9. ASTM A 36, Specification for Structural Steel.
 10. Concrete Reinforcing Steel Institute Manual of Standard Practice, include ASTM Standards referred to herein.

1.3 SUBMITTALS

- A. Samples: Submit samples of materials as specified and may be requested by CITY and or Engineer of Record, including names, sources and descriptions.
- B. Shop Drawings: Submit for approval the following:
1. Copies of manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
 2. Drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315, Chapters 1 thru 7. Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement.
 3. List of concrete materials and concrete mix designs proposed for use. Include the results of all tests performed to qualify the materials and to establish the mix designs in accordance with ACI 301, 3.9. Submit written report to CITY and or Engineer of Record for each proposed concrete mix at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed and are acceptable to CITY and or Engineer of Record. Mix designs may be adjusted when material characteristics, job conditions, weather, test results or other circumstances

warrant. Do not use revised concrete mixes until submitted to and accepted by CITY and or Engineer of Record.

- C. Laboratory Test Reports: Submit copies of laboratory test reports for concrete cylinders, materials and mix design tests. CITY and or Engineer of Record review will be for general information only. Production of concrete to comply with specified requirements is the responsibility of CONTRACTOR.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery concrete reinforcement materials to the site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.
- B. All materials used for concrete must be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer. Bins or platforms having hard clean surfaces shall be provided for storage. Suitable means shall be taken during hauling, piling and handling to insure that segregation of the coarse and fine aggregate particles does not occur and the grading is not affected.

PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type II.
- B. Aggregates: ASTM C 33.
 - 1. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances. Dune sand, bank run sand and manufactured sand are not acceptable.
 - 2. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Washed gravel, either natural or crushed. Use of slag and pit or bank run gravel is not permitted.
- C. Coarse Aggregate Size: Size to be ASTM C 33, Nos. 57 or 67, unless permitted otherwise by CITY and or Engineer of Record.
- D. Water: Clean, drinkable.
- E. Air-Entraining Admixture: ASTM C 260.

- F. Water-Reducing High Range Admixture: ASTM C 494, Type F/G. Only use admixtures which have been tested and accepted in mix designs.
- G. Slump Limits
 - 1. Proportion and design mixes to result in concrete slump:
 - a. Not more than 4 inches prior to adding high range water-reducer.
 - b. Not more than 8 inches at point of placement after adding high range water-reducer.

2.2 FORM MATERIALS

- A. Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.
- B. Exposed Concrete Surfaces: Acceptable panel-type to provide continuous, straight, smooth, as-cast surfaces. Use largest practical sizes to minimize form joints.
- C. Unexposed Concrete Surfaces: Suitable material to suit project conditions.

2.3 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60.
- B. Steel Wire: ASTM A 82.
- C. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
 - 1. Use wire bar type supports complying with CRSI recommendations, except as specified below. Do not use wood, brick, or other unacceptable materials.
 - 2. For slabs on grade, use supports with sand plates or horizontal runners where base materials will not support chair legs.
 - 3. For all concrete surfaces, where legs of supports are in contact with forms, provide supports (Either hot-dip galvanized, plastic protected or stainless steel legs) complying with CRSI, Manual of Standard
 - 4. Over waterproof membranes, use precast concrete chairs.

2.4 RELATED MATERIALS

- A. Waterstops
 - 1. Flat dumbbell or center bulb type, size to suit joints, uniform minimum thickness of 3/8-inch by 9 inches minimum width of Polyvinyl Chloride.

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- a. Manufacturer: Provide waterstops of one of the following:
 - (1) W.R. Meadows, Incorporated.
 - (2) A.C. Horn, Incorporated.
 - (3) Or equal.

- B. Membrane-Forming Curing Compound: ASTM C 309, Type I.

- C. Epoxy Bonding Agent
 - 1. Two-component epoxy resin bonding agent.
 - a. Product and Manufacturer: Provide one of the following:
 - (1) Sikadur Hi-Mod, as manufactured by Sika Chemical Corporation.
 - (2) Epoxite Binder (Code No. 2390), as manufactured by A.C. Horn, Incorporated.
 - (3) Or Equal.

2.5 GROUT

- A. Non-shrink, Nonmetallic Grout
 - 1. Prepackaged non-staining cementitious grout requiring only the addition of water at the job site.
 - 2. Product and Manufacturer: Provide one of the following:
 - a. Euco N-S, as manufactured by the Euclid Chemical Company.
 - b. Masterflo 713, as manufactured by Masters Buildings Company.
 - c. Or equal.

- B. Non-shrink, Nonmetallic 100% Solids, High Strength Epoxy Grout
 - 1. Use prepackaged solvent-free, moisture-insensitive, 3-component epoxy grouting system.
 - 2. Product or Manufacturer: Provide one of the following:
 - a. Euco High Strength Grout, as manufactured by the Euclid Chemical Company, Cleveland, Ohio.
 - b. Sikadur 42, Grout-Pak, as manufactured by the Sika Chemical Company, Lyndhurst, NJ
 - c. Or equal.

- C. Ordinary Cement-Sand Grout

1. Except where otherwise specified use 1 part cement to 3 parts sand complying with the following:
 - a. Cement: ASTM C 150, Type II.
 - b. Sand: ASTM C 33.

PART 3 – EXECUTION

3.1 INSPECTION

- A. CONTRACTOR and his installer shall examine the foundation for and the conditions under which work is to be performed and notify CITY of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to CITY and or Engineer of Record.

3.2 FORMWORK

- A. Formwork: Construction so that concrete members and structures are correct size, shape alignment, elevation, and position, complying with ACI 347.
- B. Provide openings in form work to accommodate work of other trades. Accurately place and securely support items built into forms.
- C. Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required. Retighten forms during and after concrete placement if required to eliminate mortar leaks.

3.3 REINFORCEMENT, JOINTS, AND EMBEDDED ITEMS

- A. Comply with the applicable recommendations of specified codes and standards and CRSI. Manual of Standard Practice, for details and methods of reinforcement placement and supports.
- B. Clean reinforcement to bright metal surface unless otherwise directed by City. Remove loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
- C. Position, support, and secure reinforcement against displacement during formwork construction or concrete placement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
 1. Place reinforcement to obtain the minimum concrete coverage as shown and as specified in ACI 18. Arrange, space, and securely tie bars and bar supports together with 16 gage wire to hold reinforcement accurately in

- position during concrete placement operations. Set with ties so that twisted ends are directed away from exposed concrete surfaces.
2. Reinforcing steel shall not be secured to forms with wire, nails or other ferrous metal. Metal supports subject to corrosion shall not touch formed or exposed concrete surfaces.
- D. Provide sufficient numbers of supports of strength required to carry reinforcement. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.
- E. Splices: Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements shown for minimum lap of spliced bars.
- F. Concrete shall not be placed until the reinforcing steel is inspected and permission for placing concrete is granted by CITY/ ENGINEER. All concrete placed in violation of this provision will be rejected.
- G. Joints
1. Provide construction, isolation, and control joints as indicated or required.
 2. Locate construction joints so as to not impair the strength and appearance of the structure.
 3. Place isolation and control joints in slabs on ground to stabilize differential settlement and random cracking.
 4. In mats and slabs on grade, locate joints at a spacing of approximately 40 feet. Place concrete in a strip pattern.
- H. Installation of Embedded Items: Set and build into the work anchorage devices and embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided under other Sections for locating and setting.

3.4 CONCRETE AND PLACEMENT

- A. Proportioning and Design of Mix
1. Minimum compressive strength at 28 days: 3400 psi
 2. Maximum water/cement ratio by weight: 0.45
 3. Minimum cement content: 564 pounds per cubic yard
 4. Normal weight: 145 pounds per cubic foot
 5. Use air-entraining admixture in all concrete: provide not less than 4 percent or more than 8 percent entrained air for concrete.

6. Calcium Chloride: Do not use calcium chloride in concrete, unless otherwise authorized in writing by CITY and or Engineer of record. Do not use water or admixtures containing calcium chloride.
- B. Job-Site Mixing: Use drum type batch machine mixer, mixing not less than 1½ minute for one cubic yard or smaller capacity. Increase mixing time at least 15 seconds for each additional cubic yard or fraction thereof.
- C. Ready-Mixed Concrete: ASTM C 94.
- D. Concrete Placement: Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.
- E. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms.
- F. Protect concrete from physical damage or reduce strength due to weather extremes during mixing, placement and curing.
 1. In cold weather comply with ACI 306.
 2. In hot weather comply with ACI 305.

3.5 QUALITY OF CONCRETE WORK

- A. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.
- B. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight.
- C. Cut out and properly replace to the extent ordered by CITY, or repair to the satisfaction of CITY, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Patches or plastering will not be acceptable.
- D. Repair, removal, and replacement of defective concrete as ordered by CITY shall be at no additional cost to CITY.

3.6 CURING

- A. Curing: Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Continue curing use of moisture-retaining cover or membrane-forming curing compound. Cure formed surfaces by moist curing until forms are removed. Provide protection as required to prevent damage to exposed concrete surfaces.

3.7 FINISHES

A. Finish

1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently. Use a wood float only. Check and level the surface plane to a tolerance not exceeding ¼ inch in 10 feet when tested with a 10 foot straightedge placed on the surface at not less than 2 different angles. Cut down high spots and fill all low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat the surface to a uniform, smooth granular texture.
2. Concrete decorative sidewalk to follow plan requirements to establish pattern, edges, etc. All ADA ramps to be constructed to allow for proper Detectable Warning Surface. Coordinate the required final finish with CITY/ ENGINEER before application.

3.8 GROUT PLACEMENT

A. General

1. Place grout as shown and in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications do not proceed until CITY provides clarification.
2. Drypacking will not be permitted.
3. Proprietary product manufacturers shall make the services of qualified, full-time employees available upon 72 hours notification to assure that the product is properly used.
4. Placing grout shall conform to the temperature and weather limitations described in Article 3.4 above.

END OF SECTION

SECTION 03450
PRECAST CONCRETE STRUCTURES

PART I – GENERAL

1.1 DESCRIPTION

- A. Scope of Work: The work under this Section includes the design, casting, delivery, and erection of concrete structures as indicated on the Drawings.

1.2 QUALITY ASSURANCE

- A. Standards: Unless otherwise indicated, all materials, workmanship and practices shall be in accordance with the current editions of the following standards:
1. ACI 318, Building Code Requirements for Reinforced Concrete.
 2. PCI MNL 116, Manual for Quality Control for Plants and Production of Precast Concrete Products.
 3. ANSI/ASTM C55 – Concrete Building Brick.
 4. ASTM A48 – Gray Iron Castings.

1.3 SUBMITTALS

- A. The following information shall be submitted for approval. Fabrication shall not begin until submission has been approved.
1. Quality Control: Satisfactory evidence shall be submitted that plant and production methods meet the requirements of PCI MNL 116.
 2. Submit under provisions of Division 1.
 3. Shop Drawings: Complete fabrication and erection drawings shall be submitted. All drawings shall bear the seal of a Professional Engineer registered in the State of Florida.
- B. Manufacturer's data sheets shall be submitted on the following:
1. Joint mastic and gaskets.
 2. Pipe connections.
 3. Grout material.
 4. Hatches and manhole covers.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Transportation and erection shall be done by qualified personnel using proper equipment. Lifting and supporting shall be done only at points indicated on the shop drawings.

PART 2 – PRODUCTS

2.1 MATERIALS AND FABRICATION

A. Precast Concrete Structures:

1. Design loads shall consist of dead load, live load, impact, soil loads and loads due to water table, as well as other loads which may be imposed upon the structure. Wetwells and manholes shall be designed in accordance with ASTM C-478. The minimum wall thickness for valve vaults shall be as shown on the Drawings.
2. Forms used for precast concrete shall be of metal and sufficiently designed and braced to maintain their alignment under pressures of the concrete during placing. Base and first section of precast structures shall be an integral cast.
3. Aggregates: All aggregates, fine and coarse, other than lightweight aggregate shall conform to ASTM C33. Lightweight aggregates, fine and coarse, shall conform to ASTM C330. Aggregates shall be free of deleterious substances causing reactivity with oxidized hydrogen sulfide. Both types of aggregate shall be graded in a manner so as to produce a homogenous concrete mix. All materials are to be accurately weighed at a central batching facility for mixing.
4. Cement shall be Portland cement Type II.
5. Minimum compressive strength of concrete used for precast concrete structures shall be 4000 psi at 28 days.
6. Placing. All concrete shall be handled from the mixer or transport vehicle to the place of final deposit in a continuous manner, as rapidly as practicable, and without segregation or loss of ingredients, until the approved unit is completed. Maximum elapsed time from batching to placement shall be 2 hours. Concrete shall be placed in layers not over 2 feet deep. Each layer shall be compacted by mechanical internal or external vibrating equipment. Duration of the vibration cycle shall be limited to the time necessary to produce satisfactory consolidation without causing objectionable segregation.
7. Curing:
 - a. For purposes of early reuse of forms, precast concrete may be steam cured after an initial set has taken place. The steam temperature shall not exceed 160°F, and the temperature shall be raised from normal ambient temperatures at a rate not to exceed 40°F per hour.
 - b. The steam cured unit shall not be removed from the forms until sufficient strength is obtained for the unit to withstand any structural strain to which it may be subjected during the form stripping operation. After the stripping of forms, further curing by

means of water spraying or a membrane curing compound may be used, and shall be of a clear or white type, conforming to ASTM C309.

8. Reinforcing steel shall be sufficiently tied to withstand any displacement during the pouring operation. All bars shall be Grade 60.
 9. Lifting holes through the structures are not permitted. Equally spaced lifting lugs, rings or non-penetrating lift inserts shall be provided.
 10. Top slabs for valve vaults shall be precast. Steel reinforcing shall be as required for the dead load of the slab plus an H-20 designation live load. Concrete for top slabs shall have a compressive strength of 4000 psi at 28 days. Thickness of concrete for top slabs shall be as shown on the Drawings.
- B. Sealing Compound: Plastic sealing compound shall comply with Federal Specification SS-SS-00210.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Earthwork: The CONTRACTOR shall prepare an excavation large enough to accommodate the structure and permit sealing of openings, waterproofing and backfilling operations. Earthwork shall conform to the applicable section of Division 2.
- B. Installation of Precast Concrete Structures: Precast concrete structures shall be constructed in a workmanlike manner at the locations and dimensions indicated on the Drawings. Precast structures shall be set on foundation of #57 crushed stone, 9 inches thick. The precast structures shall be constructed such that the structure will not transmit dead or live loads to the piping. Care shall be taken to prevent earth and other material from entering precast structures.
- C. Tops of Structures: Unless otherwise indicated on the Drawings, in unpaved areas, the tops of valve vaults shall be set 1-inch above grade.
- D. Backfill: After the structure and all appurtenances are in place and approved, backfill shall be placed to the original ground line or to the limits designated on the Drawings. Backfill material shall consist of sand or loose earth, free from stones, clods, or other deleterious material. It shall be placed in horizontal layers not exceeding 12 inches in depth, and shall be moistened and thoroughly compacted to a minimum relative density conforming to the requirements of Division 2.

END OF SECTION

DIVISION 9
FINISHES

SECTION 09900
PAINTING AND PROTECTIVE COATINGS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Provide all labor, materials, apparatus, scaffolding, and all appurtenant work in connection with painting and protective coatings, complete as indicated, specified and required.
- B. Principle items include, but are not limited to:
1. All exposed piping, conduits, tanks, equipment and other metal surfaces, interior and exterior, except as hereinafter specifically excluded.
 2. All submerged and intermittently submerged metal surfaces, except stainless steel.
 3. All structural and miscellaneous steel.
 4. Equipment furnished without factory finished surfaces.
 5. Equipment, on which factory applied finishes have been marred, abraded, scratched, nicked, or otherwise damaged.
 6. The interior of concrete tanks, manholes, and similar structures, unless otherwise lined.
 7. Paint coatings on scheduled interior concrete walls and undersides of slabs.
 8. Plasterwork, gypsum drywall surfaces, woodwork, and other architectural work as specified or shown on the Drawings.
 9. Exposed steel lintels.
 10. Interior and exterior CMU walls unless otherwise specified.
 11. Undersides of aluminum access hatches and aluminum checkered plate.
 12. Fire hydrants, valve box lids, meter box lids, bollard/ guard post above ground meter and backflow assemblies.
 13. All exterior wall surfaces of existing concrete tanks and structures from 6-inches below grade to the top of the wall or structure.
- C. The following surfaces, in general, shall not be painted:
1. Concrete surfaces subject to pedestrian or vehicular traffic, except as herein specified.
 2. Nonferrous metals and stainless steel unless otherwise noted or indicated. Galvanized metal shall not be considered as a nonferrous metal.
 3. Mechanical equipment with factory finish as specified herein.
 4. Electrical and instrumentation equipment with approved factory finish or of stainless steel/nonferrous metal construction, unless otherwise specified.

