CITY OF FORT LAUDERDALE

CONTRACT AND SPECIFICATIONS PACKAGE

BID/EVENT NO. 532

PROJECT NO. P12765

Enabling Works for Prospect Lake Water Treatment Plant (Rebid)

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Note: **The following documents are available electronically for completion and must be returned with your bid along with your bid security, proof of insurance, and proof of required licenses/certifications.**

Affidavit of Compliance with Foreign Entity Laws
CITB Questionnaire Sheet
CITB Specific References
City of Fort Lauderdale Bid/Proposal Construction Bid Certification Page
Contract Payment Method
Disadvantaged Business Enterprise Preference Certification
E-Verify Statement
Local Business Preference Certification
Non-Collusion Statement
Non-Discrimination Certification Form
Drug-Free Work Place Form

INVITATION TO BID

Sealed bids will be received electronically until **2:00 p.m.**, local time, on **October 13, 2025,** and opened online immediately thereafter for **BID EVENT NO., 532, PROJECT NO., P12765, Enabling Works for Prospect Lake Water Treatment Plant.**

Please be advised that effective immediately, and until further notice, all Invitation to Bids, Request for Proposals, Request for Qualifications, and other solicitations led by the City of Fort Lauderdale will be opened electronically via the City's on-line strategic sourcing platform at the date and time indicated on the solicitation. All openings will be held on the City's on-line strategic sourcing platform.

In the event of any conflict or discrepancy between bid price(s) submitted by bidder electronically into the City's online strategic sourcing platform Unit Price field(s), any other forms or attachments (whether part of the City's solicitation documents or documents created and uploaded by the bidder, or another section/field of the System, the online unit price(s) **inputted** electronically into the System by the bidder shall govern.

Anyone requesting assistance or having further inquiry in this matter must contact the Procurement Specialist indicated in the solicitation, via the Question and Answer (Q&A) forum on the City's online strategic sourcing platform before the Last Day for Questions indicated in the Solicitation.

This project is located at Prospect Lake Well Fields (Cypress Creek Road to the north, NW 31st Avenue to the East, and Prospect Road to the south, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, installation of 12 inch C900 water main, including connections to existing 20 inch and 12 inch water main, as well as all necessary demolition and restoration.

THE FOLLOWING IS APPLICABLE TO THIS SOLICITATION IF CHECKED:

☐ **LUMP SUM BID** - City shall pay awarded bidder the Contract Price for the performance of work described in this Invitation for Bid. Payment shall be at the lump sum price stated in this Invitation to Bid and/or resultant contract. This price shall be full compensation for all costs, including overhead and profit, associated with completion of all work in full conformity with the requirements as stated or shown, or both, in the contract documents. The cost of any item of work not covered in this solicitation shall still be provided and the cost borne by the contractor. NO CHANGE ORDERS WILL BE ALLOWED UNLESS IT IS OWNER-DRIVEN AND INITIATED BY THE CITY.

Drawing Plans: This Project consists of Drawing File No., 4-144-55, 193 sheets. Drawing plans may be obtained **free of charge** at the City's online strategic sourcing platform.

Licensing Requirements: Possession of a General Contractor License or Underground Utility Contractor's License is required for this Project.

OR

Any other State or County License(s), Certification(s) or Registration(s) deemed legally permissible by the City to conduct the nature of the work required in this solicitation.

Any sub-contractors employed by the Proposer shall be licensed and insured in accordance with this solicitation. Additionally, it is the Proposer's responsibility for ensuring that any sub-contractors' work meets the requirements of this solicitation at all times.

NOTE: Payment on this contract will be made by Visa or MasterCard.

Pre-Bid Conference/Site visit: There will not be a pre-bid conference and/or site visit for this Invitation to Bid.

It will be the sole responsibility of the bidder to inspect the City's location(s)/facilities and become familiar with the scope of the City's requirements and systems prior to submitting a bid. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the bidder has familiarized himself with the nature and extent of the work, equipment, materials, and labor required.

Bid Security: A certified check, cashier's check, bank officer's check or bid bond for **FIVE percent (5%)** of the bid amount, made payable to the City of Fort Lauderdale, Florida, shall accompany each offer.

Bid Bonds:

Bidders can submit bid bonds **three** different ways.

1) Bidders may **upload** their original executed bid bond on the City's online strategic sourcing platform to accompany their electronic bids and deliver the original, signed and sealed hard copy to the Finance Department, Procurement Services Division, 101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, Florida 33301-1016, **within five (5) business days** after bid opening, with the company name, bid number and title clearly indicated on the envelope.

3) Bidders can **hand deliver** their original, signed and sealed bid bond in a sealed envelope to the Finance Department, Procurement Services Division, 101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, Florida 33301-1016, **before time of bid opening**, with the company name, bid number and title clearly indicated on the envelope.

4) Bidders can **mail** their original, signed and sealed bid bond to the Finance Department, Procurement Services Division, 101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, Florida 33301-1016, **before time of bid opening**, with the company name, bid number and title clearly indicated on the envelope. NOTE: Bond must be received in Procurement and time stamped before bid opening.

It will be the sole responsibility of the bidder to ensure that its bid is submitted prior to the bid opening date and time listed. **PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. BIDS MUST BE SUBMITTED ELECTRONICALLY VIA THE CITY'S ONLINE STRATEGIC SOURCING PLATFORM.**

Certified Checks, Cashier's Checks and Bank Drafts:
These **CANNOT** be submitted via the City's online strategic souring platform, nor are their images allowed to be uploaded and submitted with your electronic bid. These forms of securities, as well as

hard copy bid bonds, must be received on or before the Invitation to Bid (ITB) opening date and time, at the Finance Department, Procurement Services Division, 101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, Florida 33301-1016, with the bid number and title clearly indicated on the envelope.

It is the bidder's sole responsibility to ensure that its bid bond or other bid security is received by the Procurement Services Division before the time of bid opening. Failure to adhere to this requirement may be grounds to consider the bid as non-responsive.

The City of Fort Lauderdale reserves the right to waive any informality in any or all bids and to reject any or all bids.

For information concerning technical specifications, please utilize the Q&A platform provided on the City's online strategic sourcing platform. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures, will only be transmitted by written addendum. **Bidders please note:** No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the bidder has familiarized himself with the nature and extent of the work, equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation.

Information on bid results and projects currently out to bid can be obtained on the City's website – https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services
For general inquiries, please call (954) 828-5933.

-END OF SECTION-

INSTRUCTIONS TO BIDDERS

The following instructions are given for the purpose of guiding bidders in properly preparing their bids or proposals. These directions have equal force and weight with the specifications, and strict compliance is required with all of these provisions.

QUALIFICATIONS OF BIDDERS – No bid will be accepted from, nor will any contract be awarded to, any person who is in arrears to the City of Fort Lauderdale, upon any debt or contract, or who has defaulted, as surety or otherwise, upon any obligation to the City, or who is deemed irresponsible or unreliable by the City Commission of Fort Lauderdale.

CONCERNING SUB-CONTRACTORS, SUPPLIERS, AND OTHERS - The amount of work that is sublet by the Bidder shall be limited by the condition that the Bidder shall, with his own organization, perform at least forty percent (40%) of the total dollar amount of the Work to be performed under the Agreement.

PERSONAL INVESTIGATION - Bidders shall satisfy themselves by personal investigation, and by such other means as they may think necessary or desirable, as to the conditions affecting the proposed work and the cost. No information derived from maps, plans, specifications, or from the Engineer or City staff shall relieve the Contractor from any risk or from fulfilling all terms of the contract.

INCONSISTENCIES – Any inconsistency between different provisions of the plans, specifications, bid or contract, or any point requiring explanation must be inquired by the bidder, in writing, at least ten (10) days prior to the time set for opening bids. After bids are opened, the bidders shall abide by the decision of the Engineer as to such interpretation.

ADDENDA AND INTERPRETATIONS - No interpretations of the meaning of the plans, specifications or other contract documents will be made orally to any bidder. Prospective bidders must request such interpretation in writing as instructed in the bid package. To be considered, such request must be received by the Questions and Answers deadline as indicated in the City's online strategic sourcing platform. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. **It is the bidder's responsibility to verify if addenda have been issued in the City's online strategic sourcing platform.** Failure of any bidder to receive any such addenda or interpretation shall not relieve any bidder from any obligation under its bid as submitted. All addenda so issued shall become a part of the contract document. **Bidder** shall verify in the City's online strategic sourcing platform that it has all addenda before submitting a bid.

LEGAL CONDITIONS - Bidders are notified to familiarize themselves with the provisions of the laws of the State of Florida relating to hours of labor on municipal work, and with the provisions of the laws of the State of Florida and the Charter and the ordinances of the City of Fort Lauderdale.

PUBLIC ENTITY CRIMES - A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of thirty-six (36) months from the date of being placed on the convicted vendor list.

FORMS OF BIDS - Each bid and its accompanying statements MUST BE SUBMITTED ELECTRONICALLY, IN GOOD ORDER WITH ALL BLANKS COMPLETED, and must show the name

of the bidder and a statement as to its contents. In the event of any conflict or discrepancy between bid price(s) submitted by bidder electronically into the City's online strategic sourcing platform Unit Price field(s), any other forms or attachments (whether part of the City's solicitation documents or documents created and uploaded by the bidder, or another section/field of the System, the online unit price(s) **inputted** electronically into the System by the bidder shall govern.

The bid must be signed by one duly authorized to do so, and in case signed by a deputy or subordinate, the principal's properly written authority to such deputy or subordinate must accompany the bid. No bid will be accepted, for any reason whatsoever, which is not submitted to the City as stated above, within the specified time.

INSURANCE - Contractor shall provide and shall require all of its sub-contractors to provide, pay for, and maintain in force at all times during the term of the Agreement, such insurance, including Property Insurance (Builder's Risk), Commercial General Liability Insurance, Business Automobile Liability Insurance, Workers' Compensation Insurance, Employer's Liability Insurance, and Umbrella/Excess Liability, as stated below. Such policy or policies shall be issued by companies authorized to do business in the State of Florida and having agents upon whom service of process may be made in the State of Florida.

BID BOND - A certified check, cashier's check or bank officer's check made payable to the City of Fort Lauderdale, or a bid bond in favor of the City of Fort Lauderdale shall accompany each bid as evidence of the good faith and responsibility of the bidder. The amount of the check or bond shall be retained by the City as liquidated damages in the event the bidder whose bid is accepted refuses to or fails to enter into a contract for the execution of the work solicited in this Invitation to Bid.

The bid bond or check shall be a guarantee that the successful bidder will promptly execute a contract satisfactory to the City for the work solicited in this Invitation to Bid and furnish good and sufficient bonds.

Following the full execution of a contract for the work solicited in this Invitation to Bid and the successful bidder's provision of good and sufficient bonds, in the event bid security was provided by check, the amount of the bid security accompanying the successful bidder's bid will be refunded to the successful bidder, or in the event bid security was provided by a bond, the bond accompanying the successful bidder's bid will be returned to the successful bidder. In the event the successful bidder fails to enter into, execute, and deliver a contract and furnish the required bonds within ten (10) days after the City provides notice to the successful bidder to deliver the executed contract and the required bonds, the bid bond shall immediately be payable to the City of Fort Lauderdale, or in the case of a check, the City shall retain the amount of the check, as liquidated damages. The City's retention of such amount shall not be construed as a penalty or forfeiture.

FILLING IN BIDS - All prices must be electronically submitted in the bid pages, and bids must fully cover all items for which prices are asked and no other. Where more than one person is interested, it is required that all persons interested or their legal representative make all verification and subscribe to the bid. In the event of any conflict or discrepancy between bid price(s) submitted by bidder electronically into the City's online strategic sourcing platform Unit Price field(s), any other forms or attachments (whether part of the City's solicitation documents or documents created and uploaded by the bidder, or another section/field of the System, the online unit price(s) **inputted** electronically into the System by the bidder shall govern.

PRICES QUOTED: Deduct any discount offered and quote firm net unit prices. In the case of a discrepancy in computing the amount of the bid, the unit price quoted will govern. All prices quoted shall be F.O.B. destination, freight prepaid (Bidder pays and bears freight charges, Bidder owns goods in

transit and files any claims), unless otherwise stated in Special Conditions. Each item must be bid separately. No attempt shall be made to tie any item or items contained in the ITB with any other business with the City.

BIDS FIRM FOR ACCEPTANCE: Bidder warrants, by virtue of bidding, that his bid and the prices quoted in his bid will be firm for acceptance by the City for a period of one hundred and twenty (120) days from the date of bid opening unless otherwise stated in the ITB. The City shall award contract within this time period or shall request to the recommended awarded vendor an extension to hold pricing, until products/services have been awarded.

ADDITIONAL ITEMS OR SERVICES: The City may require additional items or services of a similar nature, but not specifically listed in the contract. The Contractor agrees to provide such items or services and shall provide the City prices on such additional items or services. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to procure those items or services from other vendors, or to cancel the contract upon giving the Contractor thirty (30) days written notice.

DELETION OR MODIFICATION OF SERVICES: The City reserves the right to delete any portion of the Contract at any time without cause, and if such right is exercised by the City, the total fee shall be reduced in the same ratio as the estimated cost of the work deleted bears to the estimated cost of the work originally planned. If work has already been accomplished on the portion of the Contract to be deleted, the Contractor shall be paid for the deleted portion on the basis of the estimated percentage of completion of such portion.

If the Contractor and the City agree on modifications or revisions to the task elements, after the City has approved work to begin on a particular task or project, and a budget has been established for that task or project, the Contractor will submit a revised cost to the City for approval prior to proceeding with the work.

TERMINATION FOR UNAPPROPRIATED FUNDS**:** The obligation of the City for payment to a Contractor is limited to the availability of funds appropriated in a current fiscal period, and continuation of the contract into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

CAUSES FOR REJECTION - No bid will be canvassed, considered or accepted which, in the opinion of the City is informal or unbalanced, or contains inadequate or unreasonable prices for any items. Each item must carry its own proportion of the cost as nearly as is practicable. Any alteration, erasure, interlineation, or failure to specify bids for all items called for in the schedule shall render the bid informal.

REJECTION OF BIDS - The City reserves the right to reject any bid if the evidence submitted by the bidder, or if the investigation of such bidder, fails to satisfy the City that such bidder is properly qualified to carry out the obligations and to complete the work contemplated. Any or all bids will be rejected, if there is reason to believe that collusion exists among bidders. A bid will be considered irregular and may be rejected, if it shows serious omissions, alterations in form, additions not called for, conditions or unauthorized alternates, or irregularities of any kind. The City reserves the right to reject any or all bids and to waive such technical errors as may be deemed best for the interests of the City.

BID PROTEST PROCEDURE: Any bidder who is not recommended for award of a contract and who alleges a failure by the City to follow the City's procurement ordinance or any applicable law may protest to the Procurement Division – Deputy Director of Finance, by delivering a letter of protest within five (5) days after a Notice of Intent to award is posted on the City's website at the following link:

https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services/notices-of-intent-to-award

The complete protest ordinance may be found on the City's website at the following link: https://library.municode.com/fl/fort_lauderdale/codes/code_of_ordinances?nodeId=COOR_CH2AD_ARTVFI_DIV2PR_S2-182DIREPRAWINAW

WITHDRAWALS - Any bidder may, without prejudice to himself, withdraw its bid at any time prior to the expiration of the time during which bids may be submitted. Such request for withdrawal must be in writing and signed in the same manner and by the same person who signed the bid. After expiration of the period for receiving bids, no bids can be withdrawn, modified, or explained.

CONTRACT - The bidder to whom award is made shall execute a written contract to do the work and maintain the same in good repair until final acceptance by the proper authorities and shall furnish good and sufficient bonds as specified within ten (10) days after receiving such contract for execution. If the bidder to whom the first award is made fails to enter into a contract as provided, the award may be annulled and the contract let to the next lowest bidder who is responsive and responsible, and that bidder shall fulfill every stipulation and obligation as if such bidder were the original party to whom award was made.

The contract shall provide that the Contractor agrees to correct any defective or faulty work or material, which may appear within one (1) year after completion of the work and receipt of final payment.

ENFORCEMENT OF SPECIFICATIONS - Copies of the specifications will be placed in the hands of all the assistants to the Engineer and Inspectors employed on the Work, who shall enforce each and every requirement of the contract. Such assistants shall have no authority to vary from such requirements.

DRAWING PLANS - Drawing plans may be obtained **free of charge** from the City's on-line strategic sourcing platform.

SURETY BOND – The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2022), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

The successful bidder shall furnish a performance and payment bond in compliance with Section 255.05, Florida Statutes (2022), written by a Corporate Surety company, holding a Certificate of Authority from the Secretary of the Treasury of the United States as acceptable sureties on federal bonds, in an amount equal to the total amount payable by the terms of the contract, executed and issued by a Resident Agent licensed by and having an office in the State of Florida, representing such Corporate Surety, conditioned for the due and faithful performance of the work, and providing in addition to all other conditions, that if the Contractor, or his or its subcontractors, fail to duly pay for any labor, materials, or other supplies used or consumed by such Contractor, or his or its subcontractor or subcontractors, in performance of the work contracted to be done, the Surety will pay the same in the amount not exceeding the sum provided in such bonds, together with interest at the rate of fifteen percent (15%) per annum, and that they shall indemnify and hold harmless the City of Fort Lauderdale to the extent of any and all payments in connection with carrying out of the contract, which the City may be required to make under the law.

The Contractor is required at all times to have a valid surety bond in force covering the work being performed. A failure to have such bond in force at any time shall constitute a default on the part of the

Contractor. A bond written by a surety, which becomes disqualified to do business in the State of Florida, shall automatically constitute a failure on the part of the Contractor to meet the above requirements.

Such bond shall continue in effect for one (1) year after completion and acceptance of the work with liability equal to at least twenty-five percent (25%) of contract price, or an additional bond shall be conditioned that the Contractor will correct any defective or faulty work or material which appear within one (1) year after completion of the contract, upon notification by the City, except in contracts which are concerned solely with demolition work, in which cases twenty-five percent (25%) liability will not be applicable.

AUDIT OF CONTRACTOR'S RECORDS - Upon execution of the Contract, the City reserves the right to conduct any necessary audit of the Contractor's records. Such an audit, or audits, may be conducted by the City or its representatives at any time prior to final payment, or thereafter, for a period up to three (3) years. The City may also require submittal of the records from either the Contractor, the Subcontractor, or both. For the purpose of this Section, records shall include all books of account, supporting documents and papers deemed necessary by the City to assure compliance with the contract provisions.

Failure of the Contractor or Subcontractor to comply with these requirements may result in disqualification or suspension from bidding for future contracts or disapproval as a Subcontractor at the option of the City.

The Contractor shall assure that each of its Subcontractors will provide access to its records pertaining to the project upon request by the City.

PERIODIC ESTIMATE FOR PARTIAL PAYMENT - After the Contractor has submitted a periodic estimate for partial payment, approved and certified by the Public Works Department, the City shall make payment in the manner provided in the Contract Documents and in accordance with Florida's Prompt Payment Act, Section 218, Florida Statutes (2022).

RESERVATION FOR AWARD AND REJECTION OF BIDS - The City reserves the right to accept or reject any or all bids, part of bids, and to waive minor irregularities or variations to specifications contained in bids, and minor irregularities in the bidding process. The City also reserves the right to award the contract on a split order basis, lump sum basis, individual item basis, or such combination as shall best serve the interest of the City. The City reserves the right to make an award to the responsive and responsible bidder whose product or service meets the terms, conditions, and specifications of the ITB and whose bid is considered to best serve the City's interest. In determining the responsiveness of the offer and the responsibility of the Bidder, the following shall be considered when applicable: the ability, capacity and skill of the Bidder to perform as required; whether the Bidder can perform promptly, or within the time specified, without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the Bidder; the quality of past performance by the Bidder; the previous and existing compliance by the Bidder with related laws and ordinances; the sufficiency of the Bidder's financial resources; the availability, quality and adaptability of the Bidder's supplies or services to the required use; the ability of the Bidder to provide future maintenance, service or parts; the number and scope of conditions attached to the bid.

LOCAL BUSINESS PREFERENCE **-** Section 2-186, Code of Ordinances of the City of Fort Lauderdale, provides for a local business preference. In order to be considered for a local business preference, a proposer must include the Local Business Preference Certification Statement of this ITB, as applicable to the local business preference class claimed at the time of Bid submittal:

Upon formal request of the City, based on the application of a Local Business Preference, the Proposer shall, within ten (10) calendar days, submit the following documentation to the Local Business Preference Class claimed:

a. Copy of City of Fort Lauderdale current year business tax receipt, or Broward County current year business tax receipt, and

b. List of the names of all employees of the proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or Broward County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

Failure to comply at time of bid submittal shall result in the Proposer being found ineligible for the local business preference.

Definitions:

a. The term "Class A business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, and shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.

b. The term "Class B business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, or shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.

c. The term "Class C business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of Broward County.

c. The term "Class D business" shall mean any business that does not qualify as a Class A, Class B, or Class C business.

The complete local business preference ordinance may be found on the City's web site at the following link:
https://library.municode.com/fl/fort_lauderdale/codes/code_of_ordinances?nodeId=COOR_CH2AD_ARTVFI_DIV2PR_S2-186LOBUPR

DISADVANTAGED BUSINESS ENTERPRISE PREFERENCE - Section 2-185, Code of Ordinances of the City of Fort Lauderdale, provides for a disadvantaged business preference. In order to be considered for a disadvantaged business preference, a proposer must include a certification from a government agency, as applicable to the disadvantaged business preference class claimed at the time of Bid submittal:

Upon formal request of the City, based on the application of a Disadvantaged Business Preference the Proposer shall within ten (10) calendar days submit the following documentation to the Disadvantaged Business Enterprise Preference Class claimed:

a. Copy of City of Fort Lauderdale current year business tax receipt, or the Tri-County (Broward, Dade, West Palm Beach) current year business tax receipt, or proof of active Sunbiz status and

b. List of the names of all employees of the proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or the Tri-County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

Failure to comply at time of bid submittal shall result in the Proposer being found ineligible for the Disadvantaged Business Enterprise Preference business preference.

The complete Disadvantaged Business Preference ordinance may be found on the City's website at the following link: https://www.fortlauderdale.gov/home/showpublisheddocument?id=56883

DEBARRED OR SUSPENDED BIDDERS OR PROPOSERS - The bidder or proposer certifies, by submission of a response to this solicitation, that neither it nor its principals and subcontractors are presently debarred or suspended by any Federal department or agency.

LOBBYING ACTIVITIES - **ALL CONTRACTORS PLEASE NOTE**: Any contractor submitting a response to this solicitation must comply, if applicable, with City of Fort Lauderdale Ordinance No. C-11-42 & Resolution No. 07-101, Lobbying Activities. Copies of Ordinance No., C-11-42, and Resolution No. 07-101, may be obtained from the City Clerk's Office at 1 East Broward Boulevard, Suite 444, Fort Lauderdale, Florida 33301.

The Ordinance may also be viewed on the City's website at https://www.fortlauderdale.gov/home/showdocument?id=6036.

-END OF SECTION-

GENERAL CONDITIONS

Unless otherwise modified in the Project's Special Conditions, the following General Conditions shall be part of the Contract:

GC - 01 - DEFINITIONS - The following words and expressions, or pronouns used in their stead, shall wherever they appear in the Contract and the Contract Documents, be construed as follows:

"Addendum" or "Addenda" - shall mean the additional Contract provisions issued in writing, by the Engineer, prior to the receipt of bids.

"Bid" – shall mean the offer or bid of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

"Bidder" – shall mean any person, firm, company, corporation or entity submitting a bid for the Work.

"Bonds" –shall mean bid, performance and payment bonds and other instruments of security, furnished by Contractor and his surety in accordance with the Contract Documents.

"City" – shall mean the City of Fort Lauderdale, Florida, a Florida municipal corporation. In the event the City exercises its regulatory authority as a government body, the exercise of such regulatory authority and the enforcement of any rules, regulations, codes, laws and ordinances shall be deemed to have occurred pursuant to City's authority as a governmental body and shall not be attributable in any manner to the City as a party to this Contract.

"Consultant" – shall mean a person, firm, company, corporation or other entity employed by the City to perform the professional services for the project.

"Contractor" – shall mean the successful Bidder who has been employed by the City to perform the construction and related services for the project.

"Contract Work" - shall mean everything expressed or implied to be required to be furnished and furnished by the Contractor by any one or more of the parts of the Contract Documents referred to in the Contract hereof. In the case of any inconsistency in or between any parts of this Contract, the Project Manager shall determine which shall prevail.

"Design Documents" – shall mean the construction plans and specifications included as part of a Bid Solicitation prepared either by the City or by the Consultant under a separate Agreement with the City.

"Engineer" - shall include the terms "professional engineer" and "licensed engineer" and means a person who is licensed to engage in the practice of engineering under Florida Statute, Chapter 471. An Engineer may be a City employee or a consultant hired by the City.

"Extra Work" - shall mean work other than that required by the Contract.

"Inspector" – shall mean an authorized representative of the City assigned to make necessary inspections of materials furnished by Contractor and of the Work performed by Contractor.

"Notice" - shall mean written notice sent by certified United States mail, return receipt requested, or sent by commercial express carrier with acknowledgement of delivery, or via fax or email, or by

hand delivery with a request for a written receipt of acknowledgment of delivery and shall be served upon the Contractor either personally or to its place of business listed in the Bid.

“Owner” - shall mean the City of Fort Lauderdale.

“Project Manager” - shall mean a professional designated by the City to manage the Project under the supervision and direction of the Public Works Director or designee.

"Public Works Director" – shall mean the Public Works Director of the City of Fort Lauderdale.

"Site" - shall mean the area upon or in which the Contractor's operations are carried out and such other areas adjacent thereto as may be designated as such by the Project Manager.

"Sub-contractor" - shall mean any person, firm, company, corporation or other entity, other than employees of the Contractor, who or which contracts with the contractor, to furnish, or actually furnishes labor and materials, or labor and equipment, or labor, materials and equipment at the site.

"Surety" - shall mean any corporation or entity that executes, as Surety, the Contractor's performance and payment bond securing the performance of this Contract.

GC - 02 - SITE INVESTIGATION AND REPRESENTATION - The Contractor acknowledges that it has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Site, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, field conditions, the type of equipment and facilities needed preliminary to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.

The Contractor acknowledges that it has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, moisture conditions and all year-round local weather and climate conditions (past and present), and, in reliance on such tests, examination and investigations conducted by Contractor and the Contractor’s experts, has determined that no conditions exist that would in any manner affect the Bid Price and that the project can be completed for the Bid Price submitted.

Any failure by the Contractor to acquaint itself with all the Site conditions shall not relieve Contractor from responsibility for properly estimating the difficulty or cost thereof under the Contract Documents.

GC - 03 - SUBSTITUTIONS - If the Contractor desires to use materials and/or products of manufacturer's names different from those specified in the Contract Documents, the Bidder requesting the substitution shall make written application as described herein. The burden of proving the equality of the proposed substitution rests on the Contractor making the request. To be acceptable, the proposed substitution shall meet or exceed all expressed requirements of the Contract Documents and shall be submitted upon the Contractor's letterhead. The following requirements shall be met in order for the substitution to be considered:

1. Requests for substitution shall be accompanied by such technical data, as the party making the request desires to submit. The Project Manager will consider reports from reputable independent testing laboratories, verified experience records from previous users and other written information valid in the circumstances; and

2. Requests for substitution shall completely and clearly indicate in what respects the materials and/or products differ from those indicated in the Contract Documents; and

3. Requests for substitution shall be accompanied by the manufacturer's printed recommendations clearly describing the installation, use and care, as applicable, of the proposed substitutions; and

4. Requests for substitution shall be accompanied by a complete schedule of changes in the Contract Documents, if any, which must be made to permit the use of the proposed substitution.

If a proposed substitution is approved by the Project Manager, an addendum will be issued to prospective bidders not less than three (3) working days prior to the date set for opening of bids. Unless substitutions are received and approved as described above, the successful Bidder shall be responsible for furnishing materials and products in strict accordance with the Contract Documents.

GC- 04 – CONSTRUCTION RESOURCES – Contractor shall provide all labor and equipment necessary to complete the installation within a timely manner. Contractor shall provide details as to manpower and equipment to be dedicated to the project in its Work Plan. Contractor is responsible for making arrangements, obtaining and purchasing construction water services if required to complete the work.

GC - 05 - CONTROL OF THE WORK - The Project Manager shall have full control and direction of the Work in all respects. The Project Manager and/or his authorized designee(s) shall, at all times, have the right to inspect the Work and materials. The Contractor shall furnish all reasonable facilities for obtaining such information, as the Project Manager may desire respecting the quality of the Work and materials and the manner of conducting the Work. Should the Contractor be permitted to perform night Work, or to vary the period which work is ordinarily carried on in the daytime, he shall give ample notice to the Project Manager so that proper and adequate inspection may be provided. Such Work shall be done only under such regulations as are furnished in writing by the Project Manager, and no extra compensation shall be allowed to the Contractor therefore. In the event of night work, the Contractor shall furnish such light, satisfactory to the Project Manager, as will ensure proper inspection. Nothing herein contained shall relieve the Contractor from compliance with any and all City ordinances relating to noise or Work during prohibited hours.

GC - 06 - SUB-CONTRACTOR - The Contractor shall not sublet, in whole or any part of the Work without the written consent and approval of the Project Manager. Within ten (10) days after official notification of starting date, the Contractor must submit in writing, to the Project Manager, a list of all Sub-contractors. No Work shall be done by any sub-contractor until such Sub-contractor has been officially approved by the Project Manager. A sub-contractor not appearing on the original list will not be approved without written request submitted to the Project Manager and approved by the Public Works Director. In all cases, the Contractor shall give his personal attention to the Work of the Sub-contractors and the Sub-contractor is liable to be discharged by the Contractor, at the direction of the Project Manager, for neglect of duty, incompetence or misconduct.

Acceptance of any sub-contractor, other person, or organization by the Project Manager shall not constitute a waiver of any right of Project Manager to reject defective Work or Work not in conformance with the Contract Documents.

Contractor shall be fully responsible for all acts and omissions of its Sub-contractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between City and any sub-contractor or other person or organization having a direct contract with Contractor, nor shall it create any obligation on the part of City to pay or to see to the payment of any moneys due to any sub-contractor or other person, or organization, except as may otherwise be required by law.

GC - 07 - QUANTITIES - Contractor recognizes and agrees that the quantities shown on plans and Bid/Price Schedule are estimates only and may vary during actual construction. No change shall be made involving any departure from the general scheme of the Work and that no such change involving a material change in cost, either to the City or Contractor, shall be made, except upon written permission of the City. However, the Project Manager shall have the right to make minor alternations in the line, grade, plan, form or materials of the Work herein contemplated any time before the completion of the same. That if such alterations shall diminish the quantity of the Work to be done, such alterations shall not constitute a claim for damages or anticipated profits. That if such alterations increase the amount of the Work to be done, such increase shall be paid for according to the quantity actually performed and at the unit price or prices stipulated therefore in the Contract. The City shall, in all cases of dispute, determine the amount or quantity of the several kinds of Work which are to be paid for under this Contract, and shall decide all questions relative to the execution of the same, and such estimates and decisions shall be final and binding.

Any Work not herein specified, which might be fairly implied as included in the Contract, of which the City shall judge, shall be done by the Contractor without extra charge. However, such cost increases shall be authorized either by the Public Works Director or designee, or the City Commission based upon the purchasing threshold amounts provided for in Chapter 2 of the City of Fort Lauderdale's Code of Ordinances.

GC - 08 - NO ORAL CHANGES - Except to the extent expressly set forth in the Contract, no change in, or modification, termination or discharge of the Contract in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the parties charged, therewith or their duly authorized representative.

GC - 09 - PERMITS AND PROTECTION OF PUBLIC – Permits on file with the City and/or those permits to be obtained by the Contractor, shall be considered directive in nature, and will be considered a part of this Contract. A copy of all permits shall be given to the City and become part of the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

Contractor shall secure all permits and licenses required for completing the Project. Contractor will obtain the necessary State, County, and City construction/work permits if required.

The Contractor shall comply with all applicable Codes, Standards, Specifications, etc. related to all aspects of the Project.

Where there are telephones, light or power poles, water mains, conduits, pipes or drains or other construction, either public or private, in or on the streets or alleys, the Work shall be so conducted that no interruption or delay will be caused in the operation or use of the same. Proper written notice shall be given to all affected parties prior to proceeding with the Work.

The Contractor shall not be permitted to interfere with public travel and convenience by grading or tearing up streets indiscriminately, but the Work of constructing the various items in this contract shall proceed in an orderly, systematic and progressive manner.

GC - 10 - DISEASE REGULATIONS - The Contractor shall enforce all sanitary regulations and take all precautions against infectious diseases as the Project Manager may deem necessary. Should any infectious or contagious diseases occur among his employees, he shall arrange for the immediate removal of the employee from the Site and isolation of all persons connected with the Work.

GC - 11 - CONTRACTOR TO CHECK PLANS, SPECIFICATIONS, AND DATA - The Contractor shall verify all dimensions, quantities, and details shown on the plans, supplementary drawings, schedules, and shall notify the Project Manager of all errors, omissions, conflicts and discrepancies found therein within three (3) working days of discovery. Failure to discover or correct errors, conflictions, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory Work, faulty construction, or improper operation resulting therefrom nor from rectifying such condition at its own expense.

GC - 12 - MATERIALS AND WORKMANSHIP - All material shall be new and the workmanship shall, in every respect, be in conformity with approved modern practice and with prevailing standards of performance and quality. In the event of a dispute, the Project Manager's decision shall be final. Wherever the Plans, Specifications, Contract Documents, or the directions of the Project Manager are unclear as to what is permissible and/or fail to note the quality of any Work, that interpretation will be made by the Project Manager, which is in accordance with approved modern practice, to meet the particular requirements of the Contract.

GC - 13 - SAFEGUARDING MARKS - The Contractor shall safeguard all points, stakes, grade marks, monuments, and benchmarks made or established on the Work, bear the cost of re-establishing same if disturbed, or bear the entire expense of rectifying Work improperly installed due to not maintaining or protecting or for removing without authorization, such established points, stakes and marks. The Contractor shall safeguard all existing and known property corners, monuments and marks not related to the Work and, if required, shall bear the cost of having them re-established by a licensed Professional surveyor registered in the State of Florida if disturbed or destroyed during the course of construction.

GC - 14 - RESTROOM FACILITIES - Contractor shall provide portable toilet facilities for employee's use at a location within the Work site to be determined by the City.

GC - 15 - PROGRESS MEETINGS - Weekly Status meetings will be conducted with representatives from the City and the Contractor. Contractor shall budget time to participate in such meetings. A well-run Project should result in short meetings.

GC - 16 - ISSUE RESOLUTION - Should Contractor become engaged in a dispute with a resident or a City employee, the Contractor shall report the situation to the Project Manager immediately. It shall be mandatory that the City participate in any dispute resolution. Failure of Contractor personnel to notify the City shall obligate Contractor to replace the offending employee immediately if requested by the City.

GC - 17 - CITY SECURITY-CONTRACTOR AND SUBCONTRACTOR EMPLOYEE INFORMATION - Prior to commencing work, Contractor shall provide to the City a list of all personnel and sub-contractors on site. The list will include the name, address, birth date and driver's license number for all personnel. All personnel and subcontractors on site will have on their person a company

photo ID during all stages of the construction. Contractor shall provide standard required personal information per current City procedures.

GC - 18 - POST-CONSTRUCTION SURVEY - The Contractor shall provide as-built survey, sealed and signed by a registered surveyor in the State of Florida, as a condition of final payment.

GC – 19 - KEY PERSONNEL - Contractor shall provide as part of the Work Plan, resumes for all key project personnel providing supervision and project management functions. Resumes shall include work history and years of experience performing this type of work.

GC - 20 - EXISTING UTILITY SERVICE - All existing utility service shall be maintained with a minimum of interruption at the expense of the Contractor.

GC - 21 - JOB DESCRIPTION SIGNS – Contractor, at Contractor's expense, shall furnish, erect, and maintain suitable weatherproof signs on jobs over $100,000 containing the following information:

1. City Seal (in colors)
2. Project or Improvement Number
3. Job Description
4. Estimated Cost
5. Completion Date

Minimum size of sign shall be four feet high, eight feet wide and shall be suitably anchored. The entire sign shall be painted and present a pleasing appearance. Exact location of signs will be determined in the field. Two (2) signs will be required, one at each end of the job. All costs of this work shall be included in other parts of the work.

GC - 22 - FLORIDA EAST COAST RIGHT-OF-WAY - Whenever a City contractor is constructing within the Florida East Coast Railway Company's Right-of-Way, it will be mandatory that the contractor carry bodily injury and property damage insurance in amounts satisfactory to the Florida East Coast Company. This insurance requirement shall be verified by the contractor with the Florida East Coast Company prior to commencing work, and maintained during the life of the Contract.

GC - 23 - ACCIDENTS - The Contractor shall provide such equipment and facilities as are necessary and/or required, in the case of accidents, for first aide services to be provided to a person who may be injured during the project duration. The Contractor shall also comply with the OSHA requirements as defined in the United States Labor Code 29 CFR 1926.50.

In addition, the Contractor must report immediately to the Project Manager every accident to persons or damage to property, and shall furnish in writing full information, including testimony of witnesses regarding any and all accidents.

GC - 24 - SAFETY PRECAUTIONS - Contractor must adhere to the applicable environmental protection guidelines for the duration of a project. If hazardous waste materials are used, detected or generated at any time, the Project Manager must be immediately notified of each and every occurrence. The Contractor shall comply with all codes, ordinances, rules, orders and other legal requirements of public authorities (including OSHA, EPA, DERM, the City, Broward County, State of Florida, and Florida Building Code), which bear on the performance of the Work.

The Contractor shall take the responsibility to ensure that all Work is performed using adequate safeguards, including but not limited to: proper safe rigging, safety nets, fencing, scaffolding, barricades, chain link fencing, railings, barricades, steel plates, safety lights, and ladders that are necessary for the protection of its employees, as well as the public and City employees. All riggings and scaffolding shall be constructed with good sound materials, of adequate dimensions for their intended use, and substantially braced, tied or secured to ensure absolute safety for those required to use it, as well as those in the vicinity. All riggings, scaffolding, platforms, equipment guards, trenching, shoring, ladders and similar actions or equipment shall be OSHA approved, as applicable, and in accordance with all Federal, State and local regulations.

GC - 25 - DUST PREVENTION - The Contractor shall, by means of a water spray, or temporary asphalt pavement, take all necessary precautions to prevent or abate a dust nuisance arising from dry weather or Work in an incomplete stage. All costs of this Work shall be included in the cost of other parts of the Work.

Should the Contractor fail to abate a dust nuisance the Project Manager may stop the Work until the issue is resolved to the City's satisfaction.

GC - 26 - SITE CLEANUP AND RESTORATION – The Contractor shall remove all debris and unused or discarded materials from the work site daily. Contractor shall clean the work site to remove all directional drilling "Driller's Mud" materials. No "Driller's Mud" residue shall be allowed to remain in the soil or on the surface of the land or vegetation. All debris and drilling materials must be disposed of offsite at an approved location.

The Contractor shall promptly restore all areas disturbed that are outside the Project limits in equal or better condition at no additional cost to the City.

GC - 27 - COURTEOUS BEHAVIOR AND RESPECT FOR RESIDENTS AND PROPERTY – The Contractor and its employees, associates and sub-contractors shall maintain courteous behavior at all times and not engage in yelling, loud music, or other such activities. Contractor's employees shall not leave trash or other discarded items at the Work Site, especially on any private property. In the event complaints arise, Contractor shall immediately remove such offending employees from the project if requested to do so by the Project Manager. Contractor's employees shall not trespass on any private property unless necessary to complete the work but with prior permission from the owner.

Contractor shall notify and obtain permission from the residents 24 hours in advance when planning to work within the resident's property. In addition, Contractor shall notify the resident prior to entering their property to perform work or inspect/investigate the work site. Contractor shall not block residents' driveways unnecessarily. Contractor shall not park equipment on landscaped areas when the vehicle is not needed for the current construction activities. Contractor shall be responsible for repair and/or replacement of all damaged landscaping within 48 hours including repairing vehicle wheel impressions, irrigation systems, lighting systems, structures, or any other items of resident's property. Contractor shall not destroy, damage, remove, or otherwise negatively impact any landscaping within or outside the right-of-way without prior approval from the Project Manager.

GC - 28 - PLACING BARRICADES AND WARNING LIGHTS - The Contractor shall furnish and place, at Contractor's own expense, all barricades, warning lights, automatic blinker lights and such devices necessary to properly protect the work and vehicular and pedestrian traffic. Should the Contractor fail to erect or maintain such barricades, warning lights, etc., the Project Manager may, after 24 hours' notice to the Contractor, proceed to have such barricades and warning lights placed

and maintained by City or other forces and all costs incurred thereof charged to the Contractor and may be retained by the City from any monies due, or to become due, to the Contractor.

GC - 29 - TRAFFIC CONTROL - The Contractor shall coordinate all Work and obtain, through the City's Transportation and Mobility Department, Broward County, Florida Department of Transportation, as applicable, any permits required to detour traffic or close any street before starting to work in the road.

All traffic control devices, flashing lights, signs and barricades shall be maintained in working condition at all times and conform to Manual of Uniform Traffic Control Devices (MUTCD), latest edition.

GC - 30 - COORDINATION - The Contractor shall notify all utilities, transportation department, etc., in writing, with a copy to the Project Manager before construction is started and shall coordinate its Work with them. The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal, construction and rearrangement operations in order that services rendered by these parties will not be unnecessarily interrupted.

The Contractor shall arrange its Work and dispose of its materials so as to not interfere with the operation of other contractors engaged upon adjacent work, and to join its Work to that of others in a proper manner, and to perform its Work in the proper sequence in relation to that of other contractors as may be directed by the Project Manager.

Each Contractor shall be responsible for any damage done by it or its agents to the work performed by another contractor.

GC - 31 - WATER - Bulk water used for construction, flushing pipelines, and testing shall be obtained from fire hydrants. Contractor shall make payment for hydrant meter at Treasury Billing Office, 1st Floor, City Hall, 100 N. Andrews Avenue. With the paid receipt, contractor can pick up hydrant meter at the utility location office. No connection shall be made to a fire hydrant without a meter connected.

GC - 32 - PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES - Subject to *Odebrecht Construction, Inc., v. Prasad*, 876 F.Supp.2d 1305 (S.D. Fla. 2012), *affirmed*, *Odebrecht Construction, Inc., v. Secretary, Florida Department of Transportation*, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities Iran Terrorism Sectors List, created pursuant to Section 215.473, Florida Statutes (2024), as may be amended or revised, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2024), as may be amended or revised. The Contractor certifies that it is not on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2024), as may be amended or revised, and that it is not engaged in a boycott of Israel. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of Section 287.135, Florida Statutes (2024), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List, or been placed on a list created pursuant to Section 215.473, Florida Statutes (2024), as may be amended or revised, relating to scrutinized active business operations in Iran , or been placed on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2024), as may be amended or revised, or is engaged in a boycott of Israel, or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2024), as may be amended or revised.

By submitting a bid or response, the company, principals, or owners certify that it is not listed on the Scrutinized Companies with Activities in Sudan List or listed on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or is engaged in business operations in Cuba or Syria.

GC - 33 - USE OF FLORIDA LUMBER TIMBER AND OTHER FOREST PRODUCTS - In accordance with Florida Statute 255.20 (3), the City specifies that lumber, timber, and other forest products used for this Project shall be produced and manufactured in the State of Florida if such products are available and their price, fitness, and quality are equal. This requirement does not apply to plywood specified for monolithic concrete forms, if the structural or service requirements for timber for a particular job cannot be supplied by native species, or if the construction is financed in whole or in part from federal funds with the requirement that there be no restrictions as to species or place of manufacture.

The Bidder affirms by submitting a bid response to this solicitation that they will comply with section 255.20 (3) Florida Statutes.

GC - 34 - PUBLIC RECORDS/TRADE SECRETS/COPYRIGHT: The Proposer's response to the Solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in connection with this Solicitation and the Contract to be executed for this Solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.

Any language contained in the Bidder's response to the Solicitation purporting to require confidentiality of any portion of the Bidder's response to the Solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Bidder submits any documents or other information to the City which the Bidder claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Bidder shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Bidder must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Bidder's response to the Solicitation constitutes a Trade Secret. The City's determination of whether an exemption applies shall be final, and the bidder agrees to defend, indemnify, and hold harmless the City and the City's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the City's treatment of records as public records. In addition, the bidder agrees to defend, indemnify, and hold harmless the City and the City's officers, employees, and agents, against any loss or damages incurred by any person or entity as a result of the City's treatment of records as exempt from disclosure or confidential. Bids purporting to be subject to copyright protection in full or in part will be rejected. The bidder authorizes the City to publish, copy, and reproduce any and all documents submitted to the City bearing copyright symbols or otherwise purporting to be subject to copyright protection.

EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES (2022), TO THE CONTRACTOR'S

DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

Telephone Number: **(954) 828-5002**

Mailing Address: **City Clerk's Office**
1 East Broward Boulevard, Suite 444
Fort Lauderdale, FL 33301

E-mail: **prrcontract@fortlauderdale.gov**
Contractor shall:

1. Keep and maintain public records required by the City in order to perform the service.

2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2022), as may be amended or revised, or as otherwise provided by law.

3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this Agreement if the Contractor does not transfer the records to the City.

4. Upon completion of the Agreement, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

GC – 35 - ANTI-HUMAN TRAFFICKING, KIDNAPPING, CUSTODY AND RELATED OFFENSES - Bidder, proposer, quoter, or any other respondent to any City solicitation/notice or serving as a City consultant, contractor, vendor or otherwise entering into any contract (including, without limitation, contract renewal, extension, amendment as applicable) with the City affirms and stipulates that it is not in violation of Section 787.06(13) of the 2024 Florida Statutes entitled "Kidnapping; Custody Offenses; Human Trafficking and Related Offenses." The entity (which includes any business entity however formed/ incorporated) intending to provide goods or services by submitting a response to a city solicitation further affirms to the City as a governmental entity defined in Section 287.138(1) of the 2024 Florida Statutes that it does not use coercion for labor or services as defined in Section 787.06 of the 2024 Florida Statutes.

GC – 36 E- Verify
Pursuant to Section 448.095, Florida Statutes (2023), as may be amended or revised, the Contractor and its subcontractors shall register with and use the E-Verify system to electronically verify the employment eligibility of newly hired employees.

1. The Contractor shall require each of its subcontractors, if any, to provide the Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. The Contractor shall maintain a copy of the subcontractor's affidavit for the duration of this Agreement and in accordance with the public records requirements of this Agreement.

2. The City, the Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated Subsection 448.09(1), Florida Statutes (2023), as may be amended or revised, shall terminate the contract with the person or entity.

3. The City, upon good faith belief that a subcontractor knowingly violated the provisions of Subsection 448.095(5), Florida Statutes (2023), as may be amended or revised, but that the Contractor otherwise complied with Subsection 448.095(5), Florida Statutes (2023), as may be amended or revised, shall promptly notify Contractor and order the Contractor to immediately terminate the contract with the subcontractor, and the Contractor shall comply with such order.

4. A contract terminated under Subparagraph 448.095(5)(c)1. or 2., Florida Statutes (2023), as may be amended or revised, is not a breach of contract and may not be considered as such. If the City terminates this contract under Paragraph 448.095(5)(c), Florida Statutes (2023), as may be amended or revised, the Contractor may not be awarded a public contract for at least one year after the date on which the contract was terminated. The Contractor is liable for any additional costs incurred by the City as a result of termination of this Agreement.

5. Contractor shall include in each of its subcontracts, if any, the requirements set forth in this Section, including this subparagraph, requiring any and all subcontractors, as defined in Subsection 448.095(1)(e), Florida Statutes (2023), as may be amended or revised, to include all of the requirements of this Section in their subcontracts. Contractor shall be responsible for compliance by any and all subcontractors, as defined in Subsection 448.095(1)(e), Florida Statutes (2023), as may be amended or revised, with the requirements of Section 448.095, Florida Statutes (2023), as may be amended or revised.

-END OF SECTION-

SPECIAL CONDITIONS

01. PURPOSE

The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, hereinafter referred to as the Contractor, to provide construction services for the City's Public Works Department, in accordance with the terms, conditions, and specifications contained in this Invitation To Bid (ITB).

This project is located at Prospect Lake Well Fields (Cypress Creek Road to the north, NW 31st Avenue to the East, and Prospect Road to the south, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, installation of 12 inch C900 water main, including connections to existing 20 inch and 12 inch water main, as well as all necessary demolition and restoration.

02. TRANSACTION FEES

The City uses the City's on-line strategic sourcing platform INFOR, to distribute and receive bids and proposals. There is no charge to vendors/contractors to register and participate in the solicitation process, nor will any fees be charged to the awarded contractor.

03. SUBMISSION OF BIDS

It is the sole responsibility of the Contractor to ensure that its bid is submitted electronically through the City's on-line strategic sourcing platform, and that any bid security reaches the City of Fort Lauderdale, Procurement Services Division, 101 North East 3rd Avenue, Suite 1650, Fort Lauderdale, Florida 33301-1016, in a sealed envelope marked on the outside with the ITB solicitation number and Contractor's name, no later than the time and date specified in this solicitation. **PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. PLEASE SUBMIT YOUR BID RESPONSE ELECTRONICALLY.** In the event of any conflict or discrepancy between bid price(s) submitted by bidder electronically into the City's online strategic sourcing platform Unit Price field(s), any other forms or attachments (whether part of the City's solicitation documents or documents created and uploaded by the bidder, or another section/field of the System, the online unit price(s) **inputted** electronically into the System by the bidder shall govern.

04. INFORMATION OR CLARIFICATION

For information concerning procedures for responding to this solicitation, contact Senior Procurement Specialist Erick Martinez at (954) 828-4029 or email at emartinez@fortlauderdale.gov. Such contact shall be for clarification purposes only.

For information concerning technical specifications, please utilize the question / answer feature provided by the City's on-line strategic sourcing platform. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. Contractors please note: Bids shall be submitted as stated in PART IV – Submittal Requirements. No part of your proposal can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Contractor has familiarized themselves with the nature and extent of the work, and the equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in the City's on-line strategic sourcing platform shall become part of any contract that is created from this ITB.

05. CONTRACT TIME

5.1 The Contractor recognizes that TIME IS OF THE ESSENCE. The Work shall commence within **TEN (10)** calendar days of the date of the Notice to Proceed.

5.2 The Work shall be Substantially Completed within **SIXTY (60)** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **NINETY (90)** calendar days after the Contract Time commences to run as provided in the Notice to Proceed.

06. BID SECURITY

A certified check, cashier's check, bank officer's check or bid bond for **FIVE percent (5%)** of the bid amount, made payable to the City of Fort Lauderdale, shall accompany each offer.

07. REQUIRED LICENSES/CERTIFICATIONS

Contractor must possess the following licenses/certifications to be considered for award:

General Contractor License or Underground Utility Contractor's License

OR

Any other State or County License(s), Certification(s) or Registration(s) deemed legally permissible by the City to conduct the nature of the work required in this solicitation.

Any sub-contractors employed by the Proposer shall be licensed and insured in accordance with this solicitation. Additionally, it is the Proposer's responsibility for ensuring that any sub-contractors' work meets the requirements of this solicitation at all times.

Note: Contractor must have proper licensing and shall submit evidence of same with its bid response.

08. SPECIFIC EXPERIENCE REQUIRED

The following expertise is required to be considered for this Contract. Specific references attesting to this expertise must be submitted with the bid response.

The contractor shall have experience in constructing municipal water and sewer collection and distribution systems and have installed a minimum of 5,000 linear feet of water and/or sewer mains in the past 5 years. Bidder shall submit proof of construction experience for a minimum of three (3) projects of similar scope and scale (or larger) and shall, for each project listed, identify location; dates of construction; project name and overall scope; scope of work that was self-performed by Contractor; and client's name, address, telephone number and e-mail address.

NOTE: REFERENCES SHALL NOT INCLUDE ONLY CITY OF FORT LAUDERDALE EMPLOYEES OR WORK PERFORMED FOR THE CITY. THE CITY IS ALSO INTERESTED IN WORK EXPERIENCE AND REFERENCES FROM ENTITIES OTHER THAN THE CITY OF FORT LAUDERDALE.

By signing this bid solicitation, contractor is affirming that this expertise will be provided for this Contract at no additional charge.

09. BID ALLOWANCES & CONTINGENCIES

Allowance for permits: Payments will be made to the contractor based on the actual cost of permits upon submission of paid permit receipts. The City shall not pay for other costs related to obtaining or securing permits.

The amount indicated is intended to be sufficient to cover the entire Project. If the City's permit fees exceed the allowance indicated, the City will reimburse the contractor the actual amount of the City's permit fees required for project completion.

Allowances	Amount
Permit fee allowance	$25,000.00
TOTAL:	**$25,000.00**

Contingencies	Amount
Additional Labor	$27,950.00
Additional Material	$27,950.00
TOTAL:	**$55,900.00**

10. INSURANCE REQUIREMENTS *(See Article 10, Bonds and Insurance, of the Contract for details)*

As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, Contractor shall, at its sole expense, provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of Contractor. Contractor shall provide the City a certificate of insurance evidencing such coverage. Contractor's insurance coverage shall be primary insurance for all applicable policies, in respect to the City's interests for this Agreement. The limits of coverage under each policy maintained by Contractor shall not be interpreted as limiting Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers authorized or eligible to write policies in the State of Florida and possess an A.M. Best rating of A-, VII or better, subject to approval by the City's Risk Manager.

The coverages, limits, and/or endorsements required herein protect the interests of the City, and these coverages, limits, and/or endorsements shall in no way be relied upon by Contractor for assessing the extent or determining appropriate types and limits of coverage to protect Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Contractor under this Agreement.

The following insurance policies and coverages are required:

<u>Commercial General Liability</u>
Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- $2,000,000 each occurrence and $2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- $2,000,000 each occurrence and $2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for contractual liability and independent contractors.

The City, a Florida municipality, its officials, employees, and volunteers are to be included as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, and volunteers.

Pollution and Remediation Legal Liability (Hazardous Materials)
For the purpose of this section, the term “hazardous materials” includes all materials and substances that are designated or defined as hazardous by Florida or federal law or by the rules or regulations of Florida or any federal agency. If work being performed involves hazardous materials, Contractor shall procure and maintain any or all of the following coverages (which will be specifically addressed upon review of exposure):

Contractors Pollution Liability Coverage
For sudden and gradual occurrences and in an amount not less than $1,000,000 per claim arising out of this Agreement, including but not limited to, all hazardous materials identified under the Agreement.

Business Automobile Liability
Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than $1,000,000 combined single limit each accident.

If Contractor does not own vehicles, Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Crane and Rigging Liability
If crane and rigging will be utilized in execution of the contract, coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

Workers’ Compensation and Employer’s Liability
Coverage must be afforded per Chapter 440, Florida Statutes. Any person or entity performing work for or on behalf of the City must provide Workers’ Compensation insurance. Exceptions and exemptions will be allowed by the City’s Risk Manager, if they are in accordance with Florida Statute.

Contractor waives, and Contractor shall ensure that Contractor’s insurance carrier waives, all subrogation rights against the City, its officials, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore and Harbor Workers' Compensation Act and the Jones Act, if applicable.

Insurance Certificate Requirements

a. Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than ten (10) days prior to the start of work contemplated in this Agreement.
b. Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
d. In the event the Agreement term or any surviving obligation of Contractor following expiration or early termination of the Agreement goes beyond the expiration date of the insurance policy, Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
e. The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
f. The City shall be included as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
g. The City shall be granted a Waiver of Subrogation on Contractor's Workers' Compensation insurance policy.
h. The title of the Agreement, Bid/Contract number, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:
City of Fort Lauderdale
c/o Procurement Services Division
401 SE 21st Street
Fort Lauderdale, FL 33316

Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the application of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for including the City as an Additional Insured shall be at Contractor's expense.

If Contractor's primary insurance policy/policies do not meet the minimum requirements as set forth in this Agreement, Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.

Contractor's insurance coverage shall be primary insurance in respect to the City's interests for this Agreement, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City shall be non-contributory.

Any exclusion or provision in any insurance policy maintained by Contractor that excludes coverage required in this Agreement shall be deemed unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the Agreement work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage may be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate of insurance should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement to Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

It is Contractor's responsibility to ensure that any and all of Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of the applicable requirements stated herein. Any and all deficiencies are the responsibility of Contractor. The City reserves the right to adjust insurance limits from time to time at its discretion with notice to Contractor.

NOTE: CITY PROJECT NUMBER, PROJECT NAME AND BID NUMBER MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED" ON REQUIRED LIABILITY POLICIES.

A Sample Insurance Certificate shall be included with the bid to demonstrate the firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the insurance companies' names for all required coverage, and the dollar amounts of the coverage.

11. PERFORMANCE AND PAYMENT BOND: 100%

12. CITY PROJECT MANAGER

The Project Manager is hereby designated by the City as Monica Spitery whose address is 101 NE 3rd Avenue, 21st Floor, Fort Lauderdale, FL 33301, telephone number: (954) 828-6891, and e-mail address is emartinez@fortlauderdale.gov. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

13. LIQUIDATED DAMAGES *(See Article 16, Liquidated Damages, of the Contract for details)*

Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of **Five Hundred Dollars ($500.00)** for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. (See sample Agreement, Article 16, Liquidated Damages)

14. PAYMENT (*See Article 7, Payment, of the Contract for other details*)

The City shall make payment to the Contractor through utilization of the City's P-Card Program. The City has implemented a Purchasing Card (P-Card) Program utilizing both the VISA and MASTERCARD networks. Purchases from this contract will be made utilizing the City's Purchasing Card. Contractor will receive payment from the purchasing card in the same manner as other credit card purchases. Accordingly, Contractor must presently have the ability to accept these credit cards or take whatever steps necessary to implement the ability before the start of the contract term, or contract award by the City. All costs associated with the Contractor's participation in this purchasing program shall be borne by the Contractor. The City reserves the right to revise this program as necessary.

PCI (Payment Card Industry) Compliance

Contractor agrees to comply with all applicable state, federal and international laws, as well as industry best practices, governing the collection, access, use, disclosure, safeguarding and destruction of Protected Information.

Contractor and/or any subcontractor that handles credit card data must be, and remain, PCI compliant under the current standards and will provide documentation confirming compliance upon request by the City of Fort Lauderdale, failure to produce documentation could result in termination of the contract.

15. WORK SCHEDULE (including overtime hours):

Regular work hours: **8:00 am to 5:00 pm, Monday through Friday.**
City Inspector Hours: **8:00 am to 4:30 pm, Monday through Friday.**

Any inspection requested by the contractor outside those hours will be considered overtime to be paid by the Contractor.

16. INSPECTION OVERTIME COST: $100/hr.

-END OF SECTION-

CITY OF FORT LAUDERDALE
CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT ("Agreement") made and entered into this _____ day of _____, 2025, by and between the City of Fort Lauderdale, a Florida municipal corporation ("City") and _____, a Florida company/corporation ("Contractor"), ("Party" or collectively "Parties");

WHEREAS, the City desires to retain a contractor for the Project as expressed in its Invitation to Bid Event No. 532, Project Number P12765, which was opened on _____; and

WHEREAS, the Contractor has expressed its willingness and capability to perform the necessary work to accomplish the Project; and

NOW, THEREFORE, the City and the Contractor, in consideration of the mutual covenants and conditions contained herein and for other good and valuable consideration, the receipt and sufficiency is hereby acknowledged, agree as follows:

ARTICLE 1 – DEFINITIONS

Whenever used in this Agreement or in other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural forms:

1.1 Agreement – This written Agreement between the City and the Contractor covering the work to be performed including other Contract Documents that are attached to or incorporated in the Agreement.

1.2 Application for Payment – The form accepted by the City which is to be used by the Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents.

1.3 Approve – The word approve is defined to mean review of the material, equipment or methods for general compliance with design concepts and with the information given in the Contract Documents. It does not imply a responsibility on the part of the City to verify in every detail conformance with plans and specifications.

1.4 Bid – The offer or Bid of the Contractor submitted on the prescribed form setting forth the total prices for the Work to be performed.

1.5 Bid Documents – Advertisement for Invitation to Bids, the Instructions to Bidders, the Bid Form (with supplemental affidavits and sample agreements), the Contract Forms, General Conditions, the Supplementary Conditions, the Specifications, and the Plans, which documents all become an integral part of the Contract Documents.

1.6 Certificate of Substantial Completion - Certificate provided by the City certifying that all Work, excluding the punch list items, has been completed, inspected, and accepted by the City.

SAMPLE CONSTRUCTION AGREEMENT

1.7 Change Order - A written document executed by both Parties ordering a change in the Contract Price or Contract Time or a material change in the Work.

1.8 City – The City of Fort Lauderdale, Florida, including but not limited to its employees, agents, officials, representatives, contractors, subcontractors, and volunteers, with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.

1.9 Contract Documents – The Contract Documents shall consist of this Agreement, Exhibits to this Agreement, Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance, Notice of Award and Notice to Proceed, General Conditions, Special Conditions, Technical Specifications, Plans/Drawings, Addenda, Bid Form and supplement Affidavits and Agreements, all applicable provisions of State and Federal Law and any modification, including Change Orders or written amendments duly delivered after execution of Agreement, Invitation to Bid, Instructions to Bidders and Bid Bond, Contractor's response to the City's Invitation to Bid, Schedule of Completion, Schedule of Values, all amendments, modifications and supplements, work directive changes issued on or after the Effective Date of the Agreement, as well as any additional documents that are required to be submitted under the Agreement.

Permits on file with the City and/or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement. A copy of all permits shall be given to the City for inclusion in the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

1.10 Contract Price – The amount established in the bid submittal and award by the City's City Commission, as may be amended by Change Order.

1.11 Contract Time – The number of calendar days stated in the Agreement for the completion of the Work. The dates on which the work shall be started and shall be completed as stated in the Notice to Proceed.

1.12 Contractor – The person, firm, company, or corporation with whom the City has entered into the Agreement, including but not limited to its employees, agents, representatives, contractors, subcontractors, their subcontractors and their other successors and assigns.

1.13 Day – A calendar day of twenty-four (24) hours ending at midnight.

1.14 Defective – When modifying the word "Work" refers to work that is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Project Manager's recommendation of final payment.

1.15 Effective Date of the Agreement – The effective date of the Agreement shall be the date the City Commission approves the Agreement.

1.16 Final Completion Date – The date the Work is completed, including completion of the final punch list, and delivered along with those items specified in the Contract Documents and is accepted by the City.

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1.17 Hazardous Materials (HAZMAT) - Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment defined in Section 101(14) of Comprehensive Environmental Response, Compensation and Liability Act of 1980 and in 40 CFR 300.6. Also defined by 49 CFR 171.8 as a substance or material designated by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.