5. Water proofing, damp proofing and roof covering work.
 6. Anodized aluminum.
 7. Aluminum handrails and ladders.
 8. Fiberglass grating and tread plate.
- D. Related work not included in this Section:
1. Pavement striping.
 2. Sealants and caulking.
 3. Waterproofing and damp proofing.
- E. The CONTRACTOR shall furnish to the ENGINEER, at no charge for use during this project, one dry film thickness (DFT) gauge and one electrical flaw detection equipment system.

1.2 GUARANTEE

- A. A two (2) year guarantee which commences on the date of acceptance against failure of all coatings shall be provided, unless more stringent requirements are specified hereinafter. Failure of any coating during the guarantee period shall be repaired by the CONTRACTOR who shall absorb all costs related to the repair of the coating. Failure shall be defined as peeling, blistering, de-lamination or loss of adhesion of any of the coatings.

1.3 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all cleaning, surface preparation, and coating shall conform to the applicable requirements of the referenced portions of the standards specified herein to the extent that the requirements therein specified are not in conflict with the provisions of this Section.
- B. Unless otherwise specified, all work and materials for the preparation and coating of all metal surfaces shall conform to the applicable requirements specified in the Steel Structures Painting Manual, Volume 2, Systems and specifications Revised, latest edition, published by the Steel Structures Painting Council.
- C. Steel: The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this Section.
1. White Metal Blast Cleaning (SSPC-SP5): Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning by wheel or nozzle (dry) using sand, grit, or shot (For very corrosive atmosphere).
 2. Near-White Blast Cleaning (SSPC-SP10): Blast cleaning nearly to White Metal Cleanliness, until at least 95 percent of each element of surface area

- is free of all visible residues (For high humidity, chemical atmosphere, marine or other corrosive environment).
3. Commercial Blast (SSPC-SP6): Blast cleaning until at least 67 percent of each element of surface area is free of all visible residues.
 4. Brush-Off Blast Cleaning (SSPC-SP7): Blast cleaning of all except tightly adhering residues of mill scale, rust and coatings, exposing numerous evenly distributed flecks of underlying structure substrate.
 5. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, dirt, soil, salts, and contaminants by cleaning with solvent, vapor, alkali, emulsion or steam.
- D. Concrete: Unless otherwise specified, all work and materials for the preparation and coating of all concrete surfaces shall conform to the applicable requirements specified in Joint Surface Preparation Standard SSPC-SP13/NACE No.6 and SSPCSP 12/NACE No.5 latest editions and ASTM D4258, ASTM D4259 and ASTM D4263 latest editions and the paint/coating product manufacturer's recommendations.
- E. Quality Assurance: Evaluation of surface preparation for ferrous metals will be based upon NACE Standard TM-01-Visual Standard for Surface Preparation.

1.4 SUBMITTALS

- A. Submittals shall be in accordance with the following:
1. Samples: Prepare and submit for ENGINEER's approval copies of color samples on 8-1/2" x 11" size cards for each paint and protective coating system. Each sample card shall clearly show each coat of the finish system, and shall be clearly marked with the manufacturer's name and product identification, and shall be submitted in sufficient time to allow for approval and, if necessary, disapproval and re-submittal without causing any delay of the project.
 2. Coating Materials List
 - a. The CONTRACTOR shall provide copies of a paint/coating materials list which indicates the manufacturer and paint number, keyed to the coating schedule herein, for approval by the ENGINEER prior to or at the time of submittal of samples required herein.
 - b. The CONTRACTOR shall include with his submittal, his protective paint/coating schedule for shop and field coatings of items to receive protection. The schedule shall conform to the specified requirements for surface preparation, priming, and coating for items covered, and shall follow the same requirements for similar work where such work has not been specifically

called-out. No bare ferrous nonworking surfaces shall be omitted from the schedule. Particular care shall be taken to cover in sufficient detail the coating of mechanical joints and other mechanical devices which shall conform to the recommended practice of the manufacturer of the joint or other mechanical devices.

3. Paint/coatings to be used on plastic and fiberglass materials shall be certified acceptable by all plastic and fiberglass manufacturers whose products are to be coated. Certification copies shall be submitted to the ENGINEER. The CONTRACTOR shall be certified in writing by the painting and coating material manufacturers as a qualified applicator of their products with copies of the certification submitted to the ENGINEER.
4. Product Data Sheets: CONTRACTOR shall submit paint/coatings material manufacturers' printed technical data sheets for products intended for use in each paint and coating system. Data sheets shall fully describe material as to its intended use, makeup, recommended surface preparation and application conditions, primers, material mixing and application (including recommended dry mil thickness [DFT] recoat time), precautions, safety and maintenance cleaning directions.
5. Material Safety Data Sheets: Material Safety Data Sheets (MSDS) shall accompany all paint submittals and shall be prominently displayed at the job site during all painting activities.

1.5 PROTECTION OF WORK

- A. The CONTRACTOR shall be responsible for any and all damage to his work or the work of others during the time his work is in progress.

1.6 EXTRA STOCK

- A. Five (5) gallons of each type and color of finish paint and coating used on the project shall be provided as extra stock. Extra stock paint shall be supplied in appropriate sealed one gallon containers and be clearly labeled as to paint type, formula, and color.

1.7 RIGHT OF REJECTION

- A. The ENGINEER shall have the right to reject all material or work that is unsatisfactory, and require the replacement of either or both at the expense of the CONTRACTOR.

1.8 ONE MANUFACTURER

- A. To the maximum extent possible, all products shall be the product of one manufacturer unless a specific specialty coating system is specified. Without exception, all paint/coatings for any service condition specified herein shall be by one manufacturer. Once a paint/coating manufacturer has been selected by the CONTRACTOR and approved by the ENGINEER, the CONTRACTOR shall ensure that all equipment manufacturers prime their equipment with the same or a compatible primer. If this cannot be or is not done for any reason, the CONTRACTOR shall apply a "universal primer" and recoat with the approved manufacturer's product in the field.

1.9 JOB CONFERENCE

- A. Prior to commencing painting work a pre-job conference shall be held for the purpose of reviewing the painting and coating requirements of the project. The CITY, ENGINEER, CONTRACTOR, Applicator, and the Coatings and Paint Manufacturer shall be present. A schedule of work to be accomplished will be established.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Surfaces to receive paint and protective coating materials as herein specified in this Section shall be coated in conformance with the applicable paint/coating systems specified herein. All materials specified by name and/or manufacturer or approved for use under these Specifications, shall be delivered unopened at the job site in their original containers and shall not be opened until inspected by the ENGINEER.
- B. Whenever a manufacturer's brand name is specified, it is intended to define the preferred type and quality of paint/coatings desired. Other paint/coatings of equal quality as approved by the ENGINEER may be used. Coating/paint materials shall be a product of TNEMEC or approved equal, unless otherwise specified. All paint/coatings shall be produced and applied as specified herein. If not otherwise specified paint/coatings shall be applied in accordance with the manufacturer's printed recommendations as approved by ENGINEER. So far as possible, all paint and coating materials shall be provided by a single source supplier. Coating materials shall meet Volatile Organic Compounds (VOC) requirements of not more than 3.5 lb/gal. as applied after thinning. Paint and protective coating materials shall be sealed in containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer, all of which shall be plainly legible at the time of use. Pigmented paints shall be furnished in containers not larger than five (5) gallons. Materials shall conform to the specifications shown

herein and to the C. Products shall be a standard of a recognized manufacturer engaged in production of such materials for essentially identical or similar applications in the water and wastewater treatment industry.

- C. Products shall be a standard of a recognized manufacturer engage in production of such materials for essentially identical or similar applications in the water and wastewater treatment industry.
- D. Compatibility: Only compatible materials shall be used in the work. Particular attention shall be directed to compatibility with underlying paint that is to be repainted and primers and finish coats. If necessary, subject to approval of the ENGINEER, a compatible barrier coat shall be applied between all existing paint/coatings and or prime coat and subsequent field coats to ensure compatibility.
 - 1. Ductile iron pipe that has an exterior bituminous coating shall not be painted unless the bituminous coating is removed by sand blasting or an appropriate, compatible, intermediate coat is applied before top coating in accordance with this specification.
- E. Colors: All colors and shades of colors of all coats of paints and protective coating material shall be as identified in the architectural sketches or schedules or as modified/selected by the ENGINEER. Each coat shall be of a slightly different shade, as directed by the ENGINEER to facilitate inspection of surface coverage of each coat.

2.2 SERVICE CONDITION A

- A. Ferrous and galvanized metals, other than stainless steel, within wet wells or similar corrosive atmospheres, submerged or intermittently submerged in sludge, sewage, chemical mixtures or similar corrosive liquids shall be prepared and coated in accordance with the following requirements.
 - 1. All metal surfaces shall be field sandblasted in accordance with Steel Structures Painting Council Specification SSPC-SP10 (Near White Blast Cleaning). Weld surface, edges, and sharp corners shall be ground smoothly and all weld splatter removed per SSPC-SP3 "Power Tool" or SP2 "Hand Tool" Cleaning. Galvanized metals shall be cleaned per SSPC SP-7 (brush off blast cleaning).
 - 2. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
- B. Except as otherwise noted, the prime coat shall have a minimum DFT of 3 mils and the two finish coats shall have a minimum total (DFT) of 13 mils. If the finish

coat is not applied within manufacturer's recommended time period, an intermediate special surface conditioner shall be applied in advance of finish coats or a light brush blast. The total system shall have a minimum DFT of 16 mils:

1. TNEMEC System: Shop Primer - Series 66-1211
2. Field Primer - Series 104
3. Finish Coats - Series 104

2.3 SERVICE CONDITION B

A. Ferrous and galvanized metals, other than stainless steel, subject to seacoast salt air exposures or equivalent chemical attack, shall be prepared and coated in accordance with the following requirements.

1. All surfaces shall be free of dirt, dust, grease, or other foreign matter before coating. Ferrous surfaces shall be cleaned in accordance with the Steel Structures Painting Council Specification SSPC-SP7 (Brush-Off Blast Cleaning), and galvanized surfaces shall be cleaned in accordance with SSPC-SP1 (Solvent Cleaning). Weld surface, edges and sharp corners shall be ground smooth and all weld splatter shall be removed per SSPC-SP3 or SP2. Galvanized metal shall be cleaned per SSPC SP-7 (brush off blast cleaning).
2. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
3. Except as specified below, the prime coat shall have a minimum DFT of 3 mils, the intermediate coat shall have a minimum DFT of 4 mils and including one or more finish coats the entire system shall be a minimum total DFT of 10.0 mils:
 - a. TNEMEC System: Primer - Series 66
 - b. Intermediate Coat: Series 66
 - c. Finish Coat: Series 73

2.4 SERVICE CONDITION C

A. Ferrous and galvanized metals, other than stainless steel, subject to mild to moderately severe air exposures or equivalent chemical attack, shall be prepared and coated in accordance with the following requirements.

1. All surfaces shall be free of dirt, dust, grease, or other foreign matter before coating. Ferrous surfaces shall be cleaned in accordance with the Steel Structures Painting Council Specification SSPC-SP7 (Brush-Off Blast Cleaning), and galvanized surfaces shall be cleaned in accordance with SSPC-SP1 (Solvent Cleaning). Weld surface, edges and sharp

corners shall be ground smooth and all weld splatter shall be removed per SSPC-SP3 or SP2. Galvanized metal shall be cleaned per SSPC SP-7 (brush off blast cleaning).

2. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
3. Except as specified below, the prime coat shall have a minimum DFT of 3 mils, intermediate coat shall have a minimum DFT of 4 mils and including one or more finish coats the entire system shall be a minimum total DFT of 10.0 mils:
 - a. TNEMEC System: Primer - Series 66
 - b. Intermediate Coat: Series 66
 - c. Finish Coats: Series H2

or

 - d. PORTER System: Primer – PP286 or PP296
 - e. Intermediate Coat: 2200
 - f. Finish Coat: 2200

2.5 SERVICE CONDITION D

- A. Coating aluminum and non-ferrous metal surfaces, including undersides of aluminum access hatches, frames, and checkered plate, subject to corrosive atmosphere and condensation shall be prepared and coated in accordance with the following requirements.
 1. Clean non-ferrous surfaces in accordance with SSPC-SP7 (brush-off blast cleaning).
 2. Application shall be in strict conformance with manufacturer's printed recommendations, as approved by the ENGINEER.
 3. The prime coat shall have a minimum 3.0 mil DFT and finish coats shall have a minimum 4 mil DFT for an entire system minimum total DFT of 7 mils:
 - a. TNEMEC System: Primer - Series 66
 - b. Finish Coat - Series 66

2.6 SERVICE CONDITION E

- A. Plastic and fiberglass reinforced plastic (FRP) products subject to seacoast salt air exposures shall be prepared and coated in accordance with the following requirements. Coatings to be used for piping and appurtenances shall be certified by the manufacturer to be completely acceptable and non-injurious.

1. Clean surfaces with SSPC-SP1 solvent cleaner. Lightly sand all surfaces.
2. Application shall be in strict conformance with manufacturer's printed recommendations.
3. The prime coat shall have a minimum 3.0 mil DFT and finish coat shall have a minimum 3.0 mil DFT for an entire system minimum total DFT of 6 mils:
 - a. TNEMEC System: Primer - Series 66
 - b. Finish Coat - Series 73

2.7 SERVICE CONDITION F

- A. Concrete which is subject to submergence and intermittent submergence in water and Groundwater and concrete potable water storage tank poured wall and dome exteriors shall be prepared and coated in accordance with the following requirements.
1. All surfaces whether previously coated or uncoated shall be cleaned of all dirt, dust, mildew/algae, oil, curing compounds and other deleterious compounds and aggressive staining. In general, the concrete shall be reasonably smooth and free of pockets, cavities and loose materials. All wall and dome surfaces shall be cleaned by brush-off blast cleaning NACE #4 / SSPC-SP7 with reference to NACE#6 / SSPC-SP13 unless otherwise specified. Where a waterproofing/sealant is applied, the surface shall be cleaned by commercial blast cleaning NACE#3/SSPC-SP6. For painting/coating of existing structures, in addition to above, patch concrete with non-shrink grout, replace damaged stucco, and repair cracks in exterior concrete wall surfaces by epoxy injection. Stripe coat all repaired areas and visible hairline cracks by roller or spray with Series 6 TNEME CRYL at 2.5 mils minimum DFT prior to application of final paint/coating system. All surfaces shall be completely dry before application of each paint/coating.
 2. Application shall be in strict conformance with the manufacturer's printed recommendations. All coats shall be applied within 24 hours of the previous coat.
 3. The waterproofing/sealant shall have a minimum DFT of 1/16 inch, the prime coat shall have a minimum DFT of 3 mils and the intermediate and the finish coats shall have a minimum total DFT of 2.5 mils. The entire system total minimum DFT will vary dependent upon the need for the waterproofing/sealer and primer:
 - a. THOROSEAL : Waterproofing/Sealant (as exterior base coat on water tank dome only)
 - b. TNEMEC System: Primer - Series 66 - (Not required on repainted or sealed concrete)

- c. Intermediate Coat - Series 6 TNEME CRYL
- d. Finish Coat - Series 6 TNEME CRYL

2.8 SERVICE CONDITION G

- A. Concrete sanitary sewer manholes or similar corrosive atmospheres which are subject to submergence and intermittent submergence in domestic sewage, water and groundwater shall be prepared and coated in accordance with the following requirements.
 - 1. A. All surfaces whether previously coated or uncoated shall be cleaned of all dirt, dust, oil, curing compounds, and other deleterious compounds. In general, the concrete shall be reasonably smooth and free of pockets, cavities and loose materials. Allow new concrete to cure for 28 days. All surfaces shall be cleaned by commercial blast cleaning SSPC-SP6 with reference to NACE#6/SSPC-SP13). For painting/coating of existing structures, in addition to above, patch concrete with non-shrink grout, repair cracks in concrete wall surfaces by epoxy injection. All surfaces shall be completely dry before application of the coating.
 - 2. Application shall be in strict conformance with the manufacturer's printed recommendations. All coats shall be applied within 24 hours of the previous coat.
 - 3. A prime coat is not required on concrete. Coating can be applied in one or two coats. When applied in two coats each coat shall have a minimum DFT of 8 to 10 mils. The entire system shall have a total minimum DFT of 15 to 20 mils.
 - a. TNEMEC System: Primer - Series 66
 - b. Intermediate Coat - Series 46H-413
 - c. Finish Coat - Series 46H-413

2.9 ARCHITECTURAL PAINT FINISHES

- A. Manufacture: Unless otherwise noted, products listed below are the products of TNEMEC coatings. ENGINEER approved equivalent products will be acceptable.
- B. Interior Finishes:
 - 1. Interior Wetted Concrete Surfaces (Non-Aggressive Areas)
 - a. Surface Preparation: Prefer SSPC-SP7: Brush-off Blast Cleaning. If brush-off Blast Cleaning is not possible, a double acid etching is recommended. Properly prepared surface should have a profile similar to 100 grit sandpaper. A test patch is recommended when applying epoxy coatings over old, existing coatings.

- b. Materials:
 - (1) Primer: TNEMEC Series 66 at 3.0 - 5.0 mils
 - (2) 2nd Coat (optional): TNEMEC Series 66 at 4.0 - 6.0 mils DFT
 - (3) Finish: TNEMEC Series 66 at 4.0 - 6.0 mils DFT
 - c. The entire system will have total minimum DFT of 11.0 -17.0 mils.
2. New Concrete Block Walls (Non-aggressive Environment)
- a. Surface Preparation: Cure 14 days. Remove mortar spatter. Surfaces must be clean and dry.
 - b. Materials:
 - (1) Filler: TNEMEC Series 130 or 54-562 at 80 SF/Gal
 - (2) Finish Coat: TNEMEC Series 113 or 114 @ 4.0 - 6.0 mils DFT
3. New Poured Concrete Walls (Non-aggressive Environment)
Surface
- a. Surface Preparation: Cure for 28 days. All surfaces must be clean and dry.
 - b. Materials:
 - (1) Primer: TNEMEC Series 113 or 114 @ 4.0 - 6.0 mils DFT.
 - (2) Finish: TNEMEC Series 113 or 114 @ 4.0 - 6.0 mils DFT.
- C. Concrete in Aggressive Areas (CBW)
- 1. Surface Preparation. Surfaces shall be cured for 28 days, clean, dry and free from curing compounds, oil, grease, dirt or chalk.
 - 2. Materials:
 - a. Filler: TNEMEC Series 54-660 (block walls only).
 - b. Prime Coat: One coat of TNEMEC Series 66 applied at 5 mils DFT.
 - c. Finish Coat: Two coats of TNEMEC Series 66 applied at 5 mils DFT per coat

- D. Concrete Sealed (ECB)
 - 1. Huls Chem-Trete PB or approved equivalent at a rate of between 50 and 100 SF/gal. Application shall be sufficient to guarantee complete water repelling for five (5) years.
- E. Concrete Waterproof (CWP)
 - 1. Apply one base coat of Thoroseal by Thoro System Products or approved equal at a minimum 2 lbs. per square yard for a 1/16 inch DFT.

2.10 PATCH COAT FOR GALVANIZED SURFACES

- A. All galvanized surfaces which are scratched, marred, or otherwise damaged shall be patched with TNEMEC Series 90-97 or approved equivalent at 2.5 -3.5 mils DFT.

2.11 PRIMER OVER BITUMINOUS COATING

- A. Two coats, TNEMEC Series 66, at 4 mils DFT each. Allow bituminous coating to bleed through on first coat. Apply second coat, third coat shall be per service condition schedule.

2.12 UNIVERSAL PRIMER

- A. The "universal-primer" shall be a primer which can be applied over any other type of solvent based primer, and be compatible with alkyds, epoxies and urethane finish coats.

PART 3 – EXECUTION

3.1 MANUFACTURER'S RECOMMENDATIONS

- A. Unless otherwise specified herein, the paint and coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protection of his coating materials; for preparation of surfaces for coating; and for all other procedures relative to coating shall be strictly observed. No substitutions or other deviations will be permitted without written permission of the ENGINEER.

3.2 DELIVERY AND STORAGE

- A. Materials shall be delivered in manufacturer's original, sealed containers, with labels and tags intact. Paint/coating materials and equipment shall be stored in designated areas. Coating containers shall be opened only when required for use. Coatings shall be mixed only in designated areas and in the presence of the

ENGINEER, unless otherwise directed. Coatings shall be thoroughly stirred or agitated to uniformly smooth consistency and prepared and handled in a manner to prevent deterioration and inclusion of foreign matter. Unless otherwise specified or approved, no materials shall be reduced, changed, or used except in accordance with the manufacturer's label or tag on container.

3.3 SAFETY REQUIREMENTS

- A. In accordance with the requirements of applicable OSHA Regulations for Construction, the CONTRACTOR shall provide and require the use of personal protective equipment for all persons working in or about the project site.
- B. Respirators shall be worn by all persons engaged in, and assisting in, spray painting. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices meeting the requirements of A7NSI Z87.1 latest revisions, and approved OSHA Regulations for sand blasting operations and equipment including approved air-purifying, half-mask or mouthpiece respirator with appropriate filter.
- C. Where ventilation is used to control potential exposure to workers as set forth in Section 1910.94 of the OSHA Regulations for Construction, ventilation shall be adequate to reduce the concentration of the air contaminant to the degree that a hazard to the worker does not exist. Methods of ventilation shall meet the requirements set forth in ASNI-Z9.2, latest revision.
- D. In accordance with Sections 1926.52 and 1926.101 of OSHA Regulations for Construction, whenever the occupational noise exposure exceeds maximum sound levels as set forth in Table D-2 ear protective devices shall be fitted and used, and a continuing, effective hearing conservation program shall be administered.
- E. Cloths and cotton waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each workday.

3.4 STORAGE, MIXING AND THINNING

- A. Paint/coating materials shall be protected from exposure to cold weather, and shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Materials of different manufacturers shall not be mixed together. Packaged materials shall be thinned immediately prior to application in accordance with the manufacturer's directions.

3.5 WORKMANSHIP

- A. Skilled craftsmen and experienced supervision shall be used on all work.

- B. All paint and coatings shall be applied in a workmanlike manner so as to produce an even film of specified uniform thickness. Edges, corners, crevices, and joints shall receive special attention to ensure that they have been thoroughly cleaned and that they receive an adequate thickness of paint. The finished surfaces shall be aesthetically pleasing `free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat of paint would not increase the hiding. All coats shall be applied so as to produce a film of uniform thickness.
- C. Special attention shall be given to ensure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas, and installations shall be protected by the use of drop cloths or other approved precautionary measures.

3.6 PREPARATION FOR PAINTING AND PROTECTIVE COATING

- A. All surfaces to receive paint/coatings shall be cleaned as specified herein prior to application of coating materials. The CONTRACTOR shall examine all surfaces to be coated, and shall correct all surface defects before application of any paint/coating material. Beginning the work of this Section without reporting unsuitable conditions to the ENGINEER constitutes acceptance of conditions by the CONTRACTOR. Any required removal, repair, or replacement of this work caused by unsuitable conditions shall be done at no additional cost to the Owner. All marred or abraded spots on shop-primed and factory-finished surfaces shall receive touch-up restoration prior to any other coating application.
- B. Mildew shall be removed and neutralized by scrubbing affected areas thoroughly with a solution made by adding two (2) ounces of tri-sodium phosphate and eight (8) ounces of sodium hypochloride to one (1) gallon warm water. Use a scouring powder, if necessary, to remove mildew spores. Rinse with clean water and dry thoroughly before painting.

3.7 ITEMS NOT TO BE COATED

- A. Hardware, aluminum, stainless steel, switch and receptacle plates, escutcheons, hardware accessories, name plate data tags, machined surfaces and similar items shall be removed or masked prior to surface preparation and painting operations. Following completion of coating of each piece, removed items shall be reinstalled. Such removal and installation shall be done by workmen skilled in the trades involved.

3.8 SANDBLASTING

- A. All sand and water blasting shall be done in strict accordance with the referenced specifications of the Steel Structures Painting Council and SSPC-SP 13/NACE No.6 with reference to ASTM 4258 and 4259.

- B. When items are to be shop primed or shop primed and finish coated in the shop, surface preparation shall be as specified in this Section. The Owner or his representative shall have the right to witness, inspect, and reject any sandblasting done in the shop.
- C. When sand or water blasting is done in the field, care shall be taken to prevent damage to structures and equipment. Pumps, motors, and other equipment shall be shielded, covered, or otherwise protected to prevent the entrance of sand. No sandblasting may begin before the ENGINEER inspects and approves the protective measures.
- D. After sandblasting, dust and spent sand shall be removed from the surfaces by brushing or vacuum cleaning.

3.9 APPLICATION OF PROTECTIVE COATINGS

- A. Shop Coating: Fabricated metalwork and equipment which requires coating shall be shop primed with specified primer. Any such work delivered to the job site with any other shop coat shall either have this coating removed or shall be recoated with "universal-primer", and the specified coating applied in the field. Manufactured equipment with approved corrosion resistant factory finishes and galvanized finishes shall be exempt from this requirement.
- B. Field Coatings
 - 1. Except where in conflict with the manufacturer's printed instructions, or where otherwise specified herein, the CONTRACTOR may use brush, roller, air spray, or so-called airless spray application; however, any spray painting must first have the approval of the ENGINEER. Rollers for applying enamel shall have a short nap. Areas inaccessible to spray coating or rolling shall be coated by brushing or other suitable means.
 - 2. The CONTRACTOR shall give special attention to the work to ensure that edges, corners, crevices, welds, bolts, and other areas, as determined by the ENGINEER, receive a DFT at least equivalent to that of adjacent coated surfaces.
 - 3. All paint/coating materials shall be applied and surface shall be prepared in strict accordance with the manufacturer's printed instructions.
 - 4. Prime coat shall be applied to all clean surfaces within a four hour period of the cleaning, and prior to deterioration or oxidation of the surface, and in accordance with the manufacturer's recommendations. Drift from sand-blasting procedures shall not be allowed to settle on freshly painted surfaces.
 - 5. All coatings shall be applied in dry and dust-free environment. No coating/paint shall be applied when the surrounding air temperature, measured in the shade, is below 40 degrees Fahrenheit (F). No coating/paint shall be applied to wet or damp surfaces and shall not be

applied in rain, fog or mist, or when the relative humidity exceeds 90 percent. No coating/paint shall be applied when it is expected that the relative humidity will exceed 90 percent or that the air temperature will drop below 40 degrees F within 8 hours after the application of the coating/paint. Dew or moisture condensation should be anticipated and if such conditions are prevalent, coating or painting shall be delayed until midmorning to be certain that the surfaces are dry. The day's coating/painting shall be completed well in advance of the probable time of day when condensation will occur, in order to permit the film sufficient drying time prior to the formation of moisture.

6. Each coat shall be aesthetically pleasing, applied evenly, at the proper consistency, and free of brush marks, sags, runs, and other evidence of poor workmanship. Care shall be exercised to avoid lapping paint on glass or hardware. All paint/coatings shall be sharply cut to lines. Finished coated surfaces shall be free from defects or blemishes. Protective coverings shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent paint/coatings from being splattered onto surfaces from which it cannot be removed satisfactorily. Surfaces from which paint cannot be removed satisfactorily shall be painted or repainted as required to produce a finish satisfactory to the ENGINEER. Whenever two (2) coats of a dark colored paint are specified, the first coat shall contain sufficient powdered aluminum to act as an indicator of proper coverage, or the two (2) coatings shall be of a contrasting color.
7. Touch-up of all surfaces to the satisfaction of the ENGINEER shall be performed after installation.
8. All surfaces to be coated shall be clean and dry at the time of application.

C. Time of Coating

1. Sufficient time shall be allowed to elapse between successive coats to permit satisfactory recoating, but upon commencement the entire coating operation shall be completed without delay. No additional coating of any structure, equipment, or other items designated to be painted shall be undertaken without specified permission of the ENGINEER until the previous coating has been completed for the entire structure, piece of equipment, or other items.
2. Piping shall not be finish coated until it has been pressure tested and approved.

D. Thickness of Coating: The dry film mil-thickness (DFT) specified shall be achieved and verified for each coat.

E. Safety Color Coatings

1. Existing surfaces to remain which have been previously safety-color coated to identify a potential tripping or low head-room area shall be

prepared and recoated with a similar safety color scheme unless directed otherwise by the ENGINEER.

2. Any newly constructed areas which will present a potential tripping or low head-room area shall be coated safety yellow in accordance with the appropriate coating system as directed by the ENGINEER.

3.10 TESTING AND INSPECTION

- A. Inspection Devices: The CONTRACTOR shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of DFT of coatings and paints. The CONTRACTOR shall also furnish U.S. department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of the DFT gauge and certified instrumentation to test the accuracy. DFT gauges shall be made available for the ENGINEER's use at all times until final acceptance of application.
- B. The CONTRACTOR shall conduct DFT measurements and electrical inspection of the coated surfaces with equipment furnished by him and shall recoat and repair as necessary for compliance with the Specifications.
- C. Final Inspection Tests
 1. After repaired and recoated ferrous metals areas have cured, final inspection tests will be conducted by the ENGINEER with equipment provide by the CONTRACTOR. Coating thickness specified in mils on ferrous substrates will be measured with a nondestructive magnetic type DFT gauge such as the Elecometer, manufactured by Gardner Laboratories, Inc. Discontinuities, voids, and pinholes in the coatings will be determined with a nondestructive type electrical holiday detector. Epoxy coatings and other thin film coatings will be checked for discontinuities and voids with a low voltage detector of the wet-sponge type, such as Model M1 as manufactured by Tinker and Razor. Use a non-sudsing type wetting agent, such as Kodak Photo-Flo, which shall be added to the water prior to wetting the sponge. A high voltage, low current, spark type detector such as Model EP, manufactured by Tinker and Razor, will be used for electrical inspection of only coal tar enamel.
 2. Tape type coatings will be inspected for holidays using a device designed for detecting such flaws. All pinholes shall be marked, repaired in accordance with the manufacture's printed recommendations and retested. No pinholes or other irregularities will be permitted. Film thickness discrepancies shall be measured and verified with a micrometer or other approved measuring instrument with 5 readings taken every 100 square feet of painted surface. Paint/coatings not in compliance with the Specifications will not be acceptable and shall be replaced and re-inspected at CONTRACTOR's expense until the Specifications are met.

- D. On non-ferrous surfaces, DFT readings shall be taken at random locations with a Tooke Gauge at the rate of approximately five readings per 100 square feet of surface. Grooves cut into coatings shall be repaired by application of all coats of paint or coating film being tested. The average of all readings for a given area or surface shall be within required DFT range and no individual reading shall be more than 20 percent below the recommended DFT. Any areas that are found to be below standard shall be marked and recoated to obtain proper DFT.

3.11 CLEAN-UP

- A. Upon completion of the work, staging, scaffolding, containers and all other construction debris shall be removed from the site or destroyed in an approved manner. Paint spots, oil, or stains upon adjacent surfaces shall be removed.

3.12 PAINT AND COATING SCHEDULE

- A. General: The following schedule shall indicate the coating systems to be used and applies to all new and renovated facilities unless otherwise specified. Color selection shall be as selected by the CITY. The list shall not be construed as a complete list of all surfaces to be coated, but rather as a guide as to the application of the various coating systems. All surfaces shall be painted except those specifically excluded herein. Where reference is made to ferrous metal in this schedule, it shall not include stainless steel.
- B. Coating System Applications: Table I indicates the paint/coating system application to be used by Service Condition and general Item type including examples of typical material types, typical structures their appurtenances and the types of environments (corrosive, non-corrosive, etc.) that influence protection levels. For the painting/coating systems, "Piping" shall be defined as all pipes, valves, fittings, supports, and guides. Mechanical equipment shall include all motors, pumps and accessory equipment requiring a protective paint/coating.