1.18 Hazardous Substance - As defined by Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act; any substance designated pursuant to Section 311(b) (2) (A) of the Clean Water Act; any element, compound, mixture, solution or substance designated pursuant to Section 102 identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act {but not including any waste listed under Section 307[a] of the Clean Water Act}; any hazardous air pollutant listed under Section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture pursuant to Section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

1.19 Hazardous Waste - Those solid wastes designated by OSHA in accordance with 40 CFR 261 due to the properties of ignitability, corrosivity, reactivity, or toxicity. Any material that is subject to the Hazardous Waste Manifest requirements of the EPA specified in 40 CFR Part 262.

1.20 Holidays - Those designated non-workdays as established by the City Commission of the City of Fort Lauderdale.

1.21 Inspection – The term “inspection” and the act of inspecting as used in this Agreement is defined to mean the examination of construction to ensure that it conforms to the design concept expressed in the plans and specifications. This term shall not be construed to mean supervision, superintending and/or overseeing.

1.22 Notice of Award - The written notice by City to the Contractor stating that upon compliance by the Contractor with the condition’s precedent enumerated therein, within the time specified that the City will sign and deliver this Agreement.

1.23 Notice to Proceed – A written notice to Contractor authorizing the commencement of the activities identified in the notice or as described in the Contract Documents.

1.24 Plans - The official graphic representations of this Project that are a part of the Contract Documents.

1.25 Premises (otherwise known as Site or Work Site) – means the land, buildings, facilities, etc. upon which the Work is to be performed.

1.26 Project – The construction project described in the Contract Documents, including the

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Work described therein.

1.27 Project Manager - The employee of the City, or other designated individual who is herein referred to as the Project Manager, will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement. The Project Manager, or designee, shall be the authorized agent for the City unless otherwise specified.

1.28 Punch List - The City's list of Work yet to be done or be corrected by the Contractor, before the Final Completion date can be determined by the City.

1.29 Record Documents - A complete set of all specifications, drawings, addenda, modifications, shop drawings, submittals and samples annotated to show all changes made during the construction process.

1.30 Record Drawings or "As-Builts" - A set of drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the Contractor. These documents will be signed and sealed by a Professional Engineer, or a Professional Land Surveyor licensed in the State of Florida and employed by the Contractor at no cost to the City.

1.31 Substantially Completed Date – A date when written notice is provided by the City to the Contractor stating that the Work is substantially completed. If, at the time of inspection, it is determined the project is substantially completed, the City will also issue a letter of Substantial Completion along with a punch list of incomplete or deficient items to be completed prior to requesting a Final Completion inspection.

1.32 Work – The construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, materials, equipment, and services provided or to be provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a part of the Project.

ARTICLE 2 – SCOPE OF WORK

2.1 The Contractor shall complete all Work as specified or indicated in the Contract Documents. The Project for which the Work under the Contract Documents may be the whole or only part is generally described as follows:

Enabling Works for Prospect Lake Water Treatment Plant
Invitation to Bid Event No. 532, PROJECT # P12765

2.2 All Work for the Project shall be constructed in accordance with the approved plans and Specifications. The Work generally involves:

PROJECT DESCRIPTION

This project is located at Prospect Lake Well Fields (Cypress Creek Road to the north, NW 31st Avenue to the East, and Prospect Road to the south, in the City of Fort

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Lauderdale. The work to be accomplished under this contract includes, but is not limited to, installation of 12 inch C900 water main, including connections to existing 20 inch and 12 inch water main, as well as all necessary demolition and restoration.

2.3 Within ten (10) days of the execution of this Agreement, the Contractor shall submit a Construction Schedule, Schedule of Values and a listing of all personnel employed. The general sequence of the Work shall be submitted by the Contractor and approved by the City before any work commences. The City reserves the right to issue construction directives necessary to facilitate the Work or to minimize any conflict with operations.

ARTICLE 3 – PROJECT MANAGER

3.1 The Project Manager is hereby designated by the City as Monica Spitery, whose address is 101 NE 3rd Avenue,21st Floor, Fort Lauderdale, FL 33301, telephone number: (954) 828-6891, and email address is mspitery@fortlauderdale.gov. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

ARTICLE 4 – CONTRACT DOCUMENTS

The Contract Documents, include this Agreement and the following documents listed below which comprise the entire Agreement between the City and Contractor, and these documents listed below are hereby incorporated herein, even if they are not attached to this Agreement. The Contract Documents consist of the following:

4.1 This Agreement.

4.2 Exhibits to this Agreement: (Plans sheets [ ] to [ ] inclusive).

4.3 Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance.

4.4 Notice of Award and Notice to Proceed.

4.5 General Conditions and Special Conditions.

4.6 Technical Specifications.

4.7 Plans/Drawings.

4.8 Addenda number _____ through _____, inclusive.

4.9 Bid Form and supplement Affidavits and Agreements.

4.10 All applicable provisions of State and Federal Law.

4.11 Invitation to Bid Event No. 532, Instructions to Bidders, and Bid Bond.

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4.12 Contractor's response to the City's Invitation to Bid Event No. 532, dated _____.

4.13 Schedule of Completion.

4.14 All amendments, modifications and supplements, change orders and work directive changes, issued on or after the Effective Date of the Agreement.

4.15 Any additional documents that are required to be submitted under the Agreement.

4.16 Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement.

4.17 Foreign Entity Affidavit.

4.18 Kidnapping and Custody Affidavit.

In the event of any conflict between the documents or any ambiguity or missing specification or instruction, the following priority is established:

a. Approved change orders, addenda or amendments.

b. Specifications and Drawings.

c. Special Conditions.

d. General Conditions.

e. This Agreement dated _____, and any attachments.

f. Invitation to Bid Event No. 532, and the specifications prepared by the City.

g. Contractor's response to the City's Invitation to Bid Event No. 532, dated _____.

h. Schedule of Values.

i. Schedule of Completion.

If during the performance of the Work, Contractor finds a conflict, error or discrepancy in the Contract Documents, Contractor shall so report to the Project Manager, in writing, within five (5) calendar days, and before proceeding with the Work affected shall obtain a written interpretation or clarification from the City.

Any Work that may reasonably be inferred from the specifications or plans as being required to produce the intended result shall be supplied whether or not it is specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials, or equipment, such works shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or associations, or to the code of any governmental authority whether such reference be

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specific or implied, shall mean the latest standard specification, manual or code in effect as of the Effective Date of this Agreement, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, the Contractor, or any of their agents or employees from those set forth in the Contract Documents.

ARTICLE 5 – CONTRACT TIME

5.1 The Contractor recognizes that **TIME IS OF THE ESSENCE**. The Work shall commence within **TEN (10)** calendar days of the date of the Notice to Proceed.

5.2 The Work shall be Substantially Completed within **SIXTY (60)** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **NINETY (90)** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

ARTICLE 6 – CONTRACT PRICE

6.1 City shall pay Contractor for performance of the Work in accordance with Article 7, subject to additions and deletions by Change Order, as provided for in this Agreement.

6.2 The Parties expressly agree that the Contract Price, which shall not exceed the amount of $_____, constitutes the total maximum compensation payable to Contractor for performing the Work, plus any Work done pursuant to a Change Order. The Contract Price is in accordance with the line items unit prices listed in the Bid. Line items are based on a unit price cost multiplied by a defined quantity. Any additional duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change to the Contract Price.

6.3 The Contract Price constitutes the compensation payable to Contractor for performing the Work plus any Work done pursuant to a Change Order. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract Price.

ARTICLE 7 – PAYMENT

7.1 Contractor shall submit Applications for Payment in accordance with the Contract Documents. Applications for Payment will be processed by City as provided for in the General Conditions.

7.2 Progress Payments. City shall make progress payments on account of the Contract Price on the basis of Contractor's monthly Applications for Payment, which shall be submitted by the Contractor between the first (1st) and the tenth (10th) day after the end of each calendar month for which payment is requested. All progress payments will be made on the basis of the progress of the Work completed.

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7.3 Prior to Final Completion, progress payments will be made in an amount equal to ninety-five percent (95%) of the value of Work completed less in each case the aggregate of payments previously made.

7.4 Final Payment. Upon final completion of the Work in accordance with the General Conditions, as may be supplemented, the City shall pay Contractor an amount sufficient to increase total payments to one hundred percent (100%) of the Contract Price. However, not less than five percent (5%) of the Contract Price shall be retained until Record Drawings (as-builts), specifications, addenda, modifications, and shop drawings, including all manufacturers' instructional and parts manuals are delivered to and accepted by the City.

7.5 City may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:

7.5.1 Defective work not remedied.
7.5.2 Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or City because of Contractor's performance.
7.5.3 Failure of Contractor to make payments properly to subcontractors or for material or labor.
7.5.4 Damage to another contractor not remedied.
7.5.5 Liquidated damages and costs incurred by Consultant for extended construction administration, if applicable.
7.5.6 Failure of Contractor to provide any and all documents required by the Contract Documents.

When the above grounds are removed or resolved satisfactory to the Project Manager, payment shall be made in whole or in part.

7.6 The City shall make payment to the Contractor in accordance with the Florida Prompt Payment Act, Section 218.70, Florida Statutes (2024), as amended or revised, provided, however, complete and error free pay application is submitted.

7.7 The City shall make payment to the Contractor through utilization of the City's Purchasing Card (P-Card) Program. The City has implemented a P-Card Program utilizing the MASTERCARD and VISA networks. Purchases from this contract will be made utilizing the City's P-Card. Contractor will receive payment from the purchasing card in the same manner as other credit card purchases. Accordingly, Contractor must presently have the ability to accept these credit cards or take whatever steps necessary to implement the ability before the start of the contract term, or contract award by the City. <u>All costs associated with the Contractor's participation in this purchasing program shall be borne by the Contractor</u>. The City reserves the right to revise this program as necessary.

7.8 PCI (Payment Card Industry) Compliance
Contractor agrees to comply with all applicable state, federal and international laws, as well as industry best practices, governing the collection, access, use, disclosure, safeguarding and destruction of Protected Information.

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Contractor and/or any subcontractor that handles credit card data must be, and remain, PCI compliant under the current standards and will provide documentation confirming compliance upon request by the City of Fort Lauderdale. Failure to produce documentation could result in termination of the contract.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

In order to induce the City to enter into this Agreement, Contractor makes the following representations upon which the City has relied:

8.1 Contractor is qualified in the field of public construction and in particular to perform the Work and services set forth in this Agreement.

8.2 Contractor has visited the Work Site, has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, water table condition, moisture conditions and all year-round local weather and climate conditions (past and present), and examination and investigations conducted by Contractor and the Contractor's experts, has determined that no conditions exist that would in any manner affect the Bid Price and that the project can be completed for the Bid Price submitted within the Contract Time as defined in this Agreement.

Furthermore, Contractor warrants and confirms that it is totally familiar with, understands and obligates Contractor to comply with all federal, state and local laws, ordinances, rules, regulations and all market conditions that affect or may affect the cost and price of materials and labor needed to fulfill all provisions of this Agreement or that in any manner may affect cost, progress or performance of the Work.

8.3 The Contractor has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Project, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, the conformation and conditions at the ground based on City provided reports, the type of equipment and facilities needed preliminary to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.

8.4 The Contractor has also studied on its own, investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Works, and finds and has further determined that no conditions exist that would in any manner affect the Bid Price and that the Project can be completed for the Bid Price submitted.

8.5 Contractor has made or caused to be made, examinations, investigations, tests and studies of such reports and related data in addition to those referred to in Paragraphs 8.2, 8.3 and 8.4 above as it deems necessary for the performance of the Work at the Contract Prices, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are, or will be, required by Contractor for such purposes.

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8.6 Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

8.7 Contractor has given City written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution by City is acceptable to the Contractor.

8.8 Labor

8.8.1 The Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site.

8.8.2 The Contractor shall, at all times, have a competent superintendent, capable of reading and thoroughly understanding the drawings and specifications, as the Contractor's agent on the Work, who shall, as the Contractor's agent, supervise, direct and otherwise conduct the Work.

8.8.3 The Contractor shall designate the superintendent on the job to the City, in writing, immediately after receipt of the Notice to Proceed. The Contractor understands and agrees that the superintendent's physical presence on the job site is indispensable to the successful completion of the Work. If the superintendent is frequently absent from the job site, the Project Manager may deliver written notice to the Contractor to stop work or terminate the Agreement in accordance with Article 17.

8.8.4 Where required and necessary, the Contractor shall, at all times, have a certified "competent person" assigned to the job site. The Contractor shall assign personnel to the job site that have successfully completed training programs related to trench safety, confined space work, and maintenance of traffic (MOT). Personnel certified by the International Municipal Signal Associations with Florida Department of Transportation qualifications are required relative to MOT. Any other certifications that may be required by applicable permitting agencies for the Work shall also be complied with by the Contractor. Failure to pursue the Work with the properly certified supervisory staff may result in notice to stop work or terminate the Agreement in accordance with Article 17.

8.9 Materials:

8.9.1 The Contractor shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of Work.

8.9.2 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. Suppliers shall be selected and paid by the Contractor; the City reserves the right to approve all suppliers and materials.

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8.10 Work Hours: Except in connection with the safety or protection of persons, or the Work, or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular working hours between 8 a.m. and 5:00 p.m., Monday through Friday.

Unless approved by the City in advance, the Contractor will not perform work on Saturday, Sunday or any legal holiday (designated by the City of Fort Lauderdale) without the Project Manager's written consent at least seventy-two (72) hours in advance of starting such work. For any overtime inspection required by City personnel, the Contractor shall pay for the additional charges to the City with respect to such overtime work. Such additional charges shall be a subsidiary obligation of the Contractor and no extra payment shall be made to the Contractor for overtime work. **It shall be noted that the City's Inspector work hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday, and any work requiring inspection oversight being performed outside of this timeframe shall be paid for by the Contractor as Inspector overtime at a rate of $100.00 per hour.** The cost to the Contractor to reimburse the City for overtime inspection is established at direct-labor and overtime costs for each person or inspector required. Incidental overtime costs for engineering, testing and other related services will also be charged to the Contractor at the actual rate accrued.

8.11 Patent Fee and Royalties: The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work, or any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. The Contractor hereby expressly binds itself to indemnify and hold harmless the City from all such claims and fees and from any and all suits and action of every name and description that may be brought against City on account of any such claims, fees, royalties, or costs for any such invention or patent, and from any and all suits or actions that may be brought against said City for the infringement of any and all patents or patent rights claimed by any person, firm corporation or other entity.

8.12 Permits: The Contractor shall obtain and pay for all permits and licenses. There shall be no allowance for Contractor markup, overhead or profit for permits and licenses.

The Contractor shall pay all government charges which are applicable at the time of opening of bids. It shall be the responsibility of the Contractor to secure and pay for all necessary licenses and permits of a temporary nature necessary for the prosecution of Work.

8.13 Law and Regulations: The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work, including Florida Law, the City Code of Ordinances, and any other applicable law. If the Contractor observes that the specifications or plans are in conflict, the Contractor shall give the Project Manager prompt written notice thereof within five (5) calendar days, and any necessary changes shall be adjusted by any appropriate modifications. If the Contractor performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules, standards, specifications and regulations, and without such notice to the Project Manager, the Contractor shall bear all costs arising therefrom.

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8.14 Taxes: The Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the laws of the City of Fort Lauderdale, County of Broward, and the State of Florida.

8.15 Contractor Use of Premises: The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits and/or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The Contractor shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the Project Manager with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for storage or staging by the Contractor.

The Contractor shall conduct its work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures of work of any kind, including permanent reference markers or property corner markers, or the interruption of a utility service, shall be repaired or restored promptly at no expense to the City or property owner.

The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the Project Manager. The Contractor will be responsible for repairing or replacing any trees, shrubs, lawns and landscaping that may be damaged due to careless operation of equipment, stockpiling of materials, tracking of grass by equipment or other construction activity. The Contractor will be liable for or will be required to replace or restore at no expense to the City all properties and areas not protected or preserved as required herein that may be destroyed or damaged.

During the progress of the Work, the Contractor shall keep the premises free from accumulation of waste materials, rubbish and debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials and shall leave the site clean and ready for occupancy by the City. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents at no cost to the City.

8.16 Project Coordination: The Contractor shall provide for the complete coordination of the construction effort. This shall include, but not necessarily be limited to, coordination of the following:

8.16.1 Flow of material and equipment from suppliers.
8.16.2 The interrelated work with affected utility companies.
8.16.3 The interrelated work with the City where tie-ins to existing facilities are required.
8.16.4 The effort of independent testing agencies.
8.16.5 Notice to affected property owners as may be directed by the Project Manager.

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8.16.6 Coordination with and scheduling of all required inspections from all permitting agencies.

8.17 Project Record Documents and Final As-Builts (Record Drawings): Contractor shall be responsible for maintaining up-to-date redline as-built drawings, on site, at all times during construction. All as-built information shall be surveyed and verified by a professional land surveyor registered in the State of Florida. Contractor shall provide the City with a minimum of three (3) sets of signed and sealed record drawings (Final As-Builts) and electronic drawings files. All costs associated with survey work required for construction layout and as-built preparation shall be the responsibility of the Contractor.

8.18 Safety and Protection:

8.18.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

8.18.1.1 All employees working on the project and other persons who may be affected thereby.

8.18.1.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site.

8.18.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

8.18.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and utilities when execution of the Work may affect them at least seventy-two (72) hours in advance (unless otherwise required). All damage, injury or loss to any property caused, directly or indirectly, in whole or in part by the Contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties

and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and accepted by the City.

8.19 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the City, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Project Manager prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

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8.20 Risk of Loss: The risk of loss, injury or destruction shall be on the Contractor until acceptance of the Work by the City. Title to the Work shall pass to the City upon acceptance of the Work by the City.

8.21 Environmental: The Contractor has fully inspected the Premises and agrees, except as to the presence of any asbestos, to accept the Premises in an "as is" physical condition, without representation or warranty by the City of any kind, including, without limitation, any and all existing environmental claims or obligations that may arise from the presence of any "contamination" on, in or about the Premises. Further, Contractor and all entitles claiming by, through or under the Contractor, releases and discharges the City from any claim, demand, or cause of action arising out of or relating to the Contractor's use, handling, storage, release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of any hazardous substances including asbestos on, under, from or about the Premises. The Contractor shall have no liability for any pre-existing claims or "contamination" on the Premises.

The Contractor shall not use, handle, store, discharge, treat, remove, transport, or dispose of Hazardous Substances including asbestos at, in, upon, under, to or from the Premises until receipt of instructions from the City. At such time, a City approved Change Order, which shall not include any profit, shall authorize the Contractor to perform such services.

The Contractor shall immediately deliver to the Project Manager complete copies of all notices, demands, or other communications received by the Contractor from any governmental or quasi-governmental authority or any insurance company or board of fire underwriters or like or similar entities regarding in any way alleged violations or potential violations of any Environmental Law or otherwise asserting the existence or potential existence of any condition or activity on the Premises which is or could be dangerous to life, limb, property, or the environment.

For other and additional consideration, the Contractor hereby agrees, at its sole cost and expense, to indemnify and protect, defend, and hold harmless the City and its respective employees, agents, officials, officers, representatives, contractors and subcontractors, successors, and assigns (hereafter the "City") from and against any and all claims, demands, losses, damages, costs, expenses, including but not limited to mitigation, restoration, and natural restoration expenses, liabilities, assessments, fines, penalties charges, administrative and judicial proceedings and orders, judgments, causes of action, in law or in equity, remedial action requirements and/or enforcement actions of any kind (including, without limitation, attorneys' fees and costs) directly or indirectly arising out of or attributable to, in whole or in part, the Contractor's use, handling, storage, release, threatened release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of a Hazardous Substance (excluding asbestos) on, under, from, to or about the Premises or any other activity carried on or undertaken on or off the Premises by the Contractor or its employees, agents or subcontractors, in connection with the use, handling, storage, release, threatened release, discharge, treatment, mitigation, natural resource restoration, removal, transport, decontamination, cleanup, disposal and/or presence or any Hazardous Substance including asbestos located, transported, or present on, undue, from, to, or about the Premises. This indemnity is intended to be operable under 42 U.S.C. Section 9607, as amended or revised, and any successor section.

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The scope of the indemnity obligations includes, but is not limited to: (a) all consequential damages; (b) the cost of any required or necessary repair, cleanup, or detoxification of the applicable real estate and the preparation and implementation of any closure, remedial or other required plan, including without limitation; (i) the costs of removal or remedial action incurred by the United States government or the State of Florida or response costs incurred by any other person, or damages from injury to destruction of, or loss of, natural resources, including the cost of assessing such injury, destruction, or loss, incurred pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended; (ii) the clean-up costs, fines, damages, or penalties incurred pursuant to any applicable provisions of Florida law; and (iii) the cost and expenses of abatement, correction or cleanup, fines, damages, response costs, or penalties which arise from the provisions of any other statute, law, regulation, code ordinance, or legal requirement state or federal; and (c) liability for personal injury or property damage arising under any statutory or common law tort theory, including damages assessed for the maintenance of a public private nuisance, response costs, or for the carrying on of an abnormally dangerous activity.

8.22 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any other reason or allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

8.23 No Liens: If any subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the Work is performed or any part or against any personal property or improvements or claim against any monies due or to become due from the City to Contractor or from Contractor to a subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any Change Order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within twenty (20) days of the filing or from receipt of written notice from the City.

Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining such. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses

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at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court costs and assessments.

8.24 Weather Emergencies: Upon issuance of a hurricane watch by the National Weather Service, the Contractor shall submit to the City a plan to secure the work area in the event a hurricane warning is issued. The plan shall detail how the Contractor will secure the Premises, equipment and materials in a manner as to prevent damage to the Work and prevent materials and equipment from becoming a hazard to persons and property on and around the Premises. The plan shall include a time schedule required to accomplish the hurricane preparations and a list of emergency contacts that will be available, and in the City before, during and immediately after the storm.

Upon issuance of a hurricane warning by the National Weather Service, if the Contractor has not already done so, the Contractor shall implement its hurricane preparedness plan. Cost of development and implementation of the hurricane preparedness plan shall be considered as incidental to construction. Cost of any clean up and rework required after the storm will be considered normal construction risk within Florida and shall not entitle the Contractor to any additional compensation. Contractor shall be entitled to request an extension in time for completion of the Work, in accordance with the provisions of Article 15 of this Agreement, equal to the time it is shut down for implementation of the preparedness plan, the duration of the storm and a reasonable period to restore the Premises.

8.25 Force Majeure: No Party shall hold the other responsible for damages or for delays in performance caused by force majeure, acts of God, or other acts or circumstances beyond the control of the other Party or that could not have been reasonably foreseen and prevented. For this purpose, such acts or circumstances shall include, but not be limited to weather conditions affecting performance, floods, epidemics, pandemics, war, act of Governmental Authority, state of emergency, riots, strikes, lockouts, or other industrial disturbances, or protest demonstrations. Should such acts or circumstances occur, the Parties shall use their best efforts to overcome the difficulties arising therefrom and to resume the Work as soon as reasonably possible with the normal pursuit of the Work.

Inclement weather, continuous rain for less than three (3) days or the acts or omissions of subcontractors, third-party contractors, materialmen, suppliers, or their sub-contractors, shall not be considered acts of force majeure.

No Party shall be liable for its failure to carry out its obligations under the Agreement during a period when such Party is rendered unable by force majeure to carry out its obligation, but the obligation of the Party or Parties relying on such force majeure shall be suspended only during the continuance of the inability and for no longer period than the unexpected or uncontrollable event.

The Contractor further agrees and stipulates, that its right to excuse its failure to perform by reason of force majeure shall be conditioned upon giving written notice of its assertion that a Force Majeure delay has commenced within ninety-six (96) hours after such an occurrence. The Contractor shall use its reasonable efforts to minimize such delays. The

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Contractor shall promptly provide an estimate of the anticipated additional time required to complete the Project.

8.26 Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assisted Contracts: The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR Part 26. The recipient shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR Part 26 and as approved by DOT, is incorporated by reference in this Agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this Agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 *et seq.*).

Additionally, the Contractor assures that it, the sub-recipient or its subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as the recipient deems appropriate. This additional language must be included in each subcontract the prime Contractor signs with a subcontractor.

ARTICLE 9 – CITY'S RESPONSIBILITIES

9.1 The City shall furnish the data required of the Contractor under the Contract Documents promptly and shall make payments to the Contractor in accordance with the terms of the agreement herein.

9.2 After the Contractor meets the City's requirements in the Code of Ordinances, and any other applicable law, the City shall provide public rights-of-way and easement, where available, for the installation of conduits, transformers pads and related appurtenances only.

9.3 Technical Clarifications and Interpretations:

9.3.1 The City shall issue written clarifications or interpretations of the Contract Documents as it may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Should the Contractor fail to request interpretation of questionable items in the Contract Documents, the City shall not entertain any excuse for failure to execute the Work in a satisfactory manner.

9.3.2 The City shall interpret and decide matters concerning performance under the requirements of the Contract Documents, and shall make decisions on all claims, disputes or other matters in question. Written notice of each claim, dispute or other matter will be delivered by claimant to the other Party but in no event later

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than five (5) days after the occurrence of event and written supporting data will be submitted to the other Party within five (5) days after such occurrence. All written decisions of the City on any claim or dispute will be final and binding.

9.4 The Contractor shall perform all Work to the reasonable satisfaction of the City in accordance with the Contract Documents. In cases of disagreement or ambiguity, the City shall decide all questions, difficulties, and disputes of whatever nature, which may arise under or by reason of this Agreement or the quality, amount and value of the Work, and the City's decisions on all claims, questions and determination are final.

9.5 Cancellation for Unappropriated Funds**:** The obligation of the City for payment to a Contractor is limited to the availability of funds appropriated in a current fiscal period, and continuation of the Agreement into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

ARTICLE 10 – BONDS AND INSURANCE

10.1 Public Construction and Other Bonds: The Contractor shall furnish Public Construction or Performance and Payment Bonds ("Bond"), each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. These Bonds shall remain in effect until at least one (1) year after the date of final payment, except as otherwise provided by law. All Bonds shall be furnished and provided by the surety and shall be in substantially the same form as prescribed by the Contract Documents and be executed by such sureties as (i) are licensed to conduct business in the State of Florida, and (ii) are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department and (iii) otherwise meet the requirements set forth herein that apply to sureties. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

10.1.1 Performance Bond: The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2024), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

A Corporate Surety Bond legally issued, meeting the approval of, and running to the City in an amount not less than the Contract Price of such improvements, conditioned that the Contractor shall maintain and make all repairs to the improvements constructed by the Contractor at their own expense and free of charge to the City, for the period of one (1) year after the date of acceptance of the Work within such period by reason of any imperfection of the material used or by reason of any defective workmanship, or any improper, imperfect or defective preparation of the base upon which any such improvement shall be laid.

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10.2 Disqualification of Surety: If the Surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of clauses (i) and (ii) of Paragraph 10.1, the Contractor shall within five (5) days thereafter substitute another Bond and Surety, both of which shall be acceptable to the City.

10.3 Insurance

As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, Contractor shall, at its sole expense, provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of Contractor. Contractor shall provide the City a certificate of insurance evidencing such coverage. Contractor's insurance coverage shall be primary insurance for all applicable policies, in respect to the City's interests for this Agreement. The limits of coverage under each policy maintained by Contractor shall not be interpreted as limiting Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers authorized or eligible to write policies in the State of Florida and possess an A.M. Best rating of A-, VII or better, subject to approval by the City's Risk Manager.

The coverages, limits, and/or endorsements required herein protect the interests of the City, and these coverages, limits, and/or endorsements shall in no way be relied upon by Contractor for assessing the extent or determining appropriate types and limits of coverage to protect Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Contractor under this Agreement.

The following insurance policies and coverages are required:

Commercial General Liability
Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- $2,000,000 each occurrence and $2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- $2,000,000 each occurrence and $2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for contractual liability and independent contractors.

The City, a Florida municipality, its officials, employees, and volunteers are to be included as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, and volunteers.

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Pollution and Remediation Legal Liability (Hazardous Materials)
For the purpose of this section, the term "hazardous materials" includes all materials and substances that are designated or defined as hazardous by Florida or federal law or by the rules or regulations of Florida or any federal agency. If work being performed involves hazardous materials, Contractor shall procure and maintain any or all of the following coverages (which will be specifically addressed upon review of exposure):

Contractors Pollution Liability Coverage
For sudden and gradual occurrences and in an amount not less than $1,000,000 per claim arising out of this Agreement, including but not limited to, all hazardous materials identified under the Agreement.

Business Automobile Liability
Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than $1,000,000 combined single limit each accident.

If Contractor does not own vehicles, Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Crane and Rigging Liability
If crane and rigging will be utilized in execution of the contract, coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

Workers' Compensation and Employer's Liability
Coverage must be afforded per Chapter 440, Florida Statutes. Any person or entity performing work for or on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

Contractor waives, and Contractor shall ensure that Contractor's insurance carrier waives, all subrogation rights against the City, its officials, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore and Harbor Workers' Compensation Act and the Jones Act, if applicable.

Insurance Certificate Requirements

a. Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than ten (10) days prior to the start of work contemplated in this Agreement.
b. Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.

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c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
d. In the event the Agreement term or any surviving obligation of Contractor following expiration or early termination of the Agreement goes beyond the expiration date of the insurance policy, Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
e. The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
f. The City shall be included as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
g. The City shall be granted a Waiver of Subrogation on Contractor's Workers' Compensation insurance policy.
h. The title of the Agreement, Bid/Contract number, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:
City of Fort Lauderdale
c/o Procurement Services Division
401 SE 21st Street
Fort Lauderdale, FL 33316

Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the application of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for including the City as an Additional Insured shall be at Contractor's expense.

If Contractor's primary insurance policy/policies do not meet the minimum requirements as set forth in this Agreement, Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.

Contractor's insurance coverage shall be primary insurance in respect to the City's interests for this Agreement, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City shall be non-contributory.

Any exclusion or provision in any insurance policy maintained by Contractor that excludes coverage required in this Agreement shall be deemed unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the Agreement work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage may be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate of insurance

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should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement to Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

It is Contractor's responsibility to ensure that any and all of Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of the applicable requirements stated herein. Any and all deficiencies are the responsibility of Contractor. The City reserves the right to adjust insurance limits from time to time at its discretion with notice to Contractor.

NOTE: CITY PROJECT NUMBER, PROJECT NAME AND BID NUMBER MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED" ON REQUIRED LIABILITY POLICIES.

A Sample Insurance Certificate shall be included with the bid to demonstrate the firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the insurance companies' names for all required coverage, and the dollar amounts of the coverage.

ARTICLE 11- WARRANTY AND GUARANTEE, TESTS AND INSPECTIONS, CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

11.1 Warranty: The Contractor warrants and guarantees to the City that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to the Contractor. All defective work, whether or not in place, may be rejected, corrected or accepted as provided in this Article.

11.1.1 Warranty of Title: The Contractor warrants to the City that it possesses good, clear and marketable title to all equipment and materials provided and that there are no pending liens, claims or encumbrances against the equipment and materials.

11.1.2 Warranty of Specifications: The Contractor warrants that all equipment, materials and workmanship furnished, whether furnished by the Contractor, its subcontractors or suppliers, will comply with the specifications, drawings and other descriptions supplied or adopted and that all services will be performed in a workmanlike manner.

11.1.3 Warranty of Merchantability: The Contractor warrants that any and all equipment to be supplied pursuant to this Agreement is merchantable, free from defects, whether patent or latent in material or workmanship, and fit for the ordinary purposes for which it is intended.

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11.2 Tests and Inspections: Contractor shall retain the services of an independent, certified, testing lab to perform all testing as required by the specifications, contract drawings, and any applicable permitting agency. Contractor shall provide evidence of certification to the City before the work and testing is done. Testing results shall be submitted to the Project Manager for review and approval at the time the results are provided to the Contractor. The Contractor shall give the Project Manager and City Inspector a minimum of twenty-four (24) hours' advanced notice of readiness of the Work for all required inspections, tests, or approvals and shall notify all applicable permitting agencies in a timely manner based on requirements set forth in the permit documents.

11.2.1 Neither observations by the Project Manager nor inspections, tests or approvals by others shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.

11.3 Uncovering Work: If any work that is to be inspected, tested or approved is covered without approval or consent of the Project Manager, it must, if requested by the Project Manager, be uncovered for observation and/or testing. Such uncovering and replacement shall be at the Contractor's sole expense unless the Contractor has given the Project Manager timely notice of the Contractor's intention to cover such Work and the Project Manager has not acted with reasonable promptness in response to such notice.

11.3.1 If the Project Manager considers it necessary or advisable that Work covered in accordance with Paragraphs 11.2.1 be observed by the City or inspected or tested by others, the Contractor at the City's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the Project Manager may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection testing and reconstruction if it makes a claim therefore as provided in Articles 14 and 15.

11.4 City May Stop the Work: If the Work is defective, or the Contractor fails to supply sufficient skilled supervisory personnel or workmen or suitable materials or equipment or the work area is deemed unsafe, the City may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City to stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of the Contractor or any other Party. The City will not award any increase in Contract Price or Contract Time if the Work is stopped due to the circumstances described herein.

11.5 Correction or Removal of Defective Work Before Final Payment: If required by the Project Manager, the Contractor shall promptly, without cost to the City and as specified by the Project Manager, either correct any defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by the City remove it from the site and replace it with non-defective Work.

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11.6 One Year Correction Period After Final Payment: If within one (1) year after the date of final acceptance, or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, the Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective Work, or, if it has been rejected by the City, remove it from the site and replace it with non-defective Work.

If the 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 City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs for such removal and replacement, including compensation for additional professional services, shall be paid by the Contractor.

11.7 Acceptance of Defective Work, Deductions: If, instead of requiring correction or removal and replacement of defective Work, the City, at the City's sole option, prefers to accept it, the City may do so. In such a case, if acceptance occurs prior to the Project Manager's recommendation of final payments, a Change Order shall be issued incorporating the necessary revisions in the Contract's Documents, including appropriate reduction in the Contract Price; or if the acceptance occurs after such recommendation, an appropriate amount shall be paid by the Contractor to the City.

11.8 City May Correct Defective Work: If the Contractor fails within a reasonable time after written notice of the Project Manager to proceed to correct defective Work or to remove and replace rejected Work as required by the Project Manager in accordance with Paragraph 11.5, or if the Contractor fails to perform the Work in accordance with the Contract Documents, the City may, after seven (7) days' written notice to the Contractor, correct and remedy any such deficiency. In exercising its rights under this paragraph, the City shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, the City may exclude the Contractor from all or part of the site, take possession of all or part of the Work, suspend the Contractor's services related thereto and take possession of the Contractor's tools, construction equipment and materials stored at the site or elsewhere. The Contractor shall allow the City's representative agents and employees such access to the site as may be necessary to enable the City to exercise its rights under this paragraph. All direct and indirect costs of the City in exercising such rights shall be charged against the Contractor in an amount verified by the Project Manager, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by the City of the City's right hereunder.

ARTICLE 12 – INDEMNIFICATION

12.1 Disclaimer of Liability: The City shall not at any time, be liable for injury or damage occurring to any person or property from any cause, whatsoever, arising out of Contractor's construction and fulfillment of this Agreement.

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12.2 Indemnification: For other, additional good valuable consideration, the receipt and sufficiency of which is hereby acknowledged:

12.2.1 Contractor shall, at its sole cost and expense, indemnify and hold harmless the City, its representatives, agents, volunteers, employees and elected and appointed officials from or on account of all claims, damages, losses, liabilities and expenses, direct, indirect or consequential including but not limited to fees and charges of engineers, architects, attorneys, consultants and other professionals and court costs arising out of or in consequence of the performance of this Agreement at all trial and appellate levels. Indemnification shall specifically include but not be limited to claims, damages, losses, liabilities and expenses arising out of or from (a) the negligent or defective design of the project and Work of this Agreement; (b) any act, omission or default of the Contractor, its subcontractors, agents, suppliers, employees or laborers; (c) any and all bodily injuries, sickness, disease or death; (d) injury to or destruction of tangible property, including any resulting loss of use; (e) other such damages, liabilities, or losses received or sustained by any person or persons during or on account of any operations connected with the construction of this Project including the warranty period; (f) the use of any improper materials; (g) any construction defect including both patent and latent defects; (h) failure to timely complete the work; (i) the violation of any federal, state, county or City laws, ordinances or regulations by Contractor, its subcontractors, agents, servants, independent contractors or employees; (j) the breach or alleged breach by Contractor of any term of the Agreement, including the breach or alleged breach of any warranty or guarantee.

12.2.2 Contractor agrees to indemnify, defend, and hold harmless the City, its representatives, agents, volunteers, employees, and appointed and elected officials from all damages, liabilities, losses, claims, fines and fees, and from any and all suits and actions of every name and description that may be brought against City, its officers, agents and employees, on account of any claims, fees, royalties, or costs for any invention or patent and/or for the infringement of any and all copyrights or patent rights claimed by any person, firm, or corporation.

12.2.3 Contractor shall pay all claims, losses, liens, settlements or judgments of any nature in connection with the foregoing indemnifications including, but not limited to, reasonable attorney's fees and costs for trials and appeals.

12.2.4 If any subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the work is performed or any part or against any personal property or improvements thereon or make a claim against any monies due or to become due from the City to Contractor or from Contractor to a subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any change order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within five (5) days of the filing or from receipt of written notice from the City.

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Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining the discharge. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court costs and assessments, and which shall be deducted from any amount owing to Contractor. In the event the amount due Contractor is less than the amount required to satisfy Contractor's obligation under this, or any other article, paragraph or section of this Agreement, the Contractor shall be liable for the deficiency due the City.

12.2.5 The Contractor and the City agree that Section 725.06(2), Florida Statutes (2024), as may be amended or revised, controls the extent and limits of the indemnification and hold harmless provisions of this Agreement, if any, and that the Parties waive any defects in the wording of this Article that runs afoul of said statutory section.

ARTICLE 13 – CHANGES IN THE WORK

13.1 Without invalidating this Agreement, the City may, at any time or from time-to-time order additions, deletions or revisions in the Work through the issuance of Change Orders. Upon receipt of a fully executed Change Order, the Contractor shall proceed with the Work involved. All Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 14 or Article 15 on the basis of a claim made by either Party.

13.2 The Project Manager may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. Such changes must be in writing and signed by the City and the Contractor.

13.3 If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be the Contractor's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. The Contractor shall furnish proof of such adjustment to the City.

ARTICLE 14 – CHANGE OF CONTRACT PRICE

Change of Contract Price, approved by City, shall be computed as follows:

14.1 Cost of the Work: The term "Cost of the Work" means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the Work.

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Except as otherwise may be agreed to in writing by the City, these costs shall be in amounts no higher than those prevailing in the City and shall include only the following items and shall not include any of the costs itemized in Paragraph 14.3:

14.1.1 Payroll costs for employees in the direct employ of the Contractor in the performance of the Work under schedules of job classifications agreed upon by the City and the Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work.

Payroll costs shall include, but not be limited to, salaries and wages plus cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, worker's compensation, health and retirement benefits, bonuses, sick leave, vacation and applicable holiday pay.

14.1.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage, and required suppliers and field services. All cash discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to the City, and the Contractor shall make provisions so that they may be obtained.

14.1.3 Supplemental costs including the following:

14.1.3.1 Cost, including transportation and maintenance of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work.

14.1.3.2 Rentals of all construction equipment and machinery and the parts whether rented from the Contractor or others in accordance with rental agreements approved by the City, and the costs of transporting, loading, unloading, installation, dismantling and removal. The rental of any such equipment, machinery or parts shall cease when the use is no longer necessary for the Work.

14.1.3.3 Sales, consumer, use or similar taxes related to the Work and for which the Contractor is liable, imposed by laws and regulations.

14.1.3.4 Royalty payments and fees for permits and licenses.

14.1.3.5 The cost of utilities, fuel and sanitary facilities at the Work site.

14.1.3.6 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

14.1.3.7 Cost of premiums for additional bonds and insurance required because of changes in the Work.

14.2 The Contract Price may only be increased by an approved and fully executed Change Order when Work is modified in accordance with Article 13 and approved by the City in

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writing. Any claim for an increase in the Contract Price resulting from a Change Order shall be based on written notice delivered to the Project Manager within ten (10) days of the occurrence of the Change Order giving rise to the claim. Notice of the amount of the claim with supporting data shall be included in the Change Order and delivered within twenty (20) days of such occurrence unless Project Manager allows an additional period of time to ascertain accurate cost data. Any change in the Contract Price resulting from any such claim shall be incorporated in the Change Order. **IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT PRICE SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.**

14.3 Not Included in the Cost of the Work: The term "Cost of the Work" shall not include any of the following:

14.3.1 Payroll costs and other compensation of the Contractor's officers' executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditor, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by the Contractor whether at the site or in the Contractor's principal or branch office for general administration of the work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 14.1.1, all of which are to be considered administrative costs covered by the Contractor's fee.

14.3.2 Expenses of the Contractor's principal and branch offices other than the Contractor's office at the site.

14.3.3 Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work and charges against the Contractor for delinquent payments.

14.3.4 Cost of premiums for all bonds and for all insurance whether or not the Contractor is required by the Contract Documents to purchase and maintain the same.

14.3.5 Costs due to the negligence of the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

14.3.6 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 14.1.

14.4 Basis of Compensation: The Contractor's compensation, allowed to the Contractor for overhead and profit, shall be determined as follows:

14.4.1 A mutually acceptable negotiated fee:

14.4.1.1 For costs incurred under Paragraphs 14.1.1 and 14.1.2, the Contractor's fee shall not exceed five percent (5%).

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14.4.1.2 No fee shall be payable on the basis of costs itemized under Paragraphs 14.1.3.1, 14.1.3.2, 14.1.3.3, 14.1.3.4, 14.1.3.5, 14.1.3.6, 14.1.3.7, 14.3.1, 14.3.2, 14.3.3, 14.3.4, 14.3.5 and 14.3.6.

14.4.1.3 The amount of credit to be allowed by the Contractor to the City for any such change which results in a net decrease plus a deduction in the Contractor's fee by an amount equal to five percent (5%) for the net decrease.

14.4.1.4 When both additions and credits are involved in any one change the combined overhead and profit shall be figured on the basis of net increase if any, however, not to exceed five percent (5%) of the agreed compensation. Profit will not be paid on any Work not performed.

14.5 Cost Breakdown Required: Whenever the cost of any Work is to be determined pursuant to this Article, the Contractor will submit in form acceptable to the City an itemized cost breakdown together with supporting documentation. Whenever a change in the Work is to be based upon mutual acceptance of a lump sum, whether the amount is an addition, credit, or no-charge-in-cost, the Contractor shall submit an estimate substantiated by a complete itemized breakdown:

14.5.1 The breakdown shall list quantities and unit prices for materials, labor, equipment and other items of cost.

14.5.2 Whenever a change involves the Contractor and one (1) or more subcontractors and the change is an increase in the agreed compensation, the overhead and profit percentage for the Contractor and each subcontractor shall be itemized separately.

ARTICLE 15 – CHANGE OF THE CONTRACT TIME

15.1 The Contract Time may only be changed by an approved and fully executed Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to the Project Manager within five (5) days of the occurrence of the event giving rise to the claim. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

15.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a claim is made therefore as provided in Paragraph 15.1. Such delays shall include but not be limited to, acts or neglect by the City, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, pandemics, act of Governmental Authority, state of emergency, or acts of God.

15.3 All time limits stated in the Contract Documents are of the essence. The provisions of this Article 15 shall not exclude recovery for damages for delay by the Contractor.

15.4 Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor (non-affiliated Contractors) shall not give rise to a claim by the Contractor for damages for increases in material and/or labor costs. Such entities,

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contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T and Florida East Coast Railway, LLC.

15.5 Rights of Various Interests: Whenever work being done by City's forces or by other contractors is contiguous to or within the limits of work covered by this Agreement, the respective rights of the various interests involved shall be established by the Project Manager to secure the completion of the various portions of the Work in general harmony.

ARTICLE 16 – LIQUIDATED DAMAGES

16.1 Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of **Five Hundred Dollars ($500.00)** for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay Is caused by the Contractor. Should an act of God or the acts or omissions of the City, its agents or representatives, in derogation to the terms of this Agreement cause the delay, the Contractor shall not be responsible for the delay nor liquidated damages. Liquidated damages are fixed and agreed upon between the Parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by the City as a consequence of such delay and both Parties desiring to obviate any question of dispute concerning the amount of damages and the cost and effect of the failure of the Contractor to complete the Work on time. Liquidated damages shall apply separately to each portion of the Work for which a time of completion is given. The City shall have the right to deduct from or retain any compensation which may be due or which may become due and payable to the Contractor the amount of liquidated damages, and if the amount retained by the City is insufficient to pay in full such liquidated damages, the Contractor shall pay all liquidated damages in full. The Contractor shall be responsible for reimbursing the City, in addition to liquidated damages or other damages for delay, for all costs of engineering, architectural fees, and inspection and other costs incurred in administering the construction of the Project beyond the completion date specified or beyond an approved extension of time granted to the Contractor whichever is later. Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor shall not give rise to a claim by Contractor for damages for increase in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T, and Florida East Coast Railway, LLC.

16.2 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application

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and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

ARTICLE 17 – SUSPENSION OF WORK AND TERMINATION

17.1 City May Suspend Work: The City may, at any time and without cause, suspend the Work or any portion of the Work for a period of not more than ninety (90) days by notice in writing to the Contractor which shall fix the date on which Work shall be resumed. The Contractor shall resume the Work on the date fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension, if the Contractor makes a claim as provided in Articles 14 and 15.

17.2 City's Right to Terminate Contract: The City may terminate this Agreement upon fifteen (15) calendar days' written notice upon the occurrence of any one or more of the following events:

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

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

17.2.3 If Contractor fails to begin the Work within fifteen (15) calendar days after the date set forth in the Notice to Proceed, or fails to perform the Work with sufficient workers and equipment or with sufficient materials to ensure the prompt completion of the Work, or shall perform the Work unsuitably, or cause it to be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work pursuant to the accepted schedule or if Contractor shall fail to perform any material term set forth in the Contract Documents, or from any other cause whatsoever shall not carry on the Work in an acceptable manner, Project Manager may give notice in writing to Contractor and its Surety of such delay, neglect or default, specifying the same.

17.2.4 If the Contractor repeatedly fails to make prompt payments to subcontractors or for labor, material or equipment.

17.2.5 If the Contractor repeatedly disregards proper safety procedures.

17.2.6 If the Contractor disregards any local, state or federal laws or regulations.

17.2.7 If the Contactor otherwise violates any provisions of this Agreement.

17.3 If Contractor, within a period of ten (10) calendar days after such notice, shall not proceed in accordance therewith, the City may exclude the Contractor from the Work site and take the prosecution of the Work out of the hands of the Contractor, and take possession of the Work and all of the Contractor's tools, appliances, construction equipment and machinery at the site and use them without liability to the City for

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trespass or conversion, incorporate in the Work all materials and equipment stored at the site or for which the City has paid the Contractor but which are stored elsewhere, and finish the Work as the City may deem expedient. In this instance, the Contractor shall not be entitled to receive any further compensation until the Work is finished.

17.3.1 If after notice of termination of Contractor's notice to proceed, it is determined for any reason that Contractor was not in default, the rights and obligations of City and Contractor shall be the same as if the notice of termination had been issued pursuant to the Termination for Convenience clause as set forth below in Section 17.5.

17.3.2 Upon receipt of Notice of Termination pursuant to Sections 17.2 or 17.5, Contractor shall promptly discontinue all affected work unless the Notice of Termination directs otherwise and deliver or otherwise make available to City all data, drawings, specifications, reports, estimates, summaries and such other information as may have been required by the Contract Documents whether completed or in process.

17.4 If the Contractor commits a default due to its insolvency or bankruptcy, the following shall apply:

17.4.1 Should this Agreement be entered into and fully executed by the Parties, funds released and the Contractor (Debtor) files for bankruptcy, the following shall occur:

17.4.1.1 In the event the Contactor files a voluntary petition under 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303, the Contractor shall acknowledge the extent, validity, and priority of the lien recorded in favor of the City. The Contractor further agrees that in the event of this default, the City shall, at its option, be entitled to seek relief from the automatic stay pursuant to 11 U.S.C. 362. The City shall be entitled to relief from the automatic stay pursuant to 11 U.S.C. 362(d) (1) or (d) (2), and the Contactor agrees to waive the notice provisions in effect pursuant to 11 U.S.C. 362 and any applicable Local Rules of the United States Bankruptcy Court. The Contactor acknowledges that such waiver is done knowingly and voluntarily.

17.4.1.2 Alternatively, in the event the City does not seek stay relief, or if stay relief is denied, the City shall be entitled to monthly adequate protection payments within the meaning of 11 U.S.C. 361. The monthly adequate protection payments shall each be in an amount determined in accordance with the Note and Mortgage executed by the Contractor in favor of the City.

17.4.1.3 In the event the Contractor files for bankruptcy under Chapter 13 of Title 11, United States Code in additional to the foregoing provisions, the Contractor agrees to cure any amounts in arrears over a period not to exceed twenty-four (24) months from the date of the confirmation order, and such payments shall be made in addition to the regular monthly payments required by the Note and mortgage. Additionally, the Contractor shall agree that the City is over secured and, therefore, entitled to interest and attorney's fees pursuant to 11 U.S.C. 506(b).

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Such fees shall be allowed and payable as an administrative expense. Further, in the event the Contractor has less than five (5) years of payments remaining on the Note, the Contractor agrees that the treatment afforded to the claim of the City under any confirmed plan of reorganization shall provide that the remaining payments shall be satisfied in accordance with the Note, and that the remaining payments or claim shall not be extended or amortized over a longer period than the time remaining under the Note.

17.4.2 Should this Agreement be entered into and fully executed by the Parties, and the funds have not been forwarded to Contractor, the following shall occur:

17.4.2.1 In the event the Contractor files a voluntary petition pursuant to 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303., the Contractor acknowledges that the commencement of a bankruptcy proceeding constitutes an event of default under the terms of this Agreement. Further, the Contractor acknowledges that this Agreement constitutes an executory contract within the meaning of 11 U.S.C. 365. The Contractor acknowledges that this Agreement is not capable of being assumed pursuant to 11 U.S.C. 365(c)(2), unless the City expressly consents in writing to the assumption. In the event the City consents to the assumption, the Contractor agrees to file a motion to assume this Agreement within ten (10) days after receipt of written consent from the City, regardless of whether the bankruptcy proceeding is pending under Chapter 7, 11, or 13 of Title 11 of the United States Code. The Contractor further acknowledges that this Agreement is not capable of being assigned pursuant to 11 U.S.C. 365(b)(1).

17.5 Termination for Convenience: This Agreement may be terminated for convenience in writing by City upon thirty (30) days' written notice to Contractor (delivered by certified mail, return receipt requested) of intent to terminate and the date on which such termination becomes effective. In such case, Contractor shall be paid for all work executed and accepted by the City and costs reasonably incurred by Contractor relating to commitments which had become firm prior to the termination. No payment shall be made for profit for work/services which have not been performed or accepted.

17.6 Where the Contractor's service has been so terminated by the City, the termination shall not affect any rights of the City against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the City will not release the Contractor from liability.

17.7 The Contractor has no right, authority or ability to terminate the Work except for the wrongful withholding of any payments due the Contractor from the City.

ARTICLE 18 – DISPUTE RESOLUTION

18.1 Resolution of Disputes: Questions, claims, difficulties and disputes of whatever nature which may arise relative to the technical interpretation of the Contract Documents and fulfillment of this Agreement as to the character, quality, amount and value of any work done and materials furnished, or proposed to be done or furnished under, or by reason

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of, the Contract Documents which cannot be resolved by mutual agreement of City Project Manager and Contractor shall be submitted to the City Manager or his designee and Contractor's representative for resolution. Prior to any litigation being commenced, for any disputes which remain unresolved, within sixty (60) days after final completion of the Work, the Parties shall participate in mediation to address all unresolved disputes to a mediator agreed upon by the Parties. Should any objection not be resolved in mediation, the Parties retain all their legal rights and remedies provided under the laws of Florida. Failure by a Party to comply in strict accordance with the requirements of this Article, then said Party specifically waives all of its rights provided hereunder, including its rights and remedies under the laws of Florida.

18.1.1 All non-technical administrative disputes (such as billing and payment) shall be determined by Contract Administrator.

18.1.2 During the pendency of any dispute and after a determination thereof, Contractor and Contract Administrator shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction. During the pendency of any dispute arising under this Agreement, other than termination herein, Contractor shall carry on the Work and adhere to the progress schedule. The Work shall not be delayed or postponed pending resolution of any disputes or disagreements.

18.1.3 For any disputes which remain unsolved, within sixty (60) calendar days after Final Completion of the Work, the Parties shall participate in mediation to address all unresolved disputes. A mediator shall be mutually agreed upon by the Parties. Should any objection not be resolved in mediation, the Parties retain all their legal rights and remedies under applicable law. If a Party objecting to a determination, fails to comply in strict accordance with the requirements of this Article, said Party specifically waives all of its rights provided hereunder, including its rights and remedies under applicable law.

ARTICLE 19 – NOTICES

19.1 All notices required by any of the Contract Documents shall be in writing and shall be deemed delivered upon mailing by certified mail, return receipt requested to the following:

To the City:

Monica Spitery
Project Manager
City of Fort Lauderdale
101 NE 3rd Avenue,21st
Floor
Fort Lauderdale, Florida 33301-1016
Telephone: (954) 828- 6891
E-mail: mspitery@fortlauderdale.gov

with copies to:

City Manager and City Attorney

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City of Fort Lauderdale
401 SE 21st Street
Fort Lauderdale, FL 33316

City of Fort Lauderdale
1 East Broward Blvd, Suite 1605
Fort Lauderdale, FL 33301-1016

To the Contractor:

_____
_____
_____
Telephone: _____
E-mail: _____

ARTICLE 20 – LIMITATION OF LIABILITY

20.1 The City desires to enter into this Agreement only if in so doing the City can place a limit on the City's liability for any cause of action arising out of this Agreement, so that the City's liability for any breach never exceeds the sum of $1,000. For other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Contractor expresses its willingness to enter into this Agreement with the knowledge that the Contractor's recovery from the City to any action or claim arising from the Agreement is limited to a maximum amount of $1,000, which amount shall be reduced by the amount actually paid by the City to the Contractor pursuant to this Agreement, for any action or claim arising out of this Agreement.

20.2 Sovereign Immunity: Nothing contained in this paragraph or elsewhere in this Agreement is in any way intended either to be a waiver of the Sovereign Immunity limitation placed upon the City's liability as set forth in Section 768.28, Florida Statutes (2024), as may be amended or revised, or to extend the City's liability beyond the limits established in said Section 768.28, Florida Statutes (2024), as may be amended or revised; and no claim or award against the City shall include attorney's fees, investigative costs, expert fees, suit costs or pre-judgment interest.

20.3 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

ARTICLE 21 – GOVERNING LAW; WAIVER OF JURY TRIAL

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21.1 The Agreement shall be interpreted and construed in accordance with, and governed by, the laws of the state of Florida. The Parties agree that the exclusive venue for any lawsuit arising from, related to, or in connection with this Agreement shall be in the state courts of the Seventeenth Judicial Circuit in and for Broward County, Florida. If any claims arising from, related to, or in connection with this Agreement must be litigated in federal court, the Parties agree that the exclusive venue for any such lawsuit shall be in the United States District Court or United States Bankruptcy Court for the Southern District of Florida in Broward County. **BY ENTERING INTO THIS AGREEMENT, THE PARTIES HEREBY EXPRESSLY WAIVE ANY AND ALL RIGHTS EITHER PARTY MIGHT HAVE TO A TRIAL BY JURY REGARDING THIS AGREEMENT OR ANY ISSUES RELATED TO THIS AGREEMENT. IF A PARTY FAILS TO WITHDRAW A REQUEST FOR A JURY TRIAL IN A LAWSUIT ARISING OUT OF THIS AGREEMENT AFTER WRITTEN NOTICE BY THE OTHER PARTY OF VIOLATION OF THIS SECTION, THE PARTY MAKING THE REQUEST FOR JURY TRIAL SHALL BE LIABLE FOR THE REASONABLE ATTORNEYS' FEES AND COSTS OF THE OTHER PARTY IN CONTESTING THE REQUEST FOR JURY TRIAL, AND SUCH AMOUNTS SHALL BE AWARDED BY THE COURT.**

ARTICLE 22 – MISCELLANEOUS

22.1 The duties and obligations imposed by this Agreement and the rights and remedies available to the Parties and, in particular but without limitation, the warranties, guaranties and obligations imposed upon the Contractor and all of the rights and remedies available to the City, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents, and the provisions of this Paragraph will survive final payment and termination or completion of this Agreement.

22.2 The Contractor shall not assign or transfer this Agreement or its rights, title or interests. The obligations undertaken by the Contractor pursuant to this Agreement shall not be delegated or assigned to any other person or firm. Violation of the terms of this Paragraph shall constitute a material breach of Agreement by the Contractor and the City any, at its discretion, cancel this Agreement and all rights, title and interest of the Contractor which shall immediately cease and terminate.

22.3 The Contractor and its employees, volunteers and agents shall be and remain as independent contractor and not agents or employees of the City with respect to all of the acts and services performed by and under the terms of this Agreement. This Agreement shall not in any way be constructed to create a partnership, association or any other kind of joint undertaking or venture between the Parties.

22.4 The City reserves the right to audit the records of the Contractor relating in any way to the Work to be performed pursuant to this Agreement at any time during the performance and term of this Agreement and for a period of three (3) years after completion and acceptance by the City. If required by the City, the Contractor agrees to submit to an audit by an independent certified public accountant selected by the City. The Contractor shall allow

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the City to inspect, examine and review the records of the Contractor at any and all times during normal business hours during the term of this Agreement.

22.5 The remedies expressly provided in this Agreement to the City shall not be deemed to be exclusive but shall be cumulative and in addition to all other remedies in favor of the City now or later existing at law or in equity.

22.6 Should any part, term or provisions of this Agreement be decided by the courts to be invalid, illegal or in conflict with any state or federal law, the validity of the remaining portion or provision shall not be affected.

22.7 Prohibition Against Contracting With Scrutinized Companies: Subject to *Odebrecht Construction, Inc., v. Prasad*, 876 F.Supp.2d 1305 (S.D. Fla. 2012), *affirmed*, *Odebrecht Construction, Inc., v. Secretary, Florida Department of Transportation*, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in Iran Terrorism Sectors List, created pursuant to Section 215.473, Florida Statutes (2024), as may be amended or revised, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2024), as may be amended or revised. The Contractor certifies that it is not on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2024), as may be amended or revised, and that it is not engaged in a boycott of Israel. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of Section 287.135, Florida Statutes (2024), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List, or been placed on a list created pursuant to Section 215.473, Florida Statutes (2024), as may be amended or revised, relating to scrutinized active business operations in Iran, or been placed on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2024), as may be amended or revised, or is engaged in a boycott of Israel, or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2024), as may be amended or revised.

By submitting a bid or response, the company, principals, or owners certify that it is not listed on the Scrutinized Companies with Activities in Sudan List or listed on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or is engaged in business operations in Cuba or Syria.

22.8 Public Entity Crimes: In accordance with the Public Crimes Act, Section 287.133, Florida Statutes (2024), as may be amended or revised, a person or affiliate who is a contractor, consultant or other provider, who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to the City, may not submit a bid on a contract with the City for the construction or repair of a public building or public work, may not submit bids on leases of real property to the City, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with the City, and may not transact any business with the City in excess of the threshold amount provided in Section 287.017, Florida Statutes (2024), as may be amended or revised, for category two purchases for a period of thirty-six (36) months from the date of being placed on the

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convicted vendor list. Violation of this section by Contractor shall result in cancellation of the City purchase and may result in Contractor debarment.

22.9 Attorney Fees: In the event it becomes necessary for either party herein to seek legal means to enforce the terms of the Agreement, the prevailing Party shall be entitled to its reasonable attorney fees.

22.10 Not applicable.

22.11 Public Records

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES (2024), TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT PRRCONTRACT@FORTLAUDERDALE.GOV, 954-828-5002, CITY CLERK'S OFFICE, 1 EAST BROWARD BOULEVARD, SUITE 444 FORT LAUDERDALE, FLORIDA 33301.

Contractor shall:

1. Keep and maintain public records required by the City in order to perform the service.

2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2024), as may be amended or revised, or as otherwise provided by law.

3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this Agreement if the Contractor does not transfer the records to the City.

4. Upon completion of the Agreement, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

22.12 Non-Discrimination

The Contractor shall not discriminate against its employees based on the employee's race, color, religion, gender, gender identity, gender expression, marital status, sexual

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orientation, national origin, age, disability, or any other protected classification as defined by applicable law.

1. The Contractor certifies and represents that the Contractor offers the same health benefits to the domestic partners of its employees as are offered its employees' spouses or offers its employees the cash equivalent of such health benefits because it is unable to provide health benefits to its employees' domestic partners, and that the Contractor will comply with Section 2-187, Code of Ordinances of the City of Fort Lauderdale, Florida, as may be amended or revised, ("Section 2-187"), during the entire term of this Agreement.

2. The failure of the Contractor to comply with Section 2-187 shall be deemed to be a material breach of this Agreement, entitling the City to pursue any remedy stated below or any remedy provided under applicable law.

3. The City may terminate this Agreement if the Contractor fails to comply with Section 2-187.

4. The City may retain all monies due or to become due until the Contractor complies with Section 2-187.

5. The Contractor may be subject to debarment or suspension proceedings. Such proceedings will be consistent with the procedures in Section 2-183 of the Code of Ordinances of the City of Fort Lauderdale, Florida.

22.13 E-Verify

As a condition precedent to the effectiveness of this Agreement, pursuant to 448.095, Florida Statutes (2024), as may be amended or revised, the Contractor and its subcontractors shall register with and use the E-Verify system to electronically verify the employment eligibility of newly hired employees.

1. The Contractor shall require each of its subcontractors, if any, to provide the Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. The Contractor shall maintain a copy of the subcontractor's affidavit for the duration of this Agreement and in accordance with the public records requirements of this Agreement.

2. The City, the Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated Subsection 448.09(1), Florida Statutes (2024), as may be amended or revised, shall terminate the contract with the person or entity.

3. The City, upon good faith belief that a subcontractor knowingly violated the provisions of Subsection 448.095(5), Florida Statutes (2024), as may be amended or revised, but that the Contractor otherwise complied with Subsection 448.095(5), Florida Statutes (2024), as may be amended or revised, shall promptly notify Contractor and order the Contractor to immediately terminate the contract with the subcontractor, and the Contractor shall comply with such order.

4. A contract terminated under Subparagraph 448.095(5)(c)1. or 2., Florida Statutes

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(2024), as may be amended or revised, is not a breach of contract and may not be considered as such. If the City terminates this contract under Paragraph 448.095(5)(c), Florida Statutes (2024), as may be amended or revised, the Contractor may not be awarded a public contract for at least one year after the date on which the contract was terminated. The Contractor is liable for any additional costs incurred by the City as a result of termination of this Agreement.