TABLE 1 COATING SYSTEM SCHEDULE	
Item	Service Condition
Exposed ferrous metals in clarifiers and other corrosive environments	A
Exposed ferrous and galvanized metal Piping, equipment (interior and exterior), etc.	B
Exterior exposed ferrous metal, fire hydrants, valve box lids, meter box lids, bollard/guard posts, above ground meter, backflow assemblies, etc., not exposed to a corrosive atmosphere	C
Exposed plastic and FRP pipe, conduit, tank appurtenances, etc.	E
Exterior of concrete manholes, storm inlets, interior/exterior of reject pond intake structures, etc.	F
Exterior wall and dome surfaces of concrete tank, walls of similar use poured concrete structures, etc.	F
Interior of concrete sanitary manholes and similar system structures	G
Guard posts (bollards) and hydrants	B
Interior concrete and concrete block wall surfaces	FDB
Exterior new and existing stucco surfaces	FDB

END OF SECTION

DIVISION 15
MECHANICAL

SECTION 15000
MECHANICAL – GENERAL REQUIREMENTS

PART 1 – GENERAL REQUIREMENTS

1.1 DESCRIPTION

A. Scope of Work:

1. All equipment furnished and installed under this Contract shall conform to the general stipulations set forth in this Section except as otherwise specified in other Sections.
2. CONTRACTOR shall coordinate all details of equipment with other related parts of the Work, including verification that all structures, piping, wiring, and equipment components are compatible. CONTRACTOR shall be responsible for all structural and other alterations in the Work required to accommodate equipment differing in dimensions or other characteristics from that contemplated in the Contract Drawings or Specifications.

1.2 REFERENCES

A. Other sections directly referenced in this section include the following:

1. General Requirements: Division 1.
2. Concrete: Division 3.
3. Painting: Division 9.

B. Contract Drawings and Specifications: The Contract Drawings and Specifications shall be considered as complementary, one to the other, so that materials and work indicated, called for, or implied by the one and not by the other shall be supplied and installed as though specifically called for by both. The Contract Drawings are to be considered diagrammatic, not necessarily showing in detail or to scale all of the equipment or minor items. In the event of discrepancies between the Contract Drawings and Specifications, or between either of these and any regulations or ordinances governing work of these specifications, the bidder shall notify the CITY/ENGINEER in ample time to permit revisions.

1.3 QUALITY ASSURANCE

A. Materials and Equipment: Unless otherwise specified, all materials and equipment furnished for permanent installation in the work shall conform to applicable standards and specifications and shall be new, unused, and undamaged when installed or otherwise incorporated in the work. No such material or equipment shall be used by the CONTRACTOR for any purpose other than that intended or specified, unless such use is specifically authorized in writing by the CITY. No

material shall be delivered to the work site workout prior acceptance of drawings and data by the CITY/ENGINEER.

B. Equivalent Materials and Equipment:

1. Whenever a material or article is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, the specific item mentioned shall be understood as establishing the type, function, and quality desired. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the CITY/ENGINEER to determine that the products proposed are equivalent to those named. Such items shall be submitted for review in accordance with the General Conditions.
2. Requests for review of equivalency will not be accepted from anyone except the CONTRACTOR and such requests will not be considered until after the Contract has been awarded.

C. Governing Standards: Equipment and appurtenances shall be designed in conformity with ANSI, ASME, ASTM, IEEE, NEMA, OSHA, AGMA, and other generally accepted applicable standards. They shall be of rugged construction and of sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions or operations. All bearings and moving parts shall be adequately protected against wear by bushings or other acceptable means. Provisions shall be made for adequate lubrication with readily accessible means..

D. Testing

1. When the equipment is specified to be factory tested, the results of the tests shall be submitted to the CITY/ENGINEER and approval of the test results shall be obtained before shipment of the equipment.

E. Pressure Test

1. After installation, all piping shall be pressure tested. Piping shall be tested in accordance with Section 02661: Pressure Testing of Piping.
2. All tests shall be made in the presence of and to the satisfaction of the Construction Inspector and also, to the satisfaction of any local or state inspector having jurisdiction.
 - a. Provide not less than three days notice to the Construction Inspector and the authority having jurisdiction when it is proposed to make the tests.

- b. Any piping or equipment that has been left unprotected and subject to mechanical or other injury in the opinion of the Construction Inspector shall be retested in part or in whole as directed by the Construction Inspector.
 - c. The piping systems may be tested in sections as the work progresses but no joint or portion of the system shall be left untested.
3. All elements within the system that may be damaged by the testing operation shall be removed or otherwise protected during the operation.
 4. All defects and leaks observed during the tests shall be corrected and made tight in an approved manner and the tests repeated until the system is proven tight.
 5. Repair all damage done to existing or adjacent work or materials due to or on account of the tests.
 6. Provide test pumps, gauges, or other instruments and equipment required for the performance of all tests. Provide all temporary bracing, test plugs, additional restraint, and thrust blocking which may be required for test pressures above normal working pressures.
 7. All tests shall be maintained for as long a time as required to detect all defects and leaks but not less than the duration specified for each type of pipe or piping system in this Division.

F. Failure of Test

1. Defects: Any defects in the equipment, or deviations from the guarantees or requirements of the Specifications, shall be promptly corrected by the CONTRACTOR by replacements or otherwise. The decision of the CITY/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 correct any defects or deviations, or if the replaced equipment when tested shall fail again to meet the guarantees or specified requirements, the CITY, notwithstanding his having made partial payment for work and materials which have entered into the manufacturer for such equipment, may reject that equipment and order the CONTRACTOR to remove it from the premises at the CONTRACTOR'S expense.
2. Rejection of Equipment: In case the CITY rejects a particular item of equipment, then the CONTRACTOR hereby agrees to repay to the CITY all sums of money paid to him to deliver to the CONTRACTOR a bill of sale of all his rights, title, and interest in and to the rejected equipment provided, however that the equipment shall not be removed from the premises until the CITY obtains from other sources other equipment to take the place of that rejected. The bill of sale shall not abrogate the CITY'S right to recover damages for delays, losses or other conditions arising out of the basic Contract. The CITY hereby agrees to obtain the alternate equipment within a reasonable time and the CONTRACTOR agrees that the CITY may use the

original equipment furnished by him without rental or other charge until the other equipment is obtained.

- G. Responsibility During Tests: 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 CITY formally takes over the operation thereof.
- H. Acceptance of Materials:
1. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the CONTRACTOR shall be subject to the inspection and acceptance of the CITY. No material shall be delivered to the work without prior submittal approval of the CITY/ENGINEER.
 2. The CONTRACTOR shall submit to the CITY/ENGINEER data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable the CITY/ENGINEER to identify the particular product and to form an opinion as to its conformity to the Specifications.
 3. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the CONTRACTOR. If the CITY/ENGINEER requires, either prior to beginning or during the progress of the work, the CONTRACTOR shall submit samples of materials for such special test as may be necessary to demonstrate that they conform to the Specification. Such sample shall be furnished, stored, packed, and shipped as directed at the CONTRACTOR'S expense. Except as otherwise noted, the CITY will make arrangements for and pay for tests.
 4. The CONTRACTOR shall submit data and samples sufficiently early to permit consideration and acceptance before materials are necessary for incorporation in the work.

1.4 SUBMITTALS

- A. See Section 01300: Submittals; and Section 01340: Shop Drawing Procedures

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaging: All equipment shall be suitably packaged to facilitate handling and protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept thoroughly dry at all times.

- B. Marking: Each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.
- C. Responsibility
 - 1. The CONTRACTOR shall be responsible for all material, equipment, and supplies sold and delivered to the site under this Contract until final inspection of the work and acceptance thereof by the CITY. 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 CITY.
 - 2. 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 CITY 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.
- D. Delivery: The CONTRACTOR shall arrange deliveries of products in accordance with construction schedules and coordinate to avoid conflict with work and condition at the site.
 - 1. The CONTRACTOR shall deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, the CONTRACTOR shall inspect shipments to assure compliance with requirements of Contract Documents and accepted submittals, and that products are properly protected and undamaged.
 - 3. Under no circumstances shall the CONTRACTOR deliver equipment to the site more than one month prior to installation without written authorization from the Construction Inspector. Operation and maintenance data shall be submitted to the CITY/ENGINEER for review prior to shipment of equipment.

1.6 WARRANTY AND GUARANTEES

- A. The manufacturer's written warranty shall be submitted for all major pieces of equipment, as specified in Section 01740: Warranties. The manufacturer's warranty period shall be concurrent with the CONTRACTOR'S correction period for one year after the time of completion and acceptance.

PART 2 – PRODUCTS

2.1 FABRICATION AND MANUFACTURE

A. Workmanship and Materials:

1. CONTRACTOR shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage or other failure. Materials shall be suitable for service conditions.
2. All equipment shall be designed, fabricated, and assembled in accordance with recognized and acceptable engineering and shop practice. Individual parts shall be manufactured to standard sizes and gages so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
3. Except where otherwise specified, structural and miscellaneous fabricated steel used in equipment shall conform to AISC standards. All structural members shall be designed for shock or vibratory loads. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment shall be at least 1/4 inch thick.

B. Pipe Identification:

1. Underground pipe and tube: Non-metallic pipe and tube shall be located by wrapping 12 gage wire around the pipe and by installing a 3-inch wide metallic plastic tape continuously along the run of pipe or tube. The color of tape and wire shall be consistent with the color of the buried pipe and as approved by the CITY/ENGINEER.
2. Location: Tape shall be installed approximately 18 inches below finish grade. Wire shall be placed around the pipe.
3. Manufacturer:
 - a. Tape shall be an inert plastic film highly resistant to alkaline, acids or other destructive chemical components likely to be encountered in soils and shall be Terra Tape as manufactured by Griffolyn Company, or underground warning tape by Seton Name Plate Corporation or equal. Pipe of PVC shall be protected with a detectable tape with a metallized foil core and shall be Terra Tape "D" or equal.
 - b. Wire for non-metallic pipe shall be 12 gage THNN solid wire and manufactured by Pro-Line or Copperhead.

PART 3 – EXECUTION

3.1 INSTALLATION AND OPERATION

- A. Installation: Equipment shall not be installed or operated except by, or with the guidance of, qualified personnel having the knowledge and experience necessary for proper results. When so specified, or when employees of CONTRACTOR or his subcontractors are not qualified, such personnel shall be field representatives of the manufacturer of the equipment or materials being installed.

3.2 MANUFACTURER'S FIELD SERVICES

- A. Services Furnished Under This Contract:
1. An experienced, competent, and authorized representative of the manufacturer of each item of equipment shall visit the site of the Work and inspect, check, adjust if necessary, and approve the equipment installation. In each case, the manufacturer's representative shall be present when the equipment is placed in operation. The manufacturer's representative shall revisit the jobsite as often as necessary until all trouble is corrected and the equipment installation and operation are satisfactory in the opinion of Construction Inspector.
 2. Each manufacturer's representative shall furnish to CITY, Construction Inspector, a letter of certification stating that the equipment has been properly installed and lubricated; is in accurate alignment; is free from any undue stress imposed by connecting piping or anchor bolts; and has been operated under full load conditions and that it operated satisfactorily.
 3. All costs for field services shall be included in the Contract amount.

END OF SECTION

SECTION 15050
WATER PIPING – GENERAL

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. The work covered by this section consists of providing all labor, equipment, material and supplies, and performing all operations required to install the various piping, valves, accessories, and fire hydrant assemblies for potable and reclaimed water lines as specified and shown on the Drawings. The work includes all testing and sampling in accordance with governing agencies.

1.2 REFERENCES

- A. Related Work Described Elsewhere:
1. Section 15062: Ductile Iron Pipe
 2. Section 02623: Plastic Pipe for Pressure Service
 3. Section 02641: Pipe Cleaning and Pigging
 4. Section 02650: Disinfection of Water Mains
 5. Section 02661: Pressure Testing of Piping
 6. The CITY's Utility Department Standard Details, latest edition.

1.3 SUBMITTALS

- A. Shop drawings or catalog cuts shall be submitted for all miscellaneous structures, valves, boxes, and restrained joints.
- B. The manufacturer shall furnish a sworn affidavit that the pipe, fittings, and lining furnished under the Contract or Agreement comply with all applicable provisions of the ANSI and/or AWWA Standards.
- C. Reports on pressure and leakage tests shall be submitted in duplicate by the CONTRACTOR.

1.4 JOB CONDITIONS

- A. Interruptions to water service shall be minimized. The CONTRACTOR shall submit plans and schedules to the CITY for approval before any interruption in service takes place.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Pipe and fittings shall be strung out along the route of construction with the spigots pointing in the direction of the flow. Pipe shall be placed where it will cause least interference with traffic. Before the pipe is lowered into the trench, it shall be swabbed or brushed out to insure that no dirt or foreign material gets into the finished line. Trench waters shall be kept out of the pipe and the pipe kept closed by means of a test plug whenever work is not in progress. The CONTRACTOR shall provide the means for dewatering the trench and the cost thereof shall be included in the price for installing the pipe.
- B. Installation of the pipe shall be commenced immediately after the excavation is started, and every means must be used to keep pipe laying closely behind the trenching. The CITY may stop trenching if in its opinion, the trench is open too far in advance of the pipe laying operation. Damaged or unsound pipe or fittings will be removed and replaced by the CONTRACTOR at no additional cost to the CITY. Water lines shall be restrained to prevent movement of lines under pressure. Restraints shall be furnished by the CONTRACTOR. For ductile iron pipe, restrained joints shall be installed at all bends, tees, crosses, wyes, plugs, and reducers as shown in standard details of the Drawings.
- C. Where there is no adequate natural foundation upon which to construct a pipe bed, the pipe shall be constructed on a prepared stabilized sub-grade or rock bedding of Class I materials as defined in ASTM D2321. Unsuitable sub-grade materials shall be replaced or stabilized as described in Section 02202.
- D. Where water mains are stubbed out with a reducer and valve, the stub-outs shall have restrained joints as indicated in the restraining schedule on the standard detail sheet.
- E. All joints and service connections shall be watertight and any leaks or defects discovered shall be immediately repaired to the satisfaction of the CITY. Any pipe which has been disturbed after being laid shall be taken up, the joints cleaned and the pipes properly re-laid. Installation of fittings and pipe joints shall be in strict accordance with the manufacturer's recommendations.

3.2 WATER AND SEWER MAIN CROSSING

- A. Where water and sewer mains cross, the water main shall be installed with at least 12 inches vertical clearance or encase sewer main in concrete 10 feet each side of the water main. The cost of extra depth excavation or encasement is to be included in the cost of furnishing and installing the pipe.

3.3 HIGHWAY CROSSINGS

- A. All pipe under State and County highways shall be installed in accordance with the requirements of the permits issued by the respective agency.

3.4 CUT-IN CONNECTION TO EXISTING MAINS

- A. Where cut-in connections are required between new work and existing water mains, the cut-in connections shall be made by the CONTRACTOR. Proper specials and fittings to suit the actual conditions shall be furnished by the CONTRACTOR. The CONTRACTOR shall schedule his work so that digging and locating the existing line can be completed prior to starting trench work on the line. The CONTRACTOR shall verify the dimensions of all pipes before ordering special fittings and couplings.

3.5 OTHER UTILITIES

- A. The CONTRACTOR shall contact all utilities, private and public, a minimum of one (1) week prior to beginning construction so these utilities can be properly located.

3.6 PIPE CLEANING

- A. Cleaning of lines less than 6 inches inside diameter shall be accomplished by thorough flushing of the line using a CITY approved water source. Cleaning of lines 6 inches inside diameter or greater shall be accomplished using a flexible polyurethane foam pipeline cleaner, commonly known as a "pig", manufactured for cleaning pressure lines. The pig shall be new and have a turning pattern, for use in water systems. It shall have a resilient peripheral surface that engages with the inner cylindrical wall of the pipe to maintain a sliding seal. The pig may have one or more sealing surfaces. This seal is maintained for propelling and must be abrasive resistant.
- B. When necessary, the pig shall also have abilities to scratch, scrape, plow and jet to assist in cleaning and flushing the pipe of debris. The pig shall rotate for longer wear and be able to reduce itself to a minimum of 65% of its original cross-sectional area. It must then be able to return to its original form while maintaining its seal and ability to clean.
- C. The pig shall have the ability to negotiate fabricated mitered bends, short radius bends, short radius elbows, tees, crosses, and multi-dimensional pipe sizes and valves.
- D. Follow manufacturer's recommendations for use of "pig" in cleaning the line and conduct cleaning with CITY's representative in attendance. After passing

through the pipeline, the CITY shall determine if subsequent pigging must be performed.

3.7 WATER MAIN TESTS

- A. The CONTRACTOR shall furnish and install suitable temporary testing plugs, filling assemblies or caps for the pipe line, all necessary pressure pumps, hose, pipe connections, meters, gauges, and other similar equipment, and all labor required, all without additional compensation for conducting pressure and leakage tests, flushing and disinfections of the new water lines. All tests to be conducted with representatives of the CITY's Utilities Department in attendance. The CONTRACTOR is to coordinate the testing thru the CITY's Construction Representative. The CONTRACTOR shall de-chlorinate all water used for flushing and disinfection before discharge to the surrounding environment. The cost for de-chlorination shall be part of the testing work and included in the cost of the pipe installation.

3.8 PRESSURE TESTS

- A. Tests shall be made on the completed pipe installation. The test pressure shall be 150 psi maintained for a period of not less than four (4) hours. Pressure shall not vary more than five pounds (5 lbs.). Allowable leakage shall be computed on the basis of AWWA Standard C600 latest edition. Pressure testing shall be completed in accordance with Section 02661.

END OF SECTION

SECTION 15051
SANITARY PIPING – GENERAL

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets forth the requirements for materials and performing all operations required to install the various piping systems for gravity sewers and force mains, as specified and shown on the drawings.

1.2 SUBMITTALS:

- A. Shop drawings shall be submitted for all pipe, valves, boxes, harnessing, manholes, frames and cover. The manufacturer shall furnish a certification that the pipe fittings and lining furnished under the Contract comply with all applicable provisions of the ANSI standards. Foundry reports may be required to confirm the quality of the products delivered.
- B. Product data include standard printed information on materials, products and systems, not custom-prepared for this project, other than the designation of selections from available choices.
- C. Samples include both fabricated and non-fabricated physical examples of materials, products and work: both as complete units and as smaller portions of units of work, either for limited visual inspection or (where indicated) for more detailed testing and analysis.
- D. Miscellaneous submittals related directly to the work (non-administrative) include warranties, guarantees, maintenance agreements, workmanship bonds, project photographs/videos, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the work and not defined as shop drawings, product data or samples.

1.3 JOB CONDITIONS:

- A. All bidders should evaluate the job site conditions before submitting a bid.

PART 2 – PRODUCTS

(Not Applicable, See General Conditions)

PART 3 – EXECUTION

3.1 INSPECTION OF MATERIALS

- A. All materials shall be subject to inspection prior to delivery to the CITY. The CITY reserves the right to reject all materials not inspected prior to shipping and the CONTRACTOR shall immediately remove at no additional cost any materials that in the opinion of the CITY's Inspector do not meet typical standards. (For example, if the pipe arriving is cracked, discolored, or appears used, the CITY Inspector will refuse to allow the pipe to be unloaded at the job site unless there is proof that the pipe being delivered will not be used in the final project.) Special markings shall be plainly marked on the applicable pipe indicating the weight, proper location of the pipe or fittings in the line by reference to layout drawings and schedules, class of pipe, casting period, manufacturer's mark and year pipe was produced. No valve or other component that is otherwise new that is older than two years will be allowed to be part of the project.

3.2 CONSTRUCTION

- A. Excavation, trenching, and backfilling for the installation of underground piping systems shall be as specified in Section 02202. Laying of the pipe shall be commenced immediately after the excavation is started, and every means must be used to keep pipe laying closely behind the trenching. The CITY's project representative may order the trenching stopped when in his opinion the trench is open too far in advance of the pipe laying operation.
- B. The bottom of the sewer trench shall be shaped to give substantially uniform circumferential support to the lower one-third of each pipe. Where bell and spigot type pipe is used, holes shall be scooped out where the bells occur leaving the entire barrel of the pipe bearing on the pipe bed. Each pipe shall be inspected for defects. Water shall be kept out of the pipe and the pipe kept closed by means of a test plug whenever work is not in progress. Pipe shall be handled carefully to avoid breakage. Pipe may be laid in the best manner adapted to securing speed and good results. However, it shall be laid in accordance with the manufacturer's instructions and recommendations. Pipe shall be laid with spigot ends pointing in the direction of flow. Installation of pipe and fittings, with factory made joints shall be accomplished in strict accordance with the pipe manufacturer's recommendations and approval of the CITY. Pipe alignment shall conform to the standards for laying pipe as determined by the CITY's Inspector.
- C. All joints shall be watertight. Any leaks or defects discovered shall be immediately repaired. All cracked, broken and damaged piping shall be removed and replaced. Any pipe which has been disturbed after being laid shall be taken up, the joints cleaned and the pipe properly replaced. Any superfluous material inside the pipe shall be flushed or removed by means of an approved follower, scraper or pigging device.

3.3 INSTALLATION CONDITIONS

- A. Where it is necessary to cut the force main to place special castings, care must be taken not to crack the pipe and to cut straight and true around it. Force mains shall be restrained by restraining devices (thrust blocking is not permitted) to prevent movement of lines under pressure.
- B. Force main connections shall be constructed as shown on the detailed drawings or as is common practice should no detail be provided.
- C. Where there is no adequate natural foundation upon which to construct a pipe bed, the pipe shall be installed on a prepared stabilized sub-grade or rock bedding. Unsuitable sub-grade materials shall be removed and stabilizing materials shall be used. Gravel or graded lime rock may be used for pipe bedding where suitable material is not available. All stabilizing materials and work related to removing the unsuitable materials shall be provided at no additional cost to the CITY.
- D. Where a gravity sewer or force main crosses an existing or proposed water main, the State of Florida Department of Environmental Protection requires a 12-inch minimum separation. For this reason, the CONTRACTOR shall investigate well in advance of pipe or sewer construction to lower or raise the proposed piping to secure the 12-inch separation.
- E. Horizontal separation of force mains/gravity sewers from water mains is controlled by State of Florida Department of Environmental Protection but as a general rule the minimum desired separation is 6 feet with 10 feet preferred.
- F. All pipe under State or County highways shall be installed in accordance with Requirements of those agencies at CITY direction whether or not they are made a part of this Specification.

3.4 BYPASS PUMPING

- A. **UNLESS THESE SPECIFICATIONS DEFINE SPECIAL ASSISTANCE BY THE CITY REGARDING REQUIRED BYPASS SEWAGE PUMPING, THE CONTRACTOR IS HEREBY ADVISED THAT ALL NECESSARY BYPASS PUMPING INCLUDING LABOR, MATERIALS AND ASSOCIATED COSTS IS THE FULL RESPONSIBILITY OF THE CONTRACTOR. THE ADVANCED APPROVAL BY CITY FOR ALL BYPASS PUMPING OPERATIONS IS REQUIRED.** The approval of the bypassing system in advance by the CITY shall in no way relieve the CONTRACTOR of his full and complete responsibility. The pump and bypass lines shall be of adequate capacity to handle all flows.

END OF SECTION

SECTION 15062 DUCTILE IRON PIPE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Scope of Work: Provide and install ductile iron pipe of the sizes and in the locations shown on the Drawings and as specified herein.

1.2 REFERENCES

- A. Section 02641: Pipe Cleaning and Pigging
- B. Section 02202: Trenching, Backfilling, and Compacting
- C. Section 15000: Mechanical - General Requirements

1.3 QUALITY ASSURANCE

- A. Standards (as applicable):
 - 1. Rubber gasket joints: ANSI 21.11.
 - 2. Ductile iron pipe thickness: ANSI A 21.50.
 - 3. Ductile iron pipe centrifugally cast in metal or sand lined molds: ANSI A 21.51.
 - 4. D.I. pipe flanges and fittings: ANSI B 16.1.
 - 5. Threaded flanges: DIPRA standard.
 - 6. Cast and ductile iron fittings: ANSI A 21.10.
 - 7. Ceramic epoxy lining: ASTM E96-93, ASTM B117-85, ASTM G95-87, ASTM D714-87.
- B. Qualifications: All ductile iron pipe and ductile iron fittings shall be furnished by manufacturers who are fully experienced, reputable, and qualified in the manufacture of the materials to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

1.4 MANUFACTURER

- A. Pipe shall be as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, McWane Cast Iron Pipe Company or equal.

1.5 SUBMITTALS

- A. Shop Drawings, including layouts within, and under buildings and structures shall be submitted to the Project Manager for approval in accordance with Section 01340: Shop Drawing Procedures. Shop Drawings shall be prepared by the pipe manufacturer.
- B. Tabulated layout schedule including:
 - 1. Order of installation and closures.
 - 2. Pipe top elevation and station at each change of grade and alignment.
 - 3. Elements of curves and bends, both in horizontal and vertical alignment, including elements of the resultant true angular deflections in cases of combined curvature.
 - 4. The limits of each reach of pipe thickness class and of restrained joints.
 - 5. The limits of each reach of concrete encasement or encasement in casing.
 - 6. Locations of closures for length adjustment and for construction convenience.
 - 7. Locations of manholes and other points of access for placement of mortar lining at field joints and removal of test bulkheads.
 - 8. Locations of valves and other mechanical equipment.
 - 9. Methods and locations of supports.
- C. Details of special elbows and fittings.
- D. Calculations and/or test data demonstrating that the proposed restrained joint arrangement can transmit the required forces.
- E. Copy of the manufacturer's quality control check of pipe material and production.
- F. Provide an affidavit of compliance with AWWA standards referenced in this specification.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All pipe shall be shipped and stored at the jobsite with wood lagging between pipes such that pipes do not make contact with one another.
- B. Exercise extra care when handling cement lined pipe because damage to the lining will render it unfit for use.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Pipe - Ductile Iron Pipe conforming to ANSI A21.51 and AWWA C-151 for buried pipe, ANSI B16.1/AWWA C153 for compact fittings and ANSI 21.15 and AWWA C-115 for flanged pipe.
1. Unless otherwise shown on the Drawings, the minimum thickness of ductile iron pipe shall be:
 - a. For buried pipe 4” through 24” : Pressure Class 350.
 - b. For buried pipe 30” and larger: Pressure Class 250.
 - c. For pipe with flanges (all above grade or exposed piping): Class 53.
 2. Pipe for use with sleeve type couplings shall have plain ends (without bells or beads) cast or machined at right angles to the axis.
 3. Pipe for use with split type couplings shall have ends with cast or machined shoulders or grooves that meet the requirements of the coupling manufacturer.
 4. Pipe shall be supplied in lengths not in excess of 20 feet having rubber-ring type push-on joints, standard mechanical joints or restrained joints where required for underground piping and flanged joint piping for all above grade piping as shown on the Drawings.
 5. Coatings and Linings
 - a. Exterior of pipe and fittings:
 - (1) Buried pipe and fittings: factory applied bituminous coating or coal tar varnish or asphalt base paint, one-mil thick in accordance with AWWA C-151.
 - (2) Exposed pipe and fittings: factory applied coating of a universal rust-inhibitive primer 2.0 mils dry thickness in accordance with AWWA C-115.
 - b. Interior of pipe and fittings (unless indicated otherwise on Drawings):
 - (1) All sanitary force mains: ceramic epoxy lining in accordance with the following Specification:
 - (a) All ductile iron pipe and fittings shall be delivered to the application facility without asphalt, cement lining, or any other lining on the interior surface. The

ceramic epoxy lining shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment. The lining shall be a minimum 40 mils dry film thickness. Any request for substitution must be accompanied by a successful history of lining pipe and fittings for sewer service, a test report verifying the following properties and a certification of the test results.

- (b) A permeability rating of 0.00 when tested according to the procedure described in Method A of ASTM E96-93, Procedure A with a test duration of 30 days.
- (c) The following tests must be run on coupons from factory lined ductile iron pipe:
 - ASTM B 117-85 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.
 - ASTM G 95-87 Cathodic Disbondment (1.5 volts @ 77°F) – Results to equal no more than 0.5mm undercutting after 30 days.
 - Immersion Testing rated using ASTM D714-87
 - 20% Sulfuric Acid – No effect after two years.
 - 140°F – 25% Sodium Hydroxide – No effect after two years.
 - 160°F Distilled Water – No effect after two years.
 - 120°F Tap Water (scribed panel) – 0.0 undercutting after two years with no effect.
 - Abrasion Resistance – Less than 4 mils loss after one million cycles on a ± 22.50 sliding aggregate slurry abrasion tester using a sharp natural siliceous gravel with a particle size between 2 mm and 10 mm.
- (d) Application of the lining shall be done under the pipe manufacturer's recommendations.

- B. Fittings: All ductile iron pipe fittings for piping shall have a minimum pressure rating as follows:

DUCTILE IRON PIPE

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1. All fittings shall be Class 125 (ANSI B16.1) unless otherwise specifically noted. Determine the pressure rating of the fittings based on the test pressures as shown in Section 01660: Piping and Equipment – General Field Testing, as follows:
 - a. Use ductile iron fittings of the pressure class rating required, i.e., 350 psi up to 24 inch, and 250 psi for 30 inch and larger.
 - b. Fittings 3-inch through 48-inch diameter shall be mechanical joint ductile-iron compact fittings conforming to the requirements of ANSI/AWWA C153/A21.53. Cast iron fittings above 48-inch or which there is not a compact fitting available, shall conform to the requirements of ANSI/AWWA C110/A21.10.
 - c. Fittings shall be provided with joints suitable for use with the pipe with which they are to be installed.
- C. Joints (as shown on the Drawings and/or as specified):
 1. General: Joints in "runs" of above grade piping or piping located in vaults and structures shall be flanged. Joints in "runs" of buried piping shall be of the push-on or mechanical-joint type per AWWA C111, or factory restrained joints, except where flanged joints are required to connect to valves, meters, and other equipment.
 2. Flanges:
 - a. Flanges shall be Class 125 per ANSI B16.1 unless otherwise specifically noted.
 - b. Gaskets: Fullface, 1/8 inch thick, cloth-inserted rubber: Johns-Manville No. 109, John Crane Co. Style 777, American Toru Seal or equal. Gaskets shall be suitable for a water pressure of 350 psi at a temperature of 180 degrees Fahrenheit (°F).
 - c. Bolts and Nuts for Flanges: Bolts and nuts for flanges, flanges in open vaults and structures, and flanges located outdoors above ground shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8 for bolts, and ASTM A 194, Grade 8 for nuts. Bolts and nuts greater than or equal to 1 inch shall be carbon steel, ASTM A 307, Grade B, with cadmium plating, ASTM A 165, Type NS.
 - d. Provide specially drilled flanges when required for connection to existing piping or special equipment.

e. Flanges shall be long-hub type screwed tightly on pipe by machine at the foundry prior to facing and drilling. Flange faces shall be coated with a rust inhibitor immediately after facing and drilling. Field assembled screwed on flanges are prohibited.

3. Push-On And Mechanical Joint (ANSI A21.11):

a. The plain ends of push-on pipe shall be factory machined to a true circle and chamfered to facilitate fitting the gasket.

b. Provide gaskets manufactured from a composition material suitable for exposure to the liquid to be contained within the pipe.

c. Each joint shall be complete with rubber gasket, cast iron gland and all required bolts and nuts.