5. Contractor shall include in each of its subcontracts, if any, the requirements set forth in this Section, including this subparagraph, requiring any and all subcontractors, as defined in Subsection 448.095(1)(e), Florida Statutes (2024), as may be amended or revised, to include all of the requirements of this Section in their subcontracts. Contractor shall be responsible for compliance by any and all subcontractors, as defined in Subsection 448.095(1)(e), Florida Statutes (2024), as may be amended or revised, with the requirements of Section 448.095, Florida Statutes (2024), as may be amended or revised.

22.14 Anti-Human Trafficking:

As a condition precedent to the effectiveness of this Agreement, the Contractor shall provide the City with an affidavit signed by an officer or a representative of the Contractor under penalty of perjury attesting that the Contractor does not use coercion for labor or services as defined in Section 787.06, Florida Statutes (2024), as may be amended or revised.

22.15 Foreign Countries Of Concern:

As a condition precedent to the effectiveness of this Agreement, the Contractor shall provide the City with an affidavit signed by an officer or representative of the Contractor under penalty of perjury attesting that the Contractor does not meet any of the criteria in paragraphs (2)(a)-(c) of Section 287.138, Florida Statutes (2024), as may be amended or revised.

22.16 Default:

In the event the Contractor fails to comply with the provisions of this Agreement, the City may declare the Contractor in default and notify it in writing, giving a reasonable time to cure the default, but in no event shall this time period exceed five (5) calendar days unless otherwise agreed to by the parties. In such event, the Contractor shall only be compensated for any services completed as of the date written notice of default is served.

22.17 Severability:

If any portions of this Agreement shall be held invalid or unenforceable, such invalidity or unenforceability shall not affect any other provisions hereof, and this Agreement shall be construed and enforced as if such provisions had not been included.

[THIS SPACE WAS INTENTIONALLY LEFT BLANK]

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CITY

IN WITNESS OF THE FOREGOING, the Parties have set their hands and seals the day and year first written above.

CITY OF FORT LAUDERDALE, a Florida municipal corporation

By: _____
RICKELLE WILLIAMS
City Manager

Date: _____

ATTEST:

By: _____
DAVID R. SOLOMAN
City Clerk

Approved as to Legal Form and correctness:
D'Wayne Spence, Acting City Attorney

By:_____
RHONDA MONTOYA HASAN
Senior Assistant City Attorney

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CONTRACTOR

WITNESSES:

CONTRACTOR.,
a Florida company/corporation.

_____ By:_____

_____ Print Name:_____
Print Name

Title:_____

ATTEST:

_____

_____
Print Name

By:_____
Secretary

(CORPORATE SEAL)

STATE OF _____:

COUNTY OF _____:

The foregoing instrument was acknowledged before me by means of ❑ physical presence or ❑ online notarization, this _____ day of _____, 2025, by _____, (NAME OF AUTHORIZED OFFICER) as _____ (TITLE OF AUTHORIZED OFFICER), for _____ (NAME OF COMPANY), a Florida _____(TYPE OF COMPANY).

_____
(Signature of Notary Public - State of Florida)

_____
(Print, Type, or Stamp Commissioned Name of Notary Public)

Personally Known_____ OR Produced Identification_____
Type of Identification Produced: _____

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SECTION 01010 SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section describes the project in general, and provides an overview of the extent of the work to be performed under this Contract. Detailed requirements and extent of work is stated in the applicable Specification sections and shown on the Plans. The Contractor shall, except as otherwise specifically stated herein or in any applicable parts of the Contract Documents, provide and pay for all labor, materials, equipment, tools, construction equipment, and other facilities and services necessary for proper execution, testing, and completion of the work under this Contract.

1.02 SPECIFICATIONS

A. The Specifications included in these Contract Documents establish the minimum performance and quality requirements for materials and equipment with the minimum standards for quality of the workmanship and appearance. Generally, there has been no attempt to separate the Specification sections into groups for the work of separate subcontractors, or for work to be performed by the various trades. Should there be any question as to the interpretation of any particular Specification section or part of Specification section, such question should be directed to the CITY prior to the submittal of a proposal for the work under this Contract.

B. The work shown on the Plans is intended to be comprehensive and descriptive, not an exact and complete representation of the actual finished work. Installed work shall include fittings, joints, supports, nuts, bolts, and all other accessories required to provide complete and satisfactory systems as specified, even though some items may not be specifically shown on the Plans.

C. It is the intent of the City of Fort Lauderdale (CITY) to obtain a complete functional, satisfactory and legally operable installation under this project, and any items of labor, equipment or materials which may be reasonably assumed as necessary to accomplish this end shall be supplied whether or not they are specifically shown on the Plans or stated herein. The Contractor shall provide all materials for the project unless they are specifically called out in these specifications as being supplied by the CITY. The Contractor shall also supply all other labor, material or equipment required to preclude damage to or loss of functionality of any existing facility or system.

D. No request for additional compensation or Contract time (except for a non-compensable item extension at the sole discretion of the Engineer, whose decision shall be final) resulting from encountering utilities or structures not shown, or differing in location or elevation from that shown, will be considered. The Contractor shall explore sufficiently ahead of the Work to allow time for any necessary adjustments without delay to the progress of the installation. Cost due to delays occasioned by encountering utilities or structures which could have or should have been discovered by timely exploration ahead of the work shall rest solely with the

Contractor.

1.03 REASONABLY IMPLIED PARTS OF THE WORK SHALL BE DONE THOUGH ABSENT FROM SPECIFICATIONS

A. Any part of the work which is not mentioned in the Specifications but is shown on the Plans, or any part not shown on the Plans but described in the Specifications, or any part not shown on the Plans nor described in the Specifications, but which is necessary or normally required as a part of such work, or is necessary or required to make each installation satisfactorily and legally operable, shall be performed by the Contractor as incidental work without extra cost to CITY, as if fully described in the Specifications and shown on the Plans, and the expense thereof shall be included in the applicable unit prices or lump sum bid for the work.

1.04 DESCRIPTION OF WORK

A. The project consists of furnishing all materials, labor, and equipment necessary to install 12-inch C900 PVC water main along the south side of W Cypress Creek Road, and across NW 31st Avenue, including but not limited to, excavation, demolition of existing asphalt, limerock, curbing, sidewalk, and fencing necessary to install the new water main per plan. The contractor will be responsible for all testing and restoration efforts to certify the project in accordance with all agencies permit requirements and the City of Fort Lauderdale. The work includes installing a 20”x12” tapping sleeve and valve and a 12”x12” tapping sleeve and valve to make two connections to the City of Fort Lauderdale existing water main system. The work will also include making connections to the Project Company water mains in two locations per the design plans. This project is part of a larger City of Fort Lauderdale enabling project for the construction of the Prospect Lake Clean Water Center, however work under this contract will only be for the 12-inch water main being constructed on the south side of W Cypress Creek Road and across NW 31st Avenue WS-1 and WS-6. Contractor to look for symbol on design plans depicting the limits of construction for onsite work by the Project Company and offsite work that is covered by this contract.

B. It is the intent of the CITY to obtain a complete and working installation under this Project and any items of labor, equipment or materials which may reasonably be assumed as necessary to accomplish this end shall be supplied whether or not they are specifically shown on the Plans or stated herein.

1.05 TESTING

A. Testing procedures shall be submitted to the Engineer as Shop Drawings and will be subject to review and approval. The CITY reserves the right to require test procedure and equipment changes and revisions to the extent considered appropriate by the Engineer whose decision shall be final. The Contractor is advised that all testing shall be carried out in accordance with the best practices of the trade, best management practices (bmp) and as recommended in writing by the engineering/technical/test staff of the manufacturer of the equipment and he should plan and price his test work accordingly. In no case will test recommendations of a manufacturer's sales or management groups be considered sufficient. All necessary temporary power sources, load banks, test materials, test instrumentation, qualified test personnel including manufacturer's representatives, fuels and lubricants shall be provided by the Contractor and shall be as approved by the Engineer and, if not approved, the Contractor shall change the item(s) to the satisfaction of the Engineer. The Contractor shall include in his prices bid all costs for testing and no extra compensation will be allowed.

B. Factory testing of equipment is in all cases required and test data from these tests shall be provided to the Engineer prior to shipment. The CITY will decide when to send its personnel or representatives to the factory for witness testing of equipment. Travel expenses for CITY personnel or representatives are paid for by the CITY. Repeat tests due to unsuccessful tests will be borne by the Contractor. To establish a base line, the Bidder will assume that any piece of equipment with an invoice cost to the Contractor of one hundred thousand dollars ($100,000) or more will require witnessed testing. The CITY will in the Specifications try in all cases to note which items will require testing.

C. On site testing shall conform to the protocol previously approved by the Engineer, and shall include testing and calibration prior to energizing of individual cubicles followed by testing and calibration as a whole system or group of systems. The Contractor shall supply all material, equipment, power, time, and fully qualified specialist personnel to perform all system integration work as necessary to provide systems that talk to one another and correctly react to one another, including systems that must communicate with, and react to existing systems, and systems being or to be installed by others. It is an absolute requirement that upon completion, all systems installed in the Work be able to correctly communicate and react to one another and to systems in existence, being or to be installed, external to the Work. Final testing and calibration will be performed with the equipment energized and will only take place when the Engineer is satisfied with the results of earlier tests. Full written reports of tests and results shall be furnished by the Contractor to the CITY. All costs for this testing, calibration, system integration and reporting, including the costs for factory and specialist personnel required during testing, calibration and system integration, shall be included in the prices bid and no extra compensation will be allowed. Any delays or costs occasioned by test procedures or results not

being satisfactory to the Engineer shall rest solely with the Contractor and no extra time or compensation will be allowed. All on site testing shall be witnessed by CITY, and the Contractor shall make timely arrangements and fully coordinate tests with the Engineer.

D. After installation is completed, the Contractor shall provide records of non-destructive electrical insulation tests performed by a certified institution approved by the Engineer, witnessed by CITY personnel and attesting that the dielectric condition of the equipment and wiring is acceptable.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01011
SITE CONDITIONS

PART 1 GENERAL

1.01 SITE INVESTIGATION AND REPRESENTATION

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation; disposal, handling and storage of materials; availability of labor, water, electric power, roads; disposal of water from construction; uncertainties of weather; the conformation and conditions at the ground; the type of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

B. The Contractor further acknowledges that he has satisfied himself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by CITY or included with these Contract Documents. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost thereof under this Contract.

C. The Contractor acknowledges that by personal field observation or other means satisfactory to himself, performed prior to the bid, he has included in the prices bid all costs for dealing with all construction problems created by observable above or on grade features on or adjacent to the site of the work whether these features are shown on the Plans or described in the Specifications. In instances where the observable features indicate subsurface conditions which may affect the Project work, as for example, a pavement patch or catch basin gratings indicating respectively a utility or storm sewer not shown on the Plans, the Contractor acknowledges that he has made timely, diligent, inquiry of the Engineer or by other means fully satisfied himself prior to the bid as to the nature of, and costs created by, the subsurface condition and included all costs therefore in the prices bid.

1.02 INFORMATION ON SITE CONDITIONS

A. All information obtained by CITY regarding the site conditions, topography, subsurface information, ground water elevations, existing construction of site facilities as applicable, and similar data will be made available to the Contractor in the Contract Documents. Such information is offered as supplementary information only. Neither the Engineer nor CITY assumes any responsibility for the completeness or for the Contractor's interpretation of such supplementary information. Prior to bidding and after written approval from CITY, bidder may make his own survey investigations to satisfy himself with site conditions at his own cost.

B. Prospective bidders are advised, at their own expense, to make such subsurface

investigation, by boring or test hole excavation, as may be desirable. However, such work is to be scheduled by appointment with the Engineer if on a CITY site or by notification to CITY and properly permitted if in the public right of way.

1.03 DIFFERING SUBSURFACE CONDITIONS

A. In the event subsurface or latent physical conditions are found materially different from those indicated in these Documents, and differing materially from those ordinarily encountered and generally recognized as inherent in the character of work covered in these Contract Documents, promptly, and before such conditions are disturbed, notify the Engineer in writing of such changed conditions.

B. The Engineer will investigate such conditions promptly and following this investigation, the Contractor shall proceed with the work, unless otherwise instructed by the Engineer. If the Engineer finds that such conditions do so materially differ as to cause an increase or decrease in cost and time considered reasonable by the Engineer, CITY will make the final decision regarding any adjustment in cost or time for completion.

C. In the event that site conditions differ from those expected by the Contractor, the Contractor shall proceed to complete the work as contemplated by the Plans and Specifications at his own cost and expense. If in the discretion of the Engineer, the difference in site conditions renders completion of the work as described by the Plans and Specifications impossible, the Engineer may alter the work, whereupon the Contractor shall be compensated for any extra work in accordance with Section 13 "Extra Work and Payment Therefore" of the General Covenants and Conditions; the Engineer shall not alter the work where the site conditions render the work more difficult or costly to perform, if such work is otherwise still possible as described in the Contract Documents.

1.04 EXISTING UTILITIES AND LOCATION SERVICES

A. Known utilities and structures adjacent to or encountered in the work are shown on the Plans. The locations shown are taken from existing records and the best information available from existing plans. However, it is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either CITY or the Engineer for their accuracy or completeness. No request for additional compensation or Contract time (except for a non-compensable time extension at the sole discretion of the Engineer, whose decision shall be final) resulting from encountering utilities or structures not shown, or differing in location or elevation from that shown, will be considered. The Contractor shall explore sufficiently ahead of the work to allow time for any necessary adjustments without delay to the progress of the installation. Costs due to delays occasioned by encountering underground utilities or structures which could have or should have been discovered by timely exploration ahead of the Work shall rest solely with the Contractor.

B. Prior to proceeding with excavation the Contractor shall contact all utility companies and all other users of the right-of-way in the area to aid in locating their underground services. It shall be the Contractor's responsibility to contact utility companies at least three Normal Working Days before starting construction. The Contractor shall proceed with caution in the excavation and preparation so that the exact location of underground utilities may be determined. The Contractor shall comply with Chapter 556, F.S. "Underground Facility Damage Prevention and Safety Act", Chapter 553, F.S. "Florida Trench Safety Act, Part IV", Chapter 368, F.S., "Florida Gas Safety Law, Part 1, and OSHA Standard 1926.651.

C. It is the responsibility of the Contractor to ensure that all utility or other existing facilities, the stability of which may be endangered by the close proximity of excavation, are temporarily held in position while work proceeds in the vicinity of the facilities and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

D. The Contractor shall take all reasonable precautions against damage to existing utilities. However, in the event of a break in an existing water main, gas main, sewer or underground cable, the Contractor shall immediately notify the responsible official of the organization operating the interrupted utility. The Contractor shall lend all possible assistance in restoring services and shall assume all cost, charges, or claims connected with the interruption and repair of such services, as determined by the CITY.

1.07 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the Contractor's operation could cause damage or inconvenience to railway, telephone, fiber optic, television, electrical power, oil, gas, water, sewer, irrigation system, or any other utility, the Contractor shall make all arrangements necessary for the protection of these utilities and services.

B. Notify all utility companies that are affected by the construction operation at least 48 hours in advance. Under no circumstance expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities and utility poles where necessary. Absolutely no extra compensation will be allowed for construction problems created by utility poles of whatever size, overhead electric, telephone or other lines, whether shown on the Plans or not. The Contractor is solely responsible for discerning such items in the field prior to bidding and including all costs for such work in the prices bid.

C. The Contractor and his subcontractors shall be solely and directly responsible to the owners and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.

D. Neither CITY nor its officers or agents shall be responsible to the Contractor for

damages as a result of the Contractor's failure to protect utilities encountered in the work.

E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no event shall interruption of any utility service be allowed unless granted by the owner of the utility. In the event water service lines that interfere with trenching are encountered, the Contractor may, by obtaining prior approval of the water utility, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense and as approved by the Engineer.

G. Replace, with material approved by the Engineer, at Contractor's expense, any and all other laterals, existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents and as approved by the Engineer.

1.08 INTERFERING STRUCTURES

A. Take necessary precautions to prevent damage to existing structures whether on the surface, above ground, or underground. An attempt has been made to show major structures on the Plans. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and is presented as a guide. The Contractor is solely responsible for field verification of all locations.

1.9 FIELD RELOCATION

A. During the process of construction, it is expected that minor relocations of the work may be necessary. Such relocations shall be made only by the direction of the Engineer at the Contractor’s expense. If existing structures are encountered that will prevent construction as shown, notify the Engineer before continuing with the work in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. If the Contractor fails to notify the Engineer when an existing structure is encountered, and shall proceed with the work despite this interference, the Contractor does so at his own risk.

B. Representatives of utility companies, the railroad companies, the traffic and transportation authorities, etc., shall be notified in accordance with the provisions set forth in the relevant sections of the Specifications and the permitting documents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SCOPE

A. Payment for various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor operations and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK all in accordance with requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenances needed to complete the items of work.

B. Payment for the various items of the Bid Schedule shall constitute full compensation for CONTRACTOR's superintendent at the job site full-time during construction, for furnishing and installing all pipe and structures complete in place including but not limited to bends, tees, outlets, fittings, blind flanges and specials, including connections to existing pipelines shown on the Drawings; including surveying both horizontal and vertical control for construction of the roadways, structures, pipeline and appurtenances; including protecting and replacing if necessary existing monuments, control points, found iron rods, valves; including all earthwork, trench excavation as shown on the Drawings, removal and disposal of waste, unsuitable and excess material, furnishing and installing pipe bedding material, all backfill and compaction of native material, and dewatering as required; the restoration of interfering portions of existing service and utility lines that are not included in other bid items and shown on the Drawings, including replacement of sewer lines with ductile iron pipe where the minimum vertical clearances are not met for the sewer line shown; restraint of pipe shown on the Drawings and grouting of pipe joints; including providing the water for pressure testing, cleaning the pipe and disinfection, and disposal of the water as required when completed; furnishing, installation, and removal of test heads, cleanup; and restoration of all improvements incidental to construction for which there are no other bid items; including but not limited to, existing sprinkler systems, and all other work not included in other bid items. No additional payment will be made for performing required tests and the furnishing of accurate as-builts.

C. Payment shall also include providing the necessary equipment and labor power to pothole and verify depths and locations of existing utilities sufficiently ahead of construction to avoid conflicts with the design alignment and grade of structures, culverts, storm drains and exfiltration trenches. Conflicts with utilities shown on the Drawings which result from the Contractor's negligence to pothole sufficiently ahead of construction (a minimum of two days ahead of construction of the pipeline or as approved by the ENGINEER) shall be resolved by the Contractor at no additional cost to the OWNER.

D. Payment for all bid items shall constitute full compensation for the complete installation of each bid item including but not limited to excavation, dewatering, backfill and compaction. The work shall include for all bid items to be completed, tested and ready for acceptance by the appropriate government agency.

E. No separate payment for pavement restoration will be made unless specifically shown on the plans, called out in the bid schedule, or directed by the ENGINEER.

1.02 MOBILIZATION (ITEM #1)

A. The lump sum price for this item shall be full compensation for mobilization and demobilization activities. This includes, but is not limited to, Performance and Payment Guarantee and insurance, scheduling, project coordination, Contractor staging area, Contractor and Engineer Field Offices, labor associated with permit acquisition, temporary facilities, audio-visual documentation of the existing conditions (sidewalks, curbs, driveways, fences, vegetation, pavement markings, etc.), distribution of flyers to the affected residents and businesses, project signs, finish grading, site cleanup and site restoration, and all other activities necessary to prepare and complete the contract work.

1.03 MAINTENANCE OF TRAFFIC (ITEM #2)

A. The lump sum price for this item shall be full compensation for all labor, equipment, material, and work required for maintenance of traffic in accordance with FDOT Standards and/or Broward County and/or the City of Fort Lauderdale. This item includes, but is not limited to, preparation and submittal of maintenance of traffic plans (MOTs), addressing comments regarding MOTs from agencies with jurisdiction, providing personnel as required to direct traffic (flaggers, crossing guards, local police, etc.), all temporary signage and striping, message boards, barricades, temporary barrier walls, drums, cones, providing signs, lights, installing temporary fencing and walkways as required to maintain pedestrian traffic, installing temporary steel plates for vehicular traffic and all other work incidental to the maintenance of traffic as required by FDOT Standards and/or Broward County and/or the requirements of the City of Fort Lauderdale and the Contract Documents.

1.04 FURNISH AND INSTALL PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION (ITEM #3)

A. The lump sum price indicated for this bid item shall be full compensation for all labor, equipment, and material necessary for preparation, submittal, approval, and implementation of the NPDES Permit Application (Notice of Intent and Notice of Termination), reporting by a person holding a certification as an FDEP NPDES Construction Site Inspector, preparing a Stormwater Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices (BMP) and environmental pollution protection throughout construction as outlined in the Contract Documents and required by the City. Payment for this item will be made in equal monthly payments throughout the duration of active construction and will not be issued prior to mobilization.

1.05 REMOVE & REPLACE, EXISTING CHAIN LINK FENCE (ITEM #4)

A. Measurement for payment to remove and replace existing fences will be based upon the actual number of linear feet of such fence actually removed and replaced, all in accordance with the Contract Documents.

B. Payment for removal and replacement of existing fence will be made at the unit price per linear foot of fence removed and replaced. Fence shall be replaced with material matching the size and type of the existing fence and will include but is not limited to the replacement of all line posts, corners, end pull posts, poles and columns replaced with fence, gates and tracks for gates. Payment shall

be made for fences removed and replaced as approved by the ENGINEER. No separate payment will be made for preparation of post holes.

1.06 REMOVE & DISPOSE, EXISTING ASPHALT (ITEM #5)

A. Measurement for payment to remove and dispose of existing asphalt pavement will be based upon the actual number of square yards of such pavement actually removed, all in accordance with the Contract Documents.

B. Payment for removal and disposal of existing asphalt pavement will be made at the unit price per square yard of pavement which price shall constitute full compensation for sawcutting (as necessary), the removal and disposal of such pavement and include the removal of aprons, collars, miscellaneous concrete, reflective pavement markers, abandoned valves and valve boxes, the removal and salvage of brass valve tabs. Thickness of existing asphalt may vary, asphalt removal will be paid at the square yard cost, no additional compensation will be made for asphalt thickness.

1.07 REMOVE & DISPOSE, EXISTING LIMEROCK (ITEM #6)

A. Measurement for payment for removing existing lime rock base material will be based upon the number of square yards of such materials actually removed, all in accordance with the requirements of the Contract Documents.

B. Payment for removing of existing limerock base material will be made at the unit price per square yard, which price shall constitute full compensation for removing, and disposal of waste or unsuitable material. Thickness of existing limerock may vary, limerock removal will be paid at the square yard cost, no additional compensation will be made for varying thickness.

1.08 REMOVE & DISPOSE, EXISTING CONCRETE SIDEWALK (ITEM #7)

B. Measurement for payment to remove and dispose of existing concrete will be based upon the actual number of square yards of such pavement actually removed, all in accordance with the Contract Documents.

C. Payment for removal and disposal of existing concrete will be made at the unit price per square yard of pavement which price shall constitute full compensation for sawcutting (as necessary), the removal and disposal of such pavement and include the removal of sidewalks, aprons, collars, miscellaneous concrete, reflective pavement markers. Thickness of existing concrete may vary, concrete removal will be paid at the square yard cost, no additional compensation will be made for concrete thickness.

1.09 REMOVE & DISPOSE, EXISTING F-CURB (ITEM #8)

A. Measurement for payment to remove and dispose of existing concrete curbing will be based upon the actual number of linear feet of such curbing actually removed, all in accordance with the Contract Documents.

B. Payment for removal and disposal of existing concrete curbing will be made at the unit price per linear feet of curb which price shall constitute full compensation for sawcutting (as necessary) and the complete removal and disposal of such concrete.

1.10 MILL EXISTING ASPHALT 1-INCH (ITEM #9)

A. Measurement for payment for mill of existing asphalt pavement will be based on the number of square yards of such pavement actually milled, as detailed in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for milling existing asphalt pavement will be made at the unit price per square yard which price shall constitute full compensation for milling, removal and disposal of asphalt, removal of reflective pavement markers, tack coat and restoration. Milling of State/County roads will be at a minimum depth of 1 inch.

1.11 FURNISH AND INSTALL, FULL BODIED FITTINGS (ITEM #10)

A. Measurement for payment to furnish and install water main fittings, unless specifically listed separately in the Item Response Form, shall be at the unit bid price per ton for such fittings, including but not limited to crosses, tees, bends and elbows of all angles and radius, concentric and eccentric reducers, offsets, wyes, true wyes, sleeves, plugs, caps, restraining glands and gaskets, base bends, base tees, reducing flanges, mega lugs, fillers and connecting pieces, furnished all in accordance with the Contract Documents.

B. Payment for furnishing and installing water main fittings complete and in place shall be at the unit bid price per ton and shall include furnishing, storing, transporting and installing the fittings.

1.12 FURNISH AND INSTALL, 12-INCH GATE VALVE (ITEM #11)

A. Measurement for payment to furnish and install gate valves will be based upon actual quantity, each, of such valves furnished and installed, all in accordance with the requirements of the Contract Documents. Test valves will not be compensated for under this line item.

B. Payment for furnishing and installing gate valves will be made at the unit price, each, named in the Item Response Form which price shall constitute full compensation for the completed installation of the valve, including gate valve, valve box and extension to surface, concrete collar, 2-inch brass ID disk with all restrain glands. No additional compensation will be granted for installation of side mounted valves as directed by the Engineer.

1.13 FURNISH AND INSTALL, 12-INCH, C-900 PVC, RESTRAINED (ITEM #12)

A. Measurement for payment for furnishing and installing watermain will be based upon the number of linear feet of such pipe actually constructed as determined by measurement along the centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing watermain will be made at the unit price per linear foot of pipe named in the Item Response Form only after pipe system has passed the required testing and has been as-builted; this item shall include all pipe (regardless of material), rock bedding for pipe, removal of limerock and subbase, trench excavation (including removal of any unsuitable soils), dewatering, bypass pumping with required materials and equipment, any form and amount of shoring needed, utility pole protection, backfilling, compaction to the bottom of subgrade, and testing. As-builts for newly installed water mains must be provided before compensation for said water mains will be approved. Pipe should be bedded as per City of Fort Lauderdale details. Restoration of roadway from subgrade stabilization, limerock base, to placing of asphalt is not a

part of this pay item. Unsuitable Soils are to be removed and replaced with clean sands as part of this line item.

1.14 FURNISH AND INSTALL, CONNECTION TO 12-INCH WM INSTALLED BY PROJECT COMPANY (ITEM #13)

A. Measurement and payment for performing all connections to existing 12" DIP water mains will be based on the actual quantity, each, of such connection made all in accordance with the Contract Documents.

B. Payment for connecting to existing 12" DIP water main shall be made at the unit price, each, named in the Item Response Form which shall constitute full compensation for all materials (regardless of water main size) and labor needed to complete connection which shall include but is not limited to valves, fittings, spool pieces, corporation stops, removal and disposal of existing piping and fittings to prepare for connection and filling and flushing of main. All coordination needed for water main shut offs shall be responsibility of the CONTRACTOR and is included in the scope of this item.

1.15 FURNISH AND INSTALL, 12"x12" TAPPING SLEEVE AND VALVE (ITEM #14)

A. Measurement for payment to furnish and install a 12"x12" tapping sleeve and valve will be based upon the actual quantity, each, of such connections made all in accordance with the contract documents.

B. Payment for furnishing and installing the 12"x12" tapping sleeve and valve shall be made at the unit price, each, named in the Item Response Form which shall constitute full compensation for all materials (regardless of water main size) and labor needed to complete connection which shall include but is not limited to valves, fittings, spool pieces, corporation stops, removal and disposal of existing piping and fittings to prepare for connection and filling and flushing of main.

1.16 FURNISH AND INSTALL, 20"x12" TAPPING SLEEVE AND VALVE (ITEM #15)

A. Measurement for payment to furnish and install a 20"x12" tapping sleeve and valve will be based upon the actual quantity, each, of such connections made all in accordance with the contract documents.

B. Payment for furnishing and installing a 20"x12" tapping sleeve and valve shall be made at the unit price, each, named in the Item Response Form which shall constitute full compensation for all materials (regardless of water main size) and labor needed to complete connection which shall include but is not limited to valves, fittings, spool pieces, corporation stops, removal and disposal of existing piping and fittings to prepare for connection and filling and flushing of main.

1.17 FURNISH AND INSTALL, SAMPLE POINT (ITEM #16)

A. Measurement for payment for furnishing and installing sample points will be based upon the actual number, each, of such sample points furnished and installed, all in accordance with requirements of the Contract Documents.

B. Payment for furnishing and installing sample points will be made at the unit price, each, named in the Item Response Form which price shall constitute full compensation for the complete installation and removal of sample point.

1.18 RESTORATION OF GREEN AREAS (ITEM #17)

A. Measurement for payment for restoration of green areas will be based upon the number of square feet of such green areas actually constructed to repair open cuts or drill pits made to install pipelines as detailed in the drawing, all in accordance with the requirements of the Contract Documents.

B. Payment for restoration of green areas will be made at the unit price per square foot for such green areas constructed as named in the Item Response Form which price will constitute full compensation for furnishing and installing all materials necessary to restore green areas to conditions equal or better than preconstruction conditions and shall include the removal of existing material, all earthwork and grading, subgrade compaction, disposal of excess material and the appurtenant items for which separate payment is not specifically included in the Items Response Form. No payment will be made for reconstruction of roadways outside the limits shown on the drawings or not approved by the ENGINEER. Green areas must meet all requirements of the City of Fort Lauderdale to be eligible for payment.

1.19 FURNISH AND INSTALL, 12-INCH SUBGRADE (ITEM #18)

A. Measurement for payment for stabilization of subgrade will be based upon the number of square yards of such materials actually stabilized, all in accordance with the requirements of the Contract Documents.

B. Payment for stabilization of subgrade will be made at the unit price per square yard named in the Item Response Form, which price shall constitute full compensation for handling, cleaning, positioning and compacting of said bedding to a Limerock Bearing Ratio (LBR) of 40, importing fill material as needed and disposal of excess waste or unsuitable material. Existing limerock removed can be blended to be used for subgrade compaction if the CONTRACTOR elects to do so. If contractor elects to reuse limerock, stockpiling and blending of limerock shall be done at no cost to the County.

1.20 FURNISH AND INSTALL, 12-INCH LIMEROCK (ITEM #19)

A. Measurement for payment for furnishing and placing limerock base material will be based upon the number of square yards of such materials actually compacted in place, all in accordance with the requirements of the Contract Documents. No reuse will be allowed.

B. Payment for furnishing and placing of limerock base material will be made at the unit price per square yard, which price shall constitute full compensation for applying prime coat and furnishing all such material, in place, including all transportation, handling, cleaning, positioning and compacting of said bedding and disposal of waste or unsuitable material.

1.21 FURNISH AND INSTALL, 1.5-INCH ASPHALT, 1ST LIFT (SP 12.5) (ITEM #20)

A. Measurement for payment of asphalt concrete pavement will be based upon the number of square yards of such asphalt concrete pavement actually constructed for areas with newly compacted subgrades and limerock bases, as detailed in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for placement of asphalt concrete pavement at the thickness indicated will be made at the unit price per square yard for such placement as named and at the thickness indicated in the Item Response Form which price will constitute full compensation for applying a tack coat, and furnishing, placing and compacting all asphalt surface, complete in place to the cross section and thicknesses shown on the drawings; including replacing brass valve tabs, adjusting valve box and MAS rim elevations, saw cutting of all pavement, temporary striping and all cleanup of the area disturbed by this construction.

1.22 FURNISH AND INSTALL, 1-INCH ASPHALT, 2ND LIFT (SP 9.5) (ITEM #21)

A. Measurement for payment of asphalt concrete pavement will be based upon the number of square yards of such asphalt concrete pavement actually constructed for areas with newly compacted subgrades and limerock bases, as detailed in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for placement of asphalt concrete pavement at the thickness indicated will be made at the unit price per square yard for such placement as named and at the thickness indicated in the Item Response Form which price will constitute full compensation for applying a tack coat, and furnishing, placing and compacting all asphalt surface, complete in place to the cross section and thicknesses shown on the drawings; including replacing brass valve tabs, adjusting valve box and MAS rim elevations, saw cutting of all pavement, temporary striping and all cleanup of the area disturbed by this construction.

1.23 FURNISH AND INSTALL, TYPE 'F' CURB AND GUTTER (ITEM #22)

A. Measurement for payment for furnishing and installing curb and gutter will be based upon the number of linear feet of such curb actually constructed as determined by measurement along the centerline of the curb in place, including but not limited to depressed and/or drop curb and gutter section (i.e., at driveway), type F curb and type D curb, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing curb and gutter will be made at the unit price per linear foot of curb and gutter named in the Item Response Form, which shall constitute full compensation for removing and disposing of existing curb and gutter and complete installation including grading, 4-inch rock curb pad, forming, saw cutting of pavement and cleanup of all areas disturbed by this construction.

1.24 FURNISH AND INSTALL, 6-INCH CONCRETE SIDEWALK (ITEM #23)

A. Measurement and payment for concrete sidewalk installation will be based upon the actual number of square yards of such sidewalks constructed as shown in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for concrete sidewalk furnishment and installation will be made at the unit price per square yard detailed on the drawings which price shall constitute full compensation for completing said work, including removing and disposing of existing concrete sidewalk, all earthwork, compaction of subgrade, backfilling of sidewalk, construction of the 4 - 6 inch thick concrete sidewalk, furnishing and setting for expansion joint material, furnishing and installing 1 inch PVC sleeve for existing irrigation connections as directed by ENGINEER, disposal of excess material, restoration/replacement of sod disturbed on private property to equal condition as existing,

restoration of driveways disturbed due to sidewalk forms, and the appurtenant items for which separate payment is not specifically included in the Item Response Form. Readjusting water meter boxes that need to be raised or lowered to meet sidewalk elevation will also be included in compensation for the installation of sidewalk.

1.25 RESTORATION OF THERMOPLASTIC PAVEMENT MARKINGS (ITEM #24-26)

A. Measurement for payment for furnishing and placing pavement markings will be based upon the number of linear feet of such markings actually constructed as determined by measurement along the centerline of the pavement markings in place, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and placing pavement markings will be made at the unit price per linear foot of pavement markings, which price shall constitute payment for all colors, widths and types. Pavement marking skip lines will be paid per the linear foot of pavement marking which will be measured as the distance from the beginning of the first painted stripe to the last stripe, including skipped intervals.

1.26 FURINSH AND PLACE REFLECTIVE PAVEMENT MARKERS (ITEM #27)

A. Measurement for payment for furnishing and installing reflective pavement markers (RPM) will be based upon the actual number, each, of such RPM's installed, all in accordance with requirements of the Contract Document. Payment for furnishing and installing RPM's will be made at the unit price, each, which price shall constitute full compensation for the complete installation of all colors and types.

END OF SECTION

SECTION 01070
CUTTING AND PATCHING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Work Included: This section includes work required to provide complete, in place, cutting, fitting, and patching of new and existing work.

1. Do not imperil any work by cutting or altering work or any part of it.
2. Do not cut structural or reinforcing steel without the written consent of the Engineer.

1.02 DESCRIPTION OF WORK

A. Execute cutting (including excavating), fitting or patching of work, required to:

1. Make the several parts fit properly.
2. Uncover work to provide for the installation of ill-timed work.
3. Remove samples of installed work as specified for testing.
4. Install specified work in existing construction.

B. In addition to Contract requirements, upon written instructions from the Engineer:

1. Uncover work to provide for Engineer's observation of covered work.
2. Remove samples of installed materials for testing.

1.03 SUBMITTALS DURING CONSTRUCTION

A. Prior to cutting which affects structural integrity or safety, submit written notice to the Engineer and other Contractors, requesting consent to proceed with cutting.

B. All cutting and patching, to be performed at no additional cost to the CITY.

C. Should conditions of work, schedule, indicate change of materials or methods, submit written recommendation to the Engineer, including:

1. Conditions indicating change.
2. Recommendations for alternative materials and/or methods.
3. Submittals as required for substitutions.
4. Submit written notice to the Engineer, designating time work will be uncovered, to provide for observation.

PART 2 PRODUCTS

2.01 GENERAL

A. Materials for replacement of work removed shall comply with applicable sections of these specifications for type of work to be performed. Materials not specified herein shall be replaced as specified in Sub- Section 3.03 of this Section, Restoration.

B. Provide all tools and equipment required to accomplish cutting and patching.
C. Completely remove damaged or deteriorated concrete or other material.
D. Legally dispose of all demolition debris generated by the project. The Contractor shall pay for all loading, hauling, transportation and applicable tipping fees.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect existing condition of work, including elements subject to movement or damage during cutting, patching, excavating, and backfilling.

B. After uncovering work, inspect conditions affecting installation of new products.

3.02 PERFORMANCE

A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.

B. Execute cutting and demolition as specified below:

1. The cutting and removal of existing work necessary for modifications and installation of new work shall be made with a minimum of damage to the work that is to remain. Any damage done to existing facilities which are to remain shall be repaired at the Contractor's expense to the satisfaction of the CITY.
2. When removing materials, or portions of existing structures, and when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, and not to damage the structures or contents by falling or flying debris. Unless otherwise permitted, line drilling will be required in cutting existing concrete.
3. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
4. Non-shrink grout shall be used for setting wall casting, sleeves, and leveling equipment bases. Doweling anchors into existing concrete and elsewhere as required shall be done with an approved type of epoxy material.
5. Debris created within facilities, which are to remain in service during the modification work, shall be removed daily. Operators of the CITY and Contractor's employees shall not be subjected to hazardous areas, when performing their duties.
6. Follow other specific instructions for the modification work given in other sections of these specifications and as shown on the Drawings. Should these instructions conflict, the more stringent conditions shall prevail.

C. Restore work which has been cut or removed; install new products to provide completed work in accordance with the requirements of Contract Documents.

3.03 RESTORATION

A. Restore structures and surfaces damaged during the course of this Contract that are to remain in the completed work.

B. Restoration shall be done with new materials and appropriate methods as specified elsewhere in these specifications for new work of similar nature; if not specified, best recommended practice of manufacturer, or appropriate trade association.

C. Restore damaged work in such a way that there is a secure intimate bond or fastening between new and old work. Restored surfaces shall be finished to such planes, shapes, and textures that no transition between new and old work is evident in finished surfaces.

3.04 CLEANING

A. Remove from site all debris, rubbish, and extra material caused by cutting and patching.

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 SCOPE OF WORK

B. Shop Drawings shall be submitted prior to any project construction activity. In a timely fashion, well before the contemplated ordering for fabrication of special order or long-lead items or construction use of any standard element of the work, the Contractor shall furnish Shop Drawings for the review and approval of CITY.

C. It is the Contractor's sole responsibility, upon the first occasion of submittal of a particular element of the work, to submit Shop Drawings of an element which match and fulfill the requirements and intent of the Plans and Specifications. Any delays or costs caused, either directly or indirectly, by non-timely submissions; submission of items differing significantly from the intent of the Plans and/or Speci- fications; repeated submission of, or argument over, rejected elements or changes required for acceptance; arguments with the criteria or requirements of the Plans or Specifications; or any other such similar activities shall be at the expense of the Contractor.

D. It is the intent of the Contract Documents that the Contractor shall, in the first in- stance, submit Shop Drawings of elements which meet or exceed the require- ments of the Contract Documents and fit with the other elements of the work and the existing conditions. Delays or the inability to obtain shop drawing approval may subject the Contractor to costs for liquidated or actual damages as specified in the Contract.

E. The approval of shop drawings and data will be general and shall mean that upon examination of the drawings, no variations from the approved project drawings and project requirements have been discovered, and approval will not relieve the Contractor of his responsibilities as defined above. The CITY's review will not constitute an approval of dimensions, quantities and details of the material, equipment or item shown.

1.02 CONTRACTOR SUBMITTALS

A. The Contractor shall submit a minimum of four (4) hardcopies of the shop drawing submittal package to the CITY. PDF files of the entire submittal package along with the hard copies are encouraged to simplify the approval process.

B. The Shop Drawing submittal package shall include a transmittal, submittal registry and the shop drawing sheets stamped by the Contractor.

C. The Contractor shall meet with the CITY and Engineer after Project Award

to begin the shop drawing submittal process and establish a schedule for submittal and approval.

D. Where there is a deviation from the Specifications, the Contractor shall note it and state the reasons why a deviation is required.

1.03 DESCRIPTION OF WORK

A. Submit to the Engineer for review and approval, Shop Drawings, test reports and data on materials, equipment, and material samples as required for the proper control of work, and as specified in the Specification sections. Shop Drawings shall be submitted for all materials and equipment to be furnished.

B. After award of the project, the Contractor may begin providing submittals for approval. Submit to the Engineer a complete list of preliminary data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way expressed or implied relieve the Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.

C. Maintain an accurate updated Shop Drawing submittal log which shall include the following items:

1. Submittal Description and Number Assigned
2. Specification Section
3. Plans Sheet Number
4. Date to Engineer
5. Date Returned to Contractor (from Engineer)
6. Status of Submittal (Approved, Approved as Noted, Rejected/Resubmit)
7. Date of Resubmittal and Return (as Applicable)
8. Date Material Release (for Fabrication)
9. Projected Date of Fabrication
10. Projected Date of Delivery to Site
11. Status of O & M Manuals Submittal

1.04 CONTRACTOR'S RESPONSIBILITY

A. Furnish the Engineer with a schedule of Shop Drawings submittals, fixing the respective dates for the submission of Shop Drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.

B. Submit to the Engineer all plans and schedules sufficiently in advance of construction requirements to provide maximum time for checking and appropriate action from the time the Engineer receive them.

C. It is the duty of the Contractor to check and approve all plans, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Plans and data shall bear Contractor's stamp showing that they have been checked and approved. Shop Drawings submitted to the Engineer without the Contractor's stamp and approval shall be returned to the Contractor for conformance with this requirement before Engineer's review. Shop Drawings shall indicate any deviations in the submittal from requirements of the Project Documents and the Contractor shall state the reason why a deviation is required.

D. All submittals shall be accompanied by a submittal registry and transmittal letter containing the following information:

1. Date
2. Project Title and Number
3. Contractor's name and address
4. The number of each Shop Drawing, Data, and Sample submitted
5. Notification of Deviations from Project Documents
6. Submittal Log Number conforming to and referring to Specification Section Numbers

E. Submit seven copies of Shop Drawings and of descriptive or product data submittals necessary to complement Shop Drawing. The Engineer will retain five sets.

F. After receiving approval by the Engineer, the Contractor shall be responsible for submitting to all agencies needing to review. Shop Drawings of all premanufactured items and all other Shop Drawings are required to obtain approval prior to manufacturing or installing the submitted items. The Contractor shall also be responsible for contesting any interpretations by the Building Department that CITY considers non-acceptable. The Contractor shall include in the bid prices, all costs for permits, fees and expenses associated with the submittals, including resubmittals (if any) of Shop Drawings to the Building Department or other agencies.

G. Do not begin any of the work covered by a drawing, data, or a sample returned as “Rejected/Resubmit” until a revision or correction thereof has been reviewed and returned to the Contractor, by the Engineer, with approval or approval “As Noted”. Be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of work prior to receiving Engineer's approval or approval “As Noted” of the necessary Shop Drawings.

H. Be fully responsible for observing the need for and for making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment the Contractor proposes to supply, both as they pertain to the Contractor’s own work, work of others, or of other Divisions herein or Trades and clearly show such changes on the Shop Drawings.

I. When substitutions in materials or equipment are allowed, the Contractor shall make all necessary changes in adjacent or connected structures and equipment at his expense. Where contemplated changes, substitutions or appurtenant work re- quire engineering design, in the opinion of the Engineer, the Contractor shall have such

design services performed at his expense. Said engineering design services shall be of an extent satisfactory to the Engineer whose word shall be final and shall be performed by a Registered Professional Engineer licensed to practice in the State of Florida.

J. When substitutions in materials or equipment are allowed, the Contractor shall be solely responsible for all costs and time required by any differences in construction methods, fabrication or assembly required and no additional time will be allowed.

K. When a construction change, initiated by the Contractor or resulting from a change made by the Contractor, requires re-permitting as discussed in the preceding paragraph, the Contractor shall be responsible for all labor, material and equipment required to redraw the Plan sheet or sheets affected by the change to the satisfaction of the Engineer of Record and CITY. The costs for all work of this sort and all costs of re-permitting shall be borne by the Contractor and no extra compensation will be allowed.

L. Determine and verify:
1. Field measurements
2. Field construction criteria
3. Catalog numbers and similar data
4. Conformance with specifications
5. That installation and maintenance clearances are sufficient particularly when equipment or arrangement changes have been made

1.05 ENGINEER'S REVIEW OF SHOP DRAWINGS

A. Engineer's review of plans, data and samples, submitted by the Contractor will cover only general conformity to the Drawing and Specifications. The Engineer's review will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown. The review of plans and schedules will be general, and shall not be construed:

1. As permitting any departure from the Contract requirements
2. As relieving the Contractor of responsibility for any errors, including detail, dimensions, and materials
3. As approving departures from details furnished by the Engineer, except as otherwise provided herein

B. Variations

1. If the plans or schedules, as submitted, describe variations per paragraph 1.03 C, and show a departure from the Contract requirements which Engineer finds to be in the interest of CITY and to be so minor as not to in- volve a change in Contract price or time for performance, the Engineer may return the reviewed plans without noting an exception.
2. If the plans or schedules, as submitted, describe variations and show a departure from the Contract requirements which the Engineer finds to be minor enough to be corrected by redlining the submittal, the engineer will mark

and return the submittal marked "Approved as Noted." The redlined corrections shall be as binding on the Contractor as would be a resubmission embodying the same corrections.

C. When reviewed by the Engineer, each of the Shop Drawings shall be stamped and dated to indicate it had been reviewed. Shop Drawings stamped "Revise and Re-submit" and with required corrections shown will be returned to the Contractor for correction and resubmittal.

D. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions and corrections required by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.

E. If the Contractor considers any correction indicated on the Shop Drawings to constitute a change to the Project Plans or Specifications, the Contractor shall give written notice thereof to the Engineer who will render a decision which shall be final. After the decision has been made, the Contractor shall without delay, provide the corrections to the plans.

F. When the Shop Drawings have been approved by the Engineer, the Contractor shall carry out the construction in accordance there with and shall make no further changes therein except upon written instructions from the Engineer.

G. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor for resubmittal. Unless otherwise specifically permitted by the Engineer, all submittals shall be made in groups containing all associated items for systems, processes or as indicated in specific specifications sections. All plans, schematics, manufacturer's product data, certifications and other Shop Drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface checking.

1.06 SHOP DRAWINGS

A. When used in the Project Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for materials and equipment which become an integral part of the Project. These Shop Drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance/test da- ta shall be considered only as supportive to required Shop Drawings as defined above.

B. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Information which is not applicable to the Work shall be deleted by striking or cross hatching.

C. Shop Drawing shall have a submittal registry and display the following:

1. Project Title and Number
2. Name of Project Building or Structure
3. Number and Title of the Shop Drawing
4. Date of Shop Drawing or Revision
5. Name of Contractor and Subcontractor Submitting Drawing
6. Supplier/Manufacturer
7. Separate Detailer when Pertinent
8. Specification Title and Number
9. Specification Section
10. Application Project Drawing Number

D. If plans show variations from Contract requirements because of standard shop practice or for other reasons, describe such variations in the letter of transmittal. If no explanation of these variations is provided, the Contractor shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such plans have been reviewed and approved.

E. For all mechanical and electrical equipment furnished, provide a list including the equipment name, address of and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.

F. All manufacturers or equipment suppliers who propose to furnish equipment or products shall submit an installation list to the Engineer along with the required Shop Drawings. The installation list shall include at least five installations where identical equipment has been installed and has been in operation for a period of at least five years, unless otherwise specified. Manufacturers and/or equipment which fails to meet the specified experience period will be considered if the manufacturer or supplier provides a bond or cash deposit which will guarantee replacement of the equipment or process in the event of failure or unsatisfactory service.

G. Only the Engineer will utilize the color "red" in marking Shop Drawing submittals.

1.07 REQUIRED INFORMATION

A. Submit, as applicable, the following for all prefabricated or manufactured structural, mechanical, electrical, plumbing, process system, and equipment work:

1. Shop Drawings or equipment drawings, including dimensions, size and location of connections to other work, and weight of equipment
2. Catalog information and cuts
3. Installation or placing plans for equipment, drives, and bases
4. Supporting calculations, signed and sealed by a Florida Registered Engineer when required, for equipment and associated supports, or hangers required or specified to be designed by equipment manufacturers
5. Signed and sealed calculations and plans by in-house Florida Registered Professional Engineer for structural systems, indicating compliance to the structural design criteria specified in the Plans
6. Complete manufacturer's specifications, including materials description and

paint system
7. Suggested spare parts with current price information
8. List of special tools required for testing, checking, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and are not customarily and routinely carried by maintenance mechanics)
9. List of special tools furnished with the equipment
10. List of materials and supplies required for the equipment prior to, and during startup
11. List of materials or supplies furnished with the equipment
12. Special handling instructions
13. Requirements for storage and protection prior to installation
14. Requirements for routine maintenance required prior to equipment startup
15. List of all requested exceptions to the Project Documents

1.08 SAMPLES

A. Furnish for the approval of the Engineer, samples required by the Project Documents or required by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until approved by the Engineer.

B. Samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices
2. Full range of color, texture and pattern
3. A minimum of two samples of each Item shall be submitted

C. Each sample shall have a label indicating:

1. Name of Project
2. Material or Equipment Represented
3. Name of Producer and Brand (if any)
4. Location in Project

D. Prepare a transmittal letter in triplicate for each shipment of samples containing the information specified herein in Paragraph 1.06 A. Enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Approval of a sample shall be only for the characteristics or use specified and shall not be construed to change or modify any Contract requirements.

E. Approved samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples which failed testing or were not ap- proved shall be returned to the Contractor at his expense, if so requested at time of submission.

1.17 SUBSTITUTIONS

1.17.1 Changes in products, materials, equipment, and methods of construction required by the Contract Documents, which are proposed by the Contractor after award of the Contract, are considered to be requests for substitutions. Where the Plans and/or Specifications designate the products of a particular manufacturer, the product specified has been found suitable for the intended use. Articles or products of similar characteristics may be offered for the approval of the Engineer, whose decision shall be final. Copies of complete descriptive data shall be furnished regarding all materials furnished by the Contractor, consisting of Dimension drawings, catalog references, product data, cost, and other information necessary to clearly identify and evaluate each article. When substitutions are permitted, the Contractor shall make all necessary changes in adjacent, connected, or other structures and equipment at his expense.

1.17.2 Where engineer-recommended changes, substitutions or appurtenant work require engineering design, the Contractor shall have such design services performed. Those engineering design services shall be of an extent satisfactory to the Engineer, whose decision shall be final. Engineering services for engineer- recommended changes, substitutions or appurtenant work, shall be performed by a Registered Professional Engineer licensed to practice in the State of Florida.

C Unless specifically authorized by the Engineer in writing, no additional contract time will be allowed, and a decrease in time may be appropriate.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01380

CONSTRUCTION PHOTOGRAPHS AND VIDEO PHOTOGRAPHY

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. This section specifies the taking and submission of construction photographs and audio-video photography.

B. Prior to the delivery of any equipment, materials or supplies to the site of any work, or to the beginning of any of the construction work, the Contractor shall provide pre-construction photography as specified herein for the purpose of establishing the surface conditions existing in all of the areas to be affected by the construction of the Project.

C. Ground photography shall consist of photographs and color video taping of surface features taken along the entire length of the Project and including all work, intersecting roadways and properties that will be impacted by the water service conversions.

D. The purpose of the color audio-video taping of the project is to provide the necessary information for restoration of surface features after completion of the Project. The Contractor shall be responsible for repairing any damage or defect not documented as existing prior to construction.

1.02 QUALITY ASSURANCE

A. Photographs shall be clean, sharp and clearly show details. Out-of-focus photographs will not be acceptable.

B. Photographs and/or prints which are poorly lit or lack definition will not be acceptable.

1.03 SUBMITTALS

A. Submit three (3) prints and the digital file of each construction photograph and one (1) DVD of the video as follows:
   1. Within fourteen (14) days of receiving Notice to Proceed.
   2. Enclose each print in a clear Mylar protector punched to fit a standard three ring binder. Prints shall have notes to detail location, date, and existing condition. The prints shall be used to provide documentation of existing conditions in case of claims or disputes.
   3. Number photographs in sequence beginning with the numeral one.

PART 2 PRODUCTS

2.01 SIZE AND QUALITY

A. Standard commercial quality prints, color, 3½-inches by 5-inches, single weight glossy paper.

B. Digital pictures and videos shall be compatible with CITY software.

2.02 QUANTITY

A. A minimum of twelve photographs shall be taken prior to construction and twelve more each month until completion of the Work.

B. In the instance of a pipeline installation, take a minimum of one photograph each 200 feet or fraction thereof along the entire route of the main initially. During construction a minimum of one photograph every two hundred feet or fraction thereof of that portion of the main constructed during the month until completion.

C. The number of photographs required shall be at the sole discretion of the Engineer whose decision shall be final.

D. An increase in the number of photographs above the minimums shall not be cause for an increase in cost and no extra compensation will be allowed.

2.03 VIDEO PHOTOGRAPHY

A. Color audio-video shall be DVD format.

PART 3 EXECUTION

3.01 INITIAL AND CONSTRUCTION PHOTOGRAPHY

A. Take pre-construction photographs of the entire site or route of the main after receiving the Notice to Proceed and prior to disturbing the site in any manner. Coordinate with the Engineer as to the vantage points and number of photographs required in Paragraph 2.03.

B. Photography During Construction: Coordinate with the Engineer as to the actual number and location of views to be photographed and the day and time of photographing.

C. Photographic equipment utilized shall be of sufficient quality to produce pictures capable of being enlarged without loss of definition or sharpness.

3.02 VIDEO PHOTOGRAPHY

A. Coverage of Taping: Such coverage shall include, but not be limited to, all existing driveways, sidewalks, curbs, streets, signs, landscaping, trees, catch basins,

fences, visible utilities and all buildings located within the work zone of the Project. Of particular concern are any existing faults, fractures, defects or other features. Audio description shall be made simultaneously with and support the video coverage.

B. Streets: shall be recorded by audio-video tape for the full width of the right-of- way, except where specifically noted otherwise by the Engineer.

C. Front, Side and Rear Yard Areas: shall be recorded by audio-video tape of properties impacted by the water service conversions.

3.03 LOCATION INFORMATION

A. All DVD's shall be properly identified by number, location and project name in a manner acceptable to the Engineer.

B. A record of the contents of each DVD shall be supplied on a run sheet identifying each segment in the tape by location, i.e., street viewing side, traveling direction, engineering stationing, and all referenced by tape counter numbers.

C. All video recordings shall begin with the date and time of recording, the project name, the sheet numbers of engineering stationing as shown on the plans, the name of the street, area or building being taped, the direction of travel and the viewing side. Houses and buildings shall be identified visually by house or building address, when possible, in such manner that the progress of the taping and the proposed system may be located by reference to the houses and buildings.

3.04 SITE RECORDING CONDITIONS

A. All audio-video taping shall be done during times of good visibility. No outside taping shall be done during periods of visible precipitation or when the ground area is covered with leaves or debris, unless otherwise authorized by the Engineer.

B. In order to produce the proper detail and perspective, adequate auxiliary lighting will be required to fill in shadow areas caused by trees, utility poles, road signs and other such objects, as well as other conditions requiring artificial illumination.

C. The average rate of speed in the general direction of travel of the conveyance used during taping shall not exceed 60 feet per minute. Planning rates and zoom-out rates shall be controlled sufficiently so that playback will produce adequate clarity of the object being viewed.

D. When conventional wheeled vehicles are used as conveyances for the taping, the distance from the camera lens to the ground shall be such as to ensure proper perspective. In instances where tape coverage will be required in areas not accessible to conventional wheeled vehicles, such coverage shall be obtained by walking or by special conveyance approved by the Engineer but with the same requirements for tape quality and content as specified herein, except as may be specifically exempted by the Engineer.

END OF SECTION

SECTION 01410

TESTING AND TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR will employ and pay for services of an independent testing laboratory to perform testing as indicated in the Project Documents.

B. Testing laboratory inspection, sampling and testing will be required for, but not limited to, the following:

1. Soil Compaction
2. Cast-in-Place Concrete
3. Mechanical Work
4. Bacteriological Samples on Water Main

1.02 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel and provide access to Work.

B. Make available, at no cost to CITY, adequate quantities of representative samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix approved to be used for concrete, and other materials mixes, which require control by the testing laboratory.

D. Furnish incidental labor and facilities:

1. To provide access to work to be tested
2. To obtain and handle samples at the Project site or at the source of the product to be tested
3. To facilitate inspections and tests
4. For storage and curing of test samples

E. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

1.03 PAYMENT FOR TESTING

A. Contractor shall pay for testing services required elsewhere in these Specifications.

B. Inspecting and testing, performed exclusively for the Contractor's convenience, shall be the sole responsibility of and shall be paid for by the Contractor.

1.04 QUALITY ASSURANCE

A. Upon completion of each test and/or inspection, promptly distribute copies of test or inspection reports to the Engineer, the City, to governmental agencies requiring submission of such reports, and to other persons as directed by the Engineer.

PART 2 PRODUCTS

2.01 TEST METHODS

A. Tests and Inspections will be conducted in accordance with the requirements of these specifications or, if not herein specified, in accordance with the latest standards of the American Society for Testing and Materials (ASTM), or other approved and recognized authorities as acceptable to CITY.

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Work Included: This section outlines the procedure to be followed in closing all contracts.

1.02 RELATED SECTION

A. Section 01340 - Shop Drawings, Product Data, and Samples.

B. Section 01720 - Project Record Documents.

C. CITY General Covenants and Conditions

1.03 FINAL INSPECTIONS

A. After final cleaning and upon written notice from the Contractor that he has inspected the work and it is a 100% completed, the Engineer will make a preliminary inspection with CITY and the Contractor present. Upon completion of this preliminary inspection, the Engineer will submit to the Contractor a written final punchlist of any particulars which this inspection reveals as defective or incomplete work.

B. Upon receiving written notice from the Engineer, the Contractor shall immediately undertake the work required to remedy the defects and complete the work to the satisfaction of CITY.

C. The items identified to be completed shall constitute the Punch List. The Construction Manager and the Contractor shall have seven calendar days from the date of substantial completion to create the Punch List. When the Contractor successfully completes all identified items to the satisfaction of the Engineer in accordance with the Contract Documents, the Contractor may submit a payment request for all remaining retainage withheld for the Project. Each item in the punchlist shall have a time duration agreed upon by both parties. Punchlist items may be eliminated individually from the list when approved by the Engineer.

D. Should the Contractor not successfully complete any items contained in the Punch List or if a good-faith dispute exists as to whether one or more items identified on the list have been completed pursuant to the Contract, the Construction Manager may elect to continue to withhold an amount not to exceed 150 percent of the estimated total costs to complete such items and release the remaining retainage.

E. When the Contractor has corrected or completed the items as listed in the Engineer's written notice, inform the Engineer, in writing, that the required work

has been completed. Upon receipt of this notice, the Engineer, in the presence of the Contractor, shall make the final inspection of the Project.

F. Should the Engineer find all work satisfactory at the time of the inspection, the Contractor will be allowed to make application for final payment in accordance with the provisions of the General Covenants and Conditions.

1. If the Contractor fails to complete any item of work within a time period equal to 100% of the agreed upon duration of time for all individual items, the Engineer will notify the Contractor in writing specifying the conditions pertaining thereto and directing the Contractor to comply with his directive. If the Contractor has not corrected such condition within 5 days of such notice, it shall be sufficient grounds for the Engineer to order the subject items discontinued and have them completely remedied in a timely manner at the expense of the Contractor.
2. No final estimate shall be issued by the Engineer until the Engineer has assured himself that the punchlist has been 100% completely finished and all other related documents are submitted.

1.04 FINAL SUBMITTALS

A. No Contract will be finalized until all of the following have been submitted and approved in conformance with Section 01340 - Shop Drawings, Product Data, and Samples, and Section 01720 - Project Record Documents.
1. Final Shop Drawings.
2. Record Drawings.
3. Operation and Maintenance Manuals.
4. Maintenance Summaries.
5. Manufacturers' Certificates of Proper Installation.
6. Material Tests and Certifications.
7. All Test Reports.

1.05 GUARANTEES, BONDS, AND AFFIDAVITS

A. No Contract will be finalized until all guarantees, bonds, certificates, licenses, C.O. and affidavits required for work or equipment as specified are satisfactorily filed with the Engineer.

B. The Contractor shall comply with the Public Records Laws of the State of Florida.

1.06 SUBSTANTIAL COMPLETION

A. “Substantial Completion” shall occur when the work is in a state of final completion as regards all aspects of occupancy, ingress, egress, habitability, functionality and efficiency thereof, safety, durability and interaction with other existing or contemplated systems, and is otherwise substantially fit for use or operation. Any work remaining after substantial completion shall be of a minor nature such that should the CITY elect to occupy and put into full service the facility constructed under the Project, or any portion thereof, said work may be accomplished without interference to an extent causing loss of efficiency to any of the above required aspects. The date of substantial completion is the date certified by the Architect/Engineer and approved by CITY (if different from the A/E) when

construction is sufficiently complete to satisfactorily fulfill all of the above requirements. If any portion of the Contract Documents specifies a particular measure of substantial completion for the work, in whole or in part, that definition shall take precedence of this section.

1.07 FINAL COMPLETION

A. “Final Completion” shall occur when the work is in a state such that no further work is required in accordance with the Contract Documents to render complete, satisfactory and acceptable to CITY all construction services purchased, including those for any pending items whether or not they were listed after substantial completion, and provide all manuals, certifications, warrantees, as-built Plans, release of liens, certified payrolls, and any other documentation required by CITY or other governing authority. If any portion of the Contract Documents specifies a particular measure of final completion for the work, in whole or in part, that definition shall take precedence of this section..

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01710
CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section specifies the maintenance of the work site in a clean, orderly, hazard-free condition.

1.02 QUALITY ASSURANCE

A. Conduct cleaning and disposal operations in accordance with local ordinances and anti-pollution laws. Rubbish, volatile wastes, and other construction wastes shall be neither burned nor buried on the work site, and shall not be disposed of into storm drains, sanitary drains, streams or other waterways.

B. Final cleaning shall be accomplished either by workmen experienced in cleaning operations or by professional cleaners.

1.03 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with local codes, ordinances, regulations, and anti-pollution laws. Do not burn or bury rubbish or waste materials on Project site. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains, Volatile wastes shall be disposed in accordance with proper laws and be approved by the CITY. Do not dispose of wastes into streams or waterways.

PART 2 PRODUCTS

2.01 ON-SITE WASTE CONTAINERS

A. Provide on-site waste containers for collection of waste materials, debris and rubbish. See Section 01100 - Special Project Procedures, Subsection 1.05 regarding Safety Requirements for environmentally hazardous materials.

2.02 CLEANING MATERIALS

A. Cleaning materials shall be as recommended by the manufacturer of the surface to be cleaned.

PART 3 EXECUTION

3.01 SAFETY REQUIREMENTS

A. Maintain work site in accordance with local ordinances and anti-pollution laws

applicable to work site cleanliness and in a neat, orderly and hazard-free condition until final acceptance of the work. Catwalks, accessible underground structures, work site sidewalks and walkways adjacent to the work site shall be kept free from hazards caused by construction activities.