4. Restrained Joints:

a. Acceptable methods of thrust restraint are restrained "lock type" joints manufactured by the pipe manufacturer or restraint mechanisms utilizing a multiple wedge design (Megalug, or equal). Set screws will not be allowed.

b. Pipe joints shall be restrained type as accepted by the Owner/Engineer and as shown in Paragraph 2.1, C, 4.e. Restrained joints that require field welding or requiring set screws will not be acceptable.

c. Pipe joints shall be restrained each side of the fitting for a continuous distance in accordance with DIPRA "Thrust Restraint Design for Ductile Iron Pipe". Distance restrained shall be based on sand-silt soil type, 3.0 feet of cover and Type 2 laying condition.

d. Bolts and nuts for restrained joints shall be Corten, low alloy, high strength steel.

e. Manufacturers of restrained joints are limited to the following:

- | | | |
|-----|-----------------|---|
| (1) | American | Fast Grip Gasket |
| (2) | EBAA Iron, Inc. | Mega-lug Series 1100; Series 1700
Restraint; Series 2000 PV; Series RS-
3800 Restraining Coupling |
| (3) | Ford | UFR-1400, 1300C Series |
| (4) | Star | Star Grip Series 3000; |

		All Grip Series 3600
(5)	U.S. Pipe	Field Loc Gasket
(6)	Sigma	One-LOK SLD (3-36")
(7)	Mueller	Aquagrip Restraint System
(8)	Romac	Grip Rings

2.2 PIPING ACCESSORIES

A. Outlets

1. For outlets larger than 2 inches, provide a tee with a flanged outlet.
2. Provide outlets 2 inches and smaller by tapping and attaching a service saddle. Service saddles shall be as specified herein.

PART 3 – EXECUTION

3.1 INSPECTION AND TESTING

- A. All pipe shall be inspected and tested at the foundry.
- B. The OWNER shall have the right to have any or all piping, fittings or special castings inspected and tested by an independent testing agency at the foundry or elsewhere. Such inspection and testing will be at the OWNER'S expense.
- C. Mark as rejected and immediately remove from the job site, all pipe lengths showing a crack, damaged lining, or receiving a severe blow that may cause an incipient fracture, even though no such fractures can be seen.
- D. Removal of Cracked Portions: Any pipe showing a distinct crack, but no incipient fracture beyond the limits of the visible crack, may be cut off and the sound portion installed. Cut the pipe at least 12 inches from the visible limits of the crack. Cutting of pipe shall be done by skilled workmen, and in such a manner as to not damage the pipe. Every cut shall be square and smooth, with no damage to the pipe lining. Cut surfaces, shall be recoated as specified for the pipe.
- E. Carefully inspect and hammer test all pipe and fittings prior to installation.

3.2 INSTALLATION

- A. Assembling joints:
 1. Push-on Joints:
 - a. Insert the gasket into the groove of the bell.

- b. Uniformly apply a thin film of special lubricant over the inner surface of the gasket that will contact the spigot end of the pipe.
 - c. Insert the chamfered end of the spigot end into the gasket and push until it seats against the bottom of the bell.
2. Flanged Joints:
- a. Bolt holes of flanges shall straddle the horizontal and vertical centerlines of the pipe. Clean flanges by wire brushing before installing flanged fittings. Clean flange bolts and nuts by wire brushing; lubricate bolts with oil and graphite.
 - b. Insert the nuts and bolts (or studs) finger tighten, and progressively tighten diametrically opposite bolts uniformly around the flange to the proper torque.
 - c. Execute care when tightening joints to prevent undue strain upon valves, pumps and other equipment.
 - d. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.
3. Mechanical joints:
- a. Thoroughly clean, with a wire brush, surfaces that will be in contact with the gaskets.
 - b. Lubricate the gasket, bell and spigot by washing with soapy water.
 - c. Slip the gland and gasket, in that order, over the spigot and insert the spigot into the bell until properly seated.
 - d. Evenly seat the gasket in the bell at all points, center the spigot, and firmly press the gland against the gasket.
 - e. Insert the bolts, install the nuts finger tight, and progressively tighten diametrically opposite nuts uniformly around the joints to the proper tension with a torque wrench.
4. Restrained Joints: Follow manufacturer's instructions for particular joint installed.

B. Fabrication:

1. Tapped connections:

- a. Make all tapped connections as shown on the Drawings or as directed by the Owner/Engineer.
- b. Make all connections watertight and of adequate strength to prevent pullout.
- c. Drill and tap normal to the longitudinal axis of the pipe.

2. Cutting:

- a. Perform all cutting with machines having rolling wheel cutters or knives designed to cut ductile iron. The use of a hammer and chisel to cut pipe is prohibited.
- b. After cutting, examine all cut ends for possible cracks.
- c. Carefully chamfer all cut ends to be used with push-on joints to prevent damage to gaskets when pipe is installed.

C. Installing Buried Piping:

1. Inspect each pipe and fitting before lowering the buried pipe or fitting into the trench. Inspect the interior and exterior protective coatings. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
2. Handle pipe in a manner to avoid any damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.
3. When installing piping in trenches, do not deviate more than one inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.
4. Grade the bottom of the trench by hand to the line and grade to which the pipe is to be laid, with allowance for pipe thickness. Remove hard spots that would prevent a uniform thickness of bedding. Before laying each section of the pipe, check the grade with a straightedge and correct any irregularities found. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between bell holes, except that the grade may be disturbed for the removal of lifting tackle.
5. At the location of each joint, dig bell (joint) hole dimensions in the bottom of the trench and at the sides to permit visual inspection of the entire project.
6. Keep the trench in a dewatered condition during pipe laying in accordance with Section 02240: Dewatering (During Construction).

7. When the pipe laying is not in progress, including the noon hours, close the open ends of pipe. Do not permit trench water, animals, or foreign material to enter the pipe.
8. Polyethylene encasement shall be installed in accordance with the manufacturer's instructions, or in a manner acceptable to the Owner/Engineer. Polyethylene encasement shall overlap the upstream joint by 2 feet and shall be adhered to said joint with 2-inch wide marking tape color-coded to reflect the use of the pipe. Upon installation of the encasement, any slacks, cuts or damaged portions of the polyethylene encasement shall be securely mended with tape.
9. Backfill material shall be the same as specified for pipe without polyethylene encasement; however, extra care should be taken that the backfill be free from cinders, refuse, boulders, rocks, stones, or other materials that could damage the encasement. Special care shall be taken to prevent damage to the polyethylene wrapping when placing backfill.
10. Because exposure to sunlight will deteriorate polyethylene film, such exposure prior to backfilling the wrapped pipe shall be kept to a minimum.

D. Pipe Deflection:

1. Push-on and mechanical joints:
 - a. The maximum permissible deflection of alignment at joints, in inches for 20 foot lengths:
 - b.

Size of Pipe (in.)	Push-On	Mechanical	Deflection Angle
4	19	31	8°-18'
6	21	30	7°-07'
8	21	22	5° - 21'
10	21	22	5° - 21'
12	21	22	5° - 21'
14	21		3° - 35'
16	21		3° - 35'
18	21		3° - 00'
20	21		3° - 00'
24	21		2° - 23'
30	21		2° - 23'
36	17		2° - 05'
42	12		2° - 00'
48	12		2° - 00'

- c. The maximum permissible deflections for other lengths shall be in proportion to the above deflections.

2. Flexible and restrained joints: The maximum deflection in any direction shall not exceed the manufacturer's instructions and recommendations.

3.3 CLEANING AND FLUSHING

- A. Prior to the pressure and leakage tests, all piping shall be thoroughly cleaned of all dirt, dust, oil, grease, and other foreign matter.
- B. All lines shall be thoroughly flushed with clean water to clear all lines of foreign matter.
- C. Refer to Section 02641: Pipe Cleaning and Pigging.

3.4 FIELD TESTING

- A. All field tests shall be made in the presence of the Owner/Engineer. Except as directed otherwise, all pipelines shall be tested. Pipelines laid in excavation (other than trench excavation) or embedded in concrete, shall be tested prior to backfilling of the excavation or placing of the concrete.
- B. Pressure testing of pipe shall be performed in accordance with Section 02661: Pressure Testing of Piping, herein.

END OF SECTION

SECTION 15100
VALVES AND ACCESSORIES – POTABLE WATER

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets forth the requirements for materials and operations necessary to provide and install valves, taps, and various accessories. This Section will apply for the additional materials the CONTRACTOR is required to provide and install above and beyond materials provided by the CITY.

1.2 REFERENCES

- A. Valves and accessories shall comply with the requirements of the CITY Utilities Department Standard Details, latest edition.
 - 1. For Acceptable Manufactures by the CITY, refer to the CITY’s Utility Department Standard Details noted above.

1.3 SUBMITTALS

- A. Submit shop drawings to include manufacturer’s specifications, performance, and warranty literature.

PART 2 – PRODUCTS

2.1 GATE VALVES

- A. Gate valves 48 inches and less in diameter shall be ductile iron body, resilient seated gate valve, fusion bonded on the interior and exterior of the valve in accordance with AWWA C509-87, 0-ring type with non-rising stem, and opening counterclockwise. Valves shall be manufactured in accordance with AWWA C-509-87 for NRS valves and designed for 250 psi working pressure. Valves for buried services shall have mechanical joint ends and 2-inch operation nut in accordance with AWWA C509. One socket valve wrench shall be provided with extension as required. Valves for above ground service shall be American Standard flanged, with wheel operator. The provided valves shall be manufactured in the United States and be acceptable to the CITY.
- B. Gate valves larger than 48 inches shall be cast iron bodies, bronze mounted, double discs, 0-ring type with non-rising stem and opening counterclockwise. Valves shall be manufactured in accordance with AWWA C500-71 for NRS valves and designed for 150 psi working pressure. Valves for buried service shall have mechanical joints ends and 2-inch operating nut in accordance with AWWA

C500. One socket valve wrench shall be provided with extension as required. Valves for above ground shall be American Standard flanged, with wheel operator.

2.2 VALVE BOXES

- A. Valve boxes shall be provided for all buried valves. Valve boxes shall consist of cast iron base and adjustable top section with cover that shall be marked "Water". Extensions shall be provided as required to meet grade.

2.3 AIR RELEASE AND/OR COMBINATION VALVE ASSEMBLY

- A. An air release valve assembly shall be furnished and installed on the water main as shown on the Drawings. Air release valve assembly shall consist of a combination short body, air release vacuum breaker valve, installed in a manhole or vault with vented manhole cover, gate valve, fittings, tapping saddle and connecting piping to the main. The combination assembly will include air intake valving.
- B. Air release or combination valves shall be one inch for 16" diameter pipe and smaller and two inch for 18" diameter and above pipe and shall be the automatic type installed in a concrete box or vault as shown on the Drawings. Box and lid shall be sized to totally enclose the valve. Pipe, fittings, and valves for the assembly shall be as specified. A corporation stop shall be tapped into the main using the procedures as recommended by the pipe manufacturer. The corporation stop shall be manufactured by Mueller, Hays, or CITY accepted equal. The valve shall be manufactured by Multiplex Manufacturing Company, A.R.I, Valve and Primer Corporation, or CITY accepted equal.

2.4 TAPPING SLEEVE AND TAPPING VALVE

- A. The tapping sleeve and valve shall be designed for making a wet tap on an existing water main. The tapping sleeve shall be made of high quality ductile iron conforming to the material specifications of ANSI/AWWA C110/A21.10 or fusion bonded epoxy coated steel. The tapping sleeve shall be equipped with a molded rubber gasket to completely encircle the tapped opening thereby insuring a complete watertight connection. It shall be designed to withstand a working pressure of at least 200 psi. The outlet change of the tapping sleeve and valve shall be Class 125 (A.S.A.B16.1-1960). The tapping sleeve and valve shall include all necessary bolts, nuts and gaskets. The tapping sleeve shall be a mechanical joint type with a flanged outlet such as manufactured by MUELLER, American Flow Control, or CITY accepted equal. The tapping valve shall be a resilient seat gate valve such manufactured by MUELLER, American Flow Control, U.S. Pipe Metro Seal or CITY accepted equal.

PART 3 – EXECUTION

3.1 SETTING VALVES AND BOXES

- A. Valves and valve boxes as specified in the preceding paragraphs shall be installed where shown on the Drawings unless otherwise directed. Valves shall be set plumb with the base of the valve box centered over the valve and resting on compacted backfill. The top section of the box shall be set to allow equal movement above and below finished grade. After being correctly positioned, fill shall be carefully tamped around the valve box for a distance of 4 feet on all sides of the box. In paved areas, top of the cover shall be flush with the finished paving. In off-street areas, the cover shall be set 1 inch above existing grade unless otherwise directed by the CITY and a concrete pad shall be poured around the top of the box as shown on the detail Drawings.

END OF SECTION

SECTION 15101
VALVES AND ACCESSORIES - SANITARY

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets for the requirements for valves and accessories to be installed as part of the project sanitary system work.

1.2 REFERENCES

- A. Materials and products shall be in conformance with the CITY’s Utilities Department Standard Details, latest edition.
 - a. For Acceptable Manufactures by the CITY, refer to the CITY’s Utility Department Standard Details noted above or see Section 1.4 below.
- B. Section 01340: Shop Drawing Procedures.
- C. Section 02661: Pressure Testing of Piping.

1.3 SUBMITTALS

- A. Submit shop drawings to include manufacturer’s specification, performance and warranty literature.

1.4 MANUFACTURER

- A. Gate Valves (12” and smaller) shall be limited to the following:
 - 1. American Flow Control Series 2500
 - 2. American R/D Series 2000
 - 3. AVK Series 25
 - 4. Clow Series F-6100
 - 5. Kennedy Series 4571
 - 6. M&H Series 4067
 - 7. Mueller Series A2360
 - 8. U.S. Pipe Metroseal 250
- B. Gate Valves (16” – 48”) shall be limited to the following:
 - 1. American Flow Control Series 2500
 - 2. Clow Series F-6100
 - 3. Mueller Series A2361
 - 4. U.S. Pipe Series 4571
 - 5. Kennedy Series 4571

6. M&H Series 4067
- C. Plug Valves (Full Port Only) shall be limited to the following:
1. Clow Full Flow Series F5412, F5413
 2. DeZurik 100% Port Eccentric Plug Valve
 3. Milliken Fig. 610, 611
- D. Air release/vacuum valves shall be a maximum of 22 inches in height and shall be limited to the following:
1. APCO 400
 2. ARI D-025
 3. Crispin SL20
 4. Val-Matic VM-48A/301
- E. Tapping sleeves shall be limited to the following:
1. American Flow Control Series 2800
 2. Clow Series F-5205, F-5207
 3. Mueller Series H-615, H-616, H-619, F-9
 4. U.S. Pipe Series T-9
 5. Smith Blair Series 622
 6. JCM Series 412

PART 2 – PRODUCTS

2.1 GATE VALVES

- A. Gate valves 2 inches to 48 inches in diameter shall be designed for 250 psi maximum working pressure and shall be resilient seated wedge type with ductile iron bodies conforming to ASTM A536. The gate and rubber coat shall conform to ASTM D429. The interior and exterior surfaces shall be fusion bonded epoxy coated in accordance with ANSI/AWWA C550. Valves shall be manufactured to meet or exceed the requirements of ANSI/AWWA C515 and C-500 O-ring type with non-rising stem, and opening counterclockwise. Valves 24 inches or greater in diameter shall be equipped with bevel gearing and shall be installed horizontally. Valves for buried service shall have mechanical joint ends and operation nut in accordance with AWWA C509/C515. One socket valve wrench shall be provided with extension as required. Valves for above grade service shall be flanged with wheel operator.

2.2 PLUG VALVES

- A. Plug valves shall be of the ballcentric type with resilient plugs faced with natural or synthetic rubber suitable for service in sewage and sludge piping. Valves shall be of type which provide tight shut-off for pressure from either direction.
- B. Port areas shall be unobstructed when open and have smoothly shaped waterways of not less than 100 percent of full pipe area.
- C. Bodies shall be of semi-steel, suitable for 125-pound working water pressure and shall have raised seats.
- D. Valves shall have permanently lubricated upper and lower Type 304 stainless-steel bushings on plug journal ends.
- E. Valves 8 inches and larger shall be gear-operated and valves smaller than 8 inches shall be wrench-operated, except as otherwise shown or specified. Valves for buried service shall be equipped with 2-inch square operating nuts.
- F. Gear operators shall be totally enclosed, worm-gear type permanently lubricated, and shall be watertight and dust-tight.
- G. Adjustable stops shall be provided on gear operators for the open and closed position to prevent over travel, and shall have a valve disk position indicator.
- H. A suitable lever or wrench shall be provided for each six wrench-operated valves and at least one wrench for each operating station. Wrenches or wheels and chains shall be of suitable size and sufficient length for each operation of the valves at their rated working pressure.
- I. Valves for buried service shall be fitted with mechanical joint ends.

2.3 VALVE BOXES

- A. Valve boxes shall be provided for all buried valves. Valve boxes shall consist of cast iron base and adjustable screw-type top section with cover that shall be marked "Sewer". Extensions shall be provided as required to meet grade.
- B. Valve boxes shall be 5-1/4" and manufactured by U.S. Foundry, East Jordan Iron Works, or CITY approved equivalent.

2.4 TAPPING SLEEVES AND VALVES

- A. Tapping sleeves and valves shall be used to make "wet" or "hot" taps into existing mains when shown on the Drawings.
- B. The tapping sleeve shall be all ductile iron or fusion bonded epoxy coated steel construction with a flanged outlet for connection to the tapping valve.

- C. The tapping valve shall be fusion bonded epoxy coated, both externally and internally, in accordance with ANSI/AWWA C550. The valve shall be resilient wedge type with one end flanged to attach to the tapping sleeve. The valve shall be non-rising stem and have a maximum working pressure of 250 psig.

PART 3 – EXECUTION

3.1 CLEANING AND FLUSHING

- A. All valves shall be thoroughly cleaned of all dirt, dust, oil, grease, and other foreign matter. This work shall be done with care to avoid damage to any inside coating.
- B. All valves shall be thoroughly flushed with clean water to clear the lines of foreign matter.
- C. After cleaning, valves shall be tested for pressure and leakage.

3.2 FIELD TESTING

- A. All valves shall be tested in accordance with the requirements of AWWA Standard C-515 and C-600, and Section 02661: Pressure Testing of Piping.

3.3 INSTALLATION

- A. Valves
 - 1. Valves for buried service shall be set plumb with the base of the valve box centered over the valve actuator and resting on compacted backfill. The top section of the box shall be set to allow equal movement above and below finished grade. After being correctly positioned, fill shall be carefully tamped around the valve box for a distance of 4 feet on all sides below the box. In paved areas, top of the cover shall be flush with the unfinished paving. If off-street areas, the cover shall be encapsulated in a concrete pad set flush with the existing grade and according to the detail Drawings.
 - 2. The valve manufacturer shall select and mount the gear operator and accessories on each valve and stroke the valve from fully open to fully closed prior to shipment.

END OF SECTION

SECTION 15110
VALVES AND ACCESSORIES – RECLAIMED WATER

PART 1 – GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section sets forth the requirements for materials and operations necessary to provide and install valves, taps, and various accessories. This Section will apply for the additional materials the CONTRACTOR is required to provide and install above and beyond materials provided by the CITY.

1.2 REFERENCES

- A. The CITY's Utility Department Standard Details, latest edition.
 - 1. For Acceptable Manufactures by the CITY, refer to the CITY's Utility Department Standard Details noted above.

1.3 SUBMITTALS

- A. Submit shop drawings to include manufacturer's specification, performance and warranty literature

PART 2 – PRODUCTS

2.1 GATE VALVES

- A. Gate valves 48 inches and less in diameter shall be ductile iron body, resilient seated gate valve, fusion bonded on the interior and exterior of the valve in accordance with AWWA C509-87, 0-ring type with non-rising stem, and opening counterclockwise. Valves shall be manufactured in accordance with AWWA C-509-87 for NRS valves and designed for 250 psi working pressure. Valves for buried services shall have mechanical joint ends and 2-inch operation nut in accordance with AWWA C509. One socket valve wrench shall be provided with extension as required. Valves for above ground shall be American Standard flanged, with wheel operator. The provided valves shall be manufactured in the United States and be acceptable to the CITY.
- B. Gate valves larger than 48 inches shall be cast iron bodies, bronze mounted, double discs, 0-ring type with non-rising stem and opening counterclockwise. Valves shall be manufactured in accordance with AWWA C500-71 for NRS valves and designed for 150 psi working pressure. Valves for buried service shall have mechanical joints ends and operating nut in accordance with AWWA C500.

One socket valve wrench shall be provided with extension as required. Valves for above ground shall be American Standard flanged, with wheel operator.

2.2 VALVE BOXES

- A. Valve boxes shall be provided for all buried valves. Valve boxes shall consist of cast iron base and adjustable top section with cover that shall be marked "Reclaimed Water". Extensions shall be provided as required to meet grade.

2.3 AIR RELEASE AND/OR COMBINATION VALVE ASSEMBLY

- A. An air release valve assembly shall be furnished and installed on the reclaimed water main as shown on the Drawings. Air release valve assembly shall consist of a combination short body, air release vacuum breaker valve, installed in a manhole or vault with vented manhole cover, gate valve, fittings, tapping saddle and connecting piping to the main. The combination valve will include air intake valving.
- B. Air release and or combination valves shall be 1" for 16" diameter pipe and smaller and 2" for 18" diameter and above pipe and shall be the automatic type installed in a concrete manhole or vault as shown on the Drawings sized to totally enclose the valve. Pipe, fittings, and valves for the assembly shall be as specified. A corporation stop shall be tapped into the main using the procedures as recommended by the iron pipe manufacturer. The corporation stop shall be Mueller H-10045, or Hays 5284, or CITY approved equal. The valve shall be Type N, Crispin, as manufactured by Multiplex Manufacturing Company, or Model 200 APCO, as manufactured by Valve and Primer Corporation, or CITY approved equal.

2.4 TAPPING SLEEVE AND TAPPING VALVE

- A. The tapping sleeve and valve shall be designed for making a wet tap on an existing reclaimed water main. The tapping sleeve and valve shall be made of high quality ductile iron conforming to the material specifications of ANSI/AWWA C110/A21.10 or fusion bonded epoxy coated steel. The tapping sleeve shall be equipped with a molded rubber gasket to completely encircle the tapped opening thereby insuring a complete watertight connection. It shall be designed to withstand a working pressure of at least 200 psi.
- B. The outlet change of the tapping sleeve and valve shall be Class 125 (A.S.A.B16.1-1960). The tapping sleeve and valve shall be hot dipped galvanized after fabrication. All internal threads shall be tapped or re-tapped after galvanizing. The tapping sleeve and valve shall include all necessary bolts, nuts and gaskets. The tapping sleeve shall be a mechanical joint type with a flanged outlet such as MUELLER Model H-615, American Flow Control, or CITY

approved equal. The tapping valve shall be a resilient seat gate valve, such as MUELLER Model T2360, American Flow Control Series 2500, U.S. Pipe Metro Seal Model 250, or CITY approved equal.

PART 3 – EXECUTION

3.1 SETTING VALVES AND BOXES

- A. Valves and valve boxes as specified in the preceding paragraphs shall be installed where shown on the drawings unless otherwise directed. Valves shall be set plumb with the base of the valve box centered over the valve and resting on compacted backfill. The top section of the box shall be set to allow equal movement above and below finished grade. After being correctly positioned, fill shall be carefully tamped around the valve box for a distance of 4 feet on all sides of the box. In paved areas, the top of the cover shall be flush with the finished paving. In off-street areas, the cover shall be set 1 inch above existing grade unless otherwise directed by the CITY/ ENGINEER and a concrete pad shall be poured around the top of the box as shown in the standard details.

END OF SECTION

APPENDIX A

PERMITS

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.

Vision: To be the Healthiest State in the Nation

July 18, 2018
ELECTRONIC CORRESPONDENCE
macrinaj@codb.us
cburkett@mckimcreed.com

**In the matter of an
Application for Permit by:**

City of Daytona Beach
Attn.: Jo Ann Macrina, P.E., Deputy Utilities Director
125 Basin Street, Suite 204
Daytona Beach, FL 32114

VCHD File Number: 0129387-392-DS
County: VOLUSIA

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number 0129387-392-DS for construction of:

Project includes the replacement of approximately 1,415 LF of existing 10-inch water main with new 10-inch DIP water main and associated water service connections. 1,417 LF of 10" restrained joint DIP and 145 LF of 16" restrained joint DIP, 50 LF of a 14" restrained joint DIP; 230 LF of 6" restrained joint DIP; and 36 LF of 2" restrained joint DIP water main, and appurtenances issued pursuant to Section 403.861(9), Florida Statutes.

This Permit is final and effective on the date filed with the clerk of the Florida Department of Health unless a petition for an administrative hearing is timely under Sections 120.569 and 120.57, Florida Statutes (F.S.), before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the application.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
- (c) A statement of how and when 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 which 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 requires reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition must be filed (received by the Clerk) with the Agency Clerk of the Department, Office of the General Counsel, 4052 Bald Cypress Way, Bin A02, Tallahassee, Florida 32399-1703. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 14 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the notice or within 14 days of receipt of the written notice, whichever occurs first. 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 14 days of receipt of such notice, regardless of the date of publication. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

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 Agency Clerk, before the deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. Mediation is not available in this proceeding.

Any party to this order has the right to seek judicial review pursuant to section 120.68, F.S., by filing a Notice of Appeal pursuant to Rule 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department, Office of the General Counsel, 4052 Bald Cypress Way, Bin A02, Tallahassee, Florida 32399-1703, and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Executed in Deland,

STATE OF FLORIDA
DEPARTMENT OF HEALTH IN VOLUSIA COUNTY

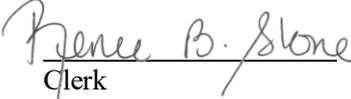


Ronald E. Freeman, P.E.
Professional Engineer III
(386) 736-5158

Enclosures: VCHD Permit No. 0129387-392-DS

CERTIFICATION OF SERVICE

The undersigned hereby acknowledges that this **Notice of Permit Issuance** and all copies were electronically transmitted before the close of business on July 18, 2018 to those persons listed.

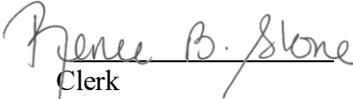

Clerk

07/18/2018

Date

FILING AND ACKNOWLEDGEMENT

FILED, on this date, under Section 120.52(7), Florida Statutes, with the designated Clerk, receipt of which is hereby acknowledged.


Clerk

07/18/2018

Date

Copies Furnished to:

Jo Ann Macrina, P.E., Deputy Utilities Director City of Daytona Beach macrinaj@codb.us

Curtis Burkett, P.E., Senior Project Manager, McKim and Creed, Inc. cburkett@mckimcreed.com

**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.

Vision: To be the Healthiest State in the Nation

July 18, 2018

Permittee:

Jo Ann Macrina, P.E., Deputy Utilities Director
City of Daytona Beach
125 Basin Street, Suite 204
Daytona Beach, FL 32114

Permit Number: 0129387-392-DS

Issue Date: July 18, 2018

Expiration Date: July 17, 2023

County: VOLUSIA

Project Name: S Martin Luther King Boulevard
Road Reconstruction

Water Supplier: City of Daytona Beach

PWS ID: 3640275

macrinaj@codb.us

cburkett@mckimcreed.com

This permit is issued under the provisions of Chapter [403](#), Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters [62-4](#), [62-550](#), [62-555](#) and [62-560](#). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT: The replacement of approximately 1,415 LF of existing 10-inch water main with new 10-inch DIP water main and associated water service connections. 1,417 LF of 10" restrained joint DIP and 145 LF of 16" restrained joint DIP, 50 LF of a 14" restrained joint DIP; 230 LF of 6" restrained joint DIP; and 36 LF of 2" restrained joint DIP water main, and appurtenances.

IN ACCORDANCE WITH: This permit does not pertain to any wastewater, storm water or dredge and fill aspects of the project. This permit is issued based upon the dates and submissions during the application process as follows: Construction drawing, permit application, specifications and details received on July 11, 2018 as submitted by Jo Ann Macrina, P.E., Deputy Utilities Director, City of Daytona Beach

LOCATION: Within right-of-way for S Martin Luther King Boulevard between International Speedway Boulevard and Orange Avenue, Daytona Beach Florida.

Work must be conducted in accordance with the General and Specific Conditions, attached hereto.

The permittee shall be aware of and operate under the Permit Conditions below. These applicable conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes per Florida Administrative Code Rule 62-555.533(1).

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are “permits conditions” and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup and auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
 - a. Have access to and copy any records that must be kept under conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - c. Sample or monitor any substances or parameters at any location reasonable necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of noncompliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in rule 62-302.500, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.
11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-730.300 F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (BACT)
 - b. Determination of Prevention of significant Deterioration (PSD)
 - c. Certification of compliance with the state Water Quality Standards (Section 401, PL 92-500)
 - d. Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

- c. Records of monitoring information shall include:
 1. the date, exact place, and time of sampling or measurements;
 2. the person responsible for performing the sampling or measurements;
 3. the dates analyses were performed;
 4. the person responsible for performing the analyses;
 5. the analytical techniques or methods used;
 6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

A. Construction Activities

1. Permit Modification

All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data [F.A.C. Rule 62-555.536].

2. Professional Engineer Supervision

Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit [F.A.C. Rule 62- 555.520(3)]

3. Artifacts

If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850) 245-6333 or (800) 847-7278 as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources and the permitting agency. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

4. Delays and Extension of Permit

If delays will cause project completion to extend beyond the expiration date of this permit, the permittee shall submit to the Department a request to extend the expiration date of this permit including the appropriate processing fee. This request shall specify the reasons for delay and shall be submitted to the Department for approval prior to the expiration date of this permit. Note that no specific construction permit shall be extended so as to remain in affect longer than five years per Rule 62-555.536(4), F.A.C.

5. Permit Transfer

In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. Persons proposing to transfer this permit must apply jointly for a transfer of the permit within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service by the Department using form, 62-555.900(8), Application for Transfer of a PWS Construction Permit along with the appropriate fee. [F.A.C. Rule 62-555.536(5)]

6. Obligation to Obtain Other Permits

This permit satisfies Drinking Water permitting requirements only and does not authorize construction of operation of this facility prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal or local agencies.

7. Limits on Authorizing Connections

This permit is for CONSTRUCTION ONLY of the components found on page 1 of this permit. This permit shall not infer that the clearance necessary for connection will be granted. Partial clearance may be granted, if required.

8. Gasoline Contamination

If gasoline contamination is found at the construction site, work shall be stopped and the proper authorities notified. With the approval of the Department, ductile iron pipe and fittings, and solvent resistant gasket materials shall be used in the contaminated area. The ductile iron pipe shall extend 100 feet beyond any solvent noted. Any contaminated soil that is excavated shall be placed on an impermeable mat, covered with waterproof covering, and held for disposal. If the site cannot be properly cleaned, then consultation with the Department is necessary prior to continuing with the project construction.

9. Wetlands Jurisdiction

This permit does not constitute approval of construction on jurisdictional wetland areas; therefore such approval must be obtained separately from the Water Management District or from DEP Environmental Resource Permitting (ERP) Section, as applicable, the permittee shall provide a copy of permit approval to the Department when water main installation involves activities on wetlands.

10. Security

Permittee shall ensure that the well and drinking water treatment facilities will be protected to prevent tampering, vandalism, and sabotage as required by Rule 62-555.315(1) & 62-555.320(5), F.A.C.

B. Construction Standards

1. National Sanitation Foundation (NSF)

All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform to National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.

2. American Water Works Association (AWWA)

Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations. The system shall be pressure and leak tested in accordance with AWWA Standard C600, C603, or C605, as applicable, and disinfected in accordance with AWWA Standard C651 - C653, as well as in accordance with Rule 62-555.340, F.A.C.

3. Lead Free

The installation or repairs of any public water system, or any plumbing in residential or nonresidential facilities providing water for human consumption, which is connected to a public water system shall be lead free in accordance with Rule 62-555.322, F.A.C.

4. Asbestos

If any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Central District Office prior to commencing any such activities at (407) 897-4100. Please be aware that a notification is required to be submitted to the Department at least 10 days prior to the start of a regulated project.

5. Hazard and Reuse Setbacks

Setback distances between potable water wells and sanitary hazards shall be in accordance with 62-555.312, F.A.C. Reclaimed water land application areas, if applicable, must not be located with the setback distance from potable water supply wells established in Chapter 62-610, F.A.C.

6. Line Separation

Permittee shall maintain vertical clearance and horizontal separation between water mains and sanitary sewers, storm sewers, etc. unless approved otherwise by the Department, as provided in Rule 62-555.314, F.A.C. and Section 8.6 of Recommended Standards for Water Works, a manual adopted by reference in Rule 62-555.330(3), F.A.C.