B. Store volatile wastes including rags in covered metal containers, and remove from work site daily.

C. Prevent accumulations of wastes which create hazardous conditions.

D. Artificially ventilate spaces which are not naturally ventilated when volatile or noxious substances are present in those spaces.

3.02 CLEANING DURING CONSTRUCTION

A. Perform cleaning every workday for duration of the Work. Structures, grounds, and areas of the work site, access roads and adjacent public and private properties shall be maintained free from accumulations of waste materials and rubbish caused by construction operations on the work site. Place waste materials and rubbish in on site containers or as otherwise approved. Unneeded construction equipment shall be removed and all damaged repaired so that the public and property owners will be inconvenienced as little as possible.

B. Remove or secure loose material on open decks and on other exposed surfaces at end of each day's work or more often to maintain work site in hazard-free condition.

C. Prevent dislodgement of materials due to wind and other forces. Wet down dry materials and rubbish to lay dust and prevent blowing dust. Cover or wet excavated material leaving and arriving at the site to prevent blowing dust. Clean the public access roads to the site of any material falling from the haul trucks.

D. Empty on-site waste containers whenever necessary so that trash overflow does not occur. Legally dispose of contents at either public or private dumping areas.

E. Control the handling of materials, debris and rubbish; do not drop or throw from heights.

F. Immediately remove spillages of construction-related materials from hauling routes or the site.

G. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, or elsewhere during the course of the Contractor’s operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.

3.03 FINAL CLEANING

A. In addition to the cleaning performed above, in preparation for final inspection, remove grease, dust, dirt, rust stain from surfaces. Remove labels, fingerprints and other foreign materials from exposed exterior finished surfaces. Flush down all manhole covers and frames, valve boxes, and areas leaving such surfaces clean of all sand, laitances, etc.

B. In preparation for final acceptance or occupancy, conduct final inspection and cleaning of exposed exterior surfaces, and of concealed spaces.

C. Maintain cleaning operations until project has been finally accepted.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work: For contracts where the work is performed at an on-site location maintain one record copy of:

1. Record Drawings. Record Drawings as used herein shall mean a drawing that accurately records constructed improvements and any field changes.
2. Record Specifications.
3. Addenda.
4. Change Orders and other modification of the contract.
5. Engineer's written orders or instructions.
6. Approved Shop Drawings, Product Data and Samples.
7. Field Test records.
8. Construction photographs.
9. As built dimensions and elevations as recorded by the Contractor's Florida Licensed Professional Surveyor and Mapper (PSM) on a daily basis.
10. Field Book. Survey Field notes taken by the Florida Licensed Professional Surveyor and Mapper's survey crew (copy provided to the Engineer on a monthly basis).

B. The records listed above are to be made available to the Engineer at all times for all projects.

C. Related Requirements Described Elsewhere:

1. Section 01340: Shop Drawings, Product Data and Samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Maintain documents in a clean dry, legible, condition and in good order. Do not use record documents for construction purposes.

1.03 REQUIRED MEASUREMENTS

A. Set-up and Verification: The Contractor's Florida Licensed Professional Surveyor and Mapper is required to recover the design baseline and verify the elevations and coordinates on a regular basis as needed.

B. The Contractor is required to have a level instrument setup next to the construction site in order to control the vertical alignment of the pipe installation

prior to trench backfilling. The level shall be setup daily for use by the surveyor, Contractor's foreman and CITY Engineer/Inspector. Any underground construction work that does not have a level properly setup will be stopped by the CITY Engineer/Inspector.

C. The Contractor is required to have a survey crew record the field information on a daily basis when there is underground pipe installation. The survey crew shall be on-site as needed to record and verify the information before it is covered. Any underground construction work that does not have the information recorded by a survey crew will be stopped by the CITY Engineer/Inspector. The Engineer/Inspector has the authority to order re-excavation of work that was covered without accurate survey measurements.

D. Field Book Information: The Florida Licensed Professional Surveyor and Mapper is required to have his crews make daily visits to the project site during underground pipe installation work to perform field measurements of the Contractor's daily installations. This information shall be recorded in field books. Copies of the field notes are required to be provided to the Construction Manager on a monthly basis. The surveyor's field notes of the surveyor shall be submitted to the CITY along with partial as-builts plans (signed and sealed) on a monthly basis as a condition of payment.

1.04 PROJECT RECORDS

A. During the life of the Contract the Contractor shall retain the services of a Florida Licensed Professional Surveyor and Mapper (PSM) who shall maintain daily records of the installation, including all deviations from Plans and Specifications and for the purposes of preparing and submitting to the CITY an as- built/record survey in compliance with:

1) Florida Statutes Chapter 472.027.

2) Florida Administrative Code Chapter 5J-17.050, 5J-17.051 and 5J-17.052

3) As further required by these Contract Documents.

B. The Measure and Recording of all information required in Subsection A above for all projects concurrently with construction progress. The services of the Florida Licensed Professional Surveyor and Mapper for the project shall be retained by the Contractor prior to the issuance of the Notice to Proceed. A letter from the Florida Licensed Professional Surveyor and Mapper shall be provided at the preconstruction meeting indicating that the Contractor has secured his services to perform all survey work for the duration of the project and prepare final as-builts plans.

C. Submit redlines, partially completed as-built plan sheets and fully complete as-built Plan sheets and certified copies of field book information to include raw data of the measurements all as required by and satisfactory to, the Engineer as

prerequisite for the acceptance of monthly payment applications.

D. Label each document "PROJECT RECORD" in neat large printed letters.

1. Record all information for pipeline projects and on-site projects concurrently with construction progress.

2. Do not conceal any work until as-built information is recorded by the Contractor's surveyor.

3. All locations for future connections or tie-ins shall be left unburied and uncovered until the Contractor's PSM measures and records the as-built information.

    a. All as-built and inspector information is to be made available to the Engineer on a daily basis for inclusion in the CITY records.

4. Restrained pipe, end line valves, thrust blocks shall be left uncovered for the last complete length. Inline valves and tees shall be left exposed for 1 length on both sides plus the face end. Measure and record the elevation, horizontal and vertical alignment, and the inclination for these items.

5. For all projects, the Contractor's PSM shall maintain exact and extensive records of any deviations from Drawings and Specifications. These records shall be satisfactory to the Engineer, whose decision shall be final, and sufficient to allow the production of accurate as built Plans which correctly and completely portray the work as constructed.

6. For all projects, the Contractor's PSM shall record data as follows during the entirety of construction.

    a. For pipeline projects, constructed in the public right-of-way, record dimensions and elevations every one hundred feet or portion thereof along the pipeline and at every horizontal and vertical change in direction.
    b. In all cases, record locations and elevations for each valve, fitting, service line, fire hydrant, water sampling point, utility poles adjacent to the proposed line, overhead wires crossing the ditch line (approximate height above grade) and other appurtenances along the pipeline.
    c. The identity, dimensions, location, and elevation of any existing utility crossing the proposed line and so immediately adjacent to the new line as to be exposed by the excavation, shall also be

recorded. Locate, excavate, expose, and record the same data for any utility shown in the plans whose proximity to the proposed pipeline could affect the certification requirements of the new installation. Note that in instances of a very wide ditch due to ground conditions, the recording of data for adjacent, paralleling utilities shall only be required for lines which come within three feet of the outside of the pipe being installed, unless otherwise ordered by the Engineer who's decision shall be final.

d. Without exception, for all thrust blocks, the top elevation, outer dimension, thickness of the block, length and location of any sheet piling, if used, shall be recorded by the Contractor's PSM.

e. Specific locations and elevation of equipment, the buildings and miscellaneous items installed inside them shall be recorded as applicable and as required by the Engineer.

f. Without exception, where the substitution of another piece of equipment for that shown on the Plans has been allowed, the footprint, clearance, and elevation dimensions shall be recorded by the Contractor's PSM and these changes shall be accurately and thoroughly portrayed on the as-built plans.

g. Contractor's Licensed Surveyor shall prepare from the field data, as-built record drawings showing correctly, completely, and accurately the installation, embracing all changes and deviations made during construction, including all construction variances, to reflect the work as it was constructed.

h. Record Drawings shall be prepared as specified hereinafter.

i. Record Drawings and five (5) copies shall be signed and sealed by the Surveyor and shall be submitted to the CITY for the Engineer's review within ten (10) calendar days following the completion date of successful pressure testing of all mains and appurtenances under this Contract.

j. If the Engineer determines that the Drawings are not acceptable, they will be returned to the Contractor with a cover letter noting the deficiencies and/or reasons for the disapproval. Contractor shall have ten (10) calendar days to correct all exceptions taken by the Engineer and resubmit as-built record drawings to the Engineer for final acceptance.

1.05 PROPERTY BOUNDARIES

A. The Florida Licensed Professional Surveyor and Mapper shall establish and maintain throughout the construction the property boundaries of pump stations and easements. The surveyor shall verify that the work of the project does not encroach into adjacent (abutting) property. Property corners lost during construction shall be reset at the first opportunity to ensure that the work is done within the designated limits.

1.06 DRAWINGS

A. During the life of the Contract, maintain records of all deviations from the Plans and Specifications and prepare therefrom As-Built Record Drawings showing correctly and accurately all changes and deviations made during construction to

reflect the work as it was actually constructed. It is the responsibility of the Contractor to check the As-Built Record Drawings for errors and omissions prior to submittal to the CITY and certify in writing that the As-Built Record Drawings are correct and accurate, including the actual location of all piping, exposed and internal piping, and electrical/signal conduits in or below the concrete floor. Indicate the size, depth and voltage in each conduit.

B. Legibly Mark To Record Actual Construction: All data as previously specified for all installations by the Contractor's PSM. For on-site structures and facilities work the Contractor's Florida Registered Land Surveyor shall record:

1. Depths of various elements of foundation in relation to finish first floor and datum plane.
2. All exposed and underground piping and ductwork with elevations and dimensions and locations of valves, pull boxes, etc. Changes in location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent reference points, plant survey grids, property lines and similar.
3. Location of internal utilities and appurtenances concealed in the construction shall be referenced to visible and accessible features of the structure. Air conditioning ducts with locations of dampers, access doors, fans and other items needing periodic maintenance.
4. Field changes in dimensions and details.
5. Changes made by Engineer's written instructions or by Change Order.
6. Details not on original Contract Drawings.
7. Equipment and piping relocations.
8. Major architectural and structural changes in structures, including tanks.
9. Architectural schedule changes according to Contractor's record and shop drawings.
10. Record Drawings shall be prepared as specified hereinafter.

C. Specifications and Addenda: Legibly mark each section to record:

1. Manufacturer, trade name, catalog number and Supplier of each product and item of equipment actually installed.
2. Changes made by Engineer's written instructions or by Change Order.

D. Approved Shop Drawings: Provide record copies for system diagrams and drawings together with each element of process equipment, piping, electrical system and instrumentation system.

1.07 SUBMITTALS

A. Accompany submittal with 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.

B. Record Drawings with five copies which have been signed and sealed by the surveyor shall be submitted to the CITY for the engineer's review. Drawings shall conform to recognized drafting standards. As-built drawing shall be submitted on 24-inch by 36-inch bond paper. These materials shall be submitted to the CITY for the Engineer's review as a prerequisite for payment during the course of construction as previously specified and final, complete sets of documents within ten calendar days following the completion date of successful testing of all mains, equipment and appurtenances under this Contract. Final payment will not be made until the five sets of as-built record drawings (with AutoCAD file) and five sets of prints have been approved and accepted by the Engineer.

1. In cases where a portion of a pipeline system or parts of a process system are put into service, the above conditions shall apply for the in- service portion and monthly payments shall be withheld until the as-built drawings are accepted by the Engineer.
2. As-Built Record Drawings, as prepared by the Contractor's Florida Licensed Professional Surveyor and Mapper and submitted by the Contractor, shall comply with following criteria and standards:
   a. Title block must show the Contract or Project Title (as applicable); Contract number; CITY ER, PCTS, RPQ numbers; Contractor's name; Engineer of Record's name;
      Surveyor's name and address; date; location; and where appropriate to the work, size and type (i.e. water main, sanitary gravity main, sanitary force main) of main.
   b. Baselines or centerlines must be tied to section corners, monument line and right-of-way lines.
   c. Pipeline must be tied to baseline or centerline with stations and offsets.
   d. Baselines or centerlines must show bearings or deflection angles, or delta, radius, chord and arc length for curves.
   e. Show all horizontal curve data, including point of curvature (PC) and point of tangency (PT) stations or radial bearing.
   f. Stationing must be the same as shown on construction drawings and must be tied to Section corners, centerline intersections and all other pertinent control points within the Project. All such pertinent points shall have their stationing shown and where there is dual stationing for a point, both stations shall be called out.
   g. Indentify all streets by name or number and show stationing at all intersecting streets.
   h. Refer to vertical datum plane and identify the location, elevation and source supplying the bench mark used.
   i. Tie easement lines to survey baseline or platted centerline and right-of-ways.
   j. Show horizontal and vertical locations of all fittings, deflections, or at any significant change of direction, and at a maximum of 100-foot intervals along the pipeline for off-site (e.g. in the public right-of-way) and at maximum 25- foot intervals for on-site (e.g. on a facility such as a pump station or plant work.
   k. On all pipe fittings of 36-inch diameter or over, (i.e. tees bends, crosses, wyes, increasers/decreasers, bevels) elevations must be taken at the end and center points to reflect the true elevation and

altitude of the fitting.

l. Elevations of natural ground or pavement over the pipeline must be shown at each position where the pipe elevation is shown and at interveni8ng high and low points.

m. Manhole rim and valve box rim elevations must be shown.

n. Show all invert and bottom elevations in manholes and valve vaults or boxes. Show all invert and bottom elevations together with pipe size, and where it can be determined, pipe material, for existing structures having pipes which cross the pipe line being constructed.

o. Locations and elevations together with diameter, thickness and material of all casings.

p. Location, top and bottom elevations of all sheeting left in place.

q. Coordinate values used inside plants shall be the local, established coordinate systems referenced to the property boundary.

r. State plane coordinate values for all new valves and manholes; on existing valves and manholes at points of connection or closest to the point of connection and the point of connection itself.

3. Certification: The Contractor shall certify on as-built record drawings all other actual constructed details and information as may be required by the CITY including but not limited to:

a. Pipeline must be identified by type of pipe material, manufacturer, type of joint and type of joint restraint.

b. Valves shall be identified by size, type, end condition; and n valves 16-inch or larger, the manufacturer's name and number of turns required to open or close the valve.

c. Show calculated pipeline percent of grade between manholes of gravity systems.

d. Types and sizes of sheeting and piling together with measured and complete; location, dimensional, , and elevation data on any pile caps, tie backs, anchors, whalers or other appurtenant structures left in place.

C. Digital Records: The CITY requires the submittal of as-built drawings in AutoCAD for Windows format and in PDF format. Graphical information contained on magnetic media shall be the same as provided on plan sheets. Digital Records shall be delivered to the CITY Project Manager containing a list of all files and data being provided. The AutoCAD file shall be compatible with the CITY system and capable of being uploaded without external reference files.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 78 40
PROJECT AS-BUILT/RECORD DRAWINGS

PART 1 GENERAL

1.01 SCOPE

A. This Section shall serve to set requirements for As-Built/Record Drawings submitted to City of Fort Lauderdale.

B. As-Built/Record Drawings shall be submitted prior to placing any mains in service. The approved Final As-Built/Record Drawings are required for Substantial Completion and Conveyance of new water or sewer infrastructure. The infrastructure shall have As-Built/Record Drawings in the format and information specified herein, as recorded by a Professional Surveyor and Mapper (PSM) and prepared in accordance with these guidelines as part of the construction and inspection process.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. The work shall proceed in accordance with the following specification sections, bound herein:

1. Section 01 31 19.13 (01150) – “Preconstruction Conference”
2. Section 01 77 00 (01700) – “Contract Closeout”

1.03 GENERAL

A. The Contractor shall retain the services of a Florida Registered Professional Surveyor and Mapper as a prerequisite to receiving a Notice To Proceed (NTP).

1. Prior to receiving the NTP the Contractor shall provide a letter from the PSM indicating that the Contractor has secured his services to perform all survey work for the duration of the Project, and to prepare final As-built/Record Drawings.
2. Prior to receiving the NTP the Contractor shall provide a copy of the insurance policy declaration page of the surveying company, and the professional Liability insurance coverage.
3. The Surveyor shall attend the Preconstruction Conference. It is the Contractor’s responsibility to have the services of the PSM by the Preconstruction Conference and the PSM in attendance.
4. Donation projects require the Survey Company or PSM to carry professional liability insurance coverage. A copy of the insurance policy including the declaration page shall be provided with the Final As-Built/Record Drawings.

B. The Florida Registered PSM shall maintain records of the installation, including all deviations from Plans and Specifications, and for the purposes of preparing and submitting to the CITY an As-Built/Record Drawing in compliance with:

1. Florida Statutes Chapter 472.027.
2. Florida Administrative Code Chapter 5J-17.
3. As further required by the Contract Documents.

1.04 AS-BUILT SUBMITTAL PACKAGE

A. The Final As-Built/Record Drawing shall be submitted by the Contractor prior to performing the pressure test of the main to be placed into service. The CITY is required to have as-built record documentation of all mains in operation.

B. Donation Projects As-Built Package-Submittal Prior To Pressure Testing and Certification

1. A set of signed and sealed As-Built/Record Drawings (DWFX or PDF file), signed and sealed field book information, electronic field raw data shall be submitted using the applicable CITY's system.
2. As-Built/Record Drawings in digital format DWG.
3. Bill of Materials, Bill of Sale Sketch (completed and signed by the Contractor).
4. Easement(s) legal description and sketch (signed by the owner if part of the project). All surveys for right-of-ways, easements, properties, topographical, boundaries and other special purposes.

C. Monthly submittals (for City contract projects)

1. A set of signed and sealed As-Built/Record Drawings (DWFX or PDF file), signed and sealed field book information, electronic field raw data shall be submitted using the applicable CITY's system.
2. As-Built/Record Drawings in digital format DWG.
3. Final As-Built/Record Drawings shall be submitted as a prerequisite for the last progress payment.
4. Easement(s) legal description and sketch (signed by the owner if part of the project). All surveys for right-of-ways, easements, properties, topographical, boundaries and other special purposes.

D. **Final submittal** shall consist of corrected As-Built/Record Drawings and Documents in digital format (DWG and PDF files), to be submitted using the applicable CITY's system and the following sets of signed and sealed hard copies:

1. Two sets for water main projects,
2. Two sets for gravity and force main sewer projects,
3. For pump stations:
    a. Five sets for donation projects.

b. Three sets for contracts.

4. PSM's signed and sealed copy of the Field Book.

5. For donations, a copy of the insurance policy of the PSM, and the surveying company, including the declaration page.

E. As-Built/Record Drawings signed and sealed by the Florida Registered Professional Surveyor and Mapper and/or Engineer of Record or designated Florida Registered Professional Engineer must comply with format requirements.

1.05 AS-BUILT/RECORD DRAWINGS FORMAT AND GENERAL SUBMITTAL REQUIREMENTS

A. Size shall be 24" X 36".

1. Preferred scales are 1"=20' for contracts and 1"=40' for donations horizontally, and 1"=2' for contracts and 1"=4' for donations vertically. Other scales may be permitted but must be approved by the CITY prior to preparation of the drawings.

2. Provide separate As-Built/Record Drawings and easements for water and sewer conveyances. Where water and sewer are shown on the sewer As-Built/Record Drawings, print dash the water on the sewer As-Built/Record Drawings and show only sewer As-Built information. The same applies for the water As-Built/Record Drawings.

3. Any deviations from the design plans must be approved by the CITY.

B. Quality of As-Built/Record Drawings

1. To ensure that As-Built/Record Drawings may serve their intended purposes, they shall be prepared with consideration for quality. The Inspector and As-Built Reviewer will consider the following elements to ensure the quality of As-Built/Record Drawings:

a. Accuracy: The Contractor is required to have a survey crew record the field information as necessary when there is underground pipe installation. The Florida Registered Professional Surveyor and Mapper shall be responsible for providing measurements in accordance with the standard of practice established in Chapter 5J-17 of the Florida Administrative Code, pursuant to Section 427.027, Florida Statutes. The approved final As-Built/Record Drawing will be used as part of the CITY's GIS and Record System. In addition, the horizontal accuracy shall not exceed 1 foot in 7,500 feet, a commonly value accepted for suburban areas. The elevations shall be based on a closed level between two-benchmarks and shall not exceed the calculated value of a closure in feet of plus or minus 0.05 feet times the square root of the distance in miles.

b. Appearance: As-Built/Record Drawing shall be prepared in a professional manner consistent with common drafting standards for layout, lettering and line work.

c. Understandability: As-Built information shall be portrayed in a manner that is readily understandable by someone not familiar with the specific job.

d. Clarity: Preparer shall endeavor to present As-Built information clearly without "cluttering" the drawing. Do not include or show trees, shrubs, traffic lights or signs, landscaping, etc.

1.06 CERTIFICATION

A. As-Built/Record Drawings shall include a signed, sealed and dated certification statement by the responsible Florida Registered Professional Surveyor and Mapper, that all measurements were recorded under his direction and that they are accurate.

B. Final As-Built/Record Drawings that contain electrical, mechanical or structural work (pump stations, sewage flow meters, etc.), shall be signed and sealed by the Engineer of Record to indicate As-Built conditions.

C. Certifier shall be fully responsible for the accuracy of the As-Built/Record Drawings. As-Built/Record Drawings shall not contain any statement that the information was obtained from another party other than a Professional Surveyor and Mapper under his direction (e.g. a statement such as "As-Built information provided by Contractor" shall not be permitted).

D. The Contractor shall certify on the As-Built/Record Drawings that the As-Built/Record Drawings are correct and accurately depict what was constructed in the field, in addition that all As-Built field information submitted to the EOR or designated Florida Registered Professional Engineer and/or PSM reflects actual field As-Built project conditions, such as:

1. Valves must be identified by size, type, and end condition. On valves 16-inch or larger, the manufacturer’s name and number of turns required to open or close the valve.
2. Pipeline must be identified by type of pipe material, manufacturer, type of joint and type of joint restraint.
3. Types and sizes of sheeting and piling together with location, dimensional, and elevation data on any pile caps, tie backs, anchors, whalers or other appurtenant structures left in place.
4. External wiring has been terminated inside the panel at the designated “terminal boxes” in accordance with the approved electrical schematic and/or shop drawings.
5. The electrical control panel has been installed and its components match approved shop drawings and are in compliance with the CITY’s Standards and Specifications.
6. The electrical power and control diagrams are current and reflect all approved plans and/or field modifications made, if any.
7. The electrical control panel and associated electrical equipment are safe to energize and operate.

E. The electrical control panel manufacturer shall certify that:

1. The installed control panel has been inspected at the job site.
2. The control panel and its components match approved shop drawings and are

in compliance with project's plans and specifications.

3. The control panel and its components have not been modified, changed or altered in any way, shape or form as to void the Underwriter Laboratory (UL) listing.

4. The electrical control panel and its components are safe to energize and operate

1.07 QUALITY ASSURANCE

A. Contractor's Responsibility

1. As-Built/Record Drawing preparation and submittal shall be the responsibility of the Contractor. The final As-Built/Record Drawings shall be completed and submitted to the CITY prior to pressure testing, pending to show only portions of the Project not authorized to be done before certification of the system, such as interconnections, abandonments, cut and plugs, etc.; those activities shall be reflected on the final As-Built/Record Drawing and resubmitted within ten (10) County calendar days after a successful test. Testing will not be considered complete until As-Built/Record Drawings, field book data and other record documents are submitted and approved by the CITY.

2. As-Built/Record Drawings shall be checked by the Contractor for errors and omissions prior to submittal to the CITY.

3. For Donation Projects: A Bill of Materials (on CITY form) shall also be certified as correct by signature and presented at the time of As-Built submission. Quantities shown on the Bill of Materials shall match installed and As-Built quantities, not quantities proposed, bid or bought nor scaled distances or quantities.

B. Professional Surveyor and Mapper Responsibility

1. The PSM shall be responsible for all locations, measurements and associated information on the As-Built/Record Drawings.

2. Infrastructure being shown on As-Built/Record Drawings shall have been located under the direction of a Florida Registered Professional Surveyor and Mapper.

3. As-Built/Record Drawings shall meet the requirements established in these specifications.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. If construction drawings are used to create the As-Built/Record Drawings, all "proposed" construction related information such as "equal to", "typical", "approximately", "shall", etc. shall be removed from As-Built/Record Drawings, leaving

only "As-Built" information reflected on the drawing. Do not remove any information on materials installed. The construction drawings need to be adjusted accordingly to reflect constructed as-built information.

B. Site location sketch shall be provided showing the Project site and surrounding area with all streets clearly named, its own north arrow and a readable scale. The section, township and range shall also be provided therein.

C. Provide separate water and sewer profiles.

D. When the main crosses a utility or structure, the two points providing the clearance shall be identified, measured and recorded. This shall apply to all utilities (water, sewer, sewer laterals, water services, gas, electric, storm, telecommunication, duct banks, etc.).

E. All mains shall be stationed, and all facilities and infrastructure labeled. As-Built/Record Drawings shall show stations for all services. As-Built lengths and distances for service runs shall also be given.

F. Stations shall run along the baseline.

G. For water mains, force mains and gravity sewers use one continuous stationing system.

H. Where different stationing systems cross, show the equation station.

I. Label with station and offset all valves, fittings, services, outlets, manholes, deflection points and other components in the line. The labels, stations and offsets shall coincide, plan and profile.

3.02 REQUIRED INFORMATION AND MEASUREMENTS

A. Set-Up Verification

1. The Contractor’s Florida Registered Professional Surveyor and Mapper is required to recover the design baseline and verify the elevations and coordinates on a regular basis as needed.

2. The Florida Registered Professional Surveyor and Mapper shall establish and maintain throughout the construction the property boundaries and easements of pump stations and any other CITY’s facilities and infrastructure. The PSM shall verify that the work of the Project does not encroach into adjacent (abutting) property. Property corners lost during construction shall be reset at the first opportunity to ensure that the work is done within the designated limits. The PSM shall note on As-Built/Record Drawings any CITY approved encroachments into pump station site (fencing, driveways, etc.).

3. The Contractor is required to have a level instrument setup next to the construction site in order to control the vertical alignment of the pipe installation prior to trench backfilling. The level shall be setup daily for use by the PSM, Contractor’s foreman and CITY Engineer/Inspector.

4. The Contractor is required to have a survey crew record the field information

on a daily basis when there is underground facilities and infrastructure installation. The survey crew shall be on-site as needed to record and verify the information before it is covered. Any underground construction work that does not have the information recorded by a survey crew will be stopped by the CITY Engineer/Inspector. The Engineer/Inspector has the authority to order re-excavation of work that was covered without accurate survey measurements.

B. Field Book Information

1. The Florida Registered Professional Surveyor and Mapper is required to have his crews make daily visits to the Project site during underground pipe installation work to perform field measurements of the Contractor's daily installations. This information shall be recorded in field books. Copies of the field notes are required to be provided to the Construction Manager/Inspector on a monthly basis. The PSM's field notes shall be submitted to the CITY along with final As-Built/Record Drawings (signed and sealed) as a condition of conveyance (for donation projects), or monthly basis as a condition of payment and at substantial completion (for contract projects) before applying for final payment. Electronic field raw data is acceptable.

C. As-Built/Record Drawings Content Requirements and Procedures

1. The following shall be made a part of any As-Built submittal for water or sewer, where applicable:

   a. Project name, Project identification number and the words "As-Built/Record Water" or "Record Drawing Water" or "As-Built/Record Sewer" or "Record Drawing Sewer", all prominently displayed. PMS's or Engineer's name, company, address, phone number and certification statement shall also be displayed.

   b. All applicable permit numbers for the Project shall be shown on the cover sheet.

   c. Graphic and numeric scale, north arrow and any symbol legend needed.

   d. All involved streets shown with centerlines, right-of-way lines, widths and names, with matching plat, if applicable, subdivision name, phase line and number. (Phasing to be nearest valve and manhole in limits of phase area). Show station at all intersecting streets.

   e. All involved lots and blocks shown and correctly designated (to match plat).

   f. All control lines identified (i.e. centerline, section line, monument line, property line, etc.). Identify all streets by name or number.

   g. Baseline shall be tied to centerlines, boundary lines, section corners, or to monument lines or to right-of-way lines. Baselines must show bearings or deflection angles, or delta, radius, chord and arc length for curves.

   h. Pipeline shall be tied to a baseline that is easily identified on the existing or proposed right-of-way. Baseline shall not be on top of the main except for gravity sewers installed on centerlines.

i. Show all horizontal curve data, including point of curvature (PC) and point of tangency (PT) stations or radial bearing.

j. Stationing shall proceed from south to north and/or from west to east. Stationing shall be the same as shown on construction drawings and must be tied to section corners, centerline intersections and all other pertinent control points within the Project. All such pertinent points shall have their stationing shown and where there is dual stationing for a point, both stations shall be called out.

k. Horizontal Control

1) The PSM shall show on the As-Built/Record Drawings the Florida State Plane Coordinate (current readjustment - NAD 83, FLA East Zone 901) with at least two physically located horizontal control points within the Project limits.

2) For As-Built/Record Drawings within CITY facilities with relative coordinates, a coordinate conversion equation needs to be included on every sheet.

l. Vertical Control

1) As-Built/Record Drawing shall use the same datum as per approved design plans.

2) Nationwide, surveys and As-Built/Record Drawings are in the process of conversion to NAVD 88 from the NGVD 1929. The CITY will accept NAVD 88 datum with a conversion factor to NGVD 1929 on each page.

m. Easements

1) Easements, if any, shall be clearly shown with size, coordinates for each corner and tied to the property line. The easements shall be separate for water, sewer, force main and pump stations.

2) Existing easements with Official Record Book (ORB) information must be shown.

3) Easements are required for any infrastructure not in the public right-of-way. An easement may also be required for a main in the public right of way if there is insufficient side clearance to the right-of-way line to permit maintenance of the pipeline (usually 6' for water and 7.5' for force mains and gravity sewer mains on each side measured from the center of the pipe). For pipelines larger than 16-inches in diameter the easement size shall be determined by the CITY.

4) Easement lines shall be tied to the centerline of the main.

n. Tie-in Points

1) All tie-in points, water or sewer shall be tied to the baseline.

2) In instances where this is impractical such as for service installations, the tie-in location may be referenced to a known CITY facility such as a valve or manhole. This facility must be

fully identified with atlas page, CITY As- Built/Record Drawing number and page and its designation and station as given therein. Approval for this method of location shall be secured with the As-Built Reviewer/Inspector.

3) All locations for future connections or tie-ins shall be left unburied and uncovered until the Contractor's Florida Registered Professional Surveyor and Mapper measures and records the As-Built information.

4) Clearly show and label what is new and what is existing at the tie-in points with the CITY As-Built/Record Drawing number identified on the existing main.

o. The ends of all services and laterals shall be fully located by reference to the main and the nearest property line(s).

p. Show all outlets, stub-outs, sewer lateral, water service and any other relevant information. Identify the size, material, length, direction and elevation (top of pipe for water and force main, invert for gravity sewer).

q. On all pipe fittings of 36-inches diameter or larger, including tees, bends, crosses, wyes and bevels, station and elevation shall be taken at the end and center points to reflect the true elevation and orientation of the fitting.

r. Elevations of natural ground or pavement over pipelines shall be shown at each position where the pipe elevation is shown at least every 100 feet on profile view.

s. Show profile view of the main pipeline installation on the same sheet as the plan view. Stationing on both views shall be aligned to facilitate As-Built review.

t. Manhole rim and valve box rim elevations shall be shown.

u. Show all invert and bottom elevations in manholes and valve vaults or boxes.

v. Show all invert and bottom elevations together with pipe size, and where it can be determined, pipe material, for existing structures having pipes which cross the pipe line being constructed within 250 feet of point of crossing.

w. Location, elevation, material and size of all casings shall be shown. Launching and receiving pits location and dimensions shall be shown in case of jack and boring or micro tunneling used for casing installation.

x. Types, sizes of sheeting and piling together with measured and complete locations with dimensions, top and bottom elevations of all sheeting and pile caps, tie backs, anchors, whalers or other appurtenant structures including sheeting left in-place, shall be shown.

y. Where service is not at a right angle (90 degrees) to main line, tie service with length of offset to nearest property line.

z. For Horizontal Directional Drilling installations, in addition to the applicable items already mentioned on this section, As-Built/Record Drawings shall include:

1) Equipment used.

2) Angles at entry and exit and radius.

3) Bore path report to include detection method used, location for both entry and exit referenced to a permanent structure, information of the company collecting the data, such as company name, address, date, staff information who collected the data.

4) The CITY shall be provided with As-Built/Record Drawing for any failed bore path.

aa. Provide State Plane Coordinate values and elevations for all visible features such as valves, fittings, service lines, manholes, fire hydrants, water sampling points, water meters, cleanouts and backflow preventers, utility poles, adjacent to the main, overhead wires crossing the main and other appurtenances along the main. Also provide State Plane Coordinate values for existing valves and manholes at points of connection or closest to the point of connection and the point of connection itself.

bb. Lines that are abandoned in place, placed out of service or removed shall be clearly identified (dashed and bold line type) on the As- Built/Record Drawings to include cut and plug locations, pipe material and existing As-Built location. Include the existing As-Built/Record Drawing numbers. State whether cut and plug was performed by CITY forces.

cc. Include a statement showing work performed by the Contractor under CITY's licensed operator supervision.

dd. Mechanical restraints shall be identified on the As-Built/Record Drawing. The restraint system used shall be identified (gland restrained, joint restrained or gasket restrained). If thrust blocks are constructed, the top elevation, outer dimension, thickness of the block, length and location of any sheet piling, if used, shall be recorded by the Contractor's PSM.

ee. Large diameter concrete transmission mains 42-inches and larger shall show each pipe joint with station and pipe length.

ff. Restrained pipe, end line valves, thrust blocks shall be left uncovered for the last complete length. In line valves and tees shall be left exposed for one length on both sides plus the face end. Measure and record the elevation, horizontal and vertical alignment, and inclination for these items.

gg. For pipeline projects, provide dimensions and elevations of ground and top of pipe every one-hundred feet maximum, or portion thereof along the pipeline, at every significant change on ground elevation, at every horizontal and vertical change in direction and at all fittings, with stations.

hh. If an asset is authorized to be reused, clearly show that asset, such as a fire hydrant, is being reused.

ii. Pipeline must be identified by type of pipe material, manufacturer, type of joint and type of joint restraint.

jj. The identity, dimension, location and elevation of any existing utilities crossing the proposed line and so immediately adjacent to the new line as to be exposed by the excavation shall also be recorded. Locate, excavate, expose and record the same data for any utility shown in the plans whose proximity to the proposed pipeline could affect the certification requirements of the new installation. Note that in instances of a very wide ditch due to ground conditions the recording of data for adjacent, paralleling, utilities shall only be required for lines which come within three feet of the outside (but not less than the minimum required per FAC 62-555.314) of the pipe being installed unless otherwise ordered by the CITY whose decision shall be final.

kk. Specific location and elevation of equipment, buildings and miscellaneous items installed inside the buildings shall be recorded as applicable and as required by the CITY.

ll. Without exception, where the substitution of a piece of equipment for that shown on the Plans has been allowed, the footprint, clearance and elevation dimensions shall be recorded by the Contractor's PSM and these changes shall be accurately and thoroughly portrayed on the As-Built/Record Drawings.

2. As-Built/Record Drawings for **water and sewer force mains** shall additionally include the following:

   a. Plan view showing size, material, offset of main, deflections (if any), stations and offsets of services, hydrants and fittings at the main; and at main, deflections (if any) and the end of the service line.

   b. Profile showing ground and top of pipe elevation every 100 feet, maximum, and at any change in grade (with corresponding station) and at every fitting. Show size and material of pipe, all fittings and extend of restrained pipe with stations. Stationing system shall be the same as that used in the plan view.

   c. Distances from main to all valves, fire hydrants and meter boxes shall be shown. Tie hydrants to right-of-way. In established areas, the PSM shall run-out right-of-way lines.

   d. All "Assembly Detail" shall be provided for all turbo meter installations and for all meters greater than four (4) inches.

   e. Label water service as either double, single, irrigation, and so on, based on type of service, including diameter and material.

   f. When meter banks are used, show typical detail with size of service line, material and type of services.

   g. Location of all air release valves and top of pipe elevation, identifying if the air release valves are automatic or manual.

   h. Valves must be identified by size, type, and end condition. Manufacturer's name and number of turns required to open or close the valve shall be provided for valves 16 inch or larger.

3. Gravity sewer As-Built/Record Drawings shall additionally include the following:

   a. Plan showing manhole numbers and stations, size and material of pipe,

manhole to manhole length and slope in percentage. The size, material, station and lengths of laterals shall also be shown. Stationing shall be in accordance with the approved permit Plans.

b. Profile showing manhole numbers (as per plan), rim elevations, invert elevations in and out of each manhole with directions, length and slope of line. Pipes with a slope less than the minimum recommended by RER (formerly CITY of Environmental Resource Management) minimum for a particular size of pipe shall not be accepted.

c. Stations and offsets of all wyes and tees for laterals and location of cleanouts with distance to property line.

d. Connections to existing sewer collection systems with flow direction shown.

e. Show profile for sewer laterals crossing utilities, with invert elevations at main, at crossings, at change in direction and at clean out, including slope, clearance at crossing and station.

f. When connecting a new main or lateral to an existing main, the As-Built/Record Drawing shall show distance and invert elevations of downstream and upstream existing manholes.

4. The following shall also be included on As-Built/Record Drawings for sewer pump stations and other infrastructure:

a. A complete topographic and boundary survey for the pump station and/or other facilities signed and sealed by the Florida Registered Professional Surveyor and Mapper as part of the As-Built/Record Drawings. All information required of a boundary survey, such as property corners, setbacks, dimensions of the structure and appurtenances, etc. shall be contained on the As-Built/Record Drawings to include the legal description of pump station site and/or other facilities, easements and rights-of-way abutting the pump station site and location of all surface facilities recorded by a PSM. All utilities within pump station property shall be properly shown, along with their associated elevation and clearance.

b. Horizontal and vertical locations of all fittings, deflections, or at any significant change of direction, and at a maximum 25- foot intervals for on-site (e.g. on a facility such as a pump station or plant work).

c. Plan and vertical cross-section of the station showing and identifying the piping and mechanical layout. Show elevations for top of wet and dry wells, bottom of wet well, pipe inverts, finish floor elevation, etc.

d. FEMA flood zone and elevation shall be shown on the cover sheet.

e. Electrical As-Built/Record Drawing control and riser/one-line power schematic diagrams, RTU wiring diagram and all other elevation and any other electrical details.

f. Engineering Report as to the pump manufacturer, size, capacity (TDH), peak design capacity (in GPM) and Bill of Materials (for donation projects).

g. The mechanical, structural and electrical record drawings are to be

prepared by the Engineer of Record or a designated Florida Registered Professional Engineer, each sheet of the record drawings must be signed and sealed by the Engineer of Record or a designated Florida Registered Professional Engineer. The cover sheet is to be signed and sealed by the Engineer of Record or a designated Florida Registered Professional Engineer and shall include the following statement:

1) "I certify that these record drawings have been reviewed by me or by individual(s) under my direct supervision and that these drawings incorporate the information contained in the certified As-Built/Record Drawings. To the best of my knowledge and belief these record drawings substantially reflect the sanitary sewer pump station and/or other infrastructure as constructed, and as depicted on the permit plans including any CITY approved deviations, if any. The accuracy of these record drawings is reliant on the accuracy applied by the PSM that prepared the certified As-Built/Record Drawings, which was [include the PSM's name, business name, PSM number, address and telephone number]. The PSM has certified to me in writing, that the As-Built location information of the sanitary sewer pump station and/or other infrastructure conforms to the standards of practice for land surveying, Chapter 5J-17 of the Florida Administrative Code."

3.03 CITY PROCESSING

A. The CITY will require 10 County calendar days to perform the As-Built review.

B. As-Built/Record Drawings will be initially reviewed, commented and/or recommended to be approved, from construction perspective, by the responsible Field Inspector, who shall verify that they are an accurate representation of the work as installed and that the job as shown is complete and in accordance with the permitted plans.

C. Following the Field Inspector's review, As-Built/Record Drawings will be reviewed in depth by the As-Built Reviewer to ensure compliance with these specifications. The Reviewer will also check the complete package which for donation projects shall include the Bill of Materials.

D. The complete submittal package as defined above shall be delivered using the applicable CITY's system.

E. Cause for Non-Review

1. If review by the As-Built Reviewers reveals excessive errors or omissions, the As-Built/Record Drawings shall be deemed "non reviewable". As-Built/Record Drawings containing excessive errors or omissions shall include those with omission of major sections of the installation, water and sewer As-Built/Record Drawings on same sheet, those lacking large amounts of information and other errors or omissions that are considered excessive in the opinion of the As-Built Reviewer.

2. In cases when an As-Built/Record Drawing is considered "non-reviewable", it shall be marked "Not Reviewable", the reviewer shall note comments regarding obvious problem(s) and shall be returned to submitter. Such As-Built/Record Drawings will not be considered as having been reviewed for the purposes of Sub-section F, Punch List, below.

F. Punch List (for donation projects only)

1. Punch List items may be generated from the CITY initial review. Successive reviews are solely for the purpose of ensuring that original punch list items are completely and correctly done to obtain a final As-Built/Record Drawing acceptable to the CITY.

2. Successive punch list items may only be added to correct a problem resulting from submitter's efforts to comply with the original punch list. The CITY will prevent adding new punch list item(s). Submitter shall be required to make these successive changes.

3. In the case of a major oversight on the part of the As-Built Reviewer, punch list items may be added to the list or requested to the submitter after the valid time for such items. The CITY requires that all corrections be made as a condition of accepting the final As-Built/Record Drawings.

G. Acquisition and Resubmittal

1. After notification from the CITY, DWFX and/or PDF file with markups along with the As-Built punch list (donation projects only) can be obtained from the applicable CITY's System.

2. After making the corrections requested on the As-Built/Record Drawing set and punch list, upload the revised package to the applicable CITY's System. On contracts, contractor shall resubmit corrected As-Built/Record Drawings to the CITY within 10 County calendar days for contracts

3. The CITY will require 10 County calendar days to perform the As- Built/Record Drawing review.

H. Disputes or Interpretation

1. Resolution of disputes and interpretation of these requirements is the responsibility of the As-Built Reviewer. Submitting parties are urged to work with him to resolve any problems of this nature.

2. Where necessary, the submitting party may request a hearing with the CITY's PSM in matters of dispute or interpretation. The CITY's PSM's decisions shall be final.

END OF SECTION

SECTION 01740
PERMITS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Where CITY has obtained various permits for this Project, copies will be appended at the rear of the Specifications.

B. The Contractor shall be familiar with, and comply with, all requirements of these permits. All other necessary permits shall be obtained by the Contractor and be paid for as specified below in 1.01, G.

C. Unless otherwise specifically stated elsewhere in the Contract Documents, Supply Plans and Calculations for work not designed by CITY that are preponderantly of a structural nature shall be signed and sealed by a Professional Engineer registered in the State of Florida as stated in the Florida Building Code; Section 104.2.1, 104.2.2; and Section 202 which each read as follows:

1. All information, Plans, Specifications and accompanying data shall bear the name and signature of the person responsible for the design.
2. Design professional: If the design professional is an architect or engineer legally registered under the laws of this state regulating the practice of architecture or engineering, then he/she shall affix their official seal to said Plans, Specifications and accompanying data, as required by Florida Statute.
3. Engineer: A Florida-registered engineer (Section 202).

D. The Contractor's particular attention is called to any Special Conditions of the permits relating to construction procedures, excavation and backfill requirements, open trench restrictions, turbidity control and all other general and special conditions, including flowable fill and pavement details. In the event any of the conditions of the permits are in conflict with the requirements of these Specifications, the more stringent conditions shall take precedence. The Contractor is to conform to all regulations of the governmental agencies having jurisdiction over this work, whether or not included in the permit.

E. Any deviations from the Plans, Specifications or permits appended thereto, must first be approved by the Engineer even if approval for the change has been given by the permitting agency.

F. The Contractor shall assume throughout the life of the Contract all obligations and responsibilities imposed on CITY as permittee of the above-mentioned permits. All expenses necessary for compliance with the regulations and requirements of each permitting agency and its permit shall be borne by the Contractor, and shall be included in the overall bid price.

G. The cost of any fees such as impact fees, inspection fees, etc. and the cost of all required permits shall be borne by CITY. The Contractor shall pay the required fees,

obtain the permit(s) and then upon submission of proof of cost to CITY, be reimbursed for said cost out of the Approved Permit Fee Reimbursement Item. This shall apply only to required permits and fees. Permits obtained or fees paid for the advantage of the Contractor or non-required permits obtained for whatever reason shall not be reimbursed. The necessity or non- necessity of a permit or fee shall be determined by the Engineer whose word shall be final. As specified in the paragraph above, all costs of compliance with the permit(s) shall be borne by the Contractor and included in the bid price.

H. All surveying required by the Project permits shall be done by the Contractor's Florida Registered Surveyors and Mapper. This includes staking out limits of construction, maintaining baselines and preparing monthly as-builts.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01750

MAINTENANCE OF TRAFFIC AND PUBLIC STREETS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall be responsible for providing the Engineer with Maintenance of Traffic (M.O.T.) plans for lane closures and/or detours for approval. These M.O.T. plans shall be produced by an individual employed by the Contractor and certified as "Work Zone Traffic Safety Supervisor" by the American Traffic Safety Service Association, ATSSA.

B. The Contractor shall be responsible for the maintenance of public streets and traffic control for the duration of the project. The cost of Traffic Control including the cost of any required off duty police officers shall be included under the appropriate bid item in the Proposal. If no bid item for this is included, said costs shall be included in other appropriate items of the bid and no extra compensation will be allowed.

1.02 REGULATIONS

A. As used herein, any reference to City of Fort Lauderdale, Broward County, or its published regulations, permits and data, shall be synonymous and interchangeable with other recognized governing bodies over particular areas or streets, or their CITYs, published regulations, permits or data. The Contractor shall abide by all applicable laws, regulations, and codes thereof pertaining to maintenance of public streets, detour of traffic, traffic control and other provisions as may be required for this Project.

1.03 MAINTENANCE OF TRAFFIC (M.O.T.)

A. The Contractor shall be fully responsible for the maintenance of public streets, detour of traffic (including furnishing and maintaining regulatory and informative signs along the detour route), traffic control, and other provisions throughout the Project as required by the City of Fort Lauderdale, Broward County Highway Engineering Division, FDOT or other governing agency. Traffic shall be maintained according to corresponding typical traffic control details as outlined in the Broward County or FDOT Manual. No street shall be completely blocked, nor blocked more than one-half at any time, keeping the other one-half open for traffic, without specific approval.

B. If required by the Traffic Division, the Contractor shall make arrangements for the employment of uniformed off-duty policemen to maintain and regulate the flow of traffic through the construction area. The number of men required and the number of hours on duty necessary for the maintenance and regulation of the traffic flow shall be subject to their approval. The cost of such off-duty policemen shall be paid from the Quotation Item established for this purpose. If required by traffic control permits or agencies, the Contractor shall work, odd or night hours, as required for traffic control reasons, and the cost of such work shall be considered as incidental to construction and no extra compensation will be

allowed.

C. The Contractor shall provide all barricades with warning lights, necessary arrow boards and signs, to warn motorists of the work throughout the Project. Adequate approved devices shall be erected and maintained by the Contractor to detour traffic.

D. Excavated or other material stored adjacent to or partially upon a roadway pavement shall be adequately marked for traffic safety at all times. The Contractor shall provide necessary access to all adjacent property during construction.

E. The Contractor shall be responsible for the provision, installation and maintenance of all traffic control and safety devices, in accordance with specifications outlined in the Broward County and FDOT Manual. In addition, the Contractor shall be responsible for the resetting of all traffic control and information signing removed during the construction period.

F. Where excavations are to be made in the vicinity of signalized intersections, the Contractor is alerted that vehicle loop detectors may have been embedded in the pavement. Every effort has been made to show the approximate locations on the Plans; however, the Contractor shall verify these locations by inspecting the site of the work and by contacting the Traffic Division. Any loop detector which is damaged bythe Contractor, whether shown on the Plans or not, shall be repaired or replaced by the Contractor, at his expense, and to the satisfaction of the Traffic Division.

G. Where applicable, the Contractor shall notify the Traffic Division 24 hours in advance of the construction date or 48 hours in advance of construction within any signalized intersection.

H. Temporary pavement will be required over all cuts in pavement areas, and also where traffic is to be routed over swale or median areas. When the temporary pavement for routing traffic is no longer necessary, it shall be removed and the swale or median areas restored to their previous condition.

I. Pavement markings damaged during construction shall be remarked, as required by the Traffic Division.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 02230
CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Clear and grub the areas to be occupied by the facilities or utility systems to be constructed, including all areas to be excavated, filled, paved or planted as shown on the approved plans and as specified herein.

1.02 DEFINITIONS

A. Clearing shall consist of the cutting, removal and satisfactory disposal of all trees, stumps, brush, shrubs, rubbish and any other objectional material within the designated areas.

B. Grubbing shall consist of the removal and disposal of all stumps larger than 1-1/2 inches in diameter and other objectional material to a depth of at least 12 inches below the ground surface.

1.03 QUALITY ASSURANCE

In the course of the work, it may become to remove trees if they interfere with the work. Broward County and various municipalities have ordinances regulating the removal, relocation and pruning of trees in the public right-of-way, these ordinances shall be strictly adhered to. The Contractor shall obtain a permit from Broward County and/or other regulatory agencies having jurisdiction over the work area before removing, relocating and/or pruning any tree. The Contractor shall comply with all requirements and conditions of the permit.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 CLEARING AND GRUBBING

A. The Contractor shall remove and replace, where required all existing shrubbery, trees, grass, sprinklers, fences, signs, mailboxes, structures, roadways, sidewalks, curbs and similar items or structures in the way of all excavation necessary for the construction of the project.

B. Where pavements or sidewalks are cut, they shall be cut by means of a mechanical pavement saw to form true and straight edges. Where such cutting is for the purpose of pipeline installation, saw cutting shall be either parallel or at right angles with the centerline of the pipe,

C. To protect himself from being held liable for any existing damaged pavement, including detour routes, the Contractor is advised to notify in writing the authority having jurisdiction, prior to proceeding with any work in the vicinity.

3.02 PROTECTION OF ADJACENT AREAS

The Contractor shall protect areas shown on the Drawings or designated by the Engineer of Record to remain protected from damage by construction operations by erecting suitable barriers of other acceptable means.

3.03 DISPOSAL

All roots, vegetation and other refuse removed from the site during clearing and/or grubbing operations shall be legally disposed of by the Contractor. Where required, the Contractor shall obtain a permit from Broward County and/or other regulatory agencies having jurisdiction over the work area before burning any material on the site.

- END OF SECTION -

SECTION 02315

TRENCHING AND BACKFILLING FOR PIPING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included under this Section consists of excavating, backfilling and compaction as required for the construction of the piping systems as specified herein. (See Section 02314 for excavation for structures.)

B. All excavations shall be executed in accordance with the South Florida Building Codes, the State of Florida Trench Safety Act (TSA), OSHA requirements and all applicable requirements of Section 01016, including notification of Sunshine State One-Call Center (1-800-432-4770), 48 hours prior to any excavation.

PARTS 2 - PRODUCTS

2.01 BACKFILL MATERIAL

A. Except where a 1:10 cement/sand or flowable fill concrete mix is required (See Section 02745), granular soil backfill materials shall be utilized. Suitable backfill material shall be clean, shall not be expansive nor have high organic content, shall be free of clay, marl, unstable materials, debris, lumps and clods, and shall meet the following requirements:

1. Maximum Liquid Limit shall not exceed 12 as determined by ASTM D 423.

2. Maximum Plasticity Index shall not exceed 35 as determined by ASTM D 424.

3. Not more than 10 percent of weight shall be finer than 74 micron (No. 200) U.S. Standard Sieve.

B. Backfill material containing limerock shall have sufficient sand to fill the voids in the limerock. No stones or rocks larger than 6-inches in diameter will be permitted in any backfill. Backfill material placed to a point at least one foot (1 ft.) above pipe and appurtenances shall be select backfill material not exceeding 2-inches in diameter. For PVC gravity sewers backfill material placed at least two feet (2 ft.) above pipe shall be select backfill material not exceeding 2-inches in diameter. In any case, above this point, but up to the upper 6-inches of the trench, backfill shall be of material not exceeding 6-inches in diameter.

C. Debris, broken paving or broken concrete shall not be used.

D. Material for backfill may be material resulting from excavation, only if it meets the above mentioned requirements, or if suitable in the opinion of the CITY. If sufficient suitable backfill material, including select backfill material, is not available from the site, additional material shall be furnished.

2.02 SELECT BACKFILL MATERIAL

Select backfill material specified in these specifications or required by the Plans shall meet all the general requirements for backfill material set forth above, and in addition, shall be free of any rocks or stones larger than 2 inches in diameter. Select backfill for copper tubing shall be limerock screenings or sand. Select backfill material may be material resulting from excavation, if suitable in the opinion of the CITY, carefully selected to comply with these requirements.

2.03 BEDDING MATERIAL

Pipe bedding material shall consist of one of the following types of material, and accordance with the CITY's Standard Details.

A. Bedding may be select backfill material, as specified above, if approved by the CITY.

B. Crushed stone (or drainfield limerock) shall be used for bedding of piping (except for copper pipe) and/or manholes as shown on the Standard Details. Crushed stone shall consist of hard, durable, sub-angular particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines and other deleterious materials. The stone shall conform to the requirements of ASTM C 33, Size No. 57 (3/4-inch rock) and be graded within the following limits:

Sieve Size	Percent Finer by Weight
1 ½-inch	100
1-inch	95 to 100
½-inch	25 to 60
No. 4	0 to 10
No. 8	0 to 5

C. Sand for bedding copper pipe shall be a dry screened sand. Sand shall be graded sand with 100 percent passing a 3/8-inch sieve and not more than 5 percent passing a No. 200 sieve.

D. Limerock screenings, sand or other fine material shall not be used for bedding.

E. All pipe bedding material shall be new, unless otherwise approve by the CITY. Existing pipe bedding material may not be used.

2.04 BACKFILL UNDER MANHOLES AND METER VAULTS

Any excavation below the levels required for the proper construction of manholes or meter vaults shall be filled with Class C concrete. The use of earth, rock, sand or other materials for this purpose will not be permitted. (See Section 02314 for excavation for structures.)

PART 3 - EXECUTION

3.01 CLEARING

A. The Contractor shall perform all clearing necessary for the proper installation of all piping and appurtenances in the locations shown in the Drawings, in accordance with Section 02230, "Clearing and Grubbing".

B. Where required, all existing shrubbery, trees, grass, sprinklers, fences, signs, mail boxes, structures, sidewalks, curbs, utility poles or structures subject to damage resulting from the excavation should be transplanted, relocated, braced, shored, or otherwise protected and preserved.

3.02 EXCAVATION

A. The Contractor shall perform all excavation of every description and of whatever substances encountered, to the dimensions and depth shown on the Drawings. All excavations shall be made by open cut.

B. When the walls of the excavations are to be kept vertical and in order to protect the safety of workmen, the general public, this or other work or structures, or excavation walls, or pipe installation including materials encountered in the excavation which have a tendency to slough or flow into the excavation, undermine the banks, weaken the overlying strata, or are otherwise rendered unstable by the excavation operation shall be retained by steel sheeting, stabilization, grouting or approved methods. Said methods shall comply with the Trench Safety Act (TSA). Sheeting and shoring or other approved method shall be designed by a Professional Engineer licensed to practice in the State of Florida.

C. In areas where trench widths are not limited by right-of-way or easement widths, property line restrictions, existing adjacent improvements including pavements, structures, and other utilities, and maintenance of traffic, the trench sides may be sloped to a suitable angle of repose of the excavated material, but only from a point one foot above the crown of the pipe.

D. A substantially and safely constructed moveable shield or box, as approved by the Engineer of Record, may be used in place of sheeting, except where specifically called for on the Plans to install sheeting. Where a moveable shield or trench box, is used in place of sheeting and shoring, the trench shall be opened immediately ahead of the shield as pipe laying proceeds inside the shield.

E. Ladders or steps shall be provided for and used by workmen to enter and leave trenches.

F. Materials removed from the trenches shall be stored and disposed of in such a manner that they will not interfere unduly with traffic on public streets and sidewalks. In congested areas, such materials, cannot be stored adjacent to the trench nor used immediately as backfill, shall be removed to convenient places of storage. If any material is creating a public hazard or other unsafe condition, it shall be removed immediately to a storage area.

G. Materials suitable for use as backfill be hauled to and used in areas where not enough suitable material is available from the excavation. Material unsuitable for use in backfill shall be removed promptly and disposed of by the Contractor

H. Excavation for Pipes and Piping Appurtenances (See Section UC-300 for additional

requirements for gravity sewer piping):

1. Clear, as stated above, all existing items or structures in the way of the proposed pipeline or structures and excavate as necessary to the lines and grades shown on the Plans.

2. Where pavements or sidewalks are cut they shall be cut by means of a mechanical pavement saw to form true and straight edges which shall in general be either parallel or at right angles with the centerline of the pipe.

3. In order to protect himself from being held liable for any existing damaged pavement, including detour routes, the Contractor is advised to notify in writing the authority having jurisdiction over the street where such defective pavement exists prior to proceeding with any work in the vicinity. A copy of all such notices shall be forwarded to the CITY.

4. Excavate pipe trenches to a minimum of 6-inches below the outside bottom of the proposed pipe barrel to provide for the installation of the bedding material.

5. If, in the opinion of the CITY, the soil at that depth is unsatisfactory as foundation material because it contains unsuitable marl, muck, organic matter, or other unsuitable material, the excavation shall be continued 2 feet deeper, except if a suitable foundation material is exposed at a lesser depth, further excavation will not be required.

6. If the soil is still unsuitable after the additional excavation as prescribed above, the trench bottom shall be excavated further in one foot increments in accordance with "Trench Overcut", below.

7. Sheeting and shoring shall be installed where necessary to control trench width, protect the workmen and the general public, and prevent damage to this or adjacent work, or structures.

8. Where wood sheeting or certain designs of steel sheeting are used, the CITY may require the sheeting to be cut off at a level 2-feet above the top of the installed pipe and that portion below that level shall be left in place.

9. If interlocking steel sheeting is used, the CITY may permit its complete removal in lieu of cut-off, providing removal can be accomplished without disturbing the bedding, pipe or alignment of the pipe. Any damage to the pipe bedding, pipe or alignment of the constructed utility caused by removal of sheeting shall be cause for rejection of the affected portion of the work. Not more than 100-feet of trench shall be opened ahead of pipe laying operations at one time unless a greater length of open trench is approved by the CITY.

10. Trench widths, when measured at a point 12 inches above the top of the pipe, shall provide a 12-inch maximum clearance on each side, between the outside of the pipe barrel and the face of the excavation, or sheeting if used. Minimum trench width shall provide at least 6-inches clearance on each side, between the outside of the pipe barrel and the face of the excavation, or sheeting if used.

11. Excavation for appurtenances, such as manholes and valves, shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation or sheeting, if used, of not less than 12-inches. Manhole excavations shall be carried to sufficient depth to permit their construction on the undisturbed bottom of the excavation.

12. Excavation for thrust block shall be made in such a manner so that, when concrete is placed, it will bear against a firm, undisturbed, vertical trench wall with bearing are in accordance with the schedule shown in the Standard Details.

13. Selected backfill shall then be placed and compacted in 6-inch layers up to the level of the pipe bedding material.

14. When the pipe to be installed in a trench requires the pipe installers to work under and around the pipe, the Contractor may request the CITY that he be allowed to exceed the 12" maximum clearance, specifying the clear distance desired. The decision of the CITY in this regard shall be final.

15. The ends of existing mains shall be temporarily capped or plugged to keep them clean and the ends of all mains shall be temporarily anchored to keep the joints from blowing apart from internal pressure until the new mains can be reconnected to them.

16. In addition to specific construction methods specified, the general requirements in subsequent subsections, below, shall apply to the work of this project.

I. Excavation for PVC Gravity Sewers and Service Laterals:

1. The Contractor shall make all excavations necessary for the construction of the gravity sewers and service laterals to the lines and grades shown on the Plans, and in accordance with the Standard Details.

2. In stable soils, trench widths when measured to a point 12 inches above the top of the pipe shall provide a 12-inch maximum clearance on each side, between the outside of the pipe barrel and the face of the excavation, or sheeting if used. Minimum trench widths under the same conditions shall be 6-inches on each side for the pipe for 4-inch and 6-inch pipe, and 9-inches on each side of the pipe for 8-inch pipe and larger. Minimum trench widths are required to provide room for a man to place and compact the haunching and initial backfill material. Embedment material shall be Class I. (See Section UC-300)

3. In unstable soils (defined as peat, much or other organic soils, elastic silts and clays below the water table, and fine sands below the water level), trench widths when measured at a point 12-inches above the top of the pipe shall be a minimum of five (5) nominal pipe diameter in width. Slightly greater width are at the Contractor's option in order to accommodate his trenching equipment, but the pipe bedding material shall extend to the face of the excavation, or sheeting if used. Embedment material shall be Class II. (See Section UC-300)

3.03 TRENCH STABILIZATION

Trench bottoms which are rendered soft or unstable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other causes, shall be stabilized. In no event shall pipe be installed when such conditions exist. The Contractor shall correct such conditions so as to provide proper bedding or foundations for the proposed installation.

3.04 TRENCH OVERCUT

A. If, after excavating the trench to a depth of 2 feet 6 inches below the outside bottom elevation of the proposed pipe barrel, and the soil at that depth is still unsatisfactory as foundation material because it contains marl, muck, organic matter, or other unsuitable material, the pipe trench shall be excavated further in one-foot depth increments until a suitable foundation material is found.

B. Select backfill, as defined above, shall then be compacted in 6-inch layers up to the bottom of the proposed 6 inches of pipe bedding.

3.05 REMOVAL OF WATER

A. It is a basic requirement of these Specifications that excavation shall be free from water before pipe or structures are installed. However, it is realized that in certain sections of the work this cannot be accomplished economically and the Contractor may request permission to use the "Alternate Method of Construction" defined below.

B. The Contractor shall provide all necessary pumps, underdrains, well point systems, and other means for removing water from trenches and other parts of the work including structures. The Contractor shall continue dewatering operations until the backfill has progressed to a sufficient height over the pipe to prevent flotation or movement of the pipe in the trench, so that the backfill is above the natural water level.

C. Where applicable, the Contractor shall be required to obtain all necessary permits approving the location and proposed method of disposal before discharging water from any excavation into any portion of the public right-of-away or into any existing drainage structure or facility.

D. Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the work completed or in progress, to the surface of the streets, or to cause interference with the use of the same by public. Submit the proposed method of handling and disposal of trench waster for approval before starting the excavation.

E. The Contractor is cautioned that the City of Fort Lauderdale, Broward County or other governing body having jurisdiction over the work location may have regulatory rules and ordinances prohibiting, or limiting, the discharge of water from any excavation into sanitary and storm sewer systems, or to canals and drainage ditches. Obtain all necessary permits approving the location and proposed method of disposal before discharging water from any excavation into any portion of the public right-of-way, or into any existing drainage structure or facility.

F. Pumps and engines for dewatering systems shall be operated with mufflers and a minimum noise level suitable to a residential area. The Contractor shall be responsible for any nuisance created due to the disposal of the water from his discharge system.

3.06 INSTALLATION OF BACKFILL

A. Any work which is covered or concealed without the knowledge and consent of the CITY shall be uncovered or exposed for inspection. Partial backfill may be made to help restrain the pipe during pressure testing, if previously authorized by the CITY.

B. The Contractor shall backfill all trenches and other excavations made in the process of installing the pipe. He shall maintain the surface of the backfill free from major irregularities and potholes.

C. Select backfill material shall be placed under and around the pipe to one foot above the crown (or to two feet above crown for PVC gravity sewers) in 6-inch layers. Each layer shall be thoroughly compacted to at least 90 percent of maximum density as defined by AASHTO Standard No. T-180, "Moisture-Density Relations of Soils using a 10-lb. (4.54 kg.) Rammer and an 18-in. (457 mm) Drop". The material in the ditch may be compacted by either hand tamper or a mechanized power tamper, provided the results obtained meet the continued approval of the CITY. Particular attention and care shall be exercised in obtaining thorough support for the branch of all service connection fittings. Care shall be taken to preserve the alignment and gradient of the installed pipe.

D. Backfilling and compacting of material lying above a point one foot, above the crown of the pipe and below the pavement base or the surface of the ground, if out of pavement, shall be accomplished in layers not exceeding 9 inches in thickness. Each layer shall be thoroughly compacted with a powered hand tamper or a mechanized power tamper to at least 98 percent of maximum density as determined by AASHTO Specification T-180 or such greater density as may be required by the governing authority over the area in which the work is performed. A testing laboratory will make periodic field tests to determine the density being obtained in each lift, or layer, or the backfill. When compacted backfill fails to meet the specified percentage of maximum density as shown by test results, it shall be reworked and recompacted, and then retested. The reworking, recompacting and retesting of the backfill shall be repeated as many times as may be necessary to obtain compacted backfill with density meeting or exceeding the specified percentage as indicated by test results.

E. The Contractor shall exercise proper care to insure that no pipe will be broken or displaced through the use of the type of mechanical compacting equipment he selects. Water shall be added as required to obtain optimum moisture to facilitate compaction, but ponding or inundation of backfill will not be permitted. These ponding limitations shall not prohibit backfill in a wet trench up to the level of the natural water table if the "Alternate Method of Construction" is utilized.

F. Backfill shall in general be kept up with the rate of pipe laying. The backfill up to the springline of the pipe shall be placed as soon as practical after the laying of the pipe. On parts of the line where ground water level may be high enough to float the pipe, the placing of the backfill and the rate of pumping the trench shall be so controlled as to prevent the pipe from floating or moving from the line and grade shown on the Plans.

G. In the event that sufficient suitable material is not available at any point to properly backfill the trench, the Contractor shall transport suitable material from points of the line where such material is available or shall otherwise furnish suitable material.

H. Suitable material in excess of all backfill requirements and all unsuitable material shall be removed from the work and disposed of by the Contractor.

I. Within paved areas of trench excavation, the base and surfacing shall be reconstructed as specified under Section 02745, "Pavement Removal and Replacement".

J. Where cuts have been made through unpaved, stabilized rock roadways, driveways and parkways, surface restoration shall consist of 3 inches of compacted limerock overlaid by 3 inches of gravel or graded and washed rock with a maximum diameter of ½-inch, except as otherwise directed by the CITY. The rock shall be installed over the entire width of the disturbed area and shall closely match the existing rock at each location. Several grades of rock may be required to attain this end, but it is not anticipated that more than one grade will have to be used at any one location.

K. Backfill for Structures: See Section 02314.

3.07 INSTALLATION OF PIPE BEDDING - FORCE MAIN AND WATER MAIN

A. As described above, all pipe trenches shall be excavated to a level 6-inches below the outside bottom of the proposed pipe barrel. The resulting excavation shall be backfilled with approved pipe bedding material, up to the level of the outside bottom of the proposed pipe barrel. This material shall be tamped and compacted to provide a proper bedding for the pipe and shall then be shaped to receive the pipe, including recesses for the pipe bells and couplings. Placing and compacting bedding up to the level of the lower one-third of the pipe barrel shall immediately follow the installation of the pipe. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.

B. Select Backfill material may be utilized where the excavated trench bottom is above water.

C. Any excavation below the levels required for installation of the pipe bedding shall be backfilled with approved bedding material, tamped, compacted and shaped to provide proper support for the proposed pipe.

D. For installation of gravity sewers, see Section UC-300, "Gravity Sewer Pipe Foundation".

3.08 COMPACTION AND DENSITIES

A. Methods of control and testing of backfill construction to be employed in this work are:

1. Maximum density of the material in trenches shall be determined by AASHTO Designation T 180.

2. Field density of the backfill material in place shall be determined by AASHTO Designation T 238.

B. Laboratory and field density tests are necessary to establish compliance with the compaction requirements of these specifications. The CITY will not accepts projects for which successful laboratory and field density test results are submitted. Tests will be made at depths and locations to the satisfaction of the CITY.

C. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured.

3.09 ALTERNATE METHOD OF CONSTRUCTION

A. General:

1. A combination of conditions in the substrata, water table, or method of disposal may be encountered during the course of the work which make dewatering impossible, or only possible through the use of unusual methods, the cost of which is excessive. When such conditions are encountered, but only after all reasonable means to dewater the excavation have been employed without success, the Contractor, with the concurrence of the CITY may elect to employ the following alternate method of construction. The concurrence of the CITY shall be obtained and the Contractor shall limit the use of the alternate method of construction to such specific portions of the work as determined applicable.

2. The requirements set forth in other sections of these Specifications shall establish the required standards of construction quality for this work. Use of the alternate method of construction described hereinafter shall in no way be construed as relieving the Contractor of his basic responsibility for satisfactory completion of the work.

3. Subject to all of the requirements stated hereinabove, including approval by the CITY, construction will be permitted in accordance with the following specifications.

B. Removal of Water: The installation of pipe, manholes and appurtenances under water will be permitted and the dry-trench requirements of "Removal of Water" will be waived.

C. Excavation: Excavation shall be performed in accordance with normal applicable excavation specifications.

D. Pipe Bedding for Ductile Iron and Vitrified Clay Pipe:

1. Pipe bedding shall be placed from 6-inches below the outside bottom of the proposed pipe barrel up to the level of the springline of the pipe barrel of gravity sewers and to the level of the lower one-third of the pipe barrel for force mains or water mains. The bedding material shall be washrock, drainfield limerock or approved material. Limerock screenings, sand or other fine organic material shall not be used.

2. The bedding material used shall be tamped and graded to provide a proper bedding for the pipe and shall then be shaped to receive the pipe. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.

E. Bedding for PVC Pipe: The pipe bedding, haunching and initial backfill material shall conform to embedment material listed in Section UC-300 for either stable or unstable soil conditions as required, and shall be placed and compacted in as stated in "Installation of Pipe Bedding", above.

F. Backfill:

1. After the pipe is installed, backfilling shall proceed in accordance with the provisions of "Installation of Backfill", except that select backfill material or pipe bedding material shall be used to backfill around the pipe and to a level one foot above the outside top (crown) of the pipe. Under no circumstances shall material other than select backfill or specified pipe bedding material be considered satisfactory for this purpose.

2. If the Alternate Method of Construction is used, all backfill material, shall be carefully lifted into the trench and released to fall freely therein when the bucket or container is near or at a moderate height above water level. Height of release shall be to the satisfaction of the CITY. Below the existing water level, and to a point not more than 18-inches above the water level, the backfill material shall be carefully placed into place in uniform layers, of equal depth on each side of the pipe. From a point not more than 18-inches above the water level, and below the pavement base or the surface of the ground if out of paving, backfill material shall be placed and compacted for normal backfilling as provided in "Installation of Backfill" and "Compaction and Densities".

3.11 RESTORATION OF EXISTING SURFACES

Paved and grassed areas disturbed by the operations required under this Section shall be restored as indicated on the approved Plans and/or specified herein.

END OF SECTION

SECTION 02505
CLEANING AND TESTING OF MAIN

PART 1. GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all material, labor and equipment necessary to clean and test the force main and/or water main.

B. Pipelines for Potable Water Mains shall be pressure tested at 150 psi for a minimum of two (2) hours in accordance with FDEP requirements.

C. The Contractor is advised that he is solely responsible for any damage caused to the main or it's lining by cleaning operations and he shall be required to repair or replace, as required by the CITY, any damaged pipe or lining.

D. Potable water mains shall be disinfected and approved for use by FDEP prior to placing the main in operation.

1.02 SUBMITTALS

A. Prior to cleaning operations, submit in writing to the Engineer, the make, model and characteristics of the pig to be used in cleaning operations.

B. If the pig has not been previously approved for this use by the CITY, the submittal shall be a formal shop drawing submittal for approval and accompanied by a letter signed by a responsible officer of the manufacturing firm specifically stating that the submitted item will not damage the lining or pipe and that it is suitable for cleaning pipe of the diameter and lining type utilized in the project.

C. Single submittals may be made to qualify different types of pigs for different linings or sizes of pipe but only one manufacturer's products shall be included in a particular submittal.

1.03 QUALITY ASSURANCE

A. Testing shall be in accordance with ANSI/AWWA Standard C-600, latest edition.

B. Cleaning and testing shall be performed in strict accordance with these specifications.

C. The Contractor is cautioned that Broward County or other governing body having jurisdiction over the work location may have regulatory rules and ordinances prohibiting or limiting the discharge of water from any excavation into sanitary and storm sewer systems, or to canals and drainage ditches. The Contractor shall comply with all regulations of all governing agencies.

PART 2. PRODUCTS

2.01 MATERIALS

A. Pig for cleaning lines: Bare Swab No. 5B; density, 1 lb./ft.^{3}; Knapp Polly Pig, Inc., 1209 Hardy Street, Houston, Texas 77020, 1-800-231-7205, or approved equal.

PART 3. EXECUTION

3.01 CLEANING

A. As soon as the installation of each run of force main and/or water main is completed, and prior to installation of valves on the main in positions which would interfere with the cleaning operation, the line shall be cleaned by use of a pig with characteristics as specified above. The pig shall be driven through the line by water pressure and no cables, push rods or other mechanisms that might damage the pipe or lining shall be utilized in this operation.

B. Thorough pigging will be required and operations shall be sufficient to remove all deleterious materials left in the pipe by construction and shall meet the Engineer's approval. If required by the CITY, pigging operations shall be scheduled to allow observation by the CITY and no extra compensation will be allowed for such scheduling.

C. The Contractor shall furnish and install all piping necessary to carry out pigging operations, dispose of water and debris from the operation, and shall exercise care to prevent any damage to the surrounding area and adjoining or adjacent properties. The Contractor shall furnish either a new or in new condition pig for cleaning operations and the CITY reserves the right to reject the pig and require provision by the Contractor of a new replacement at no additional cost to the CITY.

D. The Contractor is required to install nightcaps, plugs or other devices acceptable to the Engineer at the open ends of the pipe installation at the end the work day. This requirement shall apply to installations both above and below the water table.

3.02 TESTING

A. The test pressure for potable water mains shall be 150 psi. The test pressure for sewage force mains shall be 100 psi.

B. After the main has been cleaned to the satisfaction of the Engineer, any valves which could not be placed prior to pigging operations shall be installed using care to prevent entrance of deleterious materials into the cleaned main or valve body. Thereafter the main shall be tested between line valves unless otherwise specified or permitted by the Engineer. Corporation stops shall be installed prior to testing and shall be included in the test with no leak permitted.

C. All fire hydrants, corporation stops, air release valves, flushing valves, and meter valves in the section being tested shall be opened and left open until water comes out of them, in order to remove as much air as possible from the line.

D. The Contractor shall furnish and install all necessary pumps, piping and fittings, including the corporation stop, to connect the section under test to the source of water. The test pump shall be a centrifugal or gear pump producing a steady pressure free of pulsation. Water from a fire hydrant shall be measured with a meter.

E. The Contractor shall furnish and install all necessary pumps, piping and fittings, including the corporation stops, to connect the section under test to the source of water. The test pump shall be a centrifugal or gear pump producing a steady pressure free of pulsation. The test pressure shall be maintained throughout the duration of the test. Unless otherwise permitted by the Engineer, no static testing will be allowed.

F. All corporation stops in the section being tested shall be opened and left open until water comes out of them, in order that as much air as possible may be removed from the line. Water shall be pumped into the line through the meter up to the required pressure, and pumping shall be continued to maintain that pressure for a period of 2 hours, or such longer period as the Inspector requires to inspect the line for leaks. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain the specified leakage test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

G. Since the allowable leakage is defined in gallons per hour, testing shall be conducted in, at a minimum, two independent 1 hour test periods.

H. The maximum allowable leakage for ductile iron mains shall be determined by the following formula from the ANSI/AWWA Standard C600 "Installation of Ductile-Iron Water Mains and Their Appurtenances", latest edition:

$$L = \frac{SD \text{ times the square root of } P}{148{,}000}$$

1. Where: L is the allowable leakage in gallons per hour; S is the length of pipeline tested in feet; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test, in pounds per square inch gage.

I. No pipe installation will be accepted if the leakage is greater than that determined by the above requirements.

J. The Contractor shall locate and repair all leaks until the leakage is reduced to the limits specified. Any observed leaks or any obviously defective joints or pipes shall be repaired or replaced as directed by the Engineer, even though the total leakage is below that specified above.

K. The tests and repairs shall be continued or repeated until the Engineer is assured that the leakage from the section of line under test is less than the amount specified.

END OF SECTION

SECTION 02741
PRIME AND TACK COATS

PART 1 - GENERAL

1.01 SCOPE OF WORK

The work specified in this Section consists of the application of bituminous material on previously prepared base in accordance with these specifications and in conformity with the line, grades, dimensions and notes shown on the Drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Liquid Asphalt for Prime Coat shall be Asphalt Emulsion Prime (AEP) meeting the requirements of D.O.T. Specifications Section 916-4 and Section 300.

B. Liquid Asphalt for Tack Coat shall be Asphalt Emulsion Prime (AEP), conforming to the requirements of D.O.T. Specification Section 916-4 and Section 300.

2.02 EQUIPMENT

A. The pressure distributor used for placing the tack or prime coat shall be equipped with pneumatic tires having sufficient width of rubber in contact with the road surface to avoid breaking the bond of or forming a rut in the surface. The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to the width of the application required, within an allowable variation of 2-inches. The outside nozzle at each end of the spray bar shall have an area of opening of not less than 25 percent, nor more than 75 percent in excess of the other nozzles which shall have uniform openings. When the application covers less than the full width, the normal opening of the end nozzle at the junction line may remain the same as those of the interior nozzle.

B. Application of prime or tack coat shall be done with a distributor approved by the Engineer of Record.

PART 3 - EXECUTION

3.01 PREPARATION

A. Before applying any bituminous material, all loose material, dust, dirt, and foreign material, which might prevent proper bond with the existing surface, shall be removed. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the prime or tack coat will adhere.

B. When the prime or tack coat is applied adjacent to curb and gutter, or any other concrete surface (except where they are to be covered with a bituminous wearing course) such concrete surfaces shall be protected by heavy paper or other protective material while the prime or tack coat is being applied. Any bituminous material deposited on such concrete surfaces shall be removed immediately.

3.02 WEATHER LIMITATIONS

No bituminous material shall be applied when the air temperature is less than 50°F in the shade, or when the weather conditions or the condition of the existing surface is unsuitable. In no case shall bituminous material be applied while rain is falling or when there is water on the surface to be covered.

3.03 APPLICATION OF PRIME COAT

A. After the base has been finished, the full width of surface shall be swept with a power broom supplemented with hand brooms and mechanical blowers prior to the application of the prime coat. Care shall be taken to remove all loose dust, dirt and objectionable matter. If deemed necessary, the base shall be lightly sprinkled with water immediately in advance of the prime coat. The prime coat shall be applied to the full width of the base.

B. The temperature of the prime material shall be such as to insure uniform distribution. The material shall be applied with a pressure distributor as specified above. The amount to be applied shall be sufficient to coat the surface thoroughly and uniformly without any excess to form pools or to flow off the base. For limerock base, the rate of application shall not be less than 0.10 gallons per square yard.

C. If the roadway is to be opened for use following the application of the prime material, a light uniform application of clean sand shall be applied and rolled. The sand shall be nonplastic, shall be free from silt and rock particles and shall not contain any sticks, vegetation, grass, roots or organic matter. After the sand covering has been applied, the surface may be opened to traffic.

3.04 APPLICATION OF TACK COAT

A. In general, a tack coat will not be used on primed bases except in areas which have become excessively dirty and cannot be cleaned or where the prime has cured and lost all of its bonding effect.

B. No tack coat shall be applied until the primed base or leveling course or new or existing asphaltic concrete has been cleaned and is free from sand, dust or other objectionable material.

C. The tack coat shall be applied with a pressure distributor as specified above. It shall be heated to a suitable consistency and applied in a thin uniform layer at the rate of between 0.05 gallons and 0.15 gallons per square yard.

D. The tack coat shall be applied sufficiently in advance of the laying of the wearing surface to permit drying, but shall not be applied so far in advance or over such an area as to lose its

adhesiveness as a result of being covered with dust or other foreign material. The tack coat shall not advance ahead of the paving by more than 300 feet in business or residential areas unless otherwise approved by the Engineer. Suitable precautions shall be taken by the Contractor to protect the surface while the tack coat is drying and until the wearing surface is applied.

END OF SECTION

SECTION 02745

PAVEMENT REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Work included under this Section covers the furnishing of all labor, equipment and material required for cutting, removing, protecting, constructing, replacing or stabilizing all existing roadways, driveways and pavements.

B. All existing utility castings, including valves boxes, junction boxes, manholes, handholes, pull boxes, inlets and similar structures in the areas of trench restoration, pavement replacement and pavement overlay shall be adjusted by the Contractor to bring them flush with the surface of the finished work.

1.02 QUALITY CONTROL

The phrase "DOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. The DOT Specifications, are referred to herein and are hereby made a part of this Contract to the extent of such references, and shall be as binding upon the Contract as through reproduced herein in their entirety.

1.03 DAMAGE BY CONTRACTOR

A. The Contractor shall protect from damage by construction operations, all pavements, including all base courses and surface courses, within the work area.

B. Any base course or surface course beyond those limits, damaged as a result of the Contractor's operation, shall be restored in accordance with the applicable requirements of these Specifications, to the satisfaction of the CITY, and to the satisfaction of the governing authority having jurisdiction over the work area.

C. Any damage to adjacent lanes of pavement will require the Contractor to resurface the entire lane width for a length, as approved by the CITY and governing authority. When the damage amounts to 25 percent or more in any one block (approximately 600 feet), the Contractor shall resurface the entire width of the lane in which the damage occurred for the entire block.

D. The Contractor is hereby notified that wherever the line for repaving for trenches extends one foot into the edge of the existing paving, he shall repave to this edge only. Full lane paving will not be required. Damage to the pavement beyond this line by the Contractor will require that he repave the full width.

E. In order to protect himself from being held liable for any existing damaged pavement, including detour routes, the Contractor is advised to notify in writing the authority having jurisdiction over the street where such defective pavement exists prior to proceeding with any work in the vicinity. A copy of all such notices shall be forwarded to the CITY.

PART 2 - PRODUCTS

2.01 MATERIAL, GENERAL

A. Limerock Base: The limerock base shall consist of either one or two courses limerock obtained from local sources where the overburden was removed from the pits prior to mining operations. The limerock shall comply with the requirements of DOT Specifications, Section 200 and Section 911 for Miami Oolite limerock, with a maximum size of the aggregate to be 1-1/2 inches.

B. Prime Coat and Tack Coat shall be as specified Section 02741.

C. Asphaltic Concrete: The materials and construction of the asphaltic concrete patch and surface courses shall be Type S-1 Asphaltic Concrete conforming to Sections 330, 331 and 916 of the DOT Specifications.

D. Sand cover material shall be clean and non-plastic, and shall be composed of hard durable grains, free from loam, roots, silt, clay, or rock particles and other deleterious substances. Local sand meeting such requirements may be used. Sand shall be subject to approval by the CITY.

E. 1:10 Mix: Sand-cement mix for backfill within state roads shall be a 1:10 mix of Type I or II Portland Cement and Sand that shall produce a slump of 4 to 6 inches.

F. Flowable fill: Flowable fill, as specified in Section 03375, shall be used as backfill only when indicated per FDOT permit requirement or as directed by the Engineer of Record. It shall be used for trenches, support for pipe structures, culverts, utility cuts and other works where cavities exist and where firm support is needed for pavements and structural elements.

2.02 BITUMINOUS PAVING MATERIAL

Asphalt cement for asphaltic concrete mixes shall be Viscosity Grade AC-20, homogeneous, free from water and shall meet the requirements of D.O.T Specifications, Section 916-1. Unless otherwise specified, all test samples required shall be supplied by the Contractor. For friction courses, in addition to meeting the above requirements, the bituminous material shall contain 0.5% of a heat-stable, anti-stripping additive from an approved source.

A. Asphaltic Concrete - Type S-I Mix shall meet the requirements of D.O.T. Specifications for Type S-I Asphaltic Concrete, Sections 330, 331 and 916 of D.O.T Specifications.

B. Asphaltic Concrete - Type S-III Mix for asphaltic concrete wearing surface overlay, both machine laid and standard (skin patch), shall meet the requirements of D.O.T. Specifications for Type III Asphaltic Concrete, Section 333-1 through Section 333-6.

C. Type V paving repairs shall consist of a machine-laid asphaltic concrete wearing surface

overlay, which shall be a nominal one-inch thick asphaltic concrete, meeting the material requirements of Type I repairs. See subsection 3.07, below.

D. Asphaltic Concrete - Type FC-1, FC-2, FC-3 and FC-4 shall meet the requirements of D.O.T Specifications for Friction Courses, Sections 337-1 through Section 337-7.

E. Emulsified Asphalt for Slurry Seal Coat shall be of the slow-setting, mixing type and shall be homogeneous, meeting the requirements of the Asphalt Institute, Grade SS-1 or SS-1h.

F. Liquid Asphalt for Prime and Tack Coat: See Section 02741.

G. Liquid Asphalt for Sand and Asphalt Paving shall be asphalt cement, viscosity Grade AC-5 or emulsified asphalt, Grade RS-2 (anionic) conforming to the requirements of D.O.T. Specifications, Section 916-1 and 916-4, respectively.

H. Mineral Aggregate for Slurry Seal Coat shall consist of screened sand or limestone screenings or gray granite screenings or a mixture of sand and screenings plus not less than 3%, by weight, of Type I or Type II Portland cement.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Permanent pavement repair shall be in accordance with the details shown in the Standard Details herein, with edges straight and parallel and patches rectangular in plan. Replace any paving, beyond the limits shown in the details and as called for in the Specifications, as required. Where trenches are located out of the existing pavement and damage occurs to the pavement, that pavement shall also be replaced by the Contractor.

B. Pavement markings removed or obliterated by the Contractor's operations shall be promptly replaced, in kind, to the satisfaction of the Broward County, CITY, Traffic Engineering Division, or other authority having jurisdiction over the work area.

C. All equipment necessary for construction shall be on the job site in first class working condition. Spilling or dropping of petroleum products is prohibited and all defective equipment shall be removed or replaced immediately.

D. The percentages of maximum density for subgrade and limerock base specified herein are minimum. Greater percentages of maximum density shall be obtained, if so required, by the governing authority having jurisdiction over the work location.

E. Asphaltic concrete mixtures shall be obtained only from plants which comply with the requirements of D.O.T. Specifications, Section 320 as applicable, using materials specified herein, and producing the specified mixture. General construction requirements for all hot bituminous mixtures specified herein shall conform to D.O.T. Specifications, Section 330, as applicable.

F. Asphaltic concrete shall be laid only where the surface to be covered is intact, firm, cured and dry, and only when weather conditions are suitable. The temperature of the mixture at the time of spreading shall be within limits of Florida D.O.T. specifications or within 25

degrees of the temperature set by the CITY. No mixture shall be spread when the air temperature is less than 40 degrees Fahrenheit.

G. Any mixture caught in transit by a sudden rain may be laid at the Contractor's risk, if the base is in suitable condition. Under no circumstances shall asphaltic material be placed while rain is falling, or when there is water on the area to be paved.

H. Subgrade: Roadway subgrades shall be stabilized to the minimum depth shown on the Drawings to a Limerock Bearing Ratio of not less than 40. Stabilizing shall be Type B as defined in Section 160 of the DOT Specifications. Stabilization may require the addition and thorough mixing in of crushed limerock, course limerock screenings, or any other stabilizing material acceptable to the CITY. The stabilizing material shall be applied in such quantity that, after mixing and blending, the subgrade will have a LBR of not less than 40. Stabilizing material shall be mixed or blended in the subgrade material by plowing, scarifying, disking, harrowing, blading and mixing with rotary tillers until the mixed materials are of uniform bearing value throughout the width and depth of the layer being processed.

I. At least three density determinations shall be made on each day's final compaction operations on each course, and the density determinations shall be made at more frequent intervals if deemed necessary by the CITY.

J. Limerock Base: The limerock base shall be constructed in accordance with Sections 200 and 911 of the DOT Specifications, to the thickness and width indicated on the Drawings.

K. After spreading of the base material is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross section after compaction. For double course base, this scarifying shall extend a depth sufficient to penetrate slightly the surface of the first course. The maximum depth of each lift shall be 8-inches.

L. When the material does not have the proper moisture content to insure the required density, wetting or drying shall be required. If the material is deficient in moisture, water will be added and uniformly mixed in by disking the base course to its full depth. If the material contains an excess of moisture, it shall be allowed to dry before being compacted. As soon as proper conditions of moisture are attained, the material shall be compacted to an average density not less than 98 percent maximum density as determined in more than one course, the density shall be obtained in each lift of the base.

M. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such areas shall be completed prior to making the density determination on the finished base.

N. Unless otherwise directed by the Engineer of Record, the surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the thin glaze or cemented surface and to allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.

O. If cracks or checks appear in the base, either before or after priming, which in the opinion of the CITY, would impair the structural efficiency of the base course, the CONTRACTOR shall remove such cracks or checks by rescarifying, reshaping, adding base material where necessary and recompacting.

P. Mixing Base and Subgrade: If at any time the subgrade material shall become mixed with the base course material, the CONTRACTOR shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean base material, which shall be shaped and compacted as specified above.

Q. Asphaltic Concrete: The spreading, compacting and jointing the wearing surface shall be in accordance with Sections 330 and 331 of the DOT Specifications to the thickness indicated on the Drawings.

3.02 TEMPORARY PAVING

A. Prior to commencing excavation, the asphalt surface shall be saw-cut within the limits of the allowable trench width. Temporary paving will be required along the entire route where the original paved surface is removed. Unless otherwise approved by the CITY, temporary paving shall be placed the same day the trench is backfilled. The trench shall be backfilled up to a level 1 inch below the existing pavement surface and a temporary, cold mixed sand/asphalt pavement shall be constructed up to the level of the existing pavement surface. The liquid asphalt shall be Grade RC-70, conforming to the requirements of D.O.T. Specifications, Section 916-2. The sand shall conform to the requirements of D.O.T. Specifications, Section 902 for fine aggregate.

B. The cold mix is to be installed one block at a time, not crossing any intersection, or a maximum of 1,200 feet shall be completed before the Contractor may move forward with his excavation work. Backfill, compaction and temporary paving is to keep pace with the pipe installation. Written permission must be obtained from the CITY and the municipal agency permitting the work to allow greater lengths than 1,200 feet. Permitting agencies may reduce the allowable limits in their permit, or for other unforeseen right-of-way conditions.

C. Prior to completion of the work and within a maximum of 30 calendar days, the Contractor shall remove the 1 inch of cold mix and surplus backfill. He shall replace it with the specified compacted limerock base course and asphaltic within the specified working limits. Municipal agencies permitting this work may accelerate the time for removal of the cold mix, at their discretion.

D. The temporary pavement shall be maintained by the Contractor in a condition satisfactory to the CITY until its removal. Removal shall include any surplus backfill material. Replacement of the temporary pavement with permanent pavement shall be made within 30 days. In replacing the temporary paving with permanent pavement, all work shall be completed in sections compatible with specified traffic maintenance procedures.

E. The Contractor may elect to install a suitable temporary hot mix asphaltic pavement, to be left in-place, in lieu of cold mix, when the hot mix asphalt is left in-place and installed over properly compacted limerock base course. This temporary pavement shall be incorporated into the specified permanent pavement restoration as part of Type I paving restoration.

F. Sand seal on the limerock base course will not be permitted in lieu of temporary paving.

G. Unless otherwise approved by the CITY, temporary paving, shall be placed within twenty-

four hours following the completion of backfilling.

3.03 TYPE I PAVING REPAIR (Limerock Base - Asphaltic Concrete Surface)

A. Type I paving repairs shall be made with an 8-inch thick compacted limerock base and a minimum 1-inch thick asphaltic concrete surface, as detailed in the Standard Details. On Public Works roads asphaltic concrete shall have a compacted thickness of 2-inch, placed in a minimum of two (2) compacted 1-inch lifts.

B. The backfill previously placed and compacted shall be excavated to the required depth below the existing road surface and the existing paving shall be cut back beyond all excavations, using an abrasive disc saw to trim the edges to straight and true lines, minimum width for the limerock base shall be equal to the trench width plus 2 feet. Eight inches of limerock base shall be placed in two layers, each layer compacted to not less than ninety-eight percent (98%) density in accordance with Section 200 of D.O.T. Specifications. During rolling, the base shall be wetted down, as necessary, to secure the greatest possible compaction. After rolling, the entire surface of the base shall be thoroughly scarified to a depth of not less than 3 inches and shaped to conform to and be parallel with the existing surface, then watered and rolled again. Rolling and watering shall continue until the entire depth of the base is bonded and compacted into an unyielding mass.

C. If at any time the subgrade material becomes mixed with the limerock base course materials, the Contractor shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean rock which shall be watered and rolled until satisfactorily compacted.

D. After the limerock base course has been properly prepared and is dry and ready to receive the wearing surface, a tack coat of emulsified asphalt, in accordance with Section 02741, shall be applied at a rate of 0.10 gallon per square yard, immediately followed by the asphaltic concrete. The tack coat shall be applied to the entire limerock base uniformly, and shall thoroughly coat all surfaced. Care shall be taken to tack coat and bond the edge of surrounding pavement.

E. The asphaltic concrete shall be plant mixed, using the best grade of local aggregates of approved size and gradation and mixed with an approved binder and conforming the either the State of Florida Department of Transportation Specifications, Type S-1 Asphaltic Concrete, Sections 330, 331 and 916 of D.O.T Specifications, as ordered by the Engineer of Record.

F. Where the width of the repair permits, the asphaltic concrete plant mix material shall be placed by means of an approved mechanical spreader and finisher. The mixture shall be compacted to true grade and cross section by means of a tandem roller weighing not less than eight tons. The compacted asphaltic concrete mixture shall not be, in any case, less than one inch in thickness. Rolling shall proceed as closely behind the spreader as possible and all material shall be completely compacted the same day it is placed. The minimum width of the wearing surface shall be the same as the base.

3.04 TYPE II PAVING REPAIR (Special Limerock Base - Asphaltic Concrete Surface)

A. Type II repairs shall be used only when the restoration work falls within the limits of a State

Road and shall be performed in accordance with the latest Florida Department of Transportation Standard Specifications for Road and Bridge Construction. Type II repairs shall be similar to Type I paving repairs except for the dimensions of the limerock base and the asphaltic concrete surface course.

B. The dimensions shall be as shown in the CITY's Standard Detail or 1:10 mix to within 3 inches of grade as required by the Florida D.O.T., except that the limerock base course shall be a minimum of 18 inches and the asphaltic concrete surface course shall be 3 inches. Minimum width for the base shall be equal to the trench width plus 3 feet.

C. The compacted limerock base shall be primed at the rate of 0.10 gallons per square yard and the topped with a compacted 3-inch thick wearing surface of Type S-I asphaltic concrete. Minimum width for surface replacement shall be equal to the trench width plus 4-feet.

D. A friction type surface course may be required in addition to the standard repair. Friction courses shall be constructed using the type and thickness of asphaltic concrete specified by permit, and in accordance with the applicable provisions for Type V paving repairs.

3.05 TYPE III PAVING REPAIR (Concrete Base - Asphaltic Concrete Surface)

A. This type of repair shall be made only on Florida Department of Transportation roadways when the original pavement is composed of a concrete base and an asphaltic concrete wearing surface. The use of Type III repairs is usually confined to restoration of pavement over trenches cut across existing pavement (and traffic flow), and short trenches cut parallel to the roadway center line. A trench cut 200 feet or less in length shall be considered a "short trench".

B. Type III paving repairs shall be made with a 6-inch thick reinforced concrete base and a minimum 1-inch thick asphaltic concrete wearing surface, in accordance with the Standard Detail. Minimum width for the concrete base shall be equal to the trench width plus 2 feet.

C. The existing pavement shall be saw cut in straight lines, to form a shoulder of the required width on each side of the trench, as outlined by the CITY at the location of the replacement. The pavement shall be removed and the fill shall be mechanically compacted to 98% of the maximum density obtainable as determined by AASHTO Standard T-180.

D. The fill material in the trench and shoulders shall be brought to the depth of the pavement or nine inches, whichever is greater. The fill disturbed by the removal of this material shall be recompacted, as specified above. A layer of six gauge, 6-inch X 6-inch roadway reinforcing mesh, supported on chairs or bricks, shall be placed 2-inch above the bottom of the slab. The subgrade shall then be wet down and filled to within one inch of the existing pavement surface, unless otherwise required by the Governing Municipality, with Type III High Early Strength concrete. The concrete shall be placed using a vibrator to insure a uniform density.

E. Concrete base shall be cured to comply with the requirements of D.O.T. Specifications Section 350-13.3 or other approved non-chemical method. When the concrete base has become at least 24 hours old a tack coat shall be applied at the rate of 0.10 gal. per square yard and then topped with a minimum 1-inch thick wearing surface of Type S-I asphaltic concrete, or as ordered by the Engineer, unless otherwise required by the Governing

Municipality. Minimum width of the wearing surface shall be the same as the base.

F. Should the repaired area be six feet or more in width and have a length of one city block or more, the asphaltic concrete shall be placed with a finishing machine and rolled with an 8-ton tandem roller to conform to the grade of the existing pavement. For smaller repairs, the asphaltic concrete shall be spread by hand and struck off with a straight edge sufficiently high so that when it is compacted with an 8-ton roller it will conform to the grade of the existing pavement.

3.06 TYPE IV PAVING REPAIRS (Concrete Slab - Rigid Pavement)

A. Type IV repairs will be used when the restoration work falls within the limits of existing rigid pavement.

B. Paving repairs shall be similar to Type III paving repairs except that No. 4 reinforcing steel bars spaced 12 inches on centers both ways shall be substituted for the mesh reinforcement, and the slab shall be 8 inches thick instead of 6 inches, with the top of the concrete matching the elevation and finish of the existing pavement. The asphaltic concrete surface course is not required.

3.07 TYPE V PAVING REPAIRS (Asphaltic Concrete Wearing Surface Overlay)

A. Type V paving repairs shall be made where noted on the Plans and/or as ordered by the Engineer or Record. Type V paving repairs shall consist of a machine-laid asphaltic concrete wearing surface overlay, which shall be a nominal one-inch thick asphaltic concrete, meeting the material requirements of Type I repairs, as specified hereinabove. As used herein, "overlay" shall mean Type V paving repairs. A special wearing surface may be substituted, if required.

B. In general, the overlay shall be applied in a full lane width or widths, after the permanent paving repairs over the trench have been made. Type V is usually in addition to required Type I and Type II paving repairs. Since the quantity of Type V repairs that may be required is usually unknown until pavement restoration work begins, Type V repairs may be established in the Proposal on a contingent basis.

C. All longitudinal and transverse asphalt replacement overlay wearing surfaces shall butt into adjacent existing asphalt wearing surfaces in full lane asphaltic pavement restoration. The finish elevation of the new full lane overlay shall meet existing elevations adjacent to the new work.

D. The existing asphaltic concrete surface shall be saw cut for its full depth or 1-inch minimum, and then stripped back for at least 2 feet into the area to be overlaid to a second cut which shall also be in clean straight lines. The second, or interior, cut edge shall be rolled with a tandem roller weighing not less than 8 tons before the overlay is applied. The stripped area shall be used to provide a smooth transition or "feather" area between the overlay and the existing pavement. Before placing the overlay, all cut edges and the surface of the stripped area shall be tack coated with emulsified asphalt as specified hereinbelow.

E. If the Contractor requests in writing to "feather" the longitudinal edge, and if written permission is granted to "feather" the asphalt by the CITY and the local municipality, a sanded

mix of 70-30 type shall be used. "Feathering" shall begin 18 inches from the tapered edge.

F. Prior to installing a full lane width overlay over existing asphaltic pavement the trench and shoulders over the pipe shall be sawcut and filled with asphaltic concrete to the required depth, terminating flush with the existing adjacent asphalt in accordance with the municipality having jurisdiction over the work for Types I, II or M. Type V overlay will be installed as detailed above.

G. When a minor amount of asphalt surface will remain, generally with large pipe installations, after the pipe has been installed and the required longitudinal saw cutting of the asphaltic pavement completed, the Contractor may request permission to remove all the asphalt in the lane, by saw cutting the asphalt adjacent to the existing lane, then placing the Type V overlay flush with the adjacent asphalt. This would require that the Type I, II or M finish elevation be lowered 1 inch to allow for the Type V overlay.

H. Before the overlay is applied, existing surfaces shall be swept clean of all dirt and debris, using a power driven broom if warranted by the size of the location to be overlaid and/or as ordered by the CITY. Pavement edges shall be cleared of all encroaching vegetation, loose sand, rock and all other foreign matter. When the existing surface is thoroughly clean, a tack coat of Emulsified Asphalt Grade RS-2 (anionic) shall be applied at the rate of approximately 0.10 gallon per square yard, in accordance with Section 02741, immediately followed by the asphaltic concrete overlay.

I. Machine-laid overlay shall be placed by means of an approved mechanical spreader and finisher, and the mixture shall be compacted to true grade and cross section by means of a tandem roller weighing not less than 8 tons.

J. The compacted overlay shall be thicker as required to produce a smooth uniform surface free of any irregularities, but shall not be less than one inch in thickness. Existing depressed areas in the asphaltic pavement, which could collect water after a rainfall shall be corrected before placing the asphaltic overlay. Rolling shall proceed as close behind the spreading of the asphaltic overlay as possible, and all materials shall be completely compacted the same day it is placed.

3.08 TYPE VI PAVING REPAIRS (Limerock Base - Sand Seal Surface)

A. The use of Type VI repairs is usually confined to the restoration of excavations in existing sand-seal surface areas or streets.

B. Repairs for restoration of excavations in existing sand-seal areas or roads shall consist of an 8-inch thick limerock base over the excavation and forming a shoulder 12 inches wide on each side, with the surface level with the existing grade, and a sand-seal surface course over the prepared base and complete width of the existing area or street where such existing sand-seal surface exists, for the full length of the cut.

C. Limerock base courses over excavations shall be as specified under Type I paving repairs. After the bonded base has dried sufficiently, the entire surface shall be swept to break the glaze and remove all traces of loose dirt, sand and other debris.

D. A bituminous surface treatment shall then be applied consisting of emulsified asphalt, Grade

RS-2 (anionic) at a rate of approximately 0.10 gallon per square yard. The surface treatment shall immediately be covered with clean approved sand, spread by mechanical device at a rate sufficient to insure against bleeding through the sand cover, rolled and then opened to traffic and permitted to cure. During the curing period, additional sand shall be applied, if required, to prevent possible pickup of the new surface by traffic. Excess sand cover shall be swept away and removed.

3.09 TYPE M PAVING REPAIRS (Limerock Base - Asphaltic Concrete Surface)

A. Repairs shall be similar to Type I paving repairs except for the dimensions of the limerock base and the asphaltic concrete surface course.

B. Type M paving repairs shall be made with a 12-inch thick compacted limerock base and a minimum 1½-inch thick asphaltic concrete surface as detailed in the Standard Details. Minimum width for the base shall be equal to the trench width plus one foot.

C. The backfill previously placed and compacted shall be excavated to the required depth below the existing road surface and the existing paving shall be cut back beyond all excavations, using an abrasive disc saw to trim the edges to straight and true lines. Twelve inches of limerock base shall be placed in two layers, each layer compacted to not less than 98 percent density. During rolling, it shall be wet down as necessary to secure the greatest possible compaction. After rolling, the entire surface shall be thoroughly scarified to a depth of not less than 3 inches and shaped to conform to the existing surface, then watered and rolled again. Rolling and watering shall continue until the entire depth of the base is bonded and compacted into an unyielding mass.

D. The asphaltic concrete shall be plant mixed, using the best grade of local aggregates of approved size and gradation and mixed with an approved binder and conforming to either the State of Florida Department of Transportation Specifications, Type S-1 Asphaltic Concrete, Section 331-1 through 331-5, as ordered by the CITY. Where the width of the repair permits, the material shall be placed by means of an approved mechanical spreader and finisher. The mixture shall be compacted to true grade and cross section by means of a tandem roller weighing not less than eight tons. The compacted asphaltic concrete mixture shall not be, in any case, less than 1½-inch in thickness. Rolling shall proceed as closely behind the spreader as possible and all material shall be completely compacted the same day it is placed.

E. The asphaltic concrete wearing surface shall match the thickness of the adjacent roadway, but not greater than 3 inch nor less than 1-1/2 inches as specified in the Standard Details. Minimum width for the wearing surface shall be equal to the trench width plus two feet.

3.09 SLURRY SEAL COAT

A. When pavement restoration work falls within the City of Coral Gables, the existing pavement may have to be slurry-sealed as specified in Coral Gables Ordinance No. 1779. Slurry-seal repairs shall be made where ordered by the Engineer of Record or the CITY.

B. Before any material is laid, the existing surface shall be cleaned with brooms or power blowers. Vegetation which has overgrown the edges shall be removed. All cracks, potholes and depressions shall be brought up to grade with bituminous concrete skin patching.

C. A tack coat, if required, shall consist of emulsified asphalt SS-1h, diluted with 3 parts of water, sprayed and squeegeed or broomed at a rate of 0.1 to 0.2 gallons per square yard.

D. A minimum thickness of 1/8-inch to a maximum of 1/4-inch of slurry mix shall be spread by a drag distributor at a maximum rate of 180 feet per minute. Any ridges or surplus material shall be smoothed by hand squeegee. The pavement shall be kept damp with a fog spray just ahead of the machine.

E. A second coat shall not be applied to, nor traffic permitted to drive upon, the first application until it has thoroughly dried. (A dry condition is such that an automobile tire track does not show after driving on the surface).

3.10 ASPHALT COLD MILLING

A. The Contractor shall perform asphalt cold milling where called for on the Plans or as required for a complete installation, when approved or requested by the CITY. Cold milling shall be done using an automated pavement planer capable of maintaining an accurate depth. Cold milling equipment shall meet the approval of the CITY and governing agency having jurisdiction at the location of the pavement milling operation. All charges for maintenance of traffic, transportation of personnel, equipment and other mobilization charges shall be considered as incidental to the cold milling operation.

B. Cold asphalt milling shall be provided to improve the rideability of the finished pavement, lower the finished grade adjacent to an existing curb prior to resurfacing or to completely remove existing pavement. The overall length of the milling machine (excluding the conveyor) shall be a minimum of 18 feet, and having a minimum cutting width of six feet. The milling operation shall be operated to effectively minimize the amount of dust being emitted from the machine. Prewetting of the pavement may be required. In areas where milling is to be performed around CITY utility structures such as manholes, valve boxes etc., proper caution shall be taken as not to damage any of the structures. Saw-cutting of the concrete surrounding the structure and using a pick or other means so as not to disturb the structure shall be employed to prevent any damage. Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a power broom or other approved equipment to remove to the greatest extent practicable, the fine material which will dust under traffic. This operation shall be conducted in a manner so as to minimize the potential for creating a traffic hazard and to minimize air pollution.

C. The milling operation shall be continuous so as to complete each site without any delays. All milling operations shall be coordinated by the CITY Inspector.

D. Traffic maintenance charges shall include the installation and maintenance of all traffic control and safety devices, in accordance with specifications outlined by Florida Department of Transportation. In addition, the Contractor shall provide all barricades, flashing warning lights and/or arrow boards necessary to maintain safety and warn motorists of the construction.

3.11 REPAIR OF DAMAGE PAVEMENT

A. All damage to pavement by the Contractor as a result of Work under this project shall comply with "DAMAGE BY CONTRACTOR", above, and shall be repaired in a manner satisfactory to the CITY. The repair shall include the preparation of the subgrade, the placing and compacting of the limerock base, the priming of the base, the placing and maintaining of the surface treatment, all as specified herein.

B. The width of all repairs within the work area shall extend at least 12 inches beyond the limit of the damage. The edge of the pavement to be left in place shall be cut to a true edge with a saw or other acceptable method so as to provide a clean edge to abut the repair. The line of the repair shall be uniform with no irregularities. Repair of damage by the Contractor beyond the work area shall be approved by the governing agencies having jurisdiction over the work prior to commencing the work.

3.12 CONCRETE PAVEMENT REPAIR

A. This type of repair shall be made only on Florida Department of Transportation roadways when the original pavement is concrete.

B. The existing pavement shall be saw cut in straight lines as outlined by the CITY at the location of the replacement. The pavement shall be removed and the fill shall be mechanically compacted to 98% of the maximum density obtainable as determined by AASHTO Standard T-180. The fill in the trench and shoulders shall be brought to a depth equal to the thickness of the existing concrete pavement, but not less than 8 inches in any case. The opening thus formed, shall be filled with concrete having a design strength of 5,000 psi and made with High Early Strength Cement. The concrete slab shall be reinforced with ½ inch steel reinforcing rods, 12 inches on center each way, placed 2 inches above the bottom of the slab. The surface of the slab shall be struck off with a screed and finished with a wood float and brush to conform to the grade and finish of the existing pavement. Apply liquid curing compound after initial set. The Contractor shall provide adequate means to protect the slab until it has cured sufficiently to withstand vehicular traffic without spalling or breaking apart. Construction joints and expansion joints in the original pavement shall be reproduced in the repair with matching materials.

3.13 STATE ROAD PAVEMENT RESTORATION (1:10 Mix / Flowable Fill Backfill and Base and Asphaltic Concrete Surface)

A. General

1. All work performed within the right-of-way of the Florida Department of Transportation (DOT) shall comply with the requirements and conditions of the DOT, including the requirements and conditions of the DOT permits and with all requirements and conditions of these specifications.

2. The installation shall be coordinated with the DOT, the CITY and the Contractor. The existing pavement shall be saw cut in straight lines, as outlined by the CITY at the location of the restoration. The Contractor shall not begin work until he has received permission from them to do so.

3. State Road pavement restoration, where required and where specifically authorized by the Engineer in writing, shall be made with a backfill and base of "1:10 cement/sand

concrete mix" or "flowable fill", as specified in Section 03375, a 3-inch thick asphaltic concrete course, machine-laid in two equal layers, and a 1-inch thick asphaltic concrete wearing surface (for full lane width).

B. Installation of Sand/Cement Mix

1. Installation of 1:10 Mix: In all cases, regardless of water-table location, the 1:10 mix shall be placed from a plane 12 inches above the top of the pipe to an elevation 3 inches below the adjacent asphaltic surface.

2. Installation of "Flowable Fill" Mix:

   See Section 03375, "Flowable Fill".

C. Installation of Asphaltic Concrete Course

1. A 3-inch thick asphaltic concrete course shall be machine-laid in two equal layers. Then as required by the Florida D.O.T., the Contractor may be directed to cold-mill one inch, as described in Article 3.10, herein, and replace with one inch of material.

2. After the base surface has been properly prepared and is dry and ready to receive the wearing surface, a tack coat of emulsified asphalt (Grade RS-2) shall be applied at a rate of 0.10 gallon per square yard, immediately followed by the asphaltic concrete. The tack coat shall be applied to the entire base uniformly, and shall thoroughly coat all surfaces. Care shall be taken to tack coat and bond the edges of surrounding pavement.

3. The 3-inch asphaltic concrete course shall be plant mixed, using the best grade of local aggregates of approved size and gradation and mixed with an approved binder and conforming to the State of Florida Department of Transportation Specifications, Type S-1 Asphaltic Concrete, Section 331-1 through 331-5. Where the width of the repair permits, the material shall be placed by means of an approved mechanical spreader and finisher. The mixture shall be compacted to true grade and cross section by means of a tandem roller weighing not less than eight tons. The compacted asphaltic concrete mixture shall not be, in any case, less than three inches in thickness. Rolling shall proceed as closely behind the spreader as possible and all material shall be completely compacted the same day it is placed.

D. Installation of Friction Courses

1. This type of repair shall be made only on Florida Department of Transportation roadways to replace damaged existing friction courses. The particular friction course to be used at any repair location shall be as designated by the D.O.T. for that location.

2. There are 4 mixes designated by the D.O.T. as Friction courses, FC-1, FC-2, FC-3 and FC-4. Each is specified in D.O.T. Specifications, Section 337. The basic ingredients are also covered above in "Bituminous Paving Materials".

3. Methods of application are similar to those of Type S-I asphaltic concrete as specified above for Type III repairs, except that friction courses shall have a nominal thickness of 5/8 inch. The 5/8-inch nominal friction course may be placed over the 3-inches of newly

placed Type S-1 asphaltic concrete or the existing asphalt concrete pavement may be milled to a nominal depth of 5/8-inch to allow for the placement of the FC-2 over the existing asphaltic concrete, as approved by the CITY. Additional depth of milling of asphaltic concrete may be required by the CITY for Type S-1 asphaltic concrete.

4. If the friction course is laid the same day that the underlying course was laid, no tack coat or primer is required, but if the underlying course is old enough to have cured, a tack coat of emulsified asphalt shall be applied at the rate of 0.10 gallons per square yard and topped with a 5/8-inch thick, machine-laid friction course.

3.14 STATE ROAD PAVEMENT RESTORATION (Rock Base and Asphaltic Surface Pavement)

A. These types of repairs shall be made only on Florida Department of Transportation roadways when the original pavement is other than concrete.

B. The existing pavement shall be saw cut in straight lines, as outlined by the CITY at the location of the replacement, for the new asphaltic concrete. The pavement and fill in the trench and shoulders shall be removed for a varied depth of between 3 inches at the sides of the repair, and 21 inches over the trench and recompacted, if necessary. The opening thus formed shall be filled to a point 3-inches below the pavement surface with a base course of new limerock placed in layers, each 4-inches thick. The top 6-inches of sub-base and each 4-inch layer of new limerock shall be mechanically compacted to 98 percent of the maximum obtainable density but need not be water-bonded.

C. The compacted limerock base shall be primed at the rate of 0.10 gal. per square yard and then topped with a 3-inch thick wearing surface of Type S-I asphaltic concrete, or a 2-inch thickness of Type S-I and a 1-inch thickness of wearing surface. The asphaltic concrete shall be placed and finished as specified above.

END OF SECTION

SECTION 02765

PAVEMENT MARKINGS AND TRAFFIC SIGNS

PART 1 - GENERAL

1.01 SCOPE

This section consists of pavement markings and traffic signs on the Drawings, specified herein and as required for a complete installation.

1.02 QUALITY ASSURANCE

A. The phrase "DOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. The DOT Specifications, are referred to herein and are hereby made a part of this Contract to the extent of such references, and shall be as binding upon the Contract as though reproduced herein in their entirety.

B. Pavement markings for this Project shall conform to the Florida Department of Transportation and Broward County Standard Specifications for Road and Bridge Construction, latest edition. Pavement markings removed or obliterated by the Contractor's operations shall be promptly replaced in kind to the satisfaction of the Broward County and City of Fort Lauderdale, Traffic Engineering Division, or other authority having jurisdiction over the work area.

1.03 CERTIFICATION

The Contractor shall furnish the manufacturer's certification that all signs furnished conform to these specifications and shall replace or repair at his expense all signs that fail to meet this requirement.

PART 2 - PRODUCTS

2.01 PAVEMENT MARKING

Paint for pavement strips shall be as specified in Part 3, Execution.

2.02 REFLECTIVE MARKERS

Reflective markers shall be installed in the pavement in accordance with OSHA, DOT and Broward County, and City Public Works requirements.

2.03 TRAFFIC SIGNS

A. General: Traffic regulating signs shall conform to the colors, dimensions and requirements of the Manual on Uniform Traffic Control Devices (ANSI) and displaying the lettering and symbols indicated on the Drawings.

B. Sign Panels and Support Members: Sign panels and support members shall conform to Aluminum Association Alloy 6061-T6.

C. Bolts: Bolts shall conform to Aluminum Association Alloy 2024-T4 with an anodic coating 0.0002-inches thick minimum and chromate sealed.

D. Nuts: Nuts shall conform to Aluminum Association Alloy 6269-T9.

E. Reflective Sheeting: Reflective sheeting shall conform to FDOT Type A and/or Broward County requirements.

F. Construction Warning Signs: The CONTRACTOR shall install traffic and warning signs during construction in accordance with OSHA, FDOT and Broward County, and City requirements.

PART 3 - EXECUTION

3.01 TRAFFIC PAINT

A. This type of pavement painting shall be used where no thermoplastic paint is required or as temporary paint during the time required for paving "cure" prior to application of thermoplastic paint markings.

B. Traffic paint used for this work shall conform with the requirements of Section 971-12 of the Florida Department of Transportation Standard Specifications for Road and bridge Construction, or, at the Contractor's option, fast dry traffic paint, as specified in D.O.T. Specifications, Section 971-13, may be used.

C. The colors of the paint shall be yellow or white, as existed before the repair.

D. All equipment shall be of a type and design which will readily produce the required uniformity of application of the stripes, both as to thickness of coating and alignment. The paint machine shall be of the spray type, capable of spraying the paint to the required "spread" without thinning of the paint. The paint tank shall be equipped with a mechanical agitator. The nozzle shall have cut-off valves which will apply broken or "skip" lines automatically. Each nozzle shall also be provided with suitable line guides, either metallic shrouds or air blasts.

E. Painting shall be done only during daylight hours and, as far as practicable, shall be terminated in time to permit sufficient drying by sunset. No paint shall be applied when moisture is present on the surface to be painted or when the air temperature is below 40 degrees F. Painting shall not be done when winds are sufficient to cause spray dust.

F. The surface which is to be painted shall be cleaned, by compressed air or other effective means, immediately before the start of painting, and shall be clean and dry when the paint is applied. Any vegetation or soil shall be removed from the pavement before edge striping is begun.

G. The paint shall be thoroughly mixed before it is poured into the painting machine and no thinning of the paint will be allowed at any time. Before the start of each day's work, the

paint container, the connections, and the spray nozzles on the machine shall be thoroughly cleaned with paint thinner or other suitable cleaner.

H. The traffic stripe shall be of the specified width, with clean, true edges and without sharp breaks in the alignment. A uniform coating of paint shall be obtained and the finished stripe shall contain no light spots or paint skips. Any stripes which do not have a uniform, satisfactory appearance, both day and night, shall be corrected.

I. All newly painted stripes, including edge stripes, shall be protected until the paint is sufficiently dry to permit vehicles to cross the stripe without damage from the tires. While the center line stripes are being painted, all traffic shall be routed away from the painting operations and the newly painted stripe. When necessary, a pilot car shall be used to protect the painting operations from traffic interference.

J. Any portions of the stripes damaged by passing traffic or from other causes shall be repainted.

K. Paint for temporary pavement markings shall also be used where thermoplastic markings are to be applied after the asphaltic concrete has "cured." The cure time shall be based on thermoplastic manufacturer's recommendations. However, in accordance with FDOT requirements, asphalt shall have been in place for 30 days before application of thermoplastic stripe.

3.02 THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS

A. Thermoplastic pavement markings, including stripes, pavement messages, stop bars, directional arrows, reflective pavement markers and other miscellaneous items, shall be replaced as existed before the repair was made. The thermoplastic compound shall be extruded or sprayed onto the pavement surface in a molten state by mechanical means, with surface application of glass spheres, when required. Upon cooling to ambient pavement temperature, the compound shall produce an adherent pavement marking of specified thickness and width and capable of resisting deformation.

B. The colors of the compound shall be white or yellow, as existed before the repair.

C. Where thermoplastic markings are to be applied to concrete pavement, a sealing primer, as specified in F.D.O.T. Specifications Section 711-2.2, shall be applied in advance of the placing of the stripes.

D. The thermoplastic shall be applied to the pavement utilizing either extrusion or spray application equipment. The application equipment shall be so constructed as to provide continuous mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the shaping die or gun shall be so constructed as to prevent accumulation and clogging. The equipment shall be constructed so that all mixing and conveying parts up to and including the shaping die or gun, maintain the material at the plastic temperature with heat transfer oil or electrical element controlled heat. Direct fire heat transfer will not be allowed.

E. The application equipment shall be so constructed as to insure continuous uniformity in the dimensions of the stripe. The applicator shall provide a means for cleanly cutting off square stripe ends and shall provide a method of applying "skip" lines. The use of pans, aprons, or similar appliances which the die overruns will not be permitted.

F. Glass spheres applied to the surface of the completed stripe shall be applied by an automatic bead dispenser attached to the striping machine in such a manner that the beads are dispensed almost instantaneously upon the installed line.

G. Special kettle(s) shall be provided for melting and heating the thermoplastic material. The kettle(s) shall be equipped with automatic thermostatic control devises to provide uniform temperature control and prevent overheating of the material. The applicator and kettle(s) shall be equipped and arranged as to satisfy the requirements of the National Fire Underwriters, the State of Florida, Broward County and any municipal authority applicable to where the work is being done.

H. Applicators shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. The applicator equipment to be used on roadway installations shall consist of either hand equipment or truck mounted units depending on the type of marking required.

I. The hand applicator equipment shall be insulated, have sufficient capacity to hold 150 pounds of molten material, and be sufficiently maneuverable to install crosswalks; lane, edge and center lines; arrows and legends.

J. The truck mounted unit for lane, edge and center lines shall consist of a mobile self-contained unit carrying its own material capable of operating at a minimum speed of five miles per hour while installing striping.

K. Application time, weather limitations and surface preparation shall be in accordance with F.D.O.T. Specifications Sections 710-4, 710-5 and 710-8. In accordance with FDOT requirements, asphalt shall have been in place for 30 days before application of thermoplastic stripe.

L. The material, when formed into traffic stripes or other markings, shall be readily renewable by placing an overlay of new material directly over an old line of compatible material in such a manner that no splitting or separation takes place.

M. The application temperature shall be within the range specified by the manufacturer of the thermoplastic compound being used.

N. All pavement edge lines, gore, island and diagonal strip markings, bike lane symbols and messages, wherever located, shall have a minimum thickness of 0.060 inch at the edges and a maximum thickness of 0.120 inch at the center. A minimum average film thickness of 0.060 inch shall be maintained. All lane lines, center lines, transverse markings (except shoulder markings) and pavement markings within traffic wearing area (such as dotted turning guide lines) shall have a minimum thickness of 0.090 inch at the edges and a maximum thickness of 0.188 inch at the center. A minimum average film thickness of 0.090

shall be maintained. All thickness measurements shall be an average in any three foot length.

O. The glass sphere top coating shall be applied by a type of glass sphere dispenser or gun which will embed the spheres into the line surface to at least one-half their diameter. The glass sphere top coating shall not incur more than a 10 percent loss during the first 30 days of traffic exposure.

P. Reflective pavement markers shall be installed as they existed before the repair. They shall be replaced with the appropriate color or colors and oriented in the correct direction as specified in Section 706 of the F.D.O.T. Specifications. Paving markings for this Project shall conform to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, as revised by the governing agency.

3.03 FABRICATION

Preparation of sign blanks and fabrication of reflectorized faces shall conform to the applicable requirements of DOT Sections 700-4 and 700-5.

END OF SECTION

SECTION 02822

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included in this Section consists of furnishing and installing a galvanized steel chain link fence, complete with gates and "V" arms with barbed wire, where permitted, to be constructed as shown on the Plans.

B. Minimum fence height shall be six (6) feet, with a double leaf entry gate having a minimum ten foot clear opening; except that if building and zoning codes permit, the fence and gate height shall be eight (8) feet.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Fabric:

The chain-link fence fabric shall meet the requirements of ASTM Standard A392, "Zinc-Coated Steel Chain-Link Fence Fabric", latest edition. Zinc coating of the fabric shall be not less than 2 ounces per square foot of wire surface (Class 2 coating). Fabric shall be one-piece fabric height as shown on the Plans, with 2-inch by 2-inch mesh of No. 9 gauge wire, unless otherwise specified. Top and bottom selvages shall be twisted. The fence shall have a single strand of 7 gage galvanized coil spring wire at the bottom, fastened at each post, and at 2 foot centers, with hog rings, extending to within 1-inch of the ground.

B. Posts and Other Appurtenances:

All tubular members including gate members shall comply with ASTM Standard A 53-90b, "Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses", Type S Grade A or B, and shall be plain-end steel pipe, with zinc coating applied inside and out by the hot-dip process. Zinc coating shall be not less than 1.8 ounces per square foot of pipe area. Gate frames shall be hot-dip galvanized after fabrication. All fence posts shall have weather proof caps which shall conform with the specifications detailed elsewhere in this section. Fence components shall be as follows:

Components	Nominal Pipe Size	Outside Diameter	Weight Per Foot
Top rail and braces	1 1/4 inches	1.660 inches	2.27 pounds
Gate frames	1 ½ inches	1.900 inches	2.72 pounds
Line posts	2 inches	2.375 inches	3.65 pounds
Corner posts	2 ½ inches	2.875 inches	5.79 pounds
Gate posts (less Than 10 ft. leaf)	3 inches	3.500 inches	7.56 pounds
Gate posts (greater than 12 ft. leaf)	6 inches	6.625 inches	18.97 pounds

C. Top Rail: The top rail shall be provided with couplings approximately every 20 feet. Couplings are to be the outside sleeve type, at least 6 inches long.

D. Concrete: Concrete shall have a minimum compressive strength of 3,000 psi at 28 days.

E. Barbed Wire: Where permitted by building and zoning codes, the fence shall have six strands of barbed wire mounted on "V" arm post top extensions, as shown on the Plans. Barbed wire shall meet the requirements of ASTM Standard A121, "Zinc- Coated (Galvanized) Steel Barbed Wire", latest edition, for wire gage No. 12-1/2 (2 strands) with a minimum zinc coating of 0.5 ounce per square foot of wire surface (Class 2 coating), applied before fabrication. The individual barb shall be four points, twisted around both wires, with the barbs spaced no more than 5 inches apart.

F. Gates:

1. The gate frames shall be assembled by welding and shall be hot-dip galvanized after fabrication. The gate shall be installed complete with all hardware, including hinges, locking devices, drop bars, center stops, holdbacks and other items, as required.

2. The gate frame shall be made of 1-1/2 inch diameter Schedule 40 pipe and shall be welded at all corners so as to form a rigid one piece unit for each leaf. Fabric shall be securely stretched and held in the center of the tubing by use of hooks, bolts and tension rods on all four sides of the gate opening frame.

3. If permitted, the gate shall have three strands of barbed wire mounted on frame top extensions and barbed wire shall be as specified above.

4. Gates shall have a center stop and drop rod with padlock hardware and padlock. Gate stops and latches shall all be hot-dip galvanized.

5. Gate post shall be equipped with caps designed to exclude moisture from the post.

6. Gate posts shall be equipped with caps designed to exclude moisture from the post.

G. Accessories: Miscellaneous hardware shall be of steel, malleable iron or ductile iron of standard design and conform to the requirements of the Chain Line Fence Manufacturer's Institute. All parts shall be galvanized except ties and clips may be of aluminum. The Contractor shall install all of the hardware necessary for a complete and working installation, and shall include the following:

1. "V" Arms or Single Arm Post Extensions for Barbed Wire:

Barbed wire supporting arms shall form an angle of approximately 45 degrees with the vertical fence and be fitted for attaching three strands of barbed wire. The top wire shall project approximately 12-inches horizontally from the fence line. The other wires shall be spaced uniformly between the top of the fence

fabric and the outside strand. The barbed wire supporting arm shall be manufactured from pressed steel or malleable iron capable of withstanding 200 pounds applied at outer strand of barbed wire. It shall be designed as a combination weather-tight closure cap and a barbed wire supporting arm, where barbed wire is required.

2. Padlocking Device shall be a fulcrum type latch assembly for double gates.

3. Post Caps shall be of cast steel or cast iron and shall be designed to provide a drive fit over the top of the post to exclude moisture.

4. Tension Bars shall be one piece for the fence height of the fabric with a minimum cross-section of 3/16" x 3/4". Provide one tension bar for each end post, and 2 for each corner and pull post. The gate shall have tension bars as shown on the Plans.

H. Tension bars, the tension bar bands, post caps, V-arms, brace rods, top rail clamps, turnbuckles, nuts and bolts, all gate hardware and remaining accessories shall be zinc coated in accordance with the ASTM Standard A153 "Zinc Coating (Hot Dip) On Iron and Steel Hardware", latest edition.

I. Hardware: Miscellaneous hardware shall be of steel, malleable iron or ductile iron of standard design and conform to the requirements of the Chain Link Fence Manufacturer's Institute. All parts shall be galvanized except ties and clips, which may be aluminum.

PART 3 - EXECUTION

3.01 ARRANGEMENT

A. Posts: Post shall be uniformly spaced, not to exceed 10-feet on centers. Intermediate post shall have waterproof tops which have integrally cast openings through which the top rails shall pass.. Terminal posts shall consist of one end, corner and pull posts.

B. Braces: Braces shall be provided at each gate, corner, pull and end post.

C. Ties and Clips: Fabric shall be fastened to all intermediate posts with 9 gauge tie wires, spacing not to exceed 14-inches apart. Fabric shall be tied to top rail with 9 gauge tie wires, spacing not to exceed 24-inches on centers.

3.02 INSTALLATION

A. All posts shall be installed in accordance with ASTM F567, "Practice for Installation of Chain Link Fence", latest edition. Where conflict between said standard and these specifications exists, the more stringent shall apply.

B. Post Setting: Line posts shall be set in holes 12 inches in diameter, 38 inches deep with 36-inch post embedment. Terminal posts shall be set in holes 15 inches in diameter, 38 inches deep with 36-inch post embedment. Gate posts for double swing gates shall be set in holes 18 inches in diameter, 38 inches deep with 36-inch post

embedment. Gate posts for single swing gates shall be set in holes 15 inches in diameter, 38 inches deep with 36-inch post embedment. After the post has been set and plumbed, the hole shall be filled with concrete. The exposed surface of the concrete shall be crowned to shed water.

C. Terminal and Gate Posts: Terminal and gate posts shall be set as specified above and shall be braced to the nearest post with a galvanized horizontal brace used as a compression member and a galvanized 3/8-inch steel truss rod and truss tightener used as a tension member.

D. Fabric: Fabric shall not be stretched until concrete footings have cured a minimum of three days. Chain link fabric shall be placed on the side designated by the Engineer of Record and shall be stretched taut approximately 1-inches above finish grade and securely fastened to all posts. Rolls of wire fabric shall be joined by weaving a single strand into the ends of the rolls to form a continuous mesh.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE, REINFORCING AND FORMWORK

PART 1 GENERAL

1.01 DESCRIPTION

A. Work included: Provide all labor, materials, equipment, fabrication, incidentals, transportation, placing and supervision necessary to complete all cast-in-place concrete work, its finishing, and all related work called for by the Contract Drawings and/or Specifications, or reasonably inferable from either or both, as needed for a complete and proper installation.

B. Related work: Work affecting this Section includes, but is not limited to:

1. Shop Drawings-Per General Conditions and as specified herein.
2. Materials and storage thereof.
3. Reinforcing-Bar and fabric.
4. Accessories of every nature, including form tie system.
5. Formwork and removal thereof, including shoring and reshoring.
6. Concrete proportions and mixes.
7. Placing of concrete.
8. Admixtures.
9. Joints, metal joint screeds and joint fillers.
10. Finishes of all types.
11. Protection and curing.
12. Patching.
13. Laboratory Testing.

1.02 QUALITY ASSURANCE

A. Unless otherwise indicated, all materials, workmanship and practices shall conform to the requirements of ACI 301-96 "Specifications for Structural Concrete for Buildings", except as modified by supplemental requirements hereinafter.

1.03 STANDARDS

A. ACI 301-96 Specifications for Structural Concrete.

B. ACI 318-95 Building Code Requirements for Reinforced Concrete.

C. Florida Building Code, latest edition.

D. ACI 117-90 Standard Specifications for Tolerances for Concrete Construction and Materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials for Concrete:

1. Cement shall conform to the following: Portland Cement ASTM C150, normal, type I or type II. Provide domestic cement of one type and from same source for entire project.

2. Mineral Admixtures:

   a. Fly Ash: Shall conform to ASTM C 618. 20% maximum of total cementitious weight.
   b. Ground Blast Furnace Slag: Shall conform to ASTM C 989-93. 30% maximum of total cementitious weight.

3. Chemical Admixtures: The following admixtures are permitted, but require written approval from the Engineer:

   a. Air Entraining Admixture: Comply with ASTM C260. "Specifications for Air-Entraining Admixtures for Concrete.
   b. Water Reducing Admixture: Comply with ASTM C494 "Specifications for Chemical Admixtures for Concrete, Type A and compatible with air entraining admixture.
   c. Water Reducing and Retarding Admixture: Comply with ASTM C494, "Specifications for Chemical Admixtures for Concrete, Type D, and compatible with air entraining admixture.
   d. High Range Water Reducing Admixture: Comply with ASTM C494, "Specifications for Chemical Admixtures for Concrete, Type F or G, and compatible with air entraining admixture. (Including superplasticizer to reduce water content.)
   e. Admixtures containing added calcium chloride are not permitted.

4. Aggregates: Shall conform to ASTM C 33 and shall be quarried/mined in fresh water. Aggregates from salt water or brackish water are not permitted. Coarse aggregate size shall not exceed:

	Concrete member	Size	
a.	Walls	3/4"	67#
b.	Beams or structural slabs not on ground	3/4"	67#
c.	Columns and all other concrete	1"	57#
d.	Drilling concrete pad or slabs on ground	1"	57#

5. In sanitary sewage applications, where called for in the plans and/or specifications an antimicrobial admixture as specified below shall be utilized:

   a. An antimicrobial agent, Con^{MIC}Shield®, or approved equal, shall be used to render the concrete uninhabitable for bacteria growth.

b. Contractor shall mix the liquid antimicrobial additive with the total water content of the concrete mix design in a proportion of 1 gallon per cubic yard. In the case of repairs to damaged concrete a proportion of 2 gallons per cubic yard shall be utilized.
c. In some instances all of the concrete in the structure in will receive the additive and in other instances only a portion of the concrete will receive the additive. Hence, the Contractor shall apply the additive only as directed in the specific instance.
d. Contractor shall submit a letter of certification to the CITY, stating that the correct amount and correct mixing procedure was followed for all antimicrobial concrete.
e. Con^{MIC}Shield® antimicrobial additive shall be as manufactured by Con^{MIC}Shield® Technologies, Inc.; 541 Tenth Street NW #233, Atlanta, GA 30318; Phone: (877)543-2094.

B. Portland cement and reinforcing steel: Comply with ACI 301-96 and, with all modifications and supplements thereto listed in Part 3 of this specifications.

C. Burlap mats: Conform to AASHTO Specification M182. (Burleen non-staining mats.)

D. Epoxy bonding agent: A two (2) component, solvent free, moisture insensitive structural epoxy adhesive conforming to ASTM C881-90 Type II, Sikadur 32 Hi-Mod, as manufactured by Sika Corp., Concresive 1090 Liquid by Master Builders or approved equal.

E. Anchor bolts, nuts and washers: Conform to ASTM A449-89, hot-dip galvanized.

F. Dovetail slots: Galvanized steel, 22 gauge, 1"x 1", with 5/8" throat, fiber filled.

G. Forms:

1. Plywood Forms: PS-1, B-B Concrete Form, Class I, exterior type, mill oiled and edge sealed. Thickness shall be as required to support concrete at the rate placed, but not less than 3/4".
2. Steel Forms: Uncoated steel, 3/16"-inch minimum thickness, fabricated to close tolerances, protected only by the specified release agent, braced so as not to dent, bend or dimple under wet concrete loads, vibrator impact and tool impact. Maintain steel forms in rust free condition by use of steel wool and light grinding, followed by coats of the specified release agent. Forms should be adjustable to be brought into true alignment without steps or ridges.

H. Form release agent:

1. For plywood forms use a natural non-petroleum base, non-staining and non-retarding release agent that will effectively prevent absorption of moisture and prevent bond with concrete, and leaves the concrete with a paintable surface.
2. For steel forms, use an approved material that will not stain, color or otherwise affect

the finish of the concrete. Form coating shall not be detectable on finished surfaces.

3. Round column forms: Provide seamless fiber forms with the three plies nearest to the interior surface of the form deckled or scarfed and overlapped to minimize spiral gaps or seams on the column surface.

I. Form Ties: Steel rod type with integral waterstops and cones, and with ends or end fasteners that can be removed without spalling the concrete and which leave a hole equal in depth to the required reinforcement clearance, but not less than 2 inches from the formed face of the concrete. Wire tie, banding wire and wood spreaders will not be permitted.

J. Form Inserts:

1. Bevel or chamfer strips: Wood or non-staining plastic, 3/4" wide on each leg at exposed edges of concrete members, unless otherwise noted on plans.
2. Tongue and Groove Joint Forms: Minimum 24 gauge with steel stakes and splice plates. Forms shall be designed for joints not to receive a poured seal.
3. Pipe hangers and other utility supports: AISI Type 316 stainless steel.

K. Non-Shrink Grout: Non-shrink, non-metallic grout conforming to ASTM C 1107 Grade B or Grade C only. Grout must meet ASTM C 1107 at a temperature range of 50 F to 90 F at a flowable consistency.

L. Grout for Surface Repair and Bond Coat:

1. For repair, one part Portland cement to two parts fine sand, and a 50%of water and 50% Acryl 60 or equal (Thoroseal or Acryl Set Bonding Agent by Master Builders) to produce a stiff mortar.
2. For bond coat, one part Portland cement to one part sand, and a 50% of water and 50% Acryl 60 or equal (Thoroseal or Acryl Set Bonding Agent) to produce a slurry mix.

M. Moisture Barrier: Kraft paper and glass reinforcing fibers sandwiched between 2 layers of polyethylene film with a permeance rating of maximum 0.1 as per ASTM E-96, Procedure A.

N. Preformed Expansion Joint Filler: Non-extruding type, self expanding cork, 3/4", 1", and 1½" cork (not to be used for sidewalks), conforming to plans or as otherwise noted on drawings, conforming to the requirements of ASTM D1752, Type II, and compatible with joint sealant compound.

O. Joint Sealant Compound: Non-sag, 2 component, solvent free, moisture insensitive, flexible, epoxy resin conforming to the requirements ASTM C920-87 Type M, Grade NS. Additionally, the sealant must be recommended by the manufacturer to perform under continuous immersion in water.

P. Polyurethane Elastomeric Sealant: Sikaflex-2c, NS/SL or approved equal. Provide a 2-component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a non-sag and self-leveling consistency. Sealant shall meet ASTM C-920 and Federal Specifications TT-S-00227E.

1. Joint Movement: +50%.

Q. Waterstops:

1. Volclay Waterstop-RX or approved equal. Flexible strip of bentonite waterproofing compound in coiled form.

    a. Chemical Composition:

        1) Butyl Rubber-Hydrocarbon: 24.9% by weight; ASTM D-297.
        2) Bentonite: 75 % by weight; SS-S-210-A.
        3) Volatile Matter: Below 1 %; ASTM D-6.
        4) Waterstop shall not contain any asbestos fibers or asphaltics.

    b. Physical Properties:

        1) Specific Gravity: 1.57; ASTM D-71.
        2) Application Temperature Range: 5-125 F.
        3) Flash Point: 365; ASTM D 93-97.
        4) Accelerated Aging: Maintained 99% solids.
        5) Dimensions: 1" x 3/4" x 16'-6"

2. Polyvinyl chloride (PVC): Conforming to the requirements of U.S. Army Corps of Engineers Specification CRD-C-572 and of the following type:

    a. Expansion Joints: 9-inches by 3/8-inch, ribbed center bulb.
    b. Construction Joint: 9-inches by 3/8-inch, flat ribbed.
    c. Only where specified on Plans at construction and expansion joints: 9-inches by 3/8-inch, split ribbed.
    d. Install waterstops as shown as manufactured structures.

R. Fiber Reinforcement: Fiber reinforcement shall not be used in the concrete unless ordered buy the Engineer in writing. It shall consist of 100% virgin polypropylene fibrillated fiber-dosage of 2 lbs. per cubic foot.

1. Compressive Strength: 1 psi (.006895 M Pa), ASTM C-39.
2. Flexural Strength: 288 psi (2.0 M Pa) after 7 days, 390 psi (2.7 M Pa) after 28 days; ASTM C-78.
3. Splitting Tensile Strength: 194 psi (1.3 M Pa) after 7 days, and 290 psi (2.0 M Pa) after 28 days; ASTM C-496.
4. Source: Fibermesh Micro-Reinforcement System by Fibermesh Company, Division of Synthetic Industries, Inc. Or approved equal.

S. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

T. A shrinkage reducing admixture (Teraguard) or equivalent at the rate of 2.2% by weight of cement may be used in the concrete to meet the shrinkage limitations.

U. To protect the concrete slab against the elements, the Engineer may direct the Contractor to spray an evaporation retarder on the finished concrete slab immediately behind the cement finishing process at no additional cost to the CITY. This is not a curing compound.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work.

3.02 SUPPLEMENTAL REQUIREMENTS

A. All phases of concrete construction, including materials formwork, and all other related procedures shall comply with the most stringent allowed tolerances of ACI-301 and ACI-117 Standards (Latest Edition) - Non compliance with these standards will cause full rejection of any work done.

B. Comply with ACI 301-96 and with all modifications and supplements thereto listed herein. In addition to the ACI Standards on finished concrete, the Engineer will only approve quality finished concrete which in his opinion is ready to receive a grout finish, paint or liquid membrane.

C. The following modifications and supplements to ACI 301-96 shall also apply to the work.

1. General

a. These specifications cover cast-in-place structural concrete for use in buildings and appurtenances, including foundations, curbs, sidewalks, concrete pavements and utility structures, water containment tanks, and piles.
b. Keep minimum two (2) copies of ACI 301-96 "Specifications for Structural Concrete" in field office at all times.

2. Proportioning and Design of Mixes:

a. General: Proportion concrete to meet properties as specified. Prepare mix designs for each type and strength of concrete. Submit with mix design the chemical admixture manufacturer’s statement that the admixture proposed complies with the requirements of this specification. Where concrete of different strengths are specified for the same location, the higher strength concrete shall be used. Concrete proportions shall be established on the basis of previous field experience, or laboratory trial batches as specified in ACI 301-96 Sections 4.2.2 & 4.2.3.

b. Classes of Concrete:

1) Structural concrete of normal weight for portions of the structure that are required to be watertight containments or tremie concrete, the water/cementitious ratio shall not exceed 0.45 if exposure is to be to fresh water.
2) If the concrete is exposed to salt or brackish water, or if exposed to injurious

concentrations of sulfate-containing solutions (1500 ppm or more of Sulfate in water) or other chemically aggressive solutions, use Type II cement with Rheobuild 1000 admixture by Master Builders, or approved equal; water/cementitious ratio shall not exceed 0.34.

3) Other Concrete: (This would be slabs-on-grade, concrete thrust blocks, and miscellaneous concrete). The water cementitious ratio shall not exceed 0.50 to 0.55.
4) Minimum f'c @ 28 days shall be 4000 KSI with a Water/Cement ratio of 0.45.
5) Minimum f'c @ 28 days shall be 7000 KSI with a Water/Cement ratio of 0.34.

c. Slumps:

1) All structural concrete, pumped concrete and tremie concrete shall contain a High Range Water Reducing Admixture and be designed with a maximum water content of 270 pounds per cubic yard. The initial water slump prior to addition of the High Range Water Reducing Admixture shall be 2-inch maximum. Concrete at point of placement shall not exceed 10-inches. Concrete shall be non-segregating.
2) Slabs including slabs-on-grade, and all other concrete shall have a maximum water content of 287 pounds per cubic yard and have a 5-inch maximum slump with a water reducer, or water reducer and retarder admixture added.

3. Formwork

a. Earth cuts are not permitted for forms for vertical surfaces. Footings, grade beams and slab edges shall be formed. Provide moisture barrier under all slabs on grade. Lap 6-inches and tape punctures.
b. The contractor is responsible for the adequacy of forms and shoring including placing, fill and equipment on roof, and for safe practice in their use and removal. Submit formwork calculations, and shop drawings including shoring and reshoring. In addition, the calculations and shop drawings for formwork, shoring, and reshoring, if required by the Engineer or Building CITY, shall be signed and sealed by a Professional Engineer registered in the State of Florida.
c. Design forms for the loads and lateral pressures resulting from the placement and vibration of concrete and for design considerations, wind loads, allowable stresses, and other applicable requirements of the South Florida Building Code.
d. Provide form facing materials as required by the specified finish of the formed surface. Do not use facing material with raised grain, torn surfaces, worn edges, patches, dents or other defects. No form may be reused more than three times without the CITY's approval. The maximum deflection permitted of facing materials reflected in concrete surfaces exposed to view is 1/240 of the span between structural members.

1) Forms shall be free from surface defects, tight to prevent leakage and braced to keep its position and shape when filled with concrete. Adjacent edges and end panels and sections shall be held together to provide accurate alignment and prevent forming ridges, fins, offsets or similar type

defects in finished concrete. It shall be tight to prevent loss of water, cement or fines during placing and vibrating concrete. The bottom of the forms placed in continuous straight even footings or slabs shall be watertight to prevent loss of water, cement and fines during placement and vibration of concrete, a gasket may be required by the Engineer under the forms to provide water tightness at the Contractor expense. The Contractor shall not proceed to place forms for concrete work adjacent to or on top of previous placed concrete without the Engineer's approval, if the stripped forms reveals columns, walls or beams are out of level or plumb or there are cold joints or other objectionable work in the opinion of the Engineer. Contractor shall submit to the Engineer for approval, how he intends to correct or remove the defective work promptly at his expense. Contractor shall perform such corrections prior to proceeding to place concrete in the next Section.

e. Provide positive means of adjustment (wedges or jacks) of shores and struts, and all settlement shall be taken up during concrete placing operation. Brace forms securely against lateral deflection. Do not anchor form bracing to poured concrete floors, or make holes in floor.

f. Provide temporary openings in columns and wall forms to limit the free fall of concrete to five (5) feet. Place such openings at no more than eight (8) feet apart to facilitate placing and consolidation of concrete. Elephant trunks may be used to vertical heights of fifteen (15) feet for tremie and other purposes, if approved by the Engineer. Provide temporary openings at the bottom of wall and column forms and elsewhere as necessary to facilitate cleaning and observation immediately before concrete is placed. Blow formwork entirely clean of all saw dust, dirt, or other items not specifically intended to be a part of the final concrete. Any evidence of non-intended items in the forms is considered sufficient cause to stop concreting operation and/or require removal of concrete placed in such contaminated forms.

g. Provide inserts, conduits, boxes, sleeves, anchors, ties, bolts, hangers, dowels, thimbles, nailers, grounds and other devices in coordination with other trades.

h. Set anchor bolts and other embedded items accurately and hold securely until concrete is placed and set. Anchor bolts shall be galvanized and of size and length as indicated on the Contract Drawings. Bolts not sized shall be 3/4-inch diameter.

i. Insert galvanized dovetail anchor slot in forms, in columns, beams and slabs completely around in-fill masonry panels. Coordinate with Section 04220 Unit Masonry, Part 3 Execution, 3.01.J.2.c. for spacing of dovetails.

j. Install wall spools, wall flanges and wall anchors before placing concrete. Do not weld, tie or otherwise connect the wall spools to the reinforcing steel.

k. Do not use pinch bars, wrecking bars or other metal tools against as-cast concrete to wedge forms loose; use only wooden wedges carefully and gradually. Driving shall be accomplished by light tapping.

l. The Contractor is responsible for the removal of forms and shores. Do not remove forms or shores before the member has attained sufficient strength to support its weight and the loads imposed, nor sooner than listed below:

    1) Wall forms: 24 hours.

2) Column forms: 24 hours.
3) Beam and girder side forms only (not bottom form): 24 hours.
4) Beam and Girder bottom forms: 7 days minimum unless otherwise approved by the Engineer.
5) Slab forms: 14 days.
6) Arch centers: 7 days.
7) Pan joist forms: 4 days.

4. Reinforcement

a. Prior to fabrication, submit for review shop drawings showing all fabrication dimensions, bar lists and location for placing of the reinforcing steel and accessories, including spacing of reinforcing, splices (lap, welded, Cadweld and/or mechanically threaded), grade of reinforcing and name of manufacturer. Note all deviations from the Contract Drawings and use the same designation mark as shown on the Contract Drawings where possible.
b. Reinforcing bars: ASTM A615, Grade 60, deformed bars of USA manufacturer.
c. Welded wire fabric: ASTM A185, galvanized.
d. Metal bar supports: CRSI MSP-1, Chapter 3, Class 2, Type B stainless steel protected bar supports.
e. Coupler Splice Devices: Cadweld, tension couplers capable of developing the ultimate strength of the bar.
f. Reinforcing steel upon which unauthorized welding has been done, shall be removed and replaced at no additional cost to the CITY.
g. Place reinforcing bars to the most stringent tolerances indicated in ACI 301 and ACI 117 (Latest Edition). Tolerances specified in those standards shall govern over any other reference code or standard.
h. All reinforcement at time concrete is placed, shall be free of mud, oil or other materials that may affect or reduce the bond. Reinforcing with rust or mill scale will not be accepted without cleaning and/or brushing to remove scale and rust.
i. Support rebar and mesh reinforcing for slabs on grade 1½ inches from top of slab on masonry blocks not less than 4 sq. in., having a compressive strength equal to or greater than the specified strength of the concrete being placed. Space blocks at no more than 4 feet apart each way for rebars, and no more than 3 feet apart for mesh reinforcement.
j. Support reinforcing off from formwork for columns, walls and beams with stainless steel protected bar supports. Support slab reinforcing on #5 bars, or larger, spaced at no more than 48 inches on center. Space individual high chairs no more than 48 inches apart and support bars shall not exceed 24 inches past outermost chairs.
k. Overlap welded wire fabric in such a manner that the overlap measured between outermost cross wires of each fabric sheet is not less than the spacing of the cross wires plus 2 inches or 6 inches, whichever is greater. Do not extend fabric through expansion and/or contraction joints, unless otherwise noted on the Contract Drawings.
l. The minimum clear distance between parallel bars, both vertical and horizontally, shall not be less than the nominal diameter of the bars, or less than 1½ times the maximum size of the aggregate, or 1-inch in beams, or 1½ inches in columns, whichever is greater. Where reinforcement in beams is placed in two or more layers, the upper layer shall be placed directly above the bars in the bottom layer.

Misplacement, misalignment or improper length of dowels shall be sufficient cause to require removal and reconstruction of affected work.

m. Unless allowed by the Engineer, bending of reinforcing partially embedded in concrete is not permitted. When permitted, bending shall be in accordance with CRSI Manual of Standard Practice.

5. Joints and Embedded Items.

   a. Provide premolded expansion joint filler strips of proper width and length as specified in the Contract Drawings. Place ½" expansion joint fillers every 20 feet in straight runs of walkways or sidewalks, at right angle turns and wherever concrete butts into vertical surfaces, unless otherwise noted on the Contract Drawings.
   b. Provide waterstops in all construction joints, unless otherwise indicated on the Contract Drawings.
   c. Join all waterstops at all intersections so that a continuous seal is provided. Center the waterstop in the joint. Hold water stop positively in correct position. In the event of damage to the waterstop, repair the water stop in an acceptable manner. Vibrate concrete to obtain impervious concrete in the vicinity of all joints.
   d. Install waterstop in accordance with instructions of the manufacturer. Prior to use of the waterstop material in the field, submit to the Engineer for approval a sample of each size and shape to be used. Fabricate sample so that the material and workmanship represent in all respects the fittings to be furnished under this Specification.
   e. Place all sleeves, inserts, anchors, and other embedded items prior to placing concrete. Anchors and bolts cast in concrete shall be hot dip galvanized or stainless steel. Where permitted by the Engineer, concrete expansion bolts shall be stainless steel and of the wedge anchor type. Take all necessary precautions to prevent embedded items from being displaced, broken or deformed during concreting operation. Protect drains from intrusion of concrete.

6. Placing:

   a. Equipment for mixing and transporting concrete must be clean. Forms shall be thoroughly clean and damp, and reinforcing shall be secured in place. Runaways for transporting concrete shall not rest on reinforcing. When concrete is placed against earth, sprinkle sufficiently before placing.
   b. Deposit of concrete in forms no longer than ninety (90) minutes after the initial design water has been added to the cement and aggregates. Concrete which can not be so placed shall not be used and shall be wasted. **No additional water shall be added**. No retempering with water is permitted.
   c. In addition to the requirements of ASTM C94, the concrete delivery tickets shall indicate the cement content and water/cement ratio.
   d. During hot weather, proper attention shall be given to ingredients, production methods, handling, placing, protection and curing. Comply with ACI 305R "Hot Weather Concreting" recommendations.
   e. Do not place concrete in forms unless the water level is below the concrete to be placed, even if it is necessary to maintain the dewatering, or under rain.
   f. Do not place concrete under water except for tremie concrete as called for on the Contract Drawings. Submit for approval plan and details of means and methods for installation of seal tremie concrete prior to commencement of work. Seal

concrete which subsequently fails to perform, shall be repaired or replaced at no additional cost to the CITY.

g. Place seal concrete under water in the space in which it is to remain, by means of a tremie, a closed-bottom dump bucket of not less than one cubic yard capacity, or other approved method, and do not disturb after it is deposited. Deposit all seal concrete in one continuous pour. Do not place concrete in running water. Design all formwork, to retain concrete under water, to be watertight. Submit shop drawings for the design of formwork and excavation sheeting signed and sealed by a Florida Registered Professional Engineer.

h. The tremie shall consist of a tube having a minimum inside diameter of ten (10) inches, and shall be constructed of sections having tight joints. No aluminum parts which have contact with the concrete will be permitted. The discharge end shall be entirely seated at all times and the tremie tube kept full to the bottom of the hopper. When a batch is dumped into the hopper, the tremie shall be slightly raised (but not out of the concrete at the bottom) until the batch discharges to the bottom of the hopper, after which the flow shall be stopped by lowering the tremie. The means of supporting the tremie shall be such as to permit the free movement of the discharge end over the entire top surface of the work, and shall permit it being lowered rapidly when necessary to choke off or retard the flow. The flow shall preferably be continuous and in no case shall be interrupted until the work is completed. Exercise special care to maintain still water at the point of deposit.

i. When the concrete is placed by means of a bottom dump bucket, the bucket shall be lowered gradually and carefully until it rests upon the concrete already placed. The bucket shall then be raised very slowly during the discharge travel; the intent being to maintain, as nearly as possible, still water at the point of discharge and to avoid agitating the mixture. Aluminum buckets will not be permitted.

j. Do not commence pumping, to dewater a sealed cofferdam, until the seal has set sufficiently to withstand the hydrostatic pressure, and in no case earlier than 72 hours after placement of concrete.

k. Notify Engineer a minimum of 24 hours prior to concreting and request a specific time for observation of reinforcing and formwork for portions of concrete work to be placed. No observation will made by the Engineer until rebar installation for all work to be done and all formwork has been completed and approved by the Contractor's field superintendent. Do not order concrete until all correction and additions indicated by the Engineer have been made. Should the Engineer's observation reveal that work is improperly prepared and an additional observation will be required, he will so inform the Contractor and all above requirements shall also govern.

7. Repair of Surface Defects:

a. Repair all concrete surface defects, which includes, but not limited to cracks, tie holes (no plastic cones), uneven holes, honey combs, rough frame work and other objectionable conditions deemed unacceptable to the Engineer immediately after form removal. This repair work is to be done for all concrete expose surfaces, liquid applied surface or painted surfaces in or out of the water. Repair all cracks and defects in the concrete floors, beams, joists, columns, and other structural members, roof and walls, to the satisfaction of the Engineer, that may occur up to one year after acceptance of work regardless of the cause. Test unformed, surfaces such as monolithic slabs, for smoothness and verify placement

tolerances specified for each surface and finish. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness. Repair unformed surfaces that contain surface defects which affect durability of concrete. Surface defects, as such, include cracking, cracks which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets and other objectionable and rough conditions.

b. Proprietary compounds for adhesion or as patching ingredients may be used, if approved by the Engineer. All structural repair of surface defects to be made require the approval of the Engineer, as to the method and procedure. Approval of the completed work must be obtained from the Engineer.

8. Finishing of Formed Surfaces.

a. Apply rough form finish to exterior walls below grade not exposed to water.
b. Apply smooth form finish to exterior and interior walls and columns exposed to water.
c. Apply smooth form finish to interior walls and underside of floors, stairs and slabs.
d. In addition to the smooth form finish, apply a grout cleaned finish to concrete walls and surfaces exposed to public view and underside of formed floors, stairs or slabs.
e. Apply a rubber float grout mix to properly prepared concrete surface, only when approved by the Engineer. Mix shall have one part Portland cement to two parts fine sand in a 50% water and 50% Acryl #60 (Thoroseal or Acryl Set) mix or Acryl Set by Master Builders. Make a 10' by 10' sample on the concrete wall for the approval of the Engineer. Finished surface shall be a non dusting hard finish, when scratched with a ¼" metal edge.

f. Finish concrete surface, interior or exterior, below or above water shall include all:

1) Exposed concrete.
2) Grout finished concrete.
3) Painted surface concrete.
4) Liquid membrane finished concrete shall comply with manufacturer’s requirements.
5) The entire surface of finished concrete shall have a smooth uniform surface, there shall be no offsets, visually bulges, or wavering in the finished surfaces. The joints must be accurately aligned, they can not be uneven or in or out, a higher and lower, there shall be no fins, projection or unevenness between forms.
6) If after stripping the forms the Engineer determines that the finished concrete does not comply with any or all of the above requirements, the Contractor shall submit his proposal in writing to the Engineer as to his methods of correcting the work at no added cost to the CITY, which shall include, but not limited to all grinding of fins, projections, unevenness between joints, form high spots and uneven spots.
7) In addition to all other requirements, concrete surfaces exposed to public view, irrespective of size, area or location shall be completely clean and free of: (1) Stains of any nature, (2) Parts of forms or other wood of any nature, (3) laitance, (4) "Run-downs" of leaked water from secondary pours, (5) Nails, (6) Strips, (7) Ties and (8) all other extraneous, deleterious materials

and/or substances which may affect the finished appearance and condition of exposed concrete. Surfaces not meeting the above requirements are to be repaired and treated at no additional cost to the CITY.

9. Slabs

   a. Unless otherwise noted on the Contract Drawings, place strips alternately at maximum 20 feet center-to-center and to align with column centerline. Do not place adjacent strips until elapse of twenty four hours after first strip is placed. Place slabs on grade by the "strip-cast" method. Method to be reviewed by the Engineer. Provide saw-cut joints at maximum 20 feet center-to-center and to align with column center lines within four hours of final finishing.

   b. Provide doweled construction joints where shown on the Contract Drawings.
   c. Provide a hard steel troweled finish, free from trowel marks and irregularities, to slabs and floors.
   d. Provide a light hair-broom finish to exterior slabs and floors exposed to public view. Leave hair-broom lines parallel to direction of the slab drainage.
   e. Provide a stiff bristle broom finish to slabs and floors with slopes greater than 10 percent. Leave broom lines parallel to slope drainage.
   f. Finish exposed edges of slabs, floors and tops of walls with a ¼-inch radius edge unless a chamfer is called for on the Contract Drawings.

10. Curing and Protection

   a. Comply with ACI 305 "Hot Weather Concreting", Chapter 4, with the supplements and modifications to ACI 301 listed herein.
   b. Only concrete water curing for not less than 7 days (24 hours/day continuously) will not be accepted; Burleen mats shall be used in curing. Water cure by ponding or continuous sprinkling covering complete surface with minimum runoff. The application of water to wall may be interrupted for grout cleaning only over the areas being cleaned at the time, and the concrete surfaces shall not be permitted to become dry during such interruption.
   c. Begin all water curing as soon as concrete is set and concrete will not be damaged. Keep concrete and wall forms wet the first 24 hours. Remove forms as indicated in Formwork, Section 3.02-C.4, and continue with 7 day water curing. Recoat damaged surfaces subject to heavy or surfaces damaged by construction procedures within 3 hours of damage. Method of repair shall be approved by the Engineer.

11. Testing

   a. Testing laboratory will be selected and paid for by the CITY. Send results of all test to the CITY and to the Contractor. The Contractor shall notify the Testing laboratory at least 24 hours before each concrete placing.
   b. Obtain and mold 3 specimens for each fifty (50) cu. yds., or fraction thereof, of each class of concrete placed each day or as directed by the Engineer.
   c. Cure specimens from each sample in accordance with ASTM C31. Record in test report any deviations from this Standard.
   d. Test specimens in accordance with ASTM C39. Test one specimen at twenty

eight (28) days for acceptance and, one specimen at three (3) days and seven (7) days respectively, for information. If one specimen in a test manifests evidence of improper sampling, molding or testing, it shall be discarded and the strength of the remaining cylinders shall be considered the test result.

e. Contractors Superintendent shall color code on a set of structural drawings the extent of days work and date to conform to cylinders test.

f. Perform slump test at discharge of mixer, one for each strength test in accordance with ASTM C143. In the event slump is excessive, testing laboratory will immediately notify the Contractor's superintendent and the Engineer's representative on site. The Contractor shall then reject all concrete with excessive slump and/or deposit time.

g. Drying Shrinkage Test: A drying shrinkage test shall be conducted on the preliminary trial batch with the maximum water-cementitious materials ratio used to qualify each proposed concrete mix design using the concrete materials, including admixtures, that are proposed for the project. Three test specimens shall be prepared for each test. Drying shrinkage specimens shall be 4 x 4 x 11 inch prisms with an effective gauge length of 10 inches fabricated, cured, dried, and measured in accordance with ASTM C 157 except with the following modifications:

    1) Specimens shall be removed from the molds at an age of 23 hours ± 1 hour after trial batching, shall be placed immediately in water at 73° F ± 3°F for at least 30 minutes, and shall be measured within 30 minutes thereafter to determine original length and then submerged in lime-saturated water as specified in ASTM C157. Measurement to determine expansion expressed as a percentage of original length shall be taken at age 7 days. The length at 7 days shall be the base length for drying shrinkage calculations (“0" days drying age). Specimens then shall be stored immediately in a humidity controlled room maintained at 73° F ± 3°F and 50% ± 4% relative humidity for the remainder of the test. Measurements to determine shrinkage expressed as percentage of base length shall be reported separately for 7, 14, and 21 days ±4 hours of drying from “0" day after 7 days of moist curing.
    2) Drying shrinkage deformation for each specimen shall be computed as the difference between the base length (at “0" days drying age) and the length after drying at each test age. Results of the shrinkage test shall be reported to the nearest 0.001 percent. If drying shrinkage of any specimen deviates from the average for that test age more than 0.004 percent, the results for that specimen shall be disregarded.
    3) The average drying shrinkage of each set of test specimens cast in the laboratory from a trial batch as measured at the 21 days drying age shall not exceed 0.036 percent and 0.042 percent at the 28-day drying stage for all concrete.

        a) The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25 percent.
        b) If the required shrinkage limitation is not met during construction, the Contractor shall take any or all of the following actions at no additional cost to the Owner, for securing the specified shrinkage requirements. These actions may include changing the source or aggregates, cement

and/or admixtures, including Tetra Guard AS 20 or approved equal; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage.

4) Alkali-aggregate reactivity potential shall be determined in accordance with Appendix XI of ASTM C 33. Aggregates shall be tested in accordance with ASTM C 289 and C295 to determine potential reactivity. Aggregates which do not indicate a potential for alkali reactivity or reactive constituents may be used without further testing. Aggregates which indicate a potential for alkali reactivity shall be further tested in accordance with ASTM C227 or C1105, as appropriate, using a cement containing less than 0.6 percent alkalies. At the discretion of the Engineer, testing in addition to that indicated in Appendix XI of ASTM C33 may be performed on potentially reactive aggregates. Nonreactive aggregates shall be imported if, in the opinion of the Engineer, local aggregates exhibit unacceptable potential reactivity.

12. Evaluation And Acceptance of Concrete.

a. If tests are insufficient or inadequate, test and evaluate by core tests. Failure of any concrete cylinder to meet specified requirements shall be deemed as non-complying and costs of additional tests to determine the adequacy or inadequacy shall be borne by the Contractor. Concrete rejected for any reason is to be removed and replaced, including labor, forms and reinforcing, to meet specifications at no additional cost to the CITY and no additional time extension.

13. Additional Requirements.

a. Submit shop drawings as required per General Conditions and elsewhere in these specifications. Prime Contractor shall check and approve all shop drawings prior to submission. Do not fabricate any item requiring shop drawings until approval of shop drawings has been granted by the CITY. Partial shop drawings are not accepted, submit drawings for complete submittal.
b. Provide precast or cast-in-place reinforced concrete lintels at all masonry openings and sills at all windows. Reinforce to suit loads and span. Provide minimum 8" bearing at each end and, pour integral with columns where opening abuts columns.
c. Sidewalks in R.O.W.: Provide poured-in-place 4" thick concrete slab, 3000 psi concrete, with continuous 8" deep thickened slab edges. Isolate walks from vertical surfaces with ½" expansion joint material. Provide ½" expansion bituminous joint material flush with top of concrete slabs at 20 feet on center and tooled joints at 5 feet on center. Tool all open edges to a smooth radius and all edges adjacent to the forms.

END OF SECTION

SECTION 15060
PIPING AND FITTINGS

PART 1 - GENERAL

1.01 SCOPE:

A. This section describes materials, testing, and installation of ductile-iron pipe and fittings for water and sewer mains, small diameter Poly Vinyl Chloride Pipe (PVC) with threaded, flanged and solvent cemented joints; Copper Pipe and Fittings, and High Density Polyethylene Pipe for water services. The work included in this section consists of furnishing all material, equipment, craft labor and performing all operations necessary for the supply, installation, and commissioning of all piping, fittings and accessories within the limits of work, as shown on the drawings and specified herein.

B. Where references are made to other standards or codes, unless specific date references are indicated the latest edition of said standard or code shall govern.

1.02 WORK NOT INCLUDED UNDER THIS SECTION:

Piping installation for various types of piping systems is specified other sections herein that constitute CITY's Design Standards and Construction Details. Installations specified in this section are supplementary to those sections and in the case of conflict the more stringent condition shall prevail. For type PSM SDR-35, 26 PVC and AWWA C900 PVC sewer pipe and fittings see Section UC-250, "Gravity Sewer Systems".

1.03 RELATED SECTIONS:

A. All sections specifying various types of valves.

1.04 PIPING LAYOUT AND DESIGN CRITERIA:

A. Field verify dimensions prior to preparation of layout and shop drawings. Obtain the following information from the drawings and specifications:

1. Elevation of the pipe centerline and of the completed ground.
2. Alignment of the pipeline.
3. Field test hydraulic gradient elevation (HGL).
4. Nominal internal diameter, ID.
5. Design internal pressure class or HGL
6. Joint types.

B. Obtain shop drawing approval prior to fabrication of piping. All items not specifically mentioned in the Specifications or noted on the approved Plans, but which are reasonably necessary to for a complete, functional, and satisfactory installation shall be included.

1.05 SUBMITTALS

A. Submit shop drawings in accordance with the General Provisions.

B. Provide an affidavit of compliance with standards referenced in this specification, e.g., AWWA C151, AWWA C153, etc.

C. Submit copy of report of pressure tests for qualifying the designs of all sizes and types of pipe and fittings that are being used in the project. The pressure test shall demonstrate that the

minimum safety factor described in relevant standard is met.

D. Submit piping layout profile drawings showing location and dimensions of pipe and fittings; submit after equipment and valve submittals have been reviewed and marked **"Resubmittal not required."** Include laying lengths of valves, meters, in-line pumps, and other equipment determining piping dimensions. Label or number each fitting or piece of pipe. Piping having identical design pressure class, laying lengths, and bell-and-spigot dimensions that is to be placed in long straight reaches of alignment may have the same identifying label or number.

E. Provide the following information:

1. Mortar lining thickness.

2. Wall thickness.

3. Material test data for this project.

4. Show deflections at push-on and mechanical joints.

5. Submit joint and fitting details and manufacturer's data sheets.

F. Fully detailed drawings of all fittings proposed shall be supplied by the manufacturer with his bid. The tabulated nominal weight of each size and type of fitting shall also be supplied by the manufacturer for all items proposed. This weight shall be that of the bare casting prior to application of any lining or coating.

G. Submit calculations and test data proving that the proposed restrained joint arrangement for restrained joint pipe can transmit the required forces with a minimum safety factor of 1.5.

H. Submit copy of manufacturer's quality control check of pipe material and production. Include hydrostatic test records and acceptance test records. For each acceptance test, submit a stress-strain diagram showing yield strength, yield point, tensile strength, elongation, and reduction in area. Provide specimen test section dimensions and speed and method used to determine speed of testing, method used for rounding of test results, and reasons for replacement specimens, if any. Submit ring-bending test of pipe of the same diameter and pressure class as the pipe required for this project to prove ring-bending stress at 48 ksi results in a factor of safety of 2.0.

I. For Ductile Iron Pipe and fittings, submit certificate that cement for mortar lining complies with ASTM C150, designating type.

J. Submit test report on physical properties of rubber compound used in the gaskets.

K. Submit test reports and certifications for ceramic epoxy lining as specified herein. Submit applicators qualifications. Submit manufacturer's written recommendations for application and repair of coating.

L. Submit drawing or manufacturer's data sheet showing flange facing, including design of facing serrations.

M. Submit weld procedure specification, procedure qualification record, and welder's qualifications prior to any welding to ductile-iron pipe or fittings.

1.06 DELIVERY, STORAGE, AND HANDLING

A. During shipping, delivery and installation of pipe and accessories, handle in a manner that is incompliance with the manufacturer's recommendations, and employ procedures that ensure delivery of an undamaged operable product

B. Exercise particular care not to damage coatings by limiting exposure or physical contact with other materials, objects, or the environment.

1.07 INSPECTION

The Owner's Representative will inspect materials, production, and testing of pipes, fittings, and special pieces at manufacturer's plant.

1.08 QUALITY ASSURANCE

All pipe, fittings and other materials supplied under this contract shall be subject to inspection while still on the delivery truck. It is the sole responsibility of the vendor and supplier to make prior contact with the Storekeeper or the Construction Management section and provide a minimum of 48-hours prior notice of delivery. When so notified, the CITY will make arrangements for inspection of the material upon arrival or within a reasonable time thereafter. Material shall not be unloaded without inspections taking place either prior to or, if necessary for examination, during the unloading procedure. The CITY will not be responsible for any delays or additional costs created by non- compliance with the requirement for prior notification or the requirement for thorough inspection.

Materials shall be delivered in complete compliance with the AWWA Standards as modified herein, without damage, and shall match or exceed the quality of any samples supplied. The CITY absolutely reserves the right to require samples of any material supplied and to perform whatever tests considered by the Engineer, whose decision shall be final, to be in the CITY's best interest on said samples. Where such tests are of a destructive nature, the sample, if it passes the test will be paid for (at cost as shown by invoice) by the CITY. Samples failing will be immediately replaced with suitable material at the supplier's/contractor's expense. Samples required prior to order as a condition for purchase or as a materials submittal for approval will be at the supplier's/contractor's expense but, if approved and not used for destructive tests, may be used in the work with permission from the Engineer.

Materials found to be defective, not in strict compliance with the quality standards of samples supplied or these specifications shall be immediately returned to the vendor at his expense. If defects are discovered at a later time, the vendor shall be required to remove said items and shall bare all costs for so doing together with any replacement costs. Rejection of items may subject the vendor to liquidated and/or actual damages as specified elsewhere herein.

Foundries supplying materials shall maintain their metallurgical records for a minimum period of two years after fabrication and firms not doing so may be found in default.

Flaws which provide cause for rejection include;

1. Incorrect metallurgy or metallurgy which cannot be verified to the complete satisfaction of the Engineer;

2. Foundry identification/location, size, pressure and material identification information lost, removed, non-existent, or not visible when assembled;

3. Not in complete compliance with all applicable AWWA Standards as modified herein and/or these specifications;

4. Not in compliance with NSF;

5. Not in compliance with approved shop drawings;

6. Out of roundness in excess of AWWA requirements;

7. Dimensional differences in excess of AWWA requirements;

8. Rough exterior coating;

9. Chipped, cracked, scratched or otherwise damaged interior or exterior coatings or linings;

10. Interior or exterior coatings which are too thin;

11. Coatings too thick to allow proper assembly; coatings too thick to allow proper grip by restraining gaskets or other restraining elements;

12. Pin holes or honey combing of pipe;

13. Weld spatter or excess metal in gasket grooves or the whole of the bell area;

14. Bell areas which are distorted or otherwise improperly cast;

15. Spigots which are out of round, not of proper dimension, or not beveled to an extent that will allow easy assembly of the pipe joint;

16. Gaskets which are defective or of the wrong material;

17. Lack of joint materials;

18. Improper or defective joint materials;

19. Bolting of the wrong material or size;

20. Electro galvanizing or other exterior plating when hot-dip galvanizing is required;

21. Incorrect, flawed or damaged interior coating or lining;

22. Lack or non-submittal of all required certifications;

23. Non-timely submission of certifications; incorrect/incomplete certifications or certifications lacking the signature, date and seal of a professional engineer when so required;

24. Flanges which are too thin, not a right angles to the pipe centerline, or otherwise distorted;

25. The above listed items together with all other flaws or defects which in the opinion of the Engineer, whose decision shall be final, adversely affect the assembly and/or function of the piping system as intended.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS: DUCTILE IRON

A. GENERAL

As used herein, "ANSI" denotes the American National Standards Institute, "AWWA" denotes the American Water Works Association, and "ASTM" denotes the American Society for Testing and Materials.

All pipe and fittings to be furnished hereunder shall conform to the referenced ANSI and/or AWWA Standard as modified herein, as appearing in the following sections.

All markings required on pipe and fittings, shall be permanent and clearly legible and located such that they will not be hidden or destroyed when assembled into the intended system. Plainly mark each length of straight pipe and each fitting at the bell end to identify the design pressure class, the wall thickness, and the date of manufacture, and the proper location of the pipe item by reference to the layout schedule. Mark the spigot end of restrained joint pipe to show clearly the required depth of insertion into the bell.

B. DUCTILE IRON PIPE

All pipes shall be ductile iron pipe conforming to ANSI/AWWA Standard C151/A21.51-09, "Ductile-Iron Pipe, Centrifugally Cast, for Water". All pipe and fittings for water applications shall be in full compliance with ANSI/NSF 61, "Drinking Water System Components-Health Effects". Manufacturers shall maintain their NSF certification for the duration of the Contract and any extensions thereof.

The pipe thickness and outside diameter of pipe for sanitary sewer and water usage shall conform to Tables 1 and 2 (for push-on and mechanical joint pipe, respectively) of ANSI/AWWA Standard C151/A21.51-09 for the following sizes. The pressure class specified is the minimum permitted:

Size	Pressure Class
4-inch through 12-inch	350
14-inch through 20-inch	250
24-inch	200
30-inch through 54-inch	150

For restrained joint pipe, the thickness of the pipe barrel remaining after grooves are cut, if required in the design of restrained end joints, shall not be less than the nominal wall thickness of equal sized non-restrained joint pipe as shown above.

Minimum wall thickness for pipe having threaded flanges shall be Special Class 53 or Pressure Class 350.

Minimum pipe wall thickness required for corporation stops and tapped outlets shall be in accordance with Table A.1 of ANSI/AWWA C151/A21.51-09 for three full threads for design pressures up to 250 psi and four full threads for design pressures over 250 to 350 psi.

For flanged ductile-iron pipe with integrally cast flanges or threaded flanges, the nominal wall thickness of the pipe barrel shall be as specified in Section 3.3, "Joints and Accessories" under "Flanged Joints", herein below.

Minimum wall thicknesses for pipe having grooved-end joints shall be as shown in the following

table:

DI Pipe and Fitting Sizes (inches)	Grooved End Joint Wall Thickness*
16 and smaller	Special Class 53
18	Special Class 54
20	Special Class 55
24 to 36	Special Class 56
42 and larger	Special Class 53 or Pressure Class 350
*Special Class and Pressure Class per AWWA C151-09.	

Each piece of pipe shall be marked as required in Subsection 4.7 of AWWA C151-09. Letters and numerals on pipe sizes 12-inch and smaller shall be not less than 3/8-inch.

The CITY absolutely reserves the right to require the use of "thickness" class pipe or higher pressure class pipe in applications where in the opinion of the Engineer (i.e. the Chief, Engineering Division, CITY or his representative) such use is in the best interest of the CITY. The Engineer's decision in this regard shall be final.

A sufficient quantity of non-toxic vegetable soap lubricant shall be supplied with each shipment of pipe. The soap lubricant shall be suitable for use in subaqueous trench conditions.

Single gasket push-on pipe shall be shipped in standard 18-foot or 20-foot lengths, but not both. Restrained single-gasket push-on joint pipe shall be shipped in standard 18 or 20-foot lengths as specified above or fabricated lengths as noted in each order. At least two lengths of each size of single gasket push-on pipe furnished under each order shall be tested with circumferential gauges to ensure that the pipe may be cut at any point along its length and have an outside diameter which will be within the manufacturer's standard design dimensions and tolerances for plain pipe. These lengths shall be identified with an easily distinguished, painted marking, longitudinally along the full length of the pipe.

C. GASKETS

Water Mains shall use SBR gaskets for typical applications and field conditions. Gaskets constructed of EPDM, Nitrile are used in areas where geotechnical information indicates the presence of moderate contamination is possible. All water mains shall use gaskets material with NSF 61 approval.

Sewer Mains shall use Neoprene or EPDM gaskets for typical applications and field conditions.

Areas with chemical or hydrocarbon contamination shall use the gasket material as recommended by the Ductile Iron Pipe Research Association (dipra.org) or the gasket manufacturer.

D. FITTINGS

Fittings Conforming to ANSI/AWWA C110/A21.11-12 (Water & Sewer Use)

Restrained push-on joint fittings shall be cast ductile iron for use with ductile-iron pipe as specified above. Standard mechanical joint, push-on joint and flanged joint fittings shall also be

ductile iron for use with ductile-iron pipe as specified above. Cast ductile-iron fittings in the 3-inch through 24-inch size range shall be pressure rated at 350 psi, minimum; (except flange-joint fittings shall be rated at 250 psi, minimum); and in the 30-inch through 54-inch- inch size range shall be pressure rated at 250 psi, minimum. All fittings with mechanical joints, flange joints and push-on joints shall conform to ANSI/AWWA Standard C110/A21.10- 12, "Ductile-Iron and Gray-Iron Fittings ". In addition, fittings with mechanical joints and push- on joints shall conform to ANSI/AWWA Standard C111/A21.11-12, "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings".

The weight of fittings shall be as given in ANSI/AWWA C110/A21.11-12 for ductile-iron fittings. The weight of mechanical joint fittings shall be as established in Tables 4 through 13. The weight of flanged joint fittings shall as established in Tables 14 through 21.

Fittings Conforming to ANSI/AWWA C153/A21.53-11 (Water & Sewer Use)

All fittings shall be cast ductile-iron for use with ductile-iron pipe as specified above. Fittings in the 3-inch through 24-inch size range shall be pressure rated at 350 psi, minimum; 30-inch through 48-inch size range shall be pressure rated at 250 psi, minimum; and in the 54-inch through 64-inch size range shall be pressure rated at 150 psi, minimum (except for those fittings such as plugs, caps, and sleeves which are normally rated at a higher pressure). No flanged fittings or mixtures of flanged with other end type fittings will be allowed in the range of 3-inch through 48-inch. All fittings with mechanical joints, flange joints and push-on joints shall conform to ANSI/AWWA Standard C153/A21.53-11, "Ductile-Iron Compact Fittings ". In addition, fittings with mechanical joints and push-on joints shall conform to ANSI/AWWA Standard C111/A21.11-12, “Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings" except as otherwise allowed in C153. Mechanical joint glands shall be ductile-iron only.

The weight of a fitting supplied under the contract shall not be less than ninety-five (95) percent of the tabulated nominal weight supplied by the manufacturer’s catalog literature for that fitting. Further, the weight of fittings supplied shall not be more than five (5) percent above the same tabulated nominal weight.

E. JOINTS AND ACCESSORIES

Joints in below-ground piping shall be flexible push-on or Mechanical joints, except where flanged joints are required to connect to valves, meters, and other equipment. Provide unrestrained buried joints except where restrained joints are specifically shown in the drawings. Joints in aboveground or submerged piping or piping located in vaults and structures shall be grooved end or flanged.

Restrained joints for piping 6 inches and larger shall be American Cast Iron Pipe "Lok-Ring" or "Flex-Ring," U.S. Pipe "TR-Flex," or equal. Weldments for restrained joints shall be tested by the liquid penetrant method per ASTM E165. Restrained joints for field closures shall be “Megalug” by EBAA Iron.

Push-On Type Joints (Single Gasket and Single Gasket with Gasket Restraint)

Push-on joints shall conform to ANSI/AWWA Standard C111/A21.11-12.

The required number of gaskets for each push-on joint pipe plus one extra for every 50 joints or fraction thereof, shall be furnished with each order. The gaskets shall be shipped in suitable protective containers. All single gasket pipe shall be as manufactured by United States Pipe and Foundry Company (Tyton), by the American Cast Iron Pipe Company (Amarillo Fastite), by McWane, Inc. (Mix of Tyton and Fastite), Tyler/Union (Tyton) or approved equal.

Push-on joints together with both their regular and gasket-restraint gaskets shall be of the design, dimensions and tolerances of either those provided by American Cast Iron Pipe Company (Amarillo Fastite/Fast-Grip) or those provided by United States Pipe and Foundry Company (Tyton/Field Lok). No other designs will be acceptable.

The pressure rating shall be stamped on the restrained gasket. The restrained gasket and joint restraining system shall conform to ANSI/AWWA Standard C111/A21.11-12 rated at the following:

Size	Pressure Rating (Min.)
4-inch through 12-inch	350
14-inch through 20-inch	250
24-inch	200
30-inch and above	150

The restrained gasket shall be manufactured a color other than black to allow for visual inspection of the pipeline. The restrained gasket color shall be consistent throughout the system and shall be inherent within the rubber, not painted.

Mechanical Joints

Mechanical joints for fittings shall conform to ANSI/AWWA Standard C111/A21.11-12. Bolt holes for mechanical joints shall be equally spaced, and shall straddle the vertical centerline. Tee head bolts and hexagonal nuts for all mechanical joints in fittings shall be of high strength low-alloy steel with composition, dimensions and threading as specified in ANSI/AWWA Standard C111/A21.11-12. Glands shall be of ductile-iron construction for ductile iron fittings, and cast gray iron or ductile iron for cast gray-iron fittings.

The proper number of gaskets, glands, bolts and nuts, all conforming to ANSI/AWWA Standard C111/A21.11-12, plus one extra gasket for every 10 joints or fraction thereof, shall be furnished with each order. The gaskets and joint accessories shall be shipped in suitable protective containers. Follower glands held in place with set screws will not be acceptable. Segmented glands will not be acceptable.

Mechanical Joint Megalug-Type Restraining Systems

In any mechanical joint or push on joint underground piping system restrained glands may be utilized for underground pipeline. The ASTM A536 ductile iron casting of the restrained gland shall be bonded powder coated. The wedge and wedge assembly shall have a bonded liquid polymer coating applied for corrosion protection. The gland shall utilize torque limiting twist off wedge actuation screws.

The CITY absolutely reserves the right to require other forms of restraint where in the opinion of the Engineer the use of this form of restraint is not in the best interest of the CITY and his decision shall be final. Use of this type of restraint is restricted to underground mechanical joint or push-on joint applications and in general may not be used above grade or as a substitute for flanged joints.

The Megalug restraint systems manufactured by EBAA Iron Sales, Eastland Texas, will be considered the standard of quality for comparison purposes and if the CITY has any doubts as to the durability, quality or ability to restrain of a proffered substitute, the entity offering the substitute shall bear the entire burden of proving this equality to the complete satisfaction of the Engineer. Other manufacturers producing this type of restraint system shall submit data with their shop drawings showing that their restraint system has been in the marketplace for a

minimum of three years in this country.

Each thrust-resistant mechanical joint or push on joint made up with this type of restraint and the pipe and fitting of which it is a part, shall be designed to withstand an axial thrust from an internal pipeline pressure of at least 150 psi at bulkhead conditions without reduction because of its position in the pipeline nor for support from external thrust blocks.

This type of joint restraint shall not be used above grade except as previously specified nor shall it be used as a carrier pipe within a casing. This type of restraint shall not be used with tape wrapped pipe or with too great a coating thickness on the exterior of the pipe.

Restrained Push-on Joints (Single Gasket Non-Gasket Restrained)

Restrained joints in pipe and fittings shall be of the single gasket push-on type, and shall conform to all applicable provisions of ANSI/AWWA Standard C111/A21.11 and the following requirements:

Thickness of the pipe barrel remaining at grooves cut, if required in the design of restrained end joints, shall not be less than the nominal wall thickness of equal sized non-restrained pipe as specified in Section 3.1 above.

Restrained joints using field welding, set screws, or gaskets with expanding metal inserts are not acceptable.

The restraining components, when not cast integrally with the pipe and fittings, shall be ductile iron or a high strength non-corrosive alloy steel.

Tee head bolts and hexagonal nuts for all restrained joints in pipe and fittings shall be of high strength low-alloy steel with composition, dimensions and threading as specified in ANSI/AWWA Standard C111/A21.11, except that the length of the bolts shall meet the requirements for the restrained joint design.

The proper number of gaskets, bolts, nuts and all necessary joint material, plus one extra gasket for every 10 joints or fraction thereof, shall be furnished with each order. The gaskets and joint accessories shall be shipped in suitable protection containers.

Each thrust-resistant joint and the pipe and fitting of which it is a part, shall be designed to withstand the axial thrust from an internal pipeline pressure of at least 150 psi at bulkhead conditions without reduction because of its position in the pipeline nor for support from external thrust blocks.

Restrained push-on joint pipe and fittings shall be capable of being deflected after assembly. During deflection, all components in the restrained system shall be in contact to provide an equal force on all contact areas.

When restrained spigot ends are ordered for items of Group A, the corresponding bell ends of the pipe to be restrained (also within Group A), shall be furnished with the required matching restraining features at no additional cost other than the price bid per foot of pipe.

Flanged Joints

Connecting pieces with one end flanged and the other end either plain-end or mechanical joint, shall conform to ANSI/AWWA Standard C110/A21.10. Joint material for both the flanged end and the mechanical joint accessories for connecting pieces with a mechanical joint end shall be

furnished as specified.

Other types of flanged fittings, and flanged pipe, shall conform to the following requirements unless otherwise stated in the order:

Flanged fittings shall conform to ANSI/AWWA Standard C110/A21.10, as specified hereinabove.

Flanged ductile-iron pipe with integrally cast flanges shall be manufactured in accordance with ANSI/AWWA Standard C151/A21.51, and with provisions contained hereinabove for centrifugally cast ductile iron pipe, and shall be furnished with ANSI Standard Class 125 flanges, plain faced and drilled, conforming to ANSI Standard B16.1, "Cast Iron Pipe Flanges and Flanged Fittings", latest revision. Hollow back flanges are not acceptable.

Flanged ductile-iron pipe with threaded flanges shall be manufactured in accordance with ANSI/AWWA Standard C115/A21.15, "Flanged Ductile-Iron Pipe With Ductile-Iron or Grey-Iron Threaded Flanges", and shall be rated for a working pressure of 250 psi, minimum. The nominal thickness of flanged ductile-iron pipe, 6-inch and larger, shall not be less than those shown in Table 1 of ANSI/AWWA Standard C115/A21.15. The nominal thickness of 4-inch flanged ductile-iron pipe shall be Class 54 (min.) conforming to Tables 3 and 4 of ANSI/ Standard C151/A21.51. Flanges shall be solid-back.

The pipe shall be furnished with ANSI Standard Class 125 flanges, plain faced and drilled, conforming to ANSI Standard B16.1, latest revision. Hollow back flanges and grey-iron flanges shall not be acceptable for use as threaded flanges. Threaded flanges shall be individually fitted and machine tightened on the threaded pipe by the manufacturer, and shall not be interchangeable in the field.

Flanges shall be back-faced parallel to the face of flange. Prior to assembly of the flange onto the pipe, apply a thread compound to the threads to provide a leak-free connection. There shall be zero leakage through the threads at a hydrostatic test pressure of 250 psi without the use of the gasket. Pipe lengths shall be as ordered. Removal of flanges, cutting and re- threading the pipe, and re-installing the flanges will not be permitted in any case. Where a raised face flange connects to a flat-faced flange, remove the raised face of the flange.

All flanges on ductile-iron pipe and fittings shall be of ductile iron, class 70-50-5 in accordance with ANSI/AWWA C110/A21.10. All joint materials for flanged pipe and fittings, shall be supplied with all pipe or fittings ordered. Bolts and nuts shall comply with all requirements of Appendix Section A.1 of ANSI/AWWA Standard C115/A21.15-11 except that both shall be stainless steel. Bolts shall be of sufficient length to fully engage all threads in the nut. Unless ring gaskets are specified, gaskets shall be full-faced, and gaskets shall be of 1/8-inch thickness. Gaskets shall fully conform to the requirements of ANSI/AWWA Standard C115/A21.15-11 Appendix Section A.2 except that gaskets shall be SBR for water and neoprene for sewer usages.

Outlets and Nozzles

Provide outlets three quarters of an inch and smaller by direct tapping Ductile Iron Pipe in accordance with AWWA C600-10, Section 4.8. Provide outlets larger than three quarters of an inch up to 2 inches by tapping the pipe and attaching a service clamp. or use a threaded welded-on boss. Use stainless steel clamps for exposed piping. For outlets larger than 2 inches, use a tee with a flanged outlet. For outlets larger than 2 inches in buried piping, use a tee with a restrained joint outlet.

E. LININGS AND COATINGS

Saltwater Intrusion and Corrosive Soils Requirements

In saltwater intrusion areas where the installation is subject to groundwater level variation (East of I-95 or saltwater intrusion line), the CITY shall require the use of V-Bio Enhanced Polyethylene Encasement and ductile iron pipe with a zinc basecoat under the asphaltic topcoat. All ductile iron pipe and fittings shall be wrapped with the V-Bio Polyethylene Enhanced Encasement and have the zinc protective coating factory applied.

For corrosive soils encountered outside of saltwater intrusion areas during construction V-Bio Polyethylene Encasement shall be installed to protect the ductile iron main, fittings and valves.

Zinc Basecoat: The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m^2 of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils. The coating system shall conform in every respect to ISO 8179-1 "Ductile iron pipes - External zinc-based coating - Part 1: Metallic zinc with finishing layer. Ductile iron fittings shall also have a zinc protective coating sprayed on at the factory at a minimum of 3 mils.

The V-Bio Polyethylene Enhanced Encasement shall be accordance with AWWA C600 and ANSI/AWWA C105/A21.5, “Polyethylene Encasement of Ductile-Iron Pipe Systems”. Color shall be blue for potable water, purple for recycled water, and green for sanitary sewage service. Polyethylene encasement for use with ductile iron pipe systems shall consist of three layers of co-extruded linear low density polyethylene (LLDPE), fused into a single thickness of not less than 8 mils. The inside layer of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a corrosion inhibitor and antimicrobial biocide to to control galvanic corrosion. Product: V-Bio or approved equal.

Polyethylene encasement for ductile-iron pipe shall be supplied as a flat tube meeting the dimensions of Table 1 in AWWA C105 and shall be supplied by the ductile-iron pipe manufacturer.

Plastic adhesive tape shall consist of polyolefin backing and adhesive which bonds to common pipeline coatings including polyethylene. Products: Canusa Wrapid Tape; Tapecoat H35; Polyken 934; AA Thread Seal Tape, Inc.; or approved equal.

Install the polyethylene to completely encase the pipe and fittings to provide a watertight corrosion barrier. Continuously secure overlaps and ends of sheet and tube with polyethylene tape. Make circumferential seams with two or more complete wraps, with no exposed edges. Tape longitudinal seams and longitudinal overlaps, extending tape beyond and beneath circumferential seams. Wrap bell-spigot interfaces, restrained joint components, and other irregular surfaces with wax tape or moldable sealant prior to placing polyethylene encasement. Minimize voids beneath polyethylene.

Place circumferential or spiral wraps of polyethylene tape at 2-foot intervals along the barrel of the pipe to minimize the space between the pipe and the polyethylene. Overlap adjoining polyethylene tube coatings a minimum of 1 foot and wrap prior to placing concrete anchors, collars, supports, or thrust blocks. Hand-wrap the polyethylene sheet, apply two complete wraps with no exposed edges to provide a watertight corrosion barrier, and secure in place with 2-inch-wide plastic adhesive tape. Repair polyethylene material that is damaged during installation. Use polyethylene sheet, place over damaged or torn area, and secure in place with 2-inch-wide plastic adhesive tape.

Repair polyethylene encasement at all service connections in accordance with AWWA C600-

10, Section 4.8.

Asphaltic Coating

All Ductile Iron pipe and fittings shall be outside-coated with an asphaltic material applied by means of the airless spray method. The exterior coating shall comply with ANSI/AWWA C151/A21.51 for this type of coating, shall be smooth without pinholes, thin, bare or overly thick areas. Smoothness shall be such that when hand rubbed, no “sand paper” feeling will be experienced and such that the spigot area will readily slide through the gasket without pulling, tearing, rolling or otherwise disturbing the sealing capabilities of the gasket. Spigot ends shall be beveled prior to coating to an extent that will permit ready insertion of the spigot through the gasket area.

Cement-Mortar Lining

Ductile Iron Pipe and fittings unless otherwise specified shall be double-thickness cement- lined and seal-coated in accordance with ANSI/AWWA Standard C104/A21.4-14, "Cement- Mortar Lining for Ductile-Iron Pipe and Fittings ".

Ceramic Epoxy Lining

Ductile Iron Pipe and fittings where so specified shall be lined with ceramic epoxy

Ceramic epoxy shall contain pigmentation to resist ultraviolet exposure under the same conditions.

All ductile iron pipe and fittings for which ceramic epoxy lining is to be applied shall be delivered to the application facility without asphalt, cement lining or other lining on the interior surface or the first 6 inches on the spigot end of the pipe exterior.
Ceramic epoxy material shall be a high-build multi-component Amine cured Novalac epoxy, Protecto 401, by Vulcan Painters, Inc. of Bessemer, AL 35021 or CITY-approved equal. Permox CTF is also an acceptable sanitary sewer lining.

Ceramic epoxy material shall meet the following criteria and shall be accompanied by certification of the following test results:

A. A permeability rating of 0.00 when tested according to Method A of ASTM E96-00 "Test Method for Water Vapor Transmission of Materials", Procedure A with a test duration of 30 days.

B. The following test must be run on coupons from factory lined ductile iron pipe:

    1. ASTM B117 Salt Spray (scribed panel) - Results to equal no more than 0.5mm undercutting after one year.

    2. ASTM G95 Cathodic Disbondment 1.5 volts @ 77 degrees F. Results to equal no more than 0.5mm undercutting after 30 days.

    3. Immersion Testing rating using ASTM D714-87 (1994).
        a. 20% Sulfuric Acid - No effect after one year.
        b. 25% Sodium Hydroxide - No effect after one year.
        c. 160° F. Distilled Water - No effect after one year.
        d. 120° F. Tap Water (scribed panel) - 0.0 undercutting after one year with no effect.

C. A statement from the manufacturer attesting to the fact that at least 20% of the volume of

the lining contains ceramic quartz pigment.

D. A statement concerning recoat ability and repair to the lining.

Ceramic Epoxy Application

a. The lining shall be applied by a competent firm with a successful history of applying linings to the interior of ductile iron pipe and fittings.

b. Surface Preparation
Prior to abrasive blasting, the entire area which will receive the protective compound shall be inspected for oil, grease, etc. Any areas where oil, grease or any substance is present which can be removed by solvent shall be solvent cleaned using the guidelines outlined in SSPC-1 Solvent Cleaning. After the surface has been made free of grease, oil or other substances, all areas to receive the protective compounds shall be abrasive blasted using compressed air nozzles with sand or grit abrasive media. The entire surface to be lined shall be struck with the blast media so that all rust, loose oxides, etc., are removed from the surface. Only slight stains and tightly adhering annealing oxide may be left on the surface. Any area where rust reappears before coating must be re-blasted to remove all rust.

c. Lining Application
After the surface preparation and within 8 hours of surface preparation, apply to the interior of pipe and fittings a minimum forty (40) mils dry film thickness of the protective lining. No lining shall take place when the substrate or ambient temperature is below 40 degrees Fahrenheit. The surface also shall be dry and dust free. If flange ends are included in the Project, the linings shall not be used on the face of the flange; however, full face gaskets must be used to protect the ends of the pipe. The 40-mil system shall not be applied in the gasket grooves.

d. Coating of Gasket and Spigot Ends
Coat the gasket area and exterior of the spigot end for 6 inches back from the end of the spigot with six (6) mils minimum, ten (10) mils maximum of Protecto Joint Compound. This coating shall be applied by brush to ensure complete coverage. Care shall be taken that the coating is smooth without excess buildup in the gasket groove or on the spigot end. All material for the gasket groove and spigot end shall be applied after the application of the lining as specified in the preceding paragraph.

e. Number of Coats
The number of coats of lining material applied shall be as recommended by the lining manufacturer. However, in no case shall this material be applied above the dry thickness per coat recommended by the lining manufacturer in printed literature. The time between coats shall never exceed that time recommended by the lining material manufacturer. No material shall be used for lining which is not indefinitely recoated able with itself without roughening the surface.

f. Touch-Up and Repair
Protecto Joint Compound shall be used for touch-up or repair. Procedures shall be in accordance with manufacturer's recommendations.

F. INSPECTION AND CERTIFICATION

a. Inspection
1. All ceramic epoxy lined ductile iron pipe and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the

method outlined in SSPC-PC-2 Film Thickness Rating. Re-line any pipe whose lining is below the specified minimum thickness.

2. The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500 volt test. Re-line any pipe not passing the test.

3. Each pipe joint and fitting shall be marked with the date of application of the lining system and with its numerical sequence of application on the date.

Procedures for Sealing Cut Ends and Repairing Field Damaged Areas

1. Remove burrs caused by field cutting of ends or handling damage and smooth out the edge of the lining if rough.

2. Remove all traces of oil, grease, asphalt, dust, dirt, etc.

3. Areas of loose or damaged lining associated with field cutting the pipe shall be repaired, if approved by the Engineer, as recommended by the pipe manufacturer. The damaged area shall be stripped back by chiseling or scraping about 1 to 2 inches into the well-adhered lining before patching.

   The exposed metal and the 1 to 2-inch lining overlap shall be roughened with a coarse grade of emery cloth (#40 grit), rasp or small chisel. Avoid wire brushing or similar buffing which would make the surface too smooth for good adhesion.

4. With the area to be sealed or repaired absolutely, clean and suitably roughened, apply a coat of Protecto Joint Compound by brush in accordance with the manufacturer's recommendations.

2.02 PIPE AND FITTINGS: POLY VINYL CHLORIDE (PVC)

A. Poly (vinyl chloride (PVC) pipe and fittings specified herein are small diameter PVC with threaded, flanged and solvent cemented joints.

B. All poly (vinyl chloride) (PVC) pipe and fittings shall be made from high impact, rigid poly (vinyl chloride) compounds. Pipe and fittings shall be marked indicating size, type and schedule, ASTM Designation, manufacturer or trade mark, and shall bear the NSF (National Sanitation Foundation) seal of approval. Wherever the abbreviation PVC is used in these Specifications in relation to pipe and fittings, it shall mean poly (vinyl chloride) plastic pipe and fittings as specified herein.

C. PVC pipe shall be Schedule 80 unless Schedule 120 pipe is called for on the Plans or by the Engineer, Type I, Grade I, or Class 12454B with socket ends, and shall comply with ASTM Standard D1785, "Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120".Products intended for contact with potable water shall be evaluated, tested, and certified for conformance with ANSI/NSF Standard No. 61 or the health effects portion of NSF Standard No. 14 by an acceptable certifying organization when required by the regulatory authority having jurisdiction.

D. Schedule 80 Socket-type fittings shall comply with ASTM Standard D2467, "Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80" and D2464 "Specification for Threaded Poly Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, for threaded fittings.

E. Joining cement for PVC pipe and fittings shall comply with ASTM Standard D2564, "Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings". Cemented joints shall be

made in accordance with ASTM Standard D-2855, "Recommended Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings".

F. Flanges: One piece molded hub type flat face flanges, 125 pound standard as specified under fittings hereinbefore.

G. Gaskets: Full faced, 1/8-inch thick, Neoprene/EPDM (for sewer) or SBR (for water).

H. AISI Type 316 stainless steel, ASTM A193, Grade B8M hex bolts and ASTM A 194 Grade E8 hex head nuts. Bolts shall be fabricated in accordance with ANSI B 1812 and provided with washers of the same materials as the bolts.

2.04 PIPE AND FITTINGS: COPPER

A. Pipe: Copper pipe shall be Type K for interior piping and Type K Soft Temper for exterior piping, both conforming to ASTM B88, seamless, round, drawn tubing.

B. Fittings: Solder joint fittings shall be wrought copper and bronze fittings conforming to ANSI B16.22 or cast brass fittings conforming to ANSI Standard B16.18. Fittings for use with copper tubing shall be one of the following:

1. Cast Bronze Solder-Joint Fittings: Solder joint fittings of this type shall be cast bronze fittings conforming to ANSI B16.18, "Cast Brass Solder-Joint Fittings", and ASTM Standard B62, "Composition Bronze or Ounce Metal Castings", as manufactured by Chase Brass and Copper Co., Stanley G. Flagg & Co., Inc., or CITY-approved equal.

2. Wrought Copper Solder-Joint Fittings: Solder joint fittings of this type shall be wrought copper fittings in accordance with ASNI B16.22, "Wrought Copper and Bronze Solder-Joint Pressure Fittings".

C. Solder: Solder shall consist of 95 percent tin and 5 percent antimony. Soldering shall be in conformance with Section 3 of the Copper and Brass Research Association Copper Tube Handbook.

D. Connection of copper pipe or fittings with galvanized pipe or fittings shall be made with dielectric fittings. Connect copper pipe to direct-taps to Ductile Iron Pipe with an insulating union. Wrap the copper pipe with polyethylene tape at least two feet in length beyond the point of connection.

2.05 HIGH DENSITY POLYETHYLENE (HDPE) PIPE FOR USE IN POTABLE WATER SERVICES

A. Smooth wall high density polyethylene pipe for use in potable water services 3.5-inch nominal outside diameter and less shall meet ASTM D3350, and shall be PE 335434C. Pipe shall meet the standards of ASTM F714, as modified herein, including the "Government/Military Procurement" sections. Minimum hydrostatic design basis shall be 1600 psi. In all cases, hydrostatic design basis and pressure rating shall be as determined using the methods of ASTM F714. Pipe of this type shall be butt-fusion welded at joints. All welding of joints shall be in strict conformity with the recommendations of the pipe manufacturer and by a firm or individual recommended to the Engineer of Record in writing by the manufacturer.

B. As a part of the shop drawing submittals, submit the following signed by a Florida Registered Engineer, all calculations to determine, the pipe thickness, SDR rating, allowable stresses, in accordance with ASME B31.8 -1992, Table A842.22 as required by the pipe manufacturer.

C. All mechanical fittings utilized with HDPE pipe and tubing services, shall conform with ANSI/AWWA C800-01 "Underground Service Line Valves and Fittings" as modified herein, shall utilize AWWA Standard (Mueller) threads on tapped pipe and tapping saddles; shall be; designed and manufactured to withstand a sustained working pressure of 150 psi and to restrain the pipe against pull out under loading beyond that causing tensile yield in the HDPE pipe or tubing connected. The manufacturer shall supply certification of these capabilities and fittings shall not be accepted or installed without said certification. If fittings are being supplied to the CITY the certification shall ship with the fittings and payment will not be made without this certification. At the discretion of the Engineer, this certification may be required to be signed and sealed by a professional engineer licensed to practice in the state where the sup- plying firm is located or in the State of Florida. His decision in this regard shall be final.

D. In all cases, fittings shall be installed in strict accordance with the manufacturer's instructions.
1. HDPE PIPE FOR WATER SERVICES:

All 2-inch high density polyethylene pipe used for services shall be IPS-O.D. controlled with Standard Outside Dimension Ratio (SODR) of 9, pressure rating of 200 psi at a Factor of Safety of 2.5 or greater, nominal outside diameter of 2.375-inches, minimum wall thick- ness of 0.264-inches, PE 3408, all in conformance with ASTM D3035-95 "Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter". Pipe shall comply with ANSI/AWWA C901-96 "Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) Through 3 In. (76 mm), for Water Service" as modified herein. Pipe shall have a (natural) inner core with a blue colored outer shell.

Pipe shall have footage marks at a maximum interval of every two feet. Polyethylene material shall have a minimum cell classification in accordance with ASTM D3350-14 "Polyethylene Plastics Pipe and Fitting Materials" of 345444D for the core, which shall be 100% virgin material, and 345444E for the outer shell. Note that both of these materials are UV stabilized as signified by the "D" for natural colored and "E" for the colored shell. Pipe shall comply with NSF 61 or 14.

Submit manufacturer’s certification of compliance with all of the above requirements. Certification shall ship with the pipe on material sold to the CITY and shall always be submitted with shop drawings and catalogue cuts. Certification shall be signed and sealed by a professional engineer licensed to practice in the State of Florida.

2.06 WALL SLEEVES, PIPES AND CASTINGS

A. Wall Sleeves: Wall sleeves shall be of cast iron, ductile iron or carbon steel with steel galvanized after fabrication as specified in Section 15065, Miscellaneous Materials, under wall pipe. Sleeves shall be provided with seals and shall be oversized as required for the installation of seals. Sleeves shall terminate flush with finished surfaces of walls and ceilings, and shall extend 2-inches above the finished floor. Escutcheons shall be provided at walls and floor to completely conceal the sleeves smaller than 3-inches. Escutcheons shall be brass or cast iron, nickel plated split-type.

B. Interior: Wall sleeves shall be installed for all piping passing through interior walls and floors, except where noted on the Drawings. Sleeves shall be of sufficient size to pass the pipe without binding.

C. Wall Sleeve Seals: Wall sleeve seals shall be modular mechanical type consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is

positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely water-tight seal between the pipe and wall sleeve. The synthetic rubber shall be suitable for exposure to treated sewage effluent and groundwater. Bolts, nuts and hardware shall be 18-8 stainless steel. The seals shall be Link Seal as manufactured by Thunderline Corporation or CITY-approved equal, and the wall sleeve and seal shall be sized as recommended by the seal manufacturer.

D. All piping passing through exterior walls and base slabs shall be provided with wall pipes. All wall pipes shall be of ductile iron and shall have an intermediate flange or waterstop located in the center of the wall. Each wall pipe shall be of the same grade, thickness and interior coat- ing as the piping to which it is joined. Those portions of the wall pipes that are buried shall have a coal tar outside coating.

PART 3 - EXECUTION

3.01 General:

A. Furnish and maintain all barricades and flashing warning lights necessary to warn of the construction throughout the Project.

B. Pipe and fittings shall at all times be handled with great care to avoid damage. Exercise particular care not to injure pipe coatings. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions.

C All work shall be performed by skilled workmen experienced in pipeline construction.

D. All pipe and fittings shall be adequately supported by clamps, brackets, straps, concrete supports, rollers or other devices as shown and/or specified. Supports or hangers shall be spaced so that maximum deflection between supports or hangers shall not exceed 0.050 inch for pipe filled with liquid, but shall not be further than 6 feet apart, whichever is closer, unless otherwise shown. All pipe supports shall be secured to structures by approved inserts or expansion shields and bolts.

E. All pipe shall be thoroughly cleaned internally before being installed. All pipes, except oxygen service, air and gas, shall be flushed with water and swabbed to assure removal of all foreign matter before installation. Air and gas piping shall be tapped with a hammer to loosen scale or other foreign matter that might be within the pipe, and then thoroughly blown with a high pressure air hose. Furnish and maintain suitable air compressor.

F. Whenever possible, the pipe shall be installed with minimum 48-inches of cover. Deviations shall not be installed without written approval by the Owner.

G. Joints may only be opened to adjust alignment by half of the AWWA or manufacturer's recommended opening (which is smaller).

H. Pipe Sleeves and Wall Casings: Pipe sleeves and wall casings shall be provided at the locations called for on the Drawings and specified herein. These units shall be as detailed and of the material as noted on the Drawings and specified herein. They shall be accurately set in the concrete or masonry to the elevations shown. All wall sleeves and castings required in the walls shall be in place when the walls are poured. Ends of all wall casings and wall sleeves shall be of a type consistent with the piping to be connected to them.

I. Tie Rods: Unless otherwise indicated on the Drawings, the size and number of tie rods for a joint or installation shall be as recommended by the manufacturer's design chart for a working

pressure of 150 psi. Tie rods shall be installed as recommended by the manufacturer.

3.02 EXCAVATION FOR PIPING

A. Make all excavation necessary for the construction of the pipelines, connections, valves and appurtenances, to the lines and grades shown on the Plans.

B. Excavate the trench at least 6 inches below pipe laying grade as shown on the Plans. Install sheeting and shoring for the protection of workers in trenches, and where it is necessary for pipe installation and property protection or required by the Trench Safety Act. The cost of de- watering any excavation shall be at the Contractor's expense. The disposal of water removed from an excavation shall be in a manner which will not create a hazard, or be detrimental to the public health or to public or private property.

C. Obtain all necessary permits approving the location and proposed method of disposal before discharging water from any excavation into any portion of the public right-of-way or into any existing drainage structure or facility. Furnish and maintain all construction signs required.

3.03 INSTALLATION OF PIPE, FITTINGS AND VALVES

A. General:

1. The design Drawings are in some cases diagrammatic. They may not show every bend, off-set, elbow or other fitting which may be required in the piping for installation in the space allotted. . Install gravity lines at uniform grade to low point after field verification of low point invert.

2. The centerline of the pipe shall not vary by more than 2 inches from the location shown on the Plans and the top of the pipe shall not vary by more than 2 inches from the established grade, except at points where this tolerance must be changed to clear obstructions, or make connections.

3. Limit onsite pipe storage to a maximum of one week. Use unloading and installation procedures that avoid cracking of the lining. If necessary, use plastic sheet bulkheads to close pipe ends and keep cement-mortar lining moist. Deliver the pipe alongside the pipe laying access road over which the pipe trailer-tractors can travel under their own power. Place the pipe in the order in which it is to be installed and secure it from rolling. Sandbags may be used to support the pipe in the ditch but no pipe shall be laid on blocks, except by the writ- ten permission of the Engineer of Record. Do not move pipe by inserting any devices or pieces of equipment into the pipe barrel. Field repair linings damaged by unloading or installation procedures. Flanged joints, mechanical joints and push-on joints in cast iron pipe and fittings may be made under water.

B. Installation of Ductile Iron Pipe

1. Install Ductile Iron Pipe in accordance with ANSI/AWWA C600-10 “Installation of Ductile-iron Mains and Their Appurtenances”, and the following. For potable water pipelines, com-ply with NSF/ANSI 61 “Drinking Water System Components – Health Effects. All bends, tees, and plugs, unless otherwise specified, shall be backed with concrete to undisturbed ground. Provision shall be made to prevent concrete from adhering to plugs or bolts by wrapping in polyethylene sheet complying with ANSI/AWWA C105/A21.5-05.

2. Bolts, nuts and rubber gaskets for use in flanged and mechanical joints shall be stored under cover. During laying operations, do not place tools, clothing, or other materials in the pipe

Gaskets shall not be exposed to heat, light or any petroleum products, shall be kept clean and shall not be handled with greasy or dirty hands. When pipe laying is not in pro- gress, close the ends of the installed pipe by a child- and vermin-proof plug.

3. Assemble Flanged joints in accordance with the written recommendations of the pipe manufacturer. Before making up flanged joints in cast iron pipe and fittings, the back of each flange under the bolt heads, and the face of each flange shall have all lumps, blisters and excess bituminous coating removed and shall be wire brushed and wiped clean and dry. Cut the bore of the gaskets such that the gaskets do not protrude into the pipe when the flange bolts are tightened.

4. Before laying the ductile iron pipe, all lumps, blisters and excess asphaltic coating shall be removed from the bell and spigot ends of each pipe and the outside of the spigot and the inside of the bell wire brushed and wiped clean and dry. The entire gasket groove area shall be free of bumps or any foreign matter which might displace the gasket. The cleaned spigot and gasket shall not be allowed to touch the trench walls or trench bottom at any time. Vegetable soap lubricant shall be applied in accordance with the pipe manufacturer's recommendations, to aid in making the joint. Exercise caution to prevent damage to the gasket or the adherence of grease or particles of sand or dirt. Deflections shall be made only after the joint has been assembled.

5. Cutting of ductile iron pipe for inserting valves, fittings, etc., shall be done with a mechanical pipe saw in a neat and workmanlike manner without damage to the pipe, the lining, or the coating.

6. Unless otherwise directed, ductile iron pipe shall be laid with the bell ends facing in the direction of laying; and for lines on an appreciable slope, the bells shall, at the discretion of the Engineer, face upgrade. Small angular changes (less than 2.5 degrees) in horizontal alignment defined in the drawings by a point of inflection (PI) with no accompanying curve data shall be approximated as a curve by deflecting an equal amount of equal length pipe segments to create a curve equally distributed on both sides of the given PI. Accomplish a larger (greater than or equal to 2.5 degrees) change in horizontal alignment where a curve is not called for in the drawings through the use of an elbow placed at the station of the PI shown in the drawings. Small angular changes (less than 2.5 degrees) in vertical alignment may be accomplished by the use of pulled joints. For larger vertical deflections, place an elbow at the station and elevation of the vertical PI shown in the drawings.

7. Push-on and mechanical joints in ductile iron pipe and fittings shall be made in accordance with the manufacturer's written recommendations except as otherwise specified herein. Joints between push-on and mechanical joint pipe and/or fittings shall be made in accordance with AWWA Standard Specifications, "Installation of Ductile Iron Water Mains and Appurtenances," C600-10, except that deflection at joints shall not exceed one-half of the manufacturer's recommended allowable deflection, or one-half of the allowable deflection specified in AWWA C600-10, whichever is the lesser amount.

8. Flanged joints shall be used only where indicated on the Plans. Before making up flanged joints in the pipeline, the back of each flange under the bolt heads and the face of each flange shall have all lumps, blisters and excess bituminous coating removed and shall be wire brushed and wiped clean and dry. Flange faces shall be kept clean and dry when making up the joint, and the workmen shall exercise caution to prevent damage to the gasket or the adherence of grease or particles of sand or dirt. Bolts and nuts shall be tightened by opposites in order to keep flange faces square with each other, and to insure that bolt stresses are evenly distributed.

9. Bolts and nuts in flanged and mechanical joints shall be tightened in accordance with the

written recommendations of the pipe manufacturer for a leak-free joint. Exercise caution to prevent overstress. Torque wrenches shall be used until, in the opinion of the Engineer, the workmen have become accustomed to the proper amount of pressure to apply on standard wrenches.

C. Pipe Protection:

1. Paint all un-insulated metal (ductile iron or steel) piping underground with two coats of asphaltic paint.

2. Wrap soil pipe that touches metal or is exposed to masonry with a layer of 6 mil polyethylene.

3. Spirally wrap all pipe lines embedded in concrete with two layers of 30 lb. felt prior to placing the concrete.

4. Coat all exposed threads on galvanized steel pipe after assembly with two coats of zinc chromate.

D. Cleaning and Testing: All of the piping installed under this project shall be tested as follows and as directed by the Engineer.

1. With exceptions as noted below, all ductile iron piping installed under this Contract shall be cleaned and tested according to Paragraph I hereinbelow in this Section:
   a) Only potable water piping shall be disinfected.
   b) No leakage shall be permitted for flanged piping.
   c) No leakage shall be permitted for any type of above ground piping.

2. Unless otherwise specified elsewhere herein, all PVC pressure system bushings and galvanized steel piping shall be tested at 100 psig. No leakage will be permitted.

E. Installation of Aboveground and Exposed Piping

1. Aboveground and exposed pipe fittings, valves and accessories shall be installed as shown or indicated on the Drawings.

2. Piping shall be cut accurately to measurements established at the job site and shall be worked into place without springing or forcing, properly clearing all equipment access areas and openings. Changes in sizes shall be made with appropriate reducing fittings rather than bushings. Pipe connections shall be made in accordance with the details shown and manufacturer's recommendations. Open ends of pipe lines shall be properly capped or plugged during installation to keep dirt and other foreign material out of the system. Pipe supports and hangers shall be provided where indicated and as required to insure adequate support of the piping.

3. Welded connections shall be made in conformity with the requirements of AWWA Standard C 206 and shall be done only by qualified welders. The Engineer may, at his option, require certificates that welders employed on the work are qualified in conformity with the requirements of this standard and/or sample welds to verify the qualifications of the welders. Before testing, field welded joints shall be coated with the same material as used for coating its pipe in accordance with the requirements of AWWA.

4. Flanged joints shall be made up by installing the gasket between the flanges. The threads of the bolts and the faces of the gaskets shall be coated with a suitable lubricant immediately before installation.

5. Joints using Dresser couplings shall be made up as recommended by the manufacturer.

6. Use of perforated band iron (plumber's strap), wire or chain as pipe hangers will not be acceptable. Supports for pipe less than 1-1/2 inches nominal size shall not be more than 8-feet on centers and pipe 2-inches nominal size and larger shall be supported at not more than 10-feet on centers, unless otherwise indicated. Supports for PVC pipe shall be spaced one-half the distance specified above unless otherwise indicated. Any noticeable sagging shall be corrected by the addition of extra supports at the Contractor's expense.

F. INSTALLATION OF HDPE SERVICES

Furnish and install a 10 gauge stranded copper blue tracer wire above all HDPE services.

3.04 FIELD QUALITY CONTROL

A. All water mains shall be flushed to remove all sand, debris, rock and other foreign matter. Dispose of the flushing water without causing a nuisance or property damage.

B. Pressure and Leakage Testing: Hydrostatically test all pressure pipe. The test pressure for potable water mains shall be 150 psi. The test pressure for sewage force mains shall be 100 psi. Test Ductile Iron Pipe mains in accordance with ANSI/AWWA C600 latest edition once all backfill is in place and fully compacted, and after all thrust blocks have cured to their design strength. Do not test against closed valves. All pumps, piping and gauges shall be furnished, installed and operated by the Contractor and all such equipment and devices and their installation shall be approved by the Engineer. Pump shall be of a non-pulsating type suitable for this application and gauge accuracy certification may be required at the Engineer of Record's discretion. All pressure and leakage testing shall be done in the presence of a representative of the CITY as a condition precedent to the approval and acceptance of the system.

C Disinfection:

Disinfect in accordance with ANSI/AWWA C651-14 – Disinfecting Water Mains. During the period that the chlorine solution or slug is in the section of pipeline, open and close valves to obtain a chlorine residual at hydrants and other pipeline appurtenances. Swab exposed faces of valves and blind flanges prior to bolting flanges in place with a 1% sodium hypochlorite solution. Disinfect isolation valves, pipe, and appurtenances per AWWA C651, Section 4.7.

Flush with potable water until discolored water, mud, and debris are eliminated. Swab interior of pipe and fittings with a 1% sodium hypochlorite solution. After disinfection, flush with potable water again until water is free of chlorine odor. After confirming the chlorine residual, flush the excess chlorine solution from the pipeline until the chlorine concentration in the water leaving the pipe is either within 0.5 mg/L of the replacement water or no higher than that generally prevailing in the distribution system.

Discharge of chlorinated water into watercourses or surface waters is regulated by the National Pollutant Discharge Elimination System (NPDES). Disposal of the chlorinated disinfection water and the flushing water is the Contractor's responsibility. Schedule the rate of flow and locations of discharges in advance to permit review and coordination with Owner and cognizant regulatory authorities. For measuring chlorine concentration, supply and use a medium range, drop count, DPD drop dilution method kit per AWWA C651, Appendix A.1. Maintain kits in good working order available for immediate test of residuals at point of sampling.

END OF SECTION

SECTION 15100
VALVES, GENERAL

PART 1 - GENERAL

1.01 SCOPE

A. The Contractor shall provide all tools, supplies, materials, equipment, and labor necessary for furnishing, installing, adjusting, and testing of all valves and appurtenant work, complete and operable. For buried valves, the Contractor shall furnish and install valve boxes to grade, with covers, extensions, and position indicators.

B. The provisions of this Section shall apply to all valves and valve operators called out in the various Sections of these Specifications except where otherwise specified. Valves and operators in particular locations may require a combination of units, sensors, limit switches, and controls specified in other sections of these Specifications.

C. All valves specified herein shall be furnished with an affidavit from the manufacturer(s) certifying that the valves furnished comply with the applicable provisions of the AWWA specifications, as modified herein. That they were factory tested in accordance with the AWWA Standard Leakage and Hydrostatic Tests as modified herein, with a certified test report furnished to the CITY for each valve.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Piping, General

B. Painting

C. Equipment General Provisions

D. Electrical

E. Valve (by type) Specification Sections

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Codes: All codes, as referenced herein, are specified in Section entitled "Reference Standards." As used herein, "ANSI" denotes the American National Standards Institute; "AWWA", the American Water Works Association; and "ASTM", the American Society for Testing and Materials.

B. Commercial Standards:

ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.

ANSI B16.5	Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys.
ANSI/ASME B1.20.1	General Purpose Pipe Threads (Inch).
ANSI/ASME B31.1	Power Piping.
ASTM A 36	Specification for Structural Steel.
ASTM A 48	Specification for Gray Iron Castings.
ASTM A 126	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
ASTM A 536	Specification for Ductile Iron Castings.
ASTM B 61	Specification for Steam or Valve Bronze Castings.
ASTM B 62	Specification for Composition Bronze or Ounce Metal Castings.
ASTM B 148	Specification for Aluminum-Bronze Castings.
ASTM B 584	Specification for Copper Alloy Sand Castings for General Applications.
ANSI/AWWA C500	Gate Valves for Water and Sewerage Systems.
AWWA C550	Protective Interior Coatings for Valves and Hydrants.

1.04 MANUFACTURER

All valves shall be the product of domestic manufacturing firms which have been engaged in the production of valves for not less than five (5) years.

1.05 QUALITY ASSURANCE

A. Valve Testing: The Contractor is advised that he is required to furnish all labor, materials and equipment necessary to pressure test each valve furnished by himself or the CITY, bi-directionally, prior to installation, to the satisfaction of the Engineer of Record. If the valves are available, the tests shall be performed prior to the start of construction. Otherwise, the tests shall be performed as soon as the valves are available to afford the maximum time for any corrective work required. The Contractor shall include all costs for this requirement under the appropriate Proposal Item(s), no other compensation will be provided.

B. Bronze Parts: Unless otherwise specified, all interior bronze parts of valves shall conform to the requirements of ASTM B 62.

C. Provide valves that have the manufacturer's name and valve rating cast in body.

1.06 SUBMITTALS

A. Shop Drawing: Shop drawings of all valves and operators including associated wiring diagrams and electrical data.

B. Approved Drawings: The Engineer of Record's drawings, which constitute an integral part of this Contract, indicate the general layout of the complete system. Field verification of scale dimensions on plans is directed since actual locations, distances and levels will be governed by actual field conditions. The Contractor shall also review architectural, structural, and mechanical plans and shall adjust his work to conform to all conditions indicated thereon. Discrepancies shown on different plans, or between plans and actual field conditions, or between plans and specifications, shall promptly be brought to the attention of the Engineer of Record, for a decision. All items not specifically mentioned in the specifications or noted on the drawings, but which can be reasonably assumed as necessary to make a complete working installation shall be included.

PART 2 - PRODUCTS

2.01 VALVES

A. General: The Contractor shall furnish all valves, gates, valve operating units, stem extensions, operators and other accessories as shown or specified. All valves and gates shall be new and of current manufacture. All non-buried valves, 6-inch and larger, shall have operators with position indicators. Where buried, these valves shall be provided with valve boxes, covers and valve extensions. Valves mounted higher than 6-feet above working level shall be provided with chain operators. All valves shall have a minimum design pressure rating of 250 psi unless otherwise specified elsewhere herein.

B. Cast iron parts of valves shall meet the requirements of ASTM A126, "Standard Specifications for Gray Iron Castings for Valves, Flanges and Pipe Fittings, Class 'B'." Flanged ends shall be flat-faced and have bolt circle and bolt patterns conforming to ANSI B16.1 Class 125.

C. All castings shall be clean and sound, without defects of any kind and no plugging, welding or repairing of defects will be permitted. All bolt heads and nuts shall be hexagonal conforming to ANSI B18.2. Gaskets shall be full-face and made of synthetic elastomers in conformance with ANSI B16.21 suitable for the service characteristics, especially chemical compatibility and temperature. Non-ferrous alloys of various types shall be used for parts of valves as specified. Where no definite specification is given, the material shall be the recognized acceptable standard for that particular application. Stainless steel bolts/nut shall be Type 304 stainless steel minimum.

D. All buried valves shall be provided with cast-iron valve boxes unless otherwise indicated. The boxes shall conform with CITY Standards and be installed perpendicularly, centered around and covering the upper portions of the valve operator. The top of each valve box shall be placed flush with finish grade unless otherwise indicated on the Drawings. Valve boxes shall be as specified elsewhere in this Section.

E. All buried valves and other valves located below a concrete operating deck or level, specified or noted to be key operated, shall have an operator to finish grade or deck level, non-rising stem, a 2-inch square AWWA nut with skirt, and cover or box and cover, as may be required.

F. Valve Flanges: The flanges of valves shall be in accordance with Section 15060, "Piping and Fittings."

G. Gate Valve Stems: Gate valve stems shall be of bronze in accordance with AWWA C515, containing not more than 5 percent of zinc nor more than 2 percent of aluminum.

H. Protective Coating: Except where otherwise specified, ferrous surfaces, exclusive of stainless steel surfaces, in the fluid passages of all valves 4-inch and larger shall receive an epoxy coating in accordance with AWWA C550. Flange faces of valves shall not be epoxy coated. The valve manufacturer, shall certify in writing that such coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications. Exterior coating shall be asphalt varnish conforming to Federal Specification TT-C-494A.

I. Valve Labeling: A label shall be provided on all shut-off valves exclusive of hose bibs and chlorine cylinder valves. The label shall be of 1/16-inch brass or stainless steel, minimum 2 inches by 4 inches in size, and shall be permanently attached to the valve or on the wall adjacent to the valve or as indicated by the CITY.

2.02 VALVE OPERATORS

A. General

1. All butterfly valves, plug valves over 8-inch size and gate valves installed horizontally shall be furnished with geared operators, provided by the manufacturer. All valves of a particular size and pressure rating by a given manufacturer shall be supplied with the same operator. No variation will be permitted during the contract. All valve operators, regardless of type, shall be installed, adjusted, and tested by the valve manufacturer at the manufacturing plant. Operator orientation shall be verified with the CITY prior to fabrication. If this requirement is not met, changes to orientation shall be made at no cost the CITY.

2. All operators shall turn counter-clockwise to open. Operators shall have the open direction clearly and permanently marked. Field adjustment and testing of the operators and valves to ensure proper installation and operation shall be the responsibility of the Contractor.

B. Manual Operators

1. All manual operators shall be equipped with AWWA square nuts, handwheels or chain drives as appropriate. Some small (6-inch or less) valves may be lever operated if so specified elsewhere herein. Where buried, the valves shall have extensions with square nuts or floor stands as indicated on the Drawings. Valves mounted higher than 6 feet above floor or operating level shall have chain operators with chain terminating 4 feet above operating level.

2. Operation of valves and gates shall be designed so that the effort required to operate the handwheel, lever or chain shall not exceed 40 pounds applied at the extremity of the wheel or lever. The handwheels on valves 14 inches and smaller shall not be less than 8 inches in diameter, and on valves larger than 14 inches the handwheel shall not be less than 12 inches in diameter.

3. Chainwheel operator shall be fabricated of malleable iron with pocketed type chainwheels with chain guards and guides. Chainwheel operators shall be marked with an arrow and the word "open" indicating direction to open. The operators shall have galvanized smooth welded link type chain. Chain that is crimped or has links with exposed ends is not acceptable.

2.03 TORQUE LIMITING DEVICE

Each butterfly valve shall be provided with a torque limiting device designed to protect the actuator and valve parts. The device shall consist of an overtorque protection mechanism enclosed in a hermetically sealed cast iron housing. The mechanism shall be permanently lubricated and factory set to trip between 200 and 220 ft. lbs. of applied torque. The housing shall have integrally cast, 2-inch AWWA operating nut and matching socket to operate and to fit over the actuator or extension shaft nuts, respectively. The socket shall be provided with a set screw to fit the device. The direction of rotation shall be permanently shown with word and arrow next to the operating nut. The entire device shall be coated inside and out with a 2-part epoxy. The torque limiting device shall be as manufactured by Annspach Controls Company of St. Louis, Missouri, or approved equal.

2.04 FLOOR STANDS

Floor stands shall be cast iron, non-rising stem type with lockable hand wheel operator, valve position indicator and stainless steel or bronze extension stem. Hand wheel shall be lockable in the full open and full closed positions. The floor stand shall be furnished with an armored padlock and six keys. Lock shall be as manufactured by Master, Schlage or equal. Floor stand shall be standard pattern type as manufactured by Clow Corporation, or equal.

2.05 VALVE BOXES

Cast iron valve boxes shall be provided for all valves installed underground. All valves boxes shall be No. 2 or 3 (for water) and No. 52 or 53 (for sewer) in accordance with CITY Standards.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: All work shall be performed by skilled workmen experienced in similar installations. All valves shall be adequately supported by clamps, brackets, straps, concrete supports or other devices as shown or specified. All supports shall be secured to structures by approved inserts or expansion shields and bolts.

B. All valves shall be thoroughly cleaned internally before being installed. Installation of valves shall be done in accordance with construction methods specified in "Pipes and Fittings" Section of these Specifications.

C. Install valves as recommended by manufacturer.

D. Install valves so that they are easily accessible for operation, visual inspection and preventive maintenance.

E. Location of valves and chain operators: Install valves so as to be accessible for operation and free from interferences when operated. Position so that leakage will not contact any electrical equipment that may be located below.

F. The installation of all underground valves shall include a valve box and riser in accordance with the Details shown on the Plans or in the Standard Details for the various sizes and types of valves to be installed. Riser pipes and valve boxes shall be carefully centered and set flush with the finished grade if in paving, or with the top of the ground if out of paved areas. All valve boxes shall be held in position with concrete as shown on the Plans or in the Standard Details.

G. Upon completion of the Project, but prior to final acceptance, the Contractor in the presence of the Engineer, shall fully open each valve installed by him, except at connections to existing CITY mains. For valves 16-inch and larger, the Contractor, shall count the number of turns required to operate each valve from a completely closed to a fully opened position, and shall paint the number on the bottom of the valve box lid or manhole cover. Valves at connections to existing CITY mains shall only be operated by CITY forces.

END OF SECTION

SECTION 15102

TAPPING SLEEVES AND TAPPING VALVES

PART 1 GENERAL

1.01 SCOPE

A. The Contractor shall furnish and install tapping sleeves and tapping valves, as shown on the Plans and/or as specified herein. All items not specifically mentioned in these specifications or noted on the Drawings, but which can be reasonably inferred as necessary to make a complete working installation, shall be included.

B. Tapping sleeves, where shown on the Plans, shall fit the existing pipe to be tapped and the Contractor shall determine the outside diameter and type of pipe before ordering the sleeve. Field verification of dimensions is directed since actual locations, distances and levels will be governed by actual conditions. The Contractor shall adjust his work to conform to said field conditions.

C. The Contractor is responsible for having the work properly scheduled, location excavated in accordance with Trench Safety requirements, pipe restrained, excavation dewatered and all conditions ready for the tap to be made.

D. The Contractor is responsible for evaluating if a tapping connection can be accomplished at a specific site, final decision is made by the Engineer.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 15100 “Valves, General”
Section 15120 “Gate Valves”

1.03 MANUFACTURE

A. All valves shall be the products of domestic manufacturing firms which have been regularly engaged in the production of valves for at least 5 years. All valves specified herein shall be tested at the factory in accordance with the AWWA Standard Leakage and Hydrostatic Test as modified herein and a certified test report shall be furnished for each valve upon request.

1.04 SUBMITTALS

A. Shop Drawings: Submit shop drawings for all tapping sleeves and valves.

B. Complete technical data and information on tapping sleeves for pipe other than cast iron shall be submitted to the CITY for approval on an individual basis.

PART 2 PRODUCTS

2.01 TAPPING SLEEVES

A. Tapping sleeves with MJ outlets to connect MJ gate valves shall be constructed of 316 stainless steel. This shall apply to both water and sewer applications unless otherwiseapproved by the CITY. These units shall be manufactured of AISI Type 316 stainless steel passivated after welding or Type 316L. Threaded fasteners shall be Type 316 and gasketing shall be Neoprene, EPDM, or Nitrile for sanitary sewer use and SBR for potable water. A standard resilient-seated gate valve shall be attached to the MJ outlet of the sleeve.

B. Cast Iron tapping sleeves shall be designed to withstand a working pressure of at least 150 psi. Cast iron tapping sleeves shall be used with a flanged tapping valve.

C. Tapping saddles for concrete pipe sewer mains 42-inches and larger may use a fusion bonded epoxy carbon steel saddle with 316 stainless steel straps. Large diameter saddles shall be individually approved by the CITY on a case by case basis.

D. Each mechanical joint on the tapping sleeve shall be furnished complete with tee-head bolts and nuts complying with ANSI/AWWA C111/A21.11 "Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings" (latest edition). Tee-head bolts and hex nuts shall be of high strength cast iron. Bolts and nuts to join the two halves of the sleeve together shall be standard carbon steel, hex, or tee-head bolts and nuts which have been galvanized.

E. The tapping sleeves, including outlet flanges shall be as dimensioned and thicknesses shall be as required by AWWA/ANSI C110/A21.10. The tapping sleeves shall be mechanical joint ended, on the run, and shall have a connecting flange outlet, with centering groove (for all valves size 12-inch and below and for valves above 12-inch if available from the manufacturer), for connecting to the tapping valve. For tapping sleeves with outlets 12 inches and smaller, the connecting flange joint between the tapping sleeve and the tapping valve shall be in compliance with all applicable provisions of MSS Standard Practice SP60, latest revision, as developed and approved by the Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street N.E. Vienna, VA. 22180. For tapping sleeves with outlets larger than 12 inches, the connecting flange must provide a matching fit with tapping valves by other manufacturers.

F. Each tapping sleeve shall be furnished complete with all necessary split end gaskets, longitudinal gaskets and two-piece (split) steel glands (follower glands held in place by set screws not acceptable). Gasket shall be shipped separately in suitable protective containers. Material for split end gaskets shall conform to ANSI/AWWA Standard C111/A21.11. Material for longitudinal gaskets shall be rubber conforming to ANSI/AWWA Standard C111/A21.11.

G. The sleeves shall be suitable for use with ductile iron pipe conforming to ANSI/AWWA Standard C151/A21.51, "Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids", with wall thickness and outside diameter as specified in Table 51.4 and 51.5. The sleeves shall also be suitable for use with other cast

iron pipe with differing outside diameters and other types of pipe where required.

H. Each tapping sleeve shall be Factory Hydrostatically tested on pipe to verify proper fit and weld integrity with zero leakage.

2.02 TAPPING VALVE

A. Resilient-seated tapping valves shall have a mechanical joint outlet end conforming to ANSI/AWWA Standard C111/A21.11-00, "Rubber Gasket Joints of Ductile-iron and Gray-Iron Pressure Pipe and Fittings," for connection to new piping and a flange inlet with centering ring, for connecting to the tapping sleeve.

B. The tapping valves shall conform to the requirements listed for gate valves, including bypass valve when applicable, shall be furnished complete with all joint materials. Joint materials for the flanged inlet shall be ANSI-sized and approved and shall include a 1/8-inch thick full-faced neoprene gasket, and hot dipped galvanized carbon steel bolts and nuts with internal threads tapped or retapped after galvanizing. The flange inlet gaskets shall conform to the gasket material and property requirements set forth in ANSI/AWWA Standard C111/A21.11-00. All gaskets and seals shall be neoprene, Buna-N, or approved equal, but not natural rubber. The mechanical joint outlets shall include the necessary joint materials conforming to the requirements of joint materials for mechanical joint ended gate vales as specified in Section 5.07.3 "Valves - Resilient Seated Gate Valves." Bolt holes in the flanges of the mechanical joint shall be equally spaced and shall straddle the vertical centerline. Gaskets shall be shipped separately in suitable protective containers. Resilient-seated tapping valves shall be as manufactured by U.S. Pipe and Foundry Co., American Flow Control, Mueller, or approved equal.

PART 3 EXECUTION

3.01 GENERAL

A. The Contractor shall notify the Engineer at least seven days in advance of when he will be ready to make the connection and shall have the tapping valve installed on the existing main with the new equipment satisfactory pressure tested and sufficient excavated work areas.

B. The Contractor shall furnish and install a mechanical joint plug on the free end of the tapping valve, and shall pressure test the tapping sleeve and valve after installation on the main, but prior to tapping operations. No leakage will be permitted at any joint in either the tapping sleeve or tapping valve. The tapping sleeve and valve shall be filled with water and then pressurized at design test pressure. Duration of the test shall be determined by the CITY. The test shall be conducted in the presence of the Engineer, who will notify CITY forces of the satisfactory conclusion of the test, and arrange a definite time and date for them to arrive at the site to make the tap. No leakage shall be permitted at any joint in either the tapping sleeve/saddle or valve.

C. The tapping valve requires the installation of a cast iron riser pipe complete with valve box and cover, centered over the operator, and set in concrete.

D. All necessary sheeting, shoring, dewatering, excavation, backfill and compaction, surface repairs, and other items and work appurtenant to or incidental to the work shall be performed by the Contractor.

E. The Contractor shall pressure test the tapping sleeve and valve after installation on the main, but prior to tapping operations. The test shall be conducted in the presence of the CITY's Inspector. No leakage will be permitted at any joint in either the tapping sleeve or tapping valve.

3.02 TAPPING BY NON-CITY FORCES

A. The Contractor shall comply with all applicable provisions of Subsections 3.01 and 3.02, above, including installation and pressure testing of tapping sleeve and valve in the presence of the CITY's Inspector.

B. Since cutting equipment used for this type of installation is of a special design, the Contractor shall make provisions for furnishing a tapping specialist to perform actual tapping operation. The qualifications of the tapping specialist shall be forwarded to the CITY prior to any tapping work. The Contractor shall also furnish all incidental equipment necessary to operate the tapping machine and perform a complete operation to the satisfaction of the Engineer.

C. The tapping valve shall be installed in the horizontal position with the operator in the vertical position, and shall include a valve box cover. Tapping valves shall be left in the closed position.

D. All tapping operations shall be conducted under the direct supervision of the previously approved tapping specialist. All operations shall have prior approval of the CITY.

3.03 COORDINATION

A. The Design Engineer is responsible for determining the optimal connection method that meets the long-term needs of the CITY. All work of utility location, lay length determinations, restrainment and planning shall be done as part of the plan preparation phase of the project. Scheduling work with Licensed Plant Operators on-site shall be done well in advance of the actual construction.

3.04 RECORD DRAWINGS

A. Record Drawings shall be prepared in accordance with Section 01720.

B. The location and elevation for each valve, tapping outlet, fitting, service line and other appurtenances along the pipeline shall be recorded by the Contractor's Florida Registered Surveyor and Mapper.

END OF SECTION

SECTION 15120
GATE VALVES

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish and install gate valves complete and operable, including all appurtenances and accessories.

B. The CITY will permit the use of resilient seated type gate valves in potable water systems, as described herein. Such use shall be restricted to potable water systems of nominal sizes 4-inch through 48-inch. All other size or system applications shall be allowed only if reviewed and approved by the CITY. Resilient seat gate valves shall only be used in sewer applications where cover depth is sufficient to mount the valve in the vertical position and only with review and approval of the CITY. Sewer lines may not dipped or lowered in close proximity to a gate valve for the purpose of providing said cover. Resilient seat gate valves used as tapping valves in sanitary sewer systems and laid upon their side shall be left open when the line is placed in operation and backed up with a plug valve to provide flow control.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 15100 - Valves, General

PART 2 - PRODUCTS

2.01 GATE VALVES, GENERAL

A. As used herein, "ANSI" denotes the American National Standards Institute; "AWWA" denotes the American Water Works Association; and "ASTM" denotes the American Society for Testing and Materials.

B. All work performed according to the standards cited above, except prototype testing, shall be subject to inspection and acceptance by the CITY or its representatives who shall have access to all places of manufacture where these valves are being produced and tested. Suppliers shall, with their shop drawing submittals, submit the company name and location of the actual manufacturer of the valve which shall include Country, City, and street address of the manufacturer. Where valves are not domestically produced and tested, the CITY reserves the right to require that the Affidavit of Compliance be signed and sealed by a Professional Engineer, licensed to practice in the state of where the importing firm is located or the State of Florida. When this is required, the CITY's decision as to its necessity shall be final and no extra compensation will be allowed.

C. All valves shall conform with ANSI/NSF Standard 61, "Drinking Water System Components-Health Effects".

D. Grades B and C bronze as listed in Table 1 of AWWA C500, latest revision shall not be used in the fabrication of any of the various valve types listed in this specification. Aluminum bronzes, if used, shall not dealuminize and the method of preventing this shall be fully described in the submittal.

E. AWWA Standard C515, latest revision lists a number of copper alloys for valve stems and gates. Of these the CITY will accept alloys with the following Unified Numbering Series (UNS) numbers;

C66100, C87600, C99400 and C99500. This same standard lists other copper alloys for Stem Nuts and Gates. Of these the CITY will accept alloys with the following UNS numbers; C83600, C83450, C95200, C95500, C95800 C99400 and C99500.

F. Other copper alloys not listed in the standard may be used but must meet the performance requirements of the Standard, including but not limited to, minimum yield strength, chemical requirements and corrosion. The CITY requires that alloys containing more than sixteen (16) percent zinc shall not be used.

2.01 RESILIENT SEATED GATE VALVES

A. Resilient-seated gate valves shall be manufactured in accordance with the applicable provisions of the most recent ANSI/AWWA Standard C515, latest revision "Reduced-Wall Resilient-Seated Gate Valves for Water Supply Service" as modified herein.

B. Valves shall have non-rising stems (NRS) and are to be installed under buried and/or submerged conditions. The design working water pressure shall be 250 psig for 3 - 48-inch sizes. For valves manufactured in conformance with the provisions of AWWA C515, latest revision as modified herein, the design working water pressure shall be a minimum of 200 psi for all sizes. In addition to the pressure requirements, the valve assembly and mechanism shall be capable of withstanding an input torque of 200 ft.lbs. for valves 4-inch and smaller, and 300 ft. lbs. for valves 6-inch and larger. With the valve open the unobstructed waterway shall have a diameter not less than the full nominal diameter of the valve.

C. Valve body: Valves manufactured in conformance with AWWA C515, latest revision shall be iron-bodied and shall conform to ASTM Standard A395-99, "Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures" or ASTM Standard A536-84 "Ductile Iron Castings". Body and bonnet thickness shall conform with the requirements of AWWA Standard C515 latest revision.

All ferrous metal items in contact with the line fluids, except gray or ductile cast iron, shall be AISI Type 316 stainless steel. Valve body and bonnet gaskets shall be rubber or rubber composition, inorganic mineral fiber and paper are not acceptable. Rubber and rubber composition materials shall be suitable for use in water containing chlorine or chloramines and in sanitary sewage.

D.. Stems, stem nuts, glands and bushings shall be made of bronze as specified in ANSI/AWWA Standard C515 latest revision with no Grades B or C bronze being utilized. The same items for valves made in conformance with C515 latest revision shall be made of the alloys specified above in the last paragraph of the "Gate Valves, General" section of this specification. The stem diameter shall conform to Table 4 of C515 latest revision. All valves shall be equipped with an ANSI/AWWA standard 2-inch square operating nut with skirt, or handwheel when required for above-ground service. Valve stems shall rotate counterclockwise to open. All valves 20-inch and larger shall be equipped with gearing conforming to AWWA standard. Bevel or spur gearing shall be supplied as ordered with no cost differential.

E. "O"-ring stem seals shall be neoprene, Buna-N, or approved equal. No natural rubber compounds will be acceptable. The stem seals shall be of design that permits the replacement of the "O"-ring seals while the valve is in service, without undue leakage.

F. All external ferrous items, except gray or ductile cast iron, shall be hot dipped galvanized in accordance with ASTM Standard A123, "Zinc (Hot-galvanized) Coatings on Iron and Steel Products", or ASTM Standard A153, "Specification for Zinc Coating (Hot Dip) on Iron and Steel

Hardware", or Type 304 stainless steel.

G. Resilient seats shall be applied to the disc only and shall seat against a corrosion-resistant surface. The surface may be either metallic or nonmetallic, applied in a manner to withstand the action of line fluids and the operation of the sealing gate under long-term service. A metallic surface shall have a corrosion resistance equal to or better than bronze. A nonmetallic surface shall be in compliance with ANSI/AWWA Standard C550, "Protective Epoxy Interior Coatings for Valves and Hydrants". Resilient seats shall be bonded to the gate. No natural rubber products will be acceptable. If the resilient seat is a rubber material, the method used for bonding or vulcanizing shall be proven by ASTM Standard D429, "Test Methods for Rubber Property-Adhesion to Rigid Substrates", Method A or B. For method A, the minimum strength shall not be less than 250 psi. When Method B is applicable, the peel strength shall not be less than 75 lb/in. All exposed mechanical attaching devices and hardware used to retain the resilient seat shall be of AISI Type 316 stainless steel.

H. Flanged valves shall have ends faced and drilled conforming to ANSI Standard B16.1, Class 125. Bolt holes in the flanges shall be equally spaced and shall straddle the vertical and horizontal centerlines. Joint materials for flanged valves will be furnished with the valves.

I. Mechanical joint valves shall have ends complying with ANSI/AWWA Standard C111/A21.11, "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings". Mechanical joint gaskets, glands, tee-head bolts and hex nuts shall be included with the valve. Segmented glands or follower glands held in place with set screws will not be acceptable. Bolt holes in the flanges of the mechanical joint shall be equally spaced and shall straddle the vertical centerline. Gaskets shall be shipped separately in suitable protective containers. Valves for use in sewage shall have neoprene gaskets.

J. Painting and coatings shall conform to the requirements of Fed. Spec. TT-C-494a on exterior ferrous surfaces, and ANSI/AWWA Standard C550 for the interior of the valve. A coating shall be applied to all ferrous parts of the valves except for finished or seating surfaces. Surfaces shall be clean and dry before painting.

K. Testing: All production tests shall be performed on all valves supplied without exception. Operation, shell and seat tests shall be performed as specified in Section 6.2 of AWWA C509 latest revision and Section 5.1.2 of AWWA C515, latest revision as appropriate to the standard which covers the valve in question. An Affidavit of Compliance as specified in paragraph two of the "GATE VALVES, GENERAL", section above, shall be furnished to the CITY with the invoice for the valves. Final payment (prior to installation in donations situations) by the CITY will not be made until after receipt of these Affidavits of Compliance.

The gate valves shall conform to AWWA C515, latest revision standard as modified herein and as manufactured by American Flow Control, Mueller or approved equal.

L. Resilient Seated Gate Valves installed in the horizontal position with bevel gearing shall require a flushing port on the side of the valve to clean the tracks. See the Standard Detail WS 4.70 for piping and ball valve installation requirements.

2.03 TAPPING VALVES

A. Tapping valves shall conform to the applicable requirements for the gate valves specified above herein, and also with the requirements listed below.

B. With the valve open, an unobstructed waterway shall be provided, the diameter of which shall be at least the full nominal diameter of the valve, to permit taps to be made through the valve.

C. Tapping valves shall have a mechanical joint outlet end conforming to ANSI/AWWA Standard C111/A21.11-90, "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings" or a flanged outlet conforming to ANSI Standard B16.1 Class 125 (as called for in the particular valve order), for connection to new piping and a flanged inlet with centering ring (for all valves of 12-inch diameter and smaller and for all larger valves where the manufacturer produces a centering ring flange in that size), for connecting to the tapping sleeve. For tapping valves 12-inch and smaller, the sleeve shall be in compliance with all applicable provisions of MSS Standard Practice SP 60, latest revision, as developed and approved by the Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street N.E., Vienna, Virginia 22180. For tapping valves larger than 12-inch, the connecting flanged joint between the tapping sleeve and the tapping valve shall be industry standard; however, the tapping valve must provide a matching fit with tapping sleeves by other manufacturers.

D. The tapping valves shall be furnished complete with all joint materials. Joint materials for the flanged inlets shall be ANSI-sized and approved and shall include 1/8-inch thick full faced gaskets and hot-dip galvanized carbon steel bolts and nuts with internal threads tapped or retapped after galvanizing or stainless steel bolts and nuts. The flanged inlet gaskets shall conform to the gasket material and property requirements set forth in ANSI/AWWA Standard C111/A21.11-90. All pipe connection gaskets for use in sewer applications shall be neoprene and natural rubber shall not be used in any application. Seal shall be neoprene, Buna-N, Nitrile, EPDM or approved equal, but not natural rubber. The mechanical joint outlets shall include the necessary joint materials conforming to the requirements of joint materials for mechanical joint ended gate valves of the appropriate type specified above herein (neoprene for use with sewer). Bolt holes in the flanges of the mechanical joint shall be equally spaced and shall straddle the vertical centerline. Gaskets shall be shipped separately in suitable protective containers.

E. Valve operators for tapping valves 20-inch and larger shall be located to the right or left (when looking into the mechanical joint outlet end) as ordered by the CITY.

F. The valves shall be suitable for use with ductile-iron pipe conforming to ANSI/AWWA Standard C151/A21.51-96, "Ductile-Iron Pipe, Centrifugally Cast, for Water", with wall thickness and outside diameter as specified in Tables 3 and 4, (Special Thickness Classes) for the following sizes:

Size	Thickness Class
4-inch	54
6-inch	53
8-inch	52
10-inch and larger	50

and with wall thicknesses and outside diameter as specified in Tables 1 and 2 (Standard dimensions and weights) of the same standard.

Pressure Class Pipe (Potable, Reuse and Raw Water Only)

Size	Pressure Class
4-inch through 12-inch	350

14-inch through 20-inch	250
24-inch	200
30-inch through 48-inch	150

G. All production tests shall be performed on all valves supplied without exception. Operation and hydrostatic tests shall be performed as specified in AWWA C515, latest revision. An Affidavit of Compliance as specified in paragraph two of the "GATE VALVES, GENERAL", section above, shall be furnished if requested to the CITY prior to installation of the valves. Final payment (installation in donations situations) by the CITY will not be made until after receipt of these Affidavits of Compliance.

The tapping valves shall conform with the appropriate AWWA valve standard as modified herein and as manufactured by American Flow Control, Mueller or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

All valves shall be installed in accordance with provisions of Section 15100, "Valves, General." Care shall be taken that all valves are well supported.

END OF SECTION

SECTION UC-175
DISINFECTION OF WATER MAIN

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish the necessary labor, equipment, and material to disinfect sections of water main and fittings as applicable to this project.

1.02 RELATED SECTION

Section UC-170 - Cleaning and Testing of Main

1.03 QUALITY ASSURANCE

A. Disinfection shall be performed in strict accordance with these specifications and with AWWA Standard C651, "Disinfection of Water Mains", latest edition, except as otherwise modified herein.

PART 2 - PRODUCTS

2.01 Liquid Chlorine, available from local sources.

2.02 Calcium hypochlorite, HTH, Perchloron, or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall clean, flush and disinfect every piece of pipe, fitting and valve in accordance with these specifications and to the satisfaction of the CITY.

B. Liquid chlorine is available locally and shall be purchased by the Contractor.

3.02 DISINFECTION

A. The pipelines shall be disinfected after they have been pressure tested and while still full of water, as specified in Section UC-170.

B. A suitable chlorinator shall be used to inject chlorine into the lines. All connections required for the introduction of chlorine into the water lines shall be made by the Contractor. Chlorine and water shall be introduced at one end and shall be allowed to flow slowly through the lines to the other end where it shall be removed and disposed of at the Contractor's expense. Several points of introduction and removal of chlorine solution may have to be employed to get an even distribution through the entire section being disinfected.

C. The quantity of chlorine introduced shall be such as to insure a concentration of at least 50 parts per million in the water flowing from the line.

D. The chlorine solution shall be allowed to stand in the line for at least 24 hours or longer, if required, to destroy all harmful bacteria. At the end of the required time, the concentration of chlorine in all parts of the section shall be at least 25 ppm.

E. All valves and appurtenances in the section shall be operated at least once during the above period. After the required period, the treated water shall be thoroughly flushed from the section and the system filled with potable water.

F. The Contractor shall be responsible for any rechlorination and retesting that may be required until FDEP approval is obtained. The Contractor shall be responsible for the disposal of all water flushed from the system and shall safeguard all adjoining properties from damage from flooding. The Contractor shall exercise due care in the protection of private property from water damage due to his operations. In addition, the Contractor shall assume complete liability for any damage which was directly or in-directly caused by his operations.

G. All of the connections shall be disinfected by the Contractor.

H. The inside of each pipe and fitting laid by the Contractor in connecting to existing mains which are isolated from the main line by valves shall be swabbed with calcium hypochlorite, HTH, Perchloron, or approved equal, mixed in solution with water. The quantity of hypochlorite shall in all cases be subject to the approval of the CITY, whose representative shall be present at all times while this phase of the work is in progress.

I. Wherever practicable, water from the existing mains flowing through the disinfected connections shall be used in disinfecting the main line in order that the hypochlorite may be removed to the greatest extent possible. In other cases, the water from the disinfected connections shall be removed by allowing it to flow into the main line as it is being drained.

END OF SECTION

SECTION 33 05 31.16
PVC C900 WATER MAIN

PART 1 GENERAL

1.01 SCOPE

A. This section includes materials, installation, and testing of PVC C900 for water main, conforming to AWWA C900. Size range is 4 through 16 inches.

B. Not for use near gas stations or other sites which may have hydrocarbon contamination.

C. All PVC pipe used shall be of new or recent manufacturer. Pipe with surface discoloration will not be allowed.

D. Pipe Fittings shall be ductile iron.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 33 01 10.54 (02505) “Cleaning and Testing of Mains”

B. Section 33 01 10.58 (UC-175) “Disinfection of Water Mains”

C. Section 33 14 00 (15060) “Piping and fittings”

D. Section 33 14 13 (UC-000) “Water Mains”

1.03 SUBMITTALS

A. Submit shop drawings in accordance with the CITYs specifications.

B. PVC Products shall supply the following:

1. Provide affidavit of compliance with AWWA C900.

2. Submit fully dimensioned cross-section of the bell and barrel of the pipe. Show the bell maximum outside diameter in the pressurized area and its minimum wall thickness at the same location.

3. Submit copies of the following manufacturer-required tests conducted on project pipe:

a. Quick-burst strength of pipe and couplings.

b. Flattening resistance of pipe.

c. Record of additional tests after test sample failure.

4. Submit manufacturer's literature of gray iron and ductile-iron fittings including dimensions, thickness, weight, coating, lining, and a statement of inspection and compliance with the acceptance tests of AWWA C110 or C153. Submit copy of report of pressure tests for qualifying the designs of all sizes and types of AWWA C153 fittings that are being used in the project. The pressure test shall demonstrate that the minimum safety factor described in AWWA C153 is met.

5. Submit outline drawings and materials description of service connection saddles, corporation stops, and pipe plugs.

6. Submit test results for the restrained joint system to be used certified by an independent test laboratory demonstrating compliance with these specifications for each size and pressure rating.

1.04 QUALITY CONTROL

A. No deflection at the pipe joints is allowed for PVC pressure mains.

B. Bending of the Pipe Barrel: Gasketed PVC pies can be laid to the line of a curved trench by bending the pipe barrel into a curved shape. The procedure is as follows:

1. Keep the spigot in straight alignment with the bell.

2. Place compacted backfill around the assembled joint. This backfill restrict movement while the curvature is being made.

3. Place compacted backfill at the inside of the curve at the mid-point of the pipe length to form a fulcrum.

4. Using only manual effort, move the leading bell of the pipe length to be curved.

5. Longitudinal barrel deflection along the pipe barrel shall be based on half of the allowable longitudinal deflection established by the PVC Pipe Association Handbook of PVC Pipe Design and Construction Table 8.4. The allowable pipe barrel deflection in inches shown below is per 20-foot pipe length.

Pipe Size inch	4	6	8	10	12
Allowable Bending Offset at the opposite end of the R18 PVC 20-foot pipe length, inches	12	8.5	6.5	5	4

C. PVC pipe shall not be over-homed.

D. Pipe Bedding Material shall be class 1 backfill material with a maximum rock size of 3/4-inches.

E. The CITY shall have the final determination on allowing the use of PVC C900 DR 18 for potable water mains. The Contractor/Design Engineer shall obtain approval in writing prior to finalizing 100% construction plans.

PART 2 - PRODUCTS

2.01 PIPE

A. Pipe 4-inches through 16 inches shall conform to AWWA C900 DR 18, rubber-ring gasket bell end or plain end with elastomeric gasket coupling, cast iron equivalent outside diameter, material cell classification 12454 per ASTM D1784, latest revision.

B. All potable water pipe and fittings installed under this Project shall be color coded as required by FAC Rule 62-555.320(21)(b)3, using blue as a predominant color to differentiate drinking water from reclaimed or other water. Underground plastic pipe shall be solid-wall blue pipe, shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall.

C. Pipe shall have a gasket locking system at the bell end. This does not restrain the pipe but rather locks the pipe in place and prevents the gasket from rolling.

2.02 FITTINGS

A. Fittings shall be cement lined, Ductile Iron and conform to AWWA C153, latest revision or AWWA C110, latest revision.

2.03 FLANGES

A. Flanges on outlets of fittings shall be Class 250 per ASME B16.1.

B. PVC flanges shall be of the one-piece solid socket design and shall be made of the same material as the pipe. Manufacturer’s pressure rating shall be at least 250 psi at a temperature of 73°F. Minimum burst pressure shall be 500 psi. Flanges shall match the dimensions of ASME B16.5, Class 250, steel flanges for outside diameter, bolt circle, and bolt holes. Do not use Van Stone flanges.

2.04 OUTLETS

A. All connections to PVC require a saddle.

2.05 RESTRAINED JOINTS

A. Provide external restrained joints as indicated in the drawings. Restrained joints shall be provided by restraining systems that incorporate a wedge restraint on the restraint ring to provide positive restraint.

B. Internal Joint Restraint: RieberLok and Field Lok type gasket restraints are allowed for PVC Pipe in pressure applications.

C. Restraint devices for bell-and-spigot joints shall consist of a split restraint ring installed on the spigot, connected to a solid backup ring seated behind the bell.

D. Restraining Glands shall be EBAA Iron Series 2000 and 1600 or approved equal.

E. The ASTM A536 ductile iron casting of the restrained gland shall be bonded powder coated. The wedge and wedge assembly shall have a bonded liquid polymer coating applied for corrosion protection. The gland shall utilize torque limiting twist off wedge actuation screws.

F. T-bolts, studs, and connecting hardware shall be high-strength, low alloy material in accordance with AWWA C111.

G. Design restraining devices to have a 2:1 safety factor based on the design strength of the pipe.

2.06 FLANGED COUPLING ADAPTERS

A. See Section 33 05 98 (15065) – “Miscellaneous Materials”.

PART 3 - EXECUTION

3.01 PRODUCT MARKING

A. The pipe shall be marked by the manufacturer at 5-foot intervals and each coupling to identify the nominal diameter, the outside diameter base, that is, cast-iron or steel pipe (IPS), the material code for pipe and couplings, the dimension ratio number, AWWA C900, and the seal of the testing agency that verified the suitability of the material for potable water service (NSF/ANSI 61).

3.02 DELIVERY AND TEMPORARY STORAGE OF PIPE

A. PVC shall be protected from UV degradation caused by extended exposure to direct sun. Pipe with surface discoloration shall not be installed and immediately removed from the project site. Tarps used to protect the pipe from sunlight shall be placed to allow for adequate ventilation to prevent heat build-up.

B. Ship, store, and place pipe at the installation site, supporting the pipe uniformly. Avoid scratching the pipe surface. Do not stack higher than 4 feet or with weight on bells. Cover to protect from sunlight.

C. Do not drag PVC pipe over the ground, drop it onto the ground, or drop objects on it.

D. Store loose pipes on racks with a maximum support spacing of 3 feet. Provide shades for pipe stored outdoors or installed outdoors until the pipe is filled with water. Store fittings indoors in their original cartons.

E. Store solvent cement indoors or, if outdoors, shade from direct sunlight exposure. Do not use solvent cements that have exceeded the shelf life marked on the storage container.

3.03 HANDLING PIPE

A. Hoist pipe with mechanical equipment using a cloth belt sling or a continuous fiber rope that avoids scratching the pipe. Do not use a chain. Pipes up to 16 inches in diameter may be lowered by rolling on two ropes controlled by snubbing. Pipes up to 6 inches in diameter may be lifted by hand.

3.04 INSTALLING BURIED PIPING

A. Pipe Bedding material for PVC shall be well graded Class 1 backfill with a max rock size of ¾-inch compacted in 6-inch lifts. The minimum trench width shall be the pipe width plus 24-inches (12-inches on each side). **Backfill material shall be No. 57 limerock with a maximum particle size of 2-inches in water or select backfill placed and compacted at least 90% of maximum density 2-inch maximum particle size per ASHTO Spec No. T-180 in a dry trench to 1 foot above the pipe. See Detail GS 1.9 Sheet 2 of 2.**

B. Before installation, check pipe and fittings for cuts, scratches, gouges, buckling, kinking, or splitting on pipe ends. Remove any pipe section containing defects by cutting out the damaged section of pipe.

C. Do not install PVC pipe when the temperature is below 40°F or above 140°F.

D. Do not install pipe that is gouged or scratched forming a clear depression.

E. Install in accordance with AWWA C605, and as follows.

1. When installing pipe in trenches, do not deviate more than 1 inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.

2. Backfill materials in the pipe zone shall be imported sand per Section 31 23 33 (02315) “Trenching and Backfilling of Piping Systems”. Do not add successive layers unless the previous layer is compacted to 90% relative compaction per ASTM D1557.

3. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.

4. Compact trench backfill to the specified relative compaction. Do not float pipe. Do not use high-impact hammer-type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe.

5. Pipe installed below the water table where the homing mark is not visible shall utilize an over-insertion prevention device.

3.05 Underground Location

A. All PVC installed shall have the ability to be located aboveground. Tracer Wire, and Location Safety Tape (all three) are all required by the CITY.

B. Install 10-gauge tracer wire taped to the buried PVC pipe. The tracer wire shall provide a continuous path which can locate the buried installation by inducing a current to the tracer wire.

C. Install electronically detectable safety tape approximately 1 to 2 feet above the top of the buried PVC pipeline as a visible marker for future excavation.

3.06 ASSEMBLY OF RUBBER-GASKET PIPE JOINT

A. Lay the pipe section with the bell coupling facing the direction of laying.

B. Lubricate the spigot over the taper and up to the full insertion mark with the lubricant supplied by the pipe manufacturer. If the lubricated pipe end touches dirt, clean the pipe end and reapply lubricant.

C. Insert the spigot into the bell and force it slowly into position.

D. Check that the rubber ring has not left the groove during assembly by passing a feeler gauge around the completed joint.

3.07 CLEANING AND TESTING

A. All of the piping installed under this project shall be tested as follows and as directed by the Engineer.

1. With exceptions as noted below, all PVC piping installed under this Contract shall be cleaned and tested according to section 33 01 10.54 (UC-170) "Cleaning and Testing of Mains".
2. Unless otherwise specified elsewhere herein, all PVC water main shall be tested at 150 psi in accordance with ANSI/AWWA C605.

3.08 FIELD QUALITY CONTROL

A. All mains shall be flushed to remove all sand, debris, rock and other foreign matter. Dispose of the flushing water without causing a nuisance or property damage.

B. Pressure and Leakage Testing: Hydrostatically test all pressure pipe. Test PVC Pipe mains in accordance with ANSI/AWWA C605-once all backfill is in place and fully compacted, and after all thrust blocks, if applicable, have cured to their design strength. Do not test against closed valves. All pumps, piping and gauges shall be furnished, installed and operated by the Contractor and all such equipment and devices and their installation shall be approved by the Engineer. Pump shall be of a non-pulsating type suitable for this application and gauge accuracy certification may be required at the Engineer of Record's discretion. All pressure and leakage testing

shall be done in the presence of a representative of the CITY as a condition precedent to the approval and acceptance of the system.

3.09 DISINFECTION

A. Disinfect in accordance with section 33 01 10.58 (UC-175) “Disinfection of Water Mains and ANSI/AWWA C651 – Disinfecting Water Mains. During the period that the chlorine solution or slug is in the section of pipeline, open and close valves to obtain a chlorine residual at hydrants and other pipeline appurtenances. Swab exposed faces of valves and blind flanges prior to bolting flanges in place with a 1% sodium hypochlorite solution. Disinfect isolation valves, pipe, and appurtenances per AWWA C651, Section 4.7.

B. Flush with potable water until discolored water, mud, and debris are eliminated. Swab interior of pipe and fittings with a 1% sodium hypochlorite solution. After disinfection, flush with potable water again until water is free of chlorine odor. After confirming the chlorine residual, flush the excess chlorine solution from the pipeline until the chlorine concentration in the water leaving the pipe is either within 0.5 mg/L of the replacement water or no higher than that generally prevailing in the distribution system.

C. Discharge of chlorinated water into watercourses or surface waters is regulated by the National Pollutant Discharge Elimination System (NPDES). Disposal of the chlorinated disinfection water and the flushing water is the Contractor's responsibility. Schedule the rate of flow and locations of discharges in advance to permit review and coordination with Owner and cognizant regulatory authorities. For measuring chlorine concentration, supply and use a medium range, drop count, DPD drop dilution method kit per AWWA C651, Appendix A.1. Maintain kits in good working order available for immediate test of residuals at point of sampling.

END OF SECTION

CITY OF FORT LAUDERDALE

APPENDIX A – PERMITS

FLORIDA DEPARTMENT OF Environmental Protection

Southeast District Office
3301 Gun Club Road, MSC 7210-1
West Palm Beach, FL 33406
561-681-6600

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

NOTIFICATION OF ACCEPTANCE OF USE OF A GENERAL PERMIT

June 21, 2024

Permittee:
Mr. Alan Dodd
Director of Public Works
City of Fort Lauderdale
101 NE 3rd Avenue, Suite 2100
City of Fort Lauderdale, FL 33301
adodd@fortlauderdale.gov

Permit Number: 0126081-673-DSGP
Issue Date: June 21, 2024
Expiration Date: June 20, 2029
Project Name: Prospect Lake Enabling Works 12-inch WM
Water Supplier: City of Fort Lauderdale
PWS ID: 4060486

Dear Mr. Dodd:

On June 12, 2024, the Florida Department of Environmental Protection (Department) received a "*Notice of Intent to Use the General Permit for Construction of Water Main Extensions for PWSs*" [DEP Form No. 62-555.900(7)], under the provisions of Rule 62-4.530 and Chapter 62-555, Florida Administrative Code (F.A.C.). additional info and payment received on June 13, 2024.

The proposed project includes:

- Approximately 4,000 LF (linear feet) of 12-inch PVC WM
- 30 LF of 12-inch DIP WM
- Five (5) sample points
- All fittings, valves and appurtenances.

Located at: Prospect Lake Wellfield, 5900 Hawkins Rd. Ft. Lauderdale, Florida 33309.

Based upon the submitted Notice and accompanying documentation, this correspondence is being sent to advise that the Department does not object to the use of such General Permit at this time. Please be advised that the permittee is required to abide by Rule 62-555.405, F.A.C., all applicable rules in Chapters 62-4, 62-550, 62-555, F.A.C., and the General Conditions for All General Drinking Water Permits (found in 62-4.540, F.A.C.).

The permittee shall comply with all sampling requirements specific to this project. These requirements are attached for review and implementation.

Pursuant to Rule 62-555.345, F.A.C., the permittee shall submit a certification of construction completion [DEP Form No. 62-555.900(9)] to the Department and obtain approval, or clearance, from the Department before placing any water main extension constructed under this general permit into operation for any purpose other than disinfection or testing for leaks.

Within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service in total by the Department, both the permittee and the proposed permittee shall sign and submit an application for transfer of the permit using Form 62-555.900(8), F.A.C., with the appropriate fee. The permitted construction is not authorized past the 30-day period unless the permit has been transferred.

When any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of the Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Air and Waste Management Section Managers prior to commencing any such activities at (561) 681- 6672. Please be aware that a notification is required to be submitted to the Department for a regulated project.

This 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, per Rule 62-4.030, F.A.C.

Sincerely,

Jacqueline Hurd
Environmental Manager
Permitting & Potable Water Program
Southeast District

JH/ML

ec:
Broward County Health Department – BrowardEH@flhealth.gov
FDEP/SED – Jacqueline Hurd, Marie Lacroix, Jocelyn Labbe.
Chen Moore & Associates- Danel Davila, P.E. – ddavila@chenmoore.com
Mmenocal@chenmoore.com

A Civil Penalty May Be Incurred
if this project is placed into operation before obtaining a clearance from this office.

Requirements for clearance upon completion of projects are as follows:

1) Clearance Form
Submission of a fully completed Department of Environmental Protection (DEP) Form 62-555.900(9) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation*.

2) Record Drawings, if deviations were made
Submission of the portion of record drawings showing deviations from the DEP construction permit, including preliminary design report or drawings and specifications, if there are any deviations from said permit (Note that it is necessary to submit a copy of only the portion of record drawings showing deviations and not a complete set of record drawings.).

3) Bacteriological Results
Copies of satisfactory bacteriological analysis (a.k.a. Main Clearance), taken within sixty (60) days of completion of construction, from locations within the distribution system or water main extension to be cleared, in accordance with Rules 62-555.315(6), 62-555.340, and 62-555.330, F.A.C. and American Water Works Association (AWWA) Standard C 651-92, as follows:

Connection to an existing system
The end point of the proposed addition
Any water lines branching off a main extension
Every 1,200 feet on straight runs of pipe

Each location shall be sampled on two consecutive days, with sample points and chlorine residual readings clearly indicated on the report. A sketch or description of all bacteriological sampling locations must also be provided.

For further clarification contact:
Marie Gerarda Lacroix, Eng. Specialist III
Water Facilities Section
SED/DEP
3301 Gun Club Rd, MSC 7210-1
West Palm Beach, FL 33406
Tel: 561 681 6731
Marie.Lacroix@FloridaDEP.gov

Public Works Department
HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION
One N. University Drive, Box B 300 • Plantation, Florida 33324-2038 • 954-577-4555 • FAX 954-357-5715

Daniel Davila, P.E.
Chen Moore & Assoc.
500 West Cypress Creek Road, Suite 600
Ft. Lauderdale, FL 33309

January 3, 2025

RE: Ft. Lauderdale Project #12765; Prospect Lake Enabling Project - Plan Approval
Highway Construction and Engineering Division Ref. # 240607101

Dear Mr. Davila,

Attached please find two (2) copies of the above referenced plan approved by this office for construction improvements within the **Cypress Creek Road and NW 31 Ave** right-of-way. This approval is based primarily upon the information contained within these plans and any supporting documentation which you may have submitted.

In the event applicable standards, regulations or laws change after plan approval, but prior to permit issuance, revised plans must be submitted for approval under the new requirements.

Prior to commencing construction of the improvements shown on the approved plan, a licensed engineering contractor will need to obtain a permit from this office.

Prior to the contractor coming in to obtain the permit, the Engineer of Record will provide the contractor with a copy of this letter and advise them to ensure that the following are on file in the Broward County Highway Construction & Engineering Division:

1) A set of shop drawings signed and sealed by the Engineer of Record and approved by the Utility; and

2) An estimate of the cost of the construction (within County R/W only) signed and sealed by the Engineer of Record. This estimate shall be based on the approved plan for any work within a functionally classified county road right of way. This estimate shall include and specify by list all costs associated with the project (e.g., labor, material costs, mobilization, maintenance of traffic, testing, etc.) and not necessarily limited to same.

3) Florida Department of Environmental Protection water permit approval, ***as applicable***

4) Broward County Environmental Engineering & Permitting Division wastewater transmission license, ***not applicable***

The project security requirement for the restoration of the County R/W is $50,000.00

Please have the contractor schedule an appointment with Etienne Joachim (954 577-4571), to obtain the permit.
When the contractor arrives for the scheduled appointment, the contractor will be required to complete a permit application, present a copy of their license, and copy of insurance. ***The fee for the permit shall be 3.84% of the approved cost estimate as per item #2 above. The check should be made payable to: "Broward County Highway Construction and Engineering Division".***

Prior to commencing construction of any improvements within County right of way, maintenance of traffic plan approved by the Broward County Traffic Engineering Division must be on file with the Broward County Highway Construction & Engineering Division. Prior to construction of any improvements within County jurisdiction right of way, the permittee shall notify the Sunshine State One-Call of Florida, Inc. for underground facility locations, as set forth in the "Underground Facility Damage Prevention and Safety Act" of the State of Florida. Prior to the construction of any improvements within County right of way, the contractor will need to contact the Field Operations Coordinator at (954) 577-4600 to set up a pre-construction meeting.

If a permit for construction of the work as shown in this plan is not obtained within one year from the date of approval of said plans, the plan approval granted herein shall be null and void. If work has not commenced within 120 days after the issuance of a permit, the permit shall be null and void unless other arrangements have been made with this office. Prior to commencing construction, the contractor shall give our Field Operations Coordinator a minimum of forty-eight (48) hour notice. Prior to scheduling any required tests and/or inspections the contractor shall give our Field Operations Coordinator a minimum of twenty-four (24) hour notice.

While the job is in progress a set of the plans of the project bearing the Highway Construction & Engineering Division approval stamp and a copy of the signed permit must be on the job site. No work shall occur unless the plan and permit are available at the work site.

All construction shall be in accordance with the approved plan, however, should minor revisions be necessary these revisions must be shown on a revised plan that shall be signed by the Engineer of Record and this Division's representative prior to construction. If this Division or its representative denies the request for said revision, construction shall continue in accordance with the original approval. A signed copy of all revisions shall be kept at the work location and on file in the Highway Construction & Engineering Division.

The Engineer shall be responsible for observation of construction and shall inspect same for conformity to the approved plans and specifications. Upon completion of the project, the Engineer shall furnish the required project documents (signed and sealed) to this Division, the Broward County Public Health Unit and to any other agencies so requiring, certifying that the construction on the project has been carried out in substantial conformance with the approved plans and specifications. All test reports including one copy of density reports on the compaction of the sub-grade, base, and swales verified by an independent certified Engineering Testing Laboratory, shall be provided. As a point of information, please be advised that prior to construction of the base course for the improvements covered by the attached plans, all underground construction in the vicinity must be installed, tested, and accepted.

If these plans were produced utilizing a Computer Assisted Design (CAD) System, the "as-built" or "record" drawings shall also be produced on the CAD System and the Engineer shall also submit a copy of the magnetic medium containing the information from which the as-built drawings were produced.

After all construction is completed and all certifications, record drawings and other required documents have been submitted to this Division, and accepted, and before the one-year warranty maintenance period begins, the permittee shall request a final inspection of the project. Following the inspection, if everything is acceptable this Division will issue a notice of approval, which will mark the commencement of the one-year warranty maintenance period.

Should you have any questions, please contact me at (954) 577-4581.

Very truly yours,

Alex Perez

Alex Perez, P.E., Supervisor
Paving & Drainage Section

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03	GENERAL NOTES AND ABBREVIATION
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~~06~~	~~EXISTING CONDITION AND DEMOLITION PLAN – NOT INCLUDED~~
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CITY OF FORT LAUDERDALE

PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

FORT LAUDERDALE, FLORIDA

PERMIT SET
MUST BE ON JOBSITE AT ALL TIMES DURING CONSTRUCTION

NOTICE
INSPECTION REQUIRED

24 HRS. PRIOR TO COMMENCING ANY WORK IN THE PUBLIC R/W CONTACT THE BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION AT 954-577-4600 FOR INSPECTION.

NOTE:
APPROVAL OF THIS PLAN DOES NOT CONSTITUTE A PERMIT FOR CONSTRUCTION.

A PERMIT FOR CONSTRUCTION MUST BE OBTAINED FROM THE BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION PRIOR TO COMMENCING CONSTRUCTION IN THE PUBLIC RIGHT OF WAY.

ALL MATERIALS USED AND INSTALLATIONS WITHIN THE PUBLIC RIGHT OF WAY OR EASEMENTS SHALL BE IN ACCORDANCE WITH BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION SPECIFICATIONS.

BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION

☐ **PLAN CONSISTENT WITH PLAT REQUIREMENTS**

☐ **PUBLIC RIGHT OF WAY APPROVAL FOR PAVING, GRADING AND DRAINAGE**

BY:_____DATE:_____

DOES NOT INCLUDE APPROVAL OF PAVEMENT MARKING & SIGNS

cma
chen moore and associates

500 West Cypress Creek Road,
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

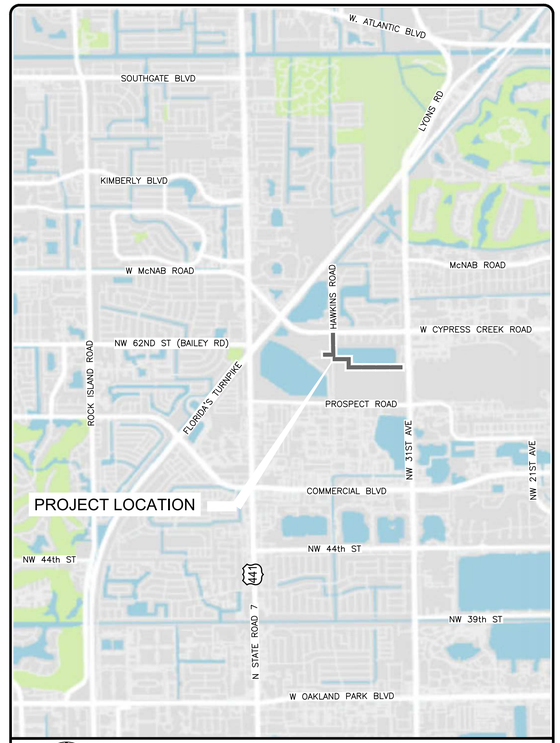
ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

CHEN MOORE & ASSOCIATES
500 WEST CYPRESS CREEK ROAD, SUITE 630
FT. LAUDERDALE, FL 33309

DANIEL EDUARDO DAVILA – LICENSE – No. 63014 – STATE OF FLORIDA – PROFESSIONAL ENGINEER

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.



LOCATION SKETCH

PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

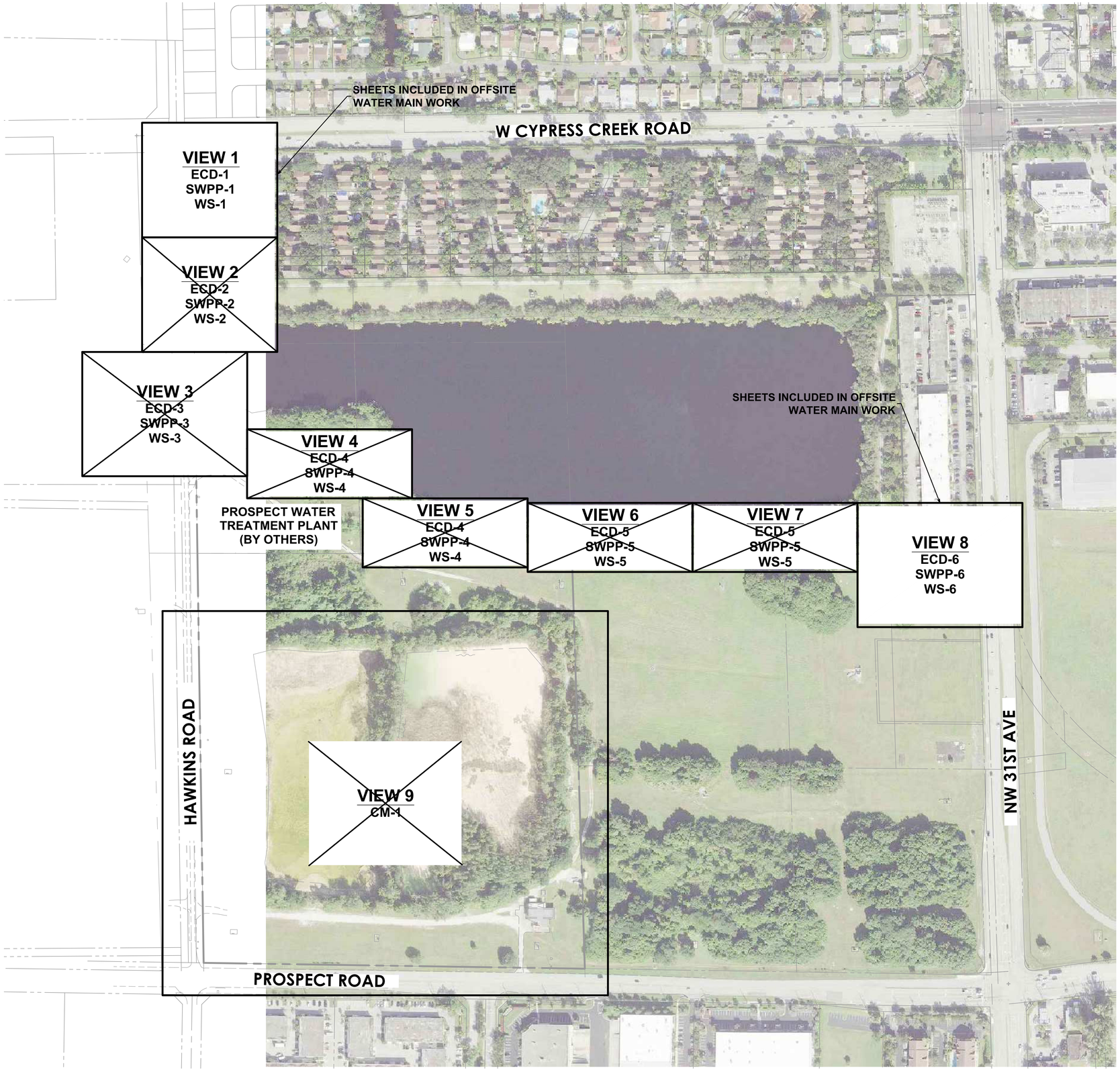
FORT LAUDERDALE CITY COMMISSION

DEAN J. TRANTALIS	MAYOR
JOHN C. HERBST	COMMISSIONER - DISTRICT I
STEVE GLASSMAN	COMMISSIONER - DISTRICT II
PAMELA BEASLEY-PITTMAN	VICE MAYOR / COMMISSIONER - DISTRICT III
WARREN STURMAN	COMMISSIONER - DISTRICT IV

PROJECT MANAGER	JOB TITLE	PHONE NO.

DATE: ----
CAD FILE: 12765-000-042COVR
DRAWING FILE No.: 00

BID SET



GRAPHIC SCALE
0 75 150 300
1 INCH = 150 FEET

ENGINEER:
DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ----
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS	DATE: 08/01/2024		
DESIGNED BY: MGM	SCALE: 1" = 150'	CHECKED BY: DD	FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
KEY MAP

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

cma
chen moore and associates
500 West Cypress Creek Road,
Suite 600
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

BID SET

DRAWING #	SHT #
KEY-1	01
TOTAL:	46
CAD FILE: 12765-001-KMAP	
DRAWING FILE NO. 4-141-91	

Plot Date: 6/9/2025 3:49:07 PM Username: vlocigno Layout Name: KEY-1
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GENERAL NOTES

1. LOCATIONS OF EXISTING UNDERGROUND UTILITIES WERE OBTAINED FROM AVAILABLE RECORDS, NEITHER THE CITY NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT LOCATED WHERE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES BEFORE COMMENCING CONSTRUCTION WORK. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR, CONTRACTOR SHALL ALSO PROVIDE THE ENGINEER WITH RECORD INFORMATION ON ALL FIELD VERIFICATION MEASUREMENTS AS SPECIFIED. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY IF OTHER UTILITIES (NOT SHOWN ON THE PLANS) EXIST WITHIN THE AREA OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE THE CONSULTANT INFORMATION ON ALL FIELD VERIFICATION MEASUREMENTS AS SPECIFIED. IF AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED CONSTRUCTION UPON EXCAVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY SO THAT APPROPRIATE MEASURES CAN BE TAKEN. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
2. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT EXISTING UTILITIES WHETHER SHOWN OR NOT.
3. THE CONTRACTOR SHALL NOTIFY THE CITY IN ADVANCE OF MAKING ANY CONNECTION TO AN ACTIVE PIPELINE OR UTILITY SYSTEM.
4. ALL EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE DURING CONSTRUCTION UNLESS APPROVED OTHERWISE IN WRITING BY THE UTILITY OWNERS.
5. CONTRACTOR SHALL NOTIFY ADJACENT PROPERTY OWNERS TWO (2) BUSINESS DAYS PRIOR TO COMMENCING ANY PORTION OF THE WORK TO BE PERFORMED DURING OFF-PEAK HOURS (NIGHTS AND SUNDAYS).
6. ALL ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE BASED ON NAVD 1988 DATUM.
7. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL UTILITIES AND OTHER PROPERTY AND SHALL BE RESPONSIBLE FOR ANY DAMAGES INCURRED DURING CONSTRUCTION AND SHALL REPAIR SAID DAMAGES AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR WILL HOLD A PRE-CONSTRUCTION MEETING PRIOR TO THE START OF ANY CONSTRUCTION INCLUDING A REPRESENTATIVE FROM THE RESPECTIVE ENGINEERING AND UTILITY DEPARTMENTS, OWNER AND OTHER APPLICABLE AGENCIES.
9. ALL DEVIATIONS FROM PLANS ARE TO BE APPROVED IN WRITING PRIOR TO CONSTRUCTION AND FOR ALL INSPECTIONS AND TESTING,
10. THE CITY MUST BE GIVEN A MINIMUM 48 HOURS NOTICE FOR ALL INSPECTIONS UNLESS OTHERWISE AGREED UPON.
11. THE CONTRACTOR SHALL BE RESPONSIBLE AT ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION FOR THE PROTECTION OF EXISTING AND NEWLY INSTALLED UTILITIES AND IMPROVEMENTS FROM DAMAGES, DISRUPTION OF SERVICE OR DESTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUCH MEASURES AS NECESSARY TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THOSE PERSONS HAVING ACCESS TO THE WORK SITE.
12. EXISTING SECTION CORNERS AND OTHER LAND MARKERS OR MONUMENTS LOCATED WITHIN PROPOSED CONSTRUCTION ARE TO BE MAINTAINED BY THE CONTRACTOR AND/OR RESET AFTER CONSTRUCTION UNDER CERTIFICATION BY A FLORIDA REGISTERED SURVEYOR.
13. THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE USED AS THE STANDARD FOR ANY SIGNAGE AND PAVEMENT MARKING REQUIREMENTS OF THIS PROJECT.
14. THE EXISTING ELEVATIONS SHOWN HEREIN ARE FOR THE PURPOSE OF INDICATING THE GROUND ELEVATION ONLY AT THE POSITION SHOWN AND IN NO WAY SHOULD INDICATE ELEVATION AT ANY OTHER POINT OTHER THAN THAT SHOWN.
15. THE CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC (M.O.T.) FOR ANY WORK PERFORMED ON PUBLIC RIGHT-OF-WAY. NOTIFY THE CITY 48 HOURS PRIOR TO BEGIN WORK. ALL M.O.T. WORK SHALL BE AS PER FDOT INDEX NO. 600 SERIES.
16. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY SUAREZ SURVEYING & MAPPING, INC., PROJECT 230436807 DATED 06/15/2023. ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES,
17. ALL WATER METER, COMMUNICATION BOX, CABLE TV BOX, ETC, DAMAGED DURING CONSTRUCTION OF PROPOSED IMPROVEMENTS SHALL BE REPLACED WITH IDENTICAL OR BETTER AT UTILITY OWNER SATISFACTION.
18. THE WORDS 'NEW', 'PROPOSED', 'INSTALL', 'PROVIDE', OR WORDS WITH SIMILAR MEANING, ON ANY PART OF THESE CONSTRUCTION DOCUMENTS, SHALL BE INTERPRETED, UNLESS OTHERWISE SPECIFICALLY STATED, TO MEAN 'FURNISHING AND INSTALL COMPLETE IN PLACE AND READY FOR SERVICE'.
19. THESE CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. WORK DEPICTED UNDER A PARTICULAR DISCIPLINE MAY TRIGGER WORK UNDER A DIFFERENT DISCIPLINE. SUCH WORK REQUIRED FOR THE INTENDED AND PROPER FUNCTION OF THE IMPROVEMENTS, SHALL BE CONSIDERED INCIDENTAL AND PART OF THE CONTRACTOR'S BID PRICE. NO ADDITIONAL PAYMENT WILL BE MADE FOR SUCH ITEMS.
20. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING TREES, STRUCTURES, AND UTILITIES WHICH MAY NOT BE SHOWN ON PLANS, ANY EXISTING STRUCTURE, PAVEMENT, TREES OR OTHER EXISTING IMPROVEMENT NOT SPECIFIED FOR REMOVAL WHICH IS TEMPORARILY DAMAGED, EXPOSED OR IN ANY WAY DISTURBED BY CONSTRUCTION PERFORMED UNDER THIS CONTRACT, SHALL BE REPAIRED, PATCHED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
21. CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 811 LEAST 48 HOURS PRIOR TO PERFORMING ANY DIGGING TO VERIFY THE EXACT LOCATION OF EXISTING UTILITIES.
22. EXISTING GRADES WERE TAKEN FROM THE BEST AVAILABLE DATA AND MAY NOT ACCURATELY REFLECT PRESENT CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH CURRENT SITE CONDITIONS, AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO STARTING WORK.
23. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION, ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
24. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL ITEMS SHOWN WITHIN THE DESIGN PLANS.
25. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR LEAVE EXCAVATED TRENCHES, OR PORTIONS OF WORK, EXPOSED OR OPEN AT THE END OF THE WORKING DAY, WEEKENDS, HOLIDAYS OR OTHER TIMES. WHEN THE CONTRACTOR IS NOT WORKING, UNLESS OTHERWISE DETERMINED, ANY TRENCH SHALL BE COVERED, FIRMLY SECURED AND MARKED ACCORDINGLY FOR PEDESTRIAN TRAFFIC.
26. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
27. ALL EXCAVATED MATERIAL REMOVED FROM THIS PROJECT SHALL BE DISPOSED OF PROPERLY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
28. CAST IRON PRODUCTS: HEAVY DUTY CLASSIFICATION SUITABLE FOR HIGHWAY TRAFFIC LOADS, OR 16,000 LB. WHEEL LOADS.
29. STEEL GRATING AND COVERS: TRAFFIC CLASSIFICATION H-20 AASHTO H20: 16,000 LBS OVER 8" X 20" AREA.
30. ALL STRUCTURES MUST BE CAPABLE OF SUSTAINING HEAVY TRAFFIC LOADS.
31. ALL GRASS AREAS AFFECTED BY CONSTRUCTION SHALL BE RE-SODDED AND MATCH EXISTING ADJACENT SOD.
32. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION, INSTALLATION AND MAINTENANCE OF ALL TRAFFIC CONTROL AND SAFETY DEVICES. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR THE RESETTING OF ALL TRAFFIC CONTROL AND INFORMATION SIGNING REMOVED DURING CONSTRUCTION PERIOD.
33. EXCAVATED OR OTHER MATERIAL STORED ADJACENT TO OR PARTIALLY UPON A ROADWAY PAVEMENT SHALL BE ADEQUATELY MARKED FOR TRAFFIC SAFETY AT ALL TIMES.
34. TEMPORARY PATCH MATERIAL MUST BE ON THE JOB SITE WHENEVER PAVEMENT IS CUT, NO PAVEMENT WORK WILL BE ALLOWED WITHOUT PROPER MATERIAL AVAILABLE FOR TEMPORARY RESTORATION.
35. CONTRACTOR SHALL MAINTAIN TRAFFIC ACCORDING TO CORRESPONDING TYPICAL CONTROL DETAIL AS OUTLINED IN FLORIDA DEPARTMENT OF TRANSPORTATION REQUIREMENTS.
36. CONTRACTOR SHALL NOTIFY LAW ENFORCEMENT, FIRE PROTECTION SERVICES AND WASTER/RECYCLING SERVICES TWENTY-FOUR (24) HOURS IN ADVANCE OF THE DETOUR IN ACCORDANCE WITH SECTION 336.048 OF FLORIDA STATUTES.
37. COMPLETE AS-BUILT INFORMATION RELATIVE TO LOCATION AND DEPTH OF PIPES, MANHOLES, ETC. SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND PROVIDED TO THE CITY PRIOR TO FINAL ACCEPTANCE OF THE WORK.
38. ALL WORK TO BE IN COMPLIANCE WITH CITY OF FORT LAUDERDALE DESIGN STANDARDS AND SPECIFICATIONS (LATEST VERSION), MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST VERSION), FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS AND SPECIFICATIONS (LATEST EDITION) AND BROWARD COUNTY TRAFFIC ENGINEERING DIVISION.
39. DURING CONSTRUCTION IF SOIL OR GROUNDWATER CONTAMINATION IS ENCOUNTERED OR A SPILL OF A HAZARDOUS MATERIAL OR OIL/GASOLINE OCCURS PLEASE STOP WORK IN THAT AREA AND IMMEDIATELY CONTACT ERMD AT 954-965-4380 OR 963-763-4128. IF SUSPECTED CONTAMINATION OR HAZARDOUS MATERIAL IS FOUND ON THE PROJECT OR ENCOUNTERED DURING CONSTRUCTION THE CONTRACTOR SHALL CEASE OPERATIONS IN THAT AREA, IMMEDIATELY NOTIFY THE CITY ENGINEER, AND PROTECT THE IMMEDIATE AREA OF SUSPECT CONTAMINATED OR HAZARDOUS MATERIAL FROM FURTHER ACCESS. THE CITY ENGINEER WILL ARRANGE FOR THE INVESTIGATION, IDENTIFICATION AND/OR REMOVAL/REMEDIATION OF THE MATERIAL IN QUESTION AS NEEDED.
40. UPON DEVELOPMENT OF A SITE-SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP), CONTRACTORS/OPERATORS MUST COMPLETE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA FOR STORMWATER DISCHARGES FROM CONSTRUCTION SITES OVER ONE ACRE. THE EPA REQUIRES 14 DAY NOTICE PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT. THE NOI MUST BE SUBMITTED ONLINE AND INFORMATION ON THIS SUBMITTAL IS AVAILABLE AT http://water.epa.gov/polwaste/npdes/stormwater/EPAs-Electronic-Construction-General-Permit-Notice-of-Intent-eNOI-Home-Page.cfm. PLEASE COPY THE CITY OF FORT LAUDERDALE ON YOUR SUBMITTAL SO THIS OFFICE IS AWARE THAT YOU HAVE APPLIED FOR THE PERMIT AND THAT CONSTRUCTION IS BEGINNING SOON.

    THE CONTRACTOR SHALL COORDINATE SELECTION AND REVIEW OF ANY PROPOSED STAGING AREAS ASSOCIATED WITH THIS PROJECT WITH THE CITY OF FORT LAUDERDALE. A STAGING PLAN WILL BE REQUIRED.
41. NO STAGING OF EQUIPMENT/VEHICLES OR MATERIALS WILL BE ALLOWED WITHIN OR ADJACENT TO PRIVATE PROPERTY OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. CONTRACTOR IS REQUIRED TO PROVIDE A PLAN FOR STAGING AND/OR STORAGE OF MATERIALS.
42. IF SUSPECTED CONTAMINATION OR HAZARDOUS MATERIAL IS FOUND ON THE PROJECT OR ENCOUNTERED DURING CONSTRUCTION THE CONTRACTOR SHALL CEASE OPERATIONS IN THAT AREA, IMMEDIATELY NOTIFY THE CITY ENGINEER, AND PROTECT THE IMMEDIATE AREA OF SUSPECT CONTAMINATED OR HAZARDOUS MATERIAL FROM FURTHER ACCESS, THE CITY ENGINEER WILL ARRANGE FOR THE INVESTIGATION, IDENTIFICATION AND/OR REMOVAL/REMEDIATION OF THE MATERIAL IN QUESTION AS NEEDED.
43. CONTRACTOR SHALL PROVIDE A PLAN DEMONSTRATING PATH OF CONSTRUCTION EQUIPMENT TRAVEL.
44. THE CONTRACTOR SHALL NOT BRING ANY HAZARDOUS MATERIALS ONTO THE PROJECT, SHOULD THE CONTRACTOR REQUIRE SUCH FOR PERFORMING THE CONTRACTED WORK, THE CONTRACTOR SHALL REQUEST, WRITTEN PERMISSION FROM THE PROJECT ENGINEER, THE CONTRACTOR SHALL PROVIDE A COPY OF THE REQUEST TO THE CITY ENGINEER, WITH A COPY OF THE MATERIAL SAFETY DATA SHEET (MSDS) FOR EACH HAZARDOUS MATERIAL PROPOSED FOR USE, AND PROVIDE A DESCRIPTION OF THE SPECIFIC MANNER IN WHICH THE MATERIAL WILL BE USED. THE PROJECT ENGINEER SHALL COORDINATE WITH THE CITY ENGINEER, PRIOR TO ISSUING WRITTEN APPROVAL TO THE CONTRACTOR, BECAUSE STATE LAW DOES NOT TREAT PETROLEUM PRODUCTS THAT ARE PROPERLY CONTAINERIZED AS HAZARDOUS MATERIALS, SUCH PRODUCTS DO NOT REQUIRE AN MSDS SUBMITTAL, ALL BULK PETROLEUM PRODUCTS STORED ON SITE SHALL REQUIRE PROPER STORAGE WHICH INCLUDES SECONDARY CONTAINMENT.
45. ROADWAY WILL BE ACCESSIBLE AFTER EACH WORKING DAY AND STEEL PLATE WITH ASPHALT EDGES WILL BE PROVIDED FOR ANY TRENCHES LEFT OVERNIGHT.
46. LANE CLOSURES FOR BROWARD COUNTY ARE ONLY ALLOWED FROM 9 AM TO 4 PM.

DEMOLITION NOTES

1. DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND DISPOSE OF CHEMICALS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
2. CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
3. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR IN-USE FACILITIES WITHOUT PERMISSION FROM OWNER, THE CITY AND AUTHORITIES HAVING JURISDICTION, PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS AS REQUIRED BY GOVERNING REGULATIONS. AN MOT PLAN WILL BE REQUIRED FOR SAFE PEDESTRIAN AND VEHICULAR ACCESSIBILITY.
4. CONDUCT DEMOLITION OPERATIONS TO SAFELY PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREA.
5. ERECT TEMPORARY PROTECTION, SUCH AS WALKS, FENCES, BARRIERS, RAILINGS, ETC, WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION.
6. PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
7. ADJACENT IMPROVEMENTS SHALL BE CLEANED OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
8. FOR SELECTIVE DEMOLITION, USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION. TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES, USE HAND OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING OR CHOPPING, TEMPORARILY COVER OPENINGS TO REMAIN.
9. DEMOLISH CONCRETE IN SMALL SECTIONS, CUT CONCRETE AT JUNCTURES WITH CONSTRUCTION TO REMAIN, USING POWER-DRIVEN MASONRY SAW OR HAND TOOLS; DO NOT USE POWER-DRIVEN IMPACT TOOLS.
10. INFORMATION SHOWN ON THE DRAWINGS AS TO THE LOCATION OF EXISTING UTILITIES HAS BEEN PREPARED FROM THE MOST RELIABLE DATA AVAILABLE TO THE ENGINEER; HOWEVER, THIS INFORMATION IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION, CHARACTER, AND DEPTH OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSIST THE UTILITY COMPANIES, BY EVERY MEANS POSSIBLE, TO DETERMINE SAID LOCATIONS AND THE LOCATIONS OF RECENT ADDITIONS TO THE SYSTEMS NOT SHOWN.
11. REMOVAL, DEMOLITION, HAULING, AND DISPOSAL SHALL COMPLY WITH REGULATIONS BY F.D.E.P., E.P.A., AND ANY OTHER AUTHORITY HAVING JURISDICTION.
12. ALL EXISTING STREET LIGHTING WILL REMAIN IN PLACE AND REMAIN IN SERVICE DURING CONSTRUCTION OPERATIONS, CONTRACTOR SHALL USE CARE TO ENSURE EXISTING CONDUIT, PULLBOXES, AND CONTROL ARE NOT DAMAGED DURING DEMOLITION OPERATIONS.
13. CONTRACTOR TO PROVIDE TEMPORARY PARKING IF DRIVEWAY IS OBSTRUCTED DURING CONSTRUCTION.

EARTHWORK NOTES

1. THE CONTRACTOR'S BID FOR EARTHWORK SHALL INCLUDE THE EXCAVATION, REMOVAL AND DISPOSAL OF ALL MATERIALS, OF WHATEVER CHARACTER, WITHIN THE LIMITS OF CONSTRUCTION.
2. ALL TOPSOIL THAT IS SUITABLE FOR LANDSCAPING OR SODDING OPERATIONS MAY BE STOCKPILED NEARBY FOR SUCH USE IF APPROVED BY THE CITY.
3. WHERE MUCK, ROCK, CLAY, OR OTHER MATERIAL WITHIN THE LIMITS OF CONSTRUCTION IS UNSUITABLE IN ITS ORIGINAL POSITION THE CONTRACTOR SHALL EXCAVATE SUCH MATERIAL IN ITS ENTIRETY AND BACKFILL WITH GRANULAR MATERIAL COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180, METHOD 'D', GRANULAR BACKFILL TO BE TYPE P-57 (COURSE ROCK BACKFILL): CRUSHED ROCK OR GRAVEL WITH 100% PASSING A 1-INCH SIEVE AND NOT MORE THAN 10% PASSING A NUMBER 4 SIEVE; OR BETTER.
4. THE CONTRACTOR SHALL MAKE THEIR OWN ESTIMATE ON THE VOLUME OF MATERIAL ACTUALLY REQUIRED TO OBTAIN THE CROSS SECTIONS OR GRADES AS SHOWN ON THE PLANS.
5. THE CONTRACTOR SHALL REMOVE ALL MUCK, YIELDING MATERIAL ROOTS, VEGETATION AND OTHER DEGRADABLE MATERIAL IN ITS ENTIRETY, WITHIN THE PAVEMENT UNITS AND BELOW ALL STRUCTURES AND UTILITIES TO FULL EXCAVATED TRENCH WIDTH. SAID MATERIAL SHALL BE REPLACED WITH CLEAN ORGANIC FREE MATERIAL WITH ROCKS SMALLER THAN ONE INCH IN DIAMETER COMPACTED TO NOT LESS THAN 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE, AASHTO T-180 METHOD "D" WITH MAXIMUM LIFTS OF TWELVE INCHES COMPACTED THICKNESS.
6. TRENCH BACKFILL AND COMPACTION SHALL FOLLOW THE DETAILS SHOWN WITHIN THE DESIGN PLANS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING APPROPRIATE SAFETY PRECAUTIONS DURING EXCAVATION AND TRENCHING OPERATIONS AS REQUIRED BY THE "TRENCH SAFETY ACT".
8. THIS WORK SHALL INCLUDE THE EXCAVATION OF WHATEVER SUBSTANCES THAT SHALL BE ENCOUNTERED TO THE DEPTHS AS SHOWN ON THE PLANS, EXCAVATED MATERIALS NOT REQUIRED FOR FILL OR BACKFILL SHALL BE REMOVED FROM THE WORK SITE AS DIRECTED BY THE ENGINEER AND SHALL BE CONSIDERED TO BE A PART OF THE BID PRICE OF THE UTILITY PIPE FOR WHICH EXCAVATION AND BACKFILL IS REQUIRED.
9. WATER SHALL NOT BE PERMITTED TO ACCUMULATE IN THE EXCAVATED AREA, IT SHALL BE REMOVED BY PUMPING OR OTHER MEANS AS APPROVED BY THE ENGINEER. THE REMOVAL OF WATER SHALL BE CONSIDERED TO BE A PART OF THE BID PRICE OF THE UTILITY PIPE FOR WHICH EXCAVATION AND BACKFILL IS REQUIRED, CONTRACTOR TO OBTAIN DEWATERING PERMITS FROM APPLICABLE JURISDICTIONAL AGENCIES (SFWMD, ETC.) IF REQUIRED.
10. IF THE BOTTOM OF THE TRENCH IS ROCK, THE EXCAVATION SHALL BE CARRIED EIGHT INCHES BELOW THE INVERT OF THE PIPE AND BACKFILLED WITH THOROUGHLY COMPACTED SAND, GRAVEL, OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER.
11. ROCK EXCAVATION SHALL INCLUDE ANY ROCK ENCOUNTERED WHICH CANNOT BE REMOVED WITH A 3/4 YARD BACKHOE UNDER NORMAL OPERATING CONDITIONS. ROCK EXCAVATION SHALL BE INCIDENTAL TO CONSTRUCTION OF ALL PIPING SYSTEMS AND NO SEPARATE PAYMENT WILL BE MADE.
12. WHENEVER IT IS NECESSARY, IN THE INTEREST OF SAFETY, TO BRACE OR SHORE THE SIDES OF THE TRENCH, SUCH BRACING OR SHORING SHALL BE CONSIDERED TO BE PART OF THE BID PRICE OF UTILITY PIPE FOR WHICH EXCAVATION AND BACKFILL IS REQUIRED.
13. THE CONTRACTOR SHALL FURNISH, PUT IN PLACE AND MAINTAIN SUCH SHEETING, BRACING, AS MAY BE REQUIRED TO SUPPORT THE SIDE OF THE EXCAVATION, AND TO PREVENT ANY MOVEMENT WHICH CAN IN ANY WAY DAMAGE THE WORK OR ENDANGER ADJACENT STRUCTURES.
14. IF FIELD CONDITIONS, TYPE OF SHEETING OR CONSTRUCTION METHODS MAKE REMOVAL OF SHEETING IMPRACTICABLE, AT NO ADDITIONAL COST TO THE OWNER, THE CONTRACTOR MAY LEAVE ALL SHEETING IN PLACE. THE ENGINEER MAY REQUIRE SHEETING TO BE CUT OFF AT ANY SPECIFIED ELEVATION BUT IN NO CASE WILL ANY SHEETING BE LEFT CLOSER THAN TWO (2) FEET BELOW THE NATURAL SURFACE, NOR CUT OFF BELOW THE ELEVATION OF THE TOP OF THE PIPE.
15. AFTER PIPES, STRUCTURES, AND OTHER APPURTENANCES HAVE BEEN INSTALLED, THE TRENCH OR OPENING SHALL BE BACKFILLED WITH MATERIAL IN CONFORMANCE WITH THE DETAILS SHOWN WITHIN THE DESIGN PLANS.
16. IN AREAS WHERE PAVEMENTS ARE TO BE CONSTRUCTED OVER THE PIPE. THE REMAINDER OF THE TRENCH SHALL BE PLACED IN SIX INCH LAYERS (COMPACTED THICKNESS) AND SHALL BE COMPACTED TO 98 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING DAMAGE FROM SETTLEMENT IN THE BACKFILLED AREAS WHETHER UNDER THE PAVEMENT OR OTHERWISE.
17. IN AREAS WHERE NO PAVEMENT IS TO BE CONSTRUCTED, THE BACKFILL ABOVE THE TWELVE INCH LINE ABOVE THE PIPE SHALL BE COMPACTED TO A FIRMNESS APPROXIMATELY EQUAL TO THAT OF THE SOIL ADJACENT TO THE PIPE TRENCH.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SAFETY BARRIER AND PROTECTIVE STEEL PLATE COVERINGS FOR OPEN TRENCHES.
19. SOIL BORING INFORMATION WILL BE PROVIDED TO THE CONTRACTOR. THE SOIL BORING DATA PROVIDED IS FOR THE CONTRACTOR'S INFORMATION, THE ENGINEER DOES NOT MAKE ANY REPRESENTATION REGARDING EXISTING SUBSOIL CONDITIONS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ADDITIONAL SOIL BORINGS TO VERIFY THE LIMITS OF UNSUITABLE MATERIAL ON-SITE.
20. SEE SOILS EVALUATION OF THE PROJECT AREA ON GEOTECHNICAL INVESTIGATION REPORT PERFORMED BY PAN GEO CONSULTANTS, JANUARY 2024.

AS-BUILT DRAWINGS

1. CONTRACTOR TO SUBMIT AS-BUILT DRAWINGS TO THE CITY OF FORT LAUDERDALE FOR REVIEW AND APPROVAL.
2. FINAL AS-BUILT DRAWINGS TO BE SUBMITTED TO THE CITY OF FORT LAUDERDALE IN THE FOLLOWING FORMAT:
    - SIX (6) SIGNED AND SEALED HARD COPIES
    - ONE (1) ELECTRONIC FILE (PDF, CAD)

PAVING AND GRADING NOTES

1. UNDERGROUND UTILITIES SHALL BE COMPLETED OR SLEEVING PROVIDED BEFORE ANY PAVEMENT CONSTRUCTION BEGINS.
2. ALL PAVEMENT SUBGRADE MATERIAL SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE, AASHTO T-180, METHOD "D" AND SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. SPECIFICATIONS, SECTION 120. THE TEST RESULTS SHALL BE ACCEPTED BY THE CITY PRIOR TO PLACEMENT OF BASE MATERIAL.
3. IF THE PLANS INDICATE A LIMEROCK BASE, THE CONSTRUCTION AND THE MATERIAL FOR THE SHELLROCK BASE SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. SPECIFICATIONS, SECTION 230, THE SHELLROCK BASE SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE, AASHTO T-180, METHOD "D". THE ENGINEER SHALL SPECIFY THE LOCATION AND NUMBER OF DENSITY TESTS REQUIRED, CITY PUBLIC WORKS DEPARTMENT STANDARDS REQUIRE DENSITY TESTS AT 25' O.C. THE TEST RESULTS SHALL BE ACCEPTED BY THE CITY AND ENGINEER PRIOR TO APPLICATION OF THE PRIME AND TACK COATS.
4. THE PRIME AND TACK COAT CONSTRUCTION AND MATERIALS FOR THE PRIME AND TACK COATS SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. STANDARD SPECIFICATIONS, SECTION 300. THE PRIME AND TACK COATS SHALL BE APPLIED PRIOR TO CONSTRUCTION OF THE ASPHALT SURFACE COURSE AND SHALL BE SANDED AND ROLLED IN ACCORDANCE WITH SECTION 300. APPLICATION RATES SHALL BE 0.15 GAL/SY FOR LIMEROCK BASE AND 0.25 GAL/SY FOR SHELLROCK BASE.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL BE AS SHOWN ON THE PLANS. THE MATERIALS FOR THE ASPHALT CONCRETE SURFACE COURSE SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. STANDARD SPECIFICATIONS, SECTION 331. ASPHALT SURFACE TO BE PLACED IN TWO LIFTS. FIRST LIFT, SP12.5, 1.5 INCHES, SECOND LIFT, FC9.5, 1 INCH.
6. THE MATERIAL TO BE USED AS A STABILIZER SHALL BE SOIL OF HIGH BEARING VALUE SUCH AS, SAND-CLAY, GROUND LIMESTONE, CRUSHED LIMEROCK, OYSTER SHELL, COQUINA SHELL, ROCK SCREENINGS, OR ANY OTHER MATERIAL WHICH IS SUITABLE FOR STABILIZATION. MUCK SHALL NOT BE USED AS STABILIZING MATERIAL.
7. ALL GRADES SHOWN REFER TO FINISHED ASPHALT PAVEMENT UNLESS OTHERWISE NOTED.
8. MATERIAL HAVING A PLASTICITY INDEX AT MORE THAN 10 OR A LIQUID LIMIT GREATER THAN 40 SHALL NOT BE USED. ALL MATERIAL USED FOR STABILIZING THE ROADBED SHALL PASS A 3-1/2 INCH RING.
9. WHERE THE BEARING VALUE OF THE EXISTING SUBGRADE IS ADEQUATE WITHOUT ADDITION OF STABILIZING MATERIAL, THE SUBGRADE SHALL BE SCARIFIED AND DICED, HARROWED, BLADED, OR TILLED FOR REMOVAL OF BOULDERS, ROOTS, ETC. TO ASSURE UNIFORMITY AND THOROUGH MIXING OF MATERIAL TO THE FULL WIDTH AND DEPTH OF REQUIRED STABILIZATION, THE COMPACTED SUBGRADE SHALL CONFORM TO THE LINES, GRADES AND CROSS-SECTION SHOWN ON THE PLANS.
10. CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT AT THE LIMITS OF REMOVAL OF EXISTING PAVEMENT AND WHEN NEW PAVEMENT CONSTRUCTION MEETS EXISTING PAVEMENT. MEET AND MATCH SHALL ALSO MEAN SAW CUT AND MATCH.
11. THE SUBGRADE TO BE STABILIZED MAY BE PROCESSED IN ONE COURSE, UNLESS THE EQUIPMENT AND METHODS BEING USED DO NOT PROVIDE THE REQUIRED UNIFORMITY, PARTICLE SIZE LIMITATION, COMPACTION AND OTHER DESIGNED RESULTS IN WHICH CASE, THE CITY WILL DIRECT THAT THE PROCESSING BE DONE IN MORE THAN ONE COURSE.
12. PRIOR TO THE BEGINNING OF STABILIZING OPERATIONS, THE AREA TO BE STABILIZED SHALL HAVE BEEN CONSTRUCTED TO AN ELEVATION SUCH THAT UPON COMPLETION OF STABILIZING OPERATIONS, THE COMPLETED STABILIZED SUBGRADE SHALL CONFORM TO THE LINES, GRADES AND CROSS-SECTION SHOWN IN THE PLANS. PRIOR TO THE SPREADING OF ANY ADDITIVE STABILIZING MATERIAL THE SURFACE OF THE ROADBED SHALL BE BROUGHT TO A PLACE APPROXIMATELY PARALLEL TO