7. Color Coding of Pipes

The new or altered above ground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition" [F.A.C. Rule 62-555.320(10)]

8. Cross Connections

Permittee shall ensure that there shall be no cross-connection with any non-potable water source in accordance with Rule 62-555.360, F.A.C.

C. Operational Requirements

1. Record Drawings

The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

2. State Watch Office

The permittee or supplier of water shall telephone the State Watch Office (SWO), at 1-800- 320-0519 immediately (i.e., within two hours) after discovery of any actual or suspected sabotage or security breach, or any suspicious incident, involving a public water system in accordance with the F.A.C. Rule 62-555.350(10).

D. Clearance Requirements

1. Clearance Letter

The permittee must instruct the engineer of record to request system clearance from the Department within 60 days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the tests were completed more than 60 days before the Department received the results. [F.A.C. Rule 62-555.345]

Permitted construction or alteration of a public water system may not be placed into service until a letter of clearance has been issued by this Department. [F.A.C. Rule 62-345]

2. Requirements to Obtain Clearance

Prior to placing this project into service, permittee shall submit, at a minimum, all of the following to the Department for evaluation and approval for operation, as provided in Rules 62-555.340 and 62-555.345, F.A.C.:

- a. the engineer's Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components Into Operation [DEP Form 62-555.900(9)]
- b. certified record drawings, if there are any changes noted for the permitted project
- c. analytical results from two consecutive days of satisfactory bacteriological samples from locations found in paragraph 3 below
- d. copy of a satisfactory pressure test of the process piping performed in accordance with AWWA Standards [F.A.C. Rule 62-555.320(21)(a)(1)]

In order to facilitate the issuance of a letter of clearance, the Department requests that all of the above information be submitted as one package.

3. Cleaning, Disinfecting and Bacteriological Samples

The new facilities shall be cleaned and bacteriologically disinfected in accordance with Chapter 62-555, F.A.C. The bacteriological clearance data shall be submitted to Health Department with the engineer's certification of construction completion. [Section 62-555.340 and 62-555.315(6)(b), F.A.C.]

Bacteriological Sampling Locations: Copies of results from satisfactory bacteriological samples shall be submitted with the clearance package. Samples shall be taken from locations listed below, in accordance with Rules 62-555.315(6), 62-555.340 and 62-555.330, F.A.C. and American Water Works Association (AWWA) Standard C651-92. These locations are:

All points of connection to the existing mains

At all terminal ends of the proposed water mains

On straight run of pipes between two isolation valves. The maximum interval between two sampling locations shall be 1,200 ft.

Beginning and end of lines for each segment to be partially completed.

Per AWWA C651, samples shall not be taken from fire hydrants.

All locations shall be sampled on two separate days (at least 6 hours apart) with sample point location and chlorine residual readings clearly indicated on the report and/or drawings. Bacteriological sample results will be considered unacceptable if the tests were completed more than 60 days before the Department receives the results.

Issued this 18th day of July, 2018

STATE OF FLORIDA
FLORIDA DEPARTMENT OF HEALTH IN VOLUSIA COUNTY



Ronald E. Freeman, P.E.
Professional Engineer III

Florida Department of
Environmental ProtectionCentral District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767Carlos Lopez-Cantera
Lt. GovernorNoah Valenstein
Secretary**NOTIFICATION OF ACCEPTANCE OF USE OF A GENERAL PERMIT****PERMITTEE:**Jo Ann Macrina, PE, Director
City of Daytona Beach
125 Basin Street, Suite 204
Daytona Beach, FL 32114Email: macrinajoann@codb.us**PERMIT NUMBER:**

0342135-004-DWC/CG

ISSUE DATE:

January 25, 2018

EXPIRATION DATE:

January 24, 2023

COUNTY:

Volusia

PROJECT NAME:

S. Martin Luther King Blvd Rd

CONNECTED TO:

Daytona Bethune Point WRF

FACILITY ID:

FL0025984

Dear Ms. Macrina:

This letter acknowledges receipt of your Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System for the subject project. Our office received the Notice on January 4, 2018 and additional information supplied on January 24, 2018.

This is to advise you that the Department does not object to your use of such General Permit.

Please note the attached requirements apply to your use of this General Permit for constructing the proposed domestic wastewater collection/transmission system.

You are further advised that the construction activity must conform to the description contained in your Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System and that any deviation will subject the permittee to enforcement action and possible penalties.

Sincerely,

A handwritten signature in black ink that reads "Charles LeGros".

Charles LeGros
Environmental Consultant
Permitting and Waste Cleanup Program - Wastewater

CRL

cc: Curtis Burkett, PE, McKim & Creed, Inc, cburkett@mckimcreed.com
Charles LeGros, DEP, Charles.LeGros@dep.state.fl.us
Robert Schneider, PE, McKim & Creed, Inc, rschneider@mckimcreed.com

REQUIREMENTS FOR USE OF THE GENE MSRAL PERMIT FOR DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEMS:

1. This general permit is subject to the general permit conditions of Rule 62-4.540, F.A.C., as applicable. This rule is available at the Department's Internet site at:
<http://www.dep.state.fl.us/legal/Rules/shared/62-4/62-4.pdf> [62-4.540]
2. This general permit does not relieve the permittee of the responsibility for obtaining a dredge and fill permit where it is required. [62-604.600(6)(b)1]
3. This general permit cannot be revised, except to transfer the permit. [62-604.600(6)(b)2]
4. This general permit will expire five years from the date of issuance. If the project has been started and not completed by that time, a new permit must be obtained before the expiration date in order to continue work on the project. [62-4.030]
5. Upon completion of construction of the collection/transmission system project, and before placing the facilities into operation for any purpose other than testing for leaks or testing equipment operation, the permittee shall submit to the Department's Central District Office Form 62-604.300(8)(b), Request for Approval to Place a Domestic Wastewater Collection/Transmission System into Operation. This form is available at the Department's Internet site at: <http://www.dep.state.fl.us/water/wastewater/dom/dw-forms.htm>. [62-604.700(2)]

Please submit the entire clearance document package in electronic format to DEP_CD@dep.state.fl.us, with a copy to Charles.LeGros@dep.state.fl.us. If the file is very large, you may post it to the Wastewater Electronic Applications folder on the following ftp site at:

<ftp://ftp.dep.state.fl.us/pub/wastewater/>

After posting the document, send an e-mail to DEP_CD@dep.state.fl.us, with a copy to Charles.LeGros@dep.state.fl.us, alerting us that it has been posted. Any submitted drawings (should be sized 11" x 17") and the engineer of record's signed seal and dates on the required document must be legible for acceptance.

For further clarification contact:
Chuck LeGros (407) 897-4100
3319 Maguire Blvd, Suite 232
Orlando, Florida 32803-3767

6. The new or modified collection/transmission facilities shall not be placed into service until the Department clears the project for use. [62-604.700(3)]
7. Abnormal events shall be reported to the Department's Central District Office in accordance with Rule 62-604.550, F.A.C. For unauthorized spills of wastewater in excess of 1000 gallons per incident, or where information indicates that public health or the environment may be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER (800)320-0519 as soon as practical, but no later than 24 hours from the time the permittee or other designee becomes aware of the circumstances. Unauthorized releases or spills less than 1000 gallons per incident are to be reported orally to the Department's Central District Office within 24 hours from the time the permittee, or other designee becomes aware of the circumstances. [62-604.550]



Florida Department of
Environmental Protection

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Noah Valenstein
Secretary

**SELF-CERTIFICATION FOR
A STORMWATER MANAGEMENT SYSTEM IN UPLANDS SERVING
LESS THAN 10 ACRES OF TOTAL PROJECT AREA AND
LESS THAN 2 ACRES OF IMPERVIOUS SURFACES**

Owner(s)/Permittee(s): CITY OF DAYTONA BEACH, McKim & Creed
File No: 0368057001EG
File Name: UTILITY AND PEDESTRIAN UPGRADE
Site Address: Dr. Martin Luther King, Jr. Blvd Orange Avenue to
International Speedway
Daytona Beach FL - 32114
County: Volusia
Latitude: 29° 12' 20.3629"
Longitude: -81° 1' 37.1147"
Total Project Area: 1.92
Total Impervious Surface Area: 1.80
**Approximate Date of Commencement
of Construction:** 10/01/2018
Registered Florida Professional: Curtis Burkett
License No.: 41841
Company: McKim & Creed

Date: August 24, 2018

Curtis Burkett certified through the Department's Enterprise Self-Service Application portal that the project described above was designed by the above-named Florida registered professional to meet the following requirements:

- (a)The total project area involves less than 10 acres and less than 2 acres of impervious surface;
- (b)Activities will not impact wetlands or other surface waters;
- (c)Activities are not conducted in, on, or over wetlands or other surface waters;
- (d)Drainage facilities will not include pipes having diameters greater than 24 inches, or the hydraulic equivalent, and will not use pumps in any manner;
- (e)The project is not part of a larger common plan, development, or sale; and
- (f)The project does not:

- 1.Cause adverse water quantity or flooding impacts to receiving water and adjacent lands;
- 2.Cause adverse impacts to existing surface water storage and conveyance capabilities;
- 3.Cause a violation of state water quality standards; or
- 4.Cause an adverse impact to the maintenance of surface or ground water levels or surface water flows established pursuant to s. 373.042 or a work of the district established pursuant to s. 373.086, F.S.

This certification was submitted before initiation of construction of the above project. The system is designed, and will be operated and maintained in accordance with applicable rules adopted pursuant to part IV of chapter 373, F.S. There is a rebuttable presumption that the discharge from such system will comply with state water quality standards. Therefore, construction, alteration, and maintenance of the stormwater management system serving this project is authorized in accordance with s.403.814(12), F.S.

In accordance with s. 373.416(2), F.S., if ownership of the property or the stormwater management system is sold or transferred to another party, continued operation of the system is authorized only if notice is provided to the Department within 30 days of the sale or transfer. This notice can be submitted to:

FDEP Central District
3319 Maguire Blvd
Orlando, FL 32803

This certification was submitted along with the following electronic documents:

File Description
Project Drawings

If you have submitted this certification as a Florida Registered Professional, you may wish to sign and seal this certification, and return a copy to the Department, in accordance with your professional practice act requirements under Florida Statutes.

I, Curtis Burkett, License No. 41841, do hereby certify that the above information is true and accurate, based upon my knowledge, information and belief. In the space below, affix signature, date, seal, company name, address and certificate of authorization (if applicable).

This sealed certification may be submitted to the Department, either electronically (as an attachment in Adobe PDF or other secure, digital format) at Erp.selfcerts@dep.state.fl.us, or as a hardcopy, at the postal address below:

FDEP Central District
3319 Maguire Blvd
Orlando, FL 32803

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ATTACHMENT A: ASPHALT THICKNESS REPORT



**UNIVERSAL
ENGINEERING SCIENCES**

Consultants In: Geotechnical Engineering • Environmental Engineering •
Construction Materials Testing • Threshold Inspection • Private Provider Inspection • Geophysical Studies

911 Beville Road, Suite 3 • South Daytona, Florida 32119 • (386) 758-1105 • FAX (386) 760-4067

UES Project No.: 0410.100070.0000

UES Report No.: 116393

Date: 03/19/2010

**REPORT ON DENSITY AND DEPTH CHECKS
OF ASPHALTIC CONCRETE**

Client: City of Daytona Beach

Project: Pavement Evaluation Martin Luther King Boulevard, Daytona Beach, Florida

Date Cored: March 16 & 17, 2010

Sampled By: E. Dillon & M. Minton

Core No.	Core Location (mile) (Beginning point at Int. of MLK and Bellevue Ave.) Int @ 0.0 mile	Roadway Lane	Asphalt Thickness (inch)/Description	Base Thickness (inch)/Description	Soil Profile Two feet below Base
1	0.04	Northbound	1 inch/FC4 1 inch/S3 1 inch/Asphalt w/ shell	8 inch/Weathered Limestone (marl)	24 inch fine sand with trace shell
2	0.22	Northbound	1 inch/FC4 1 inch/S3 1 inch/Asphalt w/ shell	8 inch/Weathered Limestone (marl)	24 inch brown fine sand with trace shell
3	0.33	Northbound	1 inch/FC4 1 inch/S3 1 inch/Asphalt w/ shell	8 inch/Weathered Limestone (marl)	12 inch brown fine sand with trace shell; 12 inch fine sand
4	0.45	Northbound	1 inch/FC4 1 inch/S3 1 inch/Asphalt w/ shell	None Observed	24 inch brown to grey fine sand
5	0.55	Northbound	1 inch/FC4 1 inch/S3 1 inch/Asphalt w/ shell	8 inch/Weathered Limestone (marl)	24 inch brown to grey fine sand
6	0.67	Northbound	1.25 inch/FC4 1.0 inch/S3 1 inch/Asphalt w/ shell	8 inch/Weathered Limestone (marl)	6 inch brown sand with clay; 18 inch grey fine sand
7	0.76	Northbound	1.0 inch/FC4 1.0 inch/S1 2.5 inch /Asphalt w/ shell	8 inch/Weathered Limestone (marl)	24 inch brown fine with trace shell
8	0.87	Northbound	1.0 inch/FC4 1.0 inch/S3 1.5 inch/S1 2.5 inch /Asphalt w/ shell	8 inch/Weathered Limestone (marl)	24 inch brown to grey fine sand
9	0.98	Northbound	3.0 inch/S1	None Observed	8 inch light brown fine sand; 16 inch brown silty fine sand





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10	0.98	Southbound	1.0 inch /S1 2 inch/S1 1.5 inch/Asphalt w/ shell	8 inch/Coquina Shell	24 inch brown to grey fine sand
11	0.90	Southbound	1.0 inch/S1 2.0 inch/S1 1.5 inch Asphalt with shell	8 inch/Coquina Shell	24 inch brown to orange fine sand
12	0.81	Southbound	1.25 inch/S1 1.0inch/S3 1.0 inch/S1 2.5 inch/Asphalt with shell	8 inch/Weathered Limestone (marl)	24 inch grey fine sand with trace of shell
13	0.71	Southbound	1.25 inch/S1 1.0 inch/S3 1.0 inch/S1 2.5 inch Asphalt with shell	8 inch/Coquina Shell	24 inch brown sand with trace shell
14	0.59	Southbound	1.25 inch/S1 1.0 inch/S3 1.0 inch/S1 2.5 inch Asphalt with shell	8 inch/Weathered Limestone (marl)	24 inch brown sand with trace shell
15	0.48	Southbound	1.25 inch/S1 1.0 inch/S3 1.0 inch/S1 2.5 inch Asphalt with shell	8 inch/Fine Sand with Clay and traces of Rock	6 inch brown clayey fine sand; 18 inch brown fine sand
16	0.37	Southbound	1.0 inch/S1 1.5 inch/S3 2.5 inch Asphalt with shell	8 inch/Coquina with clay mix	24 inch brown to grey fine sand
17	0.25	Southbound	1.5 inch/S3 2.5 inch Asphalt with shell	8 inch/Weathered limestone (marl)	8 inch coquina with sand; 24 inch grey sand





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Date Cored: March 16 & 17, 2010

Sampled By: E. Dillon & M. Minton

Core No.	Core Location (mile) (Beginning point at Int. of MLK and Bellevue Ave.) Int @ 0.0 mile	Roadway Lane	Asphalt Thickness (inch)/Description	Base Thickness (inch)/Description	Soil Profile Two feet below Base
18	0.13	Southbound	1.5 inch/S3 2.5 inch Asphalt with shell	8 inch/Coquina with sand	24 inch brown to grey fine sand
Core No.	Core Location (mile) (Beginning point at Int. of ISB & Bellevue Ave.) Int @ 0.0 mile	Roadway Lane	Asphalt Thickness (inch)/Description	Base Thickness (inch)/Description	Soil Profile Two feet below Base
19	0.1	Northbound	1.5 inch/S3 3.5 inch Asphalt with shell	None Observed	32 inch brown sand with trace of rock
20	0.4	Southbound	1.5 inch/S3 3.5 inch Asphalt with shell	None Observed	6 inch brown sand; 24 inch clayey fine sand (marl)

Brian C. Pohl, P.E.
P.E. Number 60216
UNIVERSAL ENGINEERING SCIENCES

BCP/ly

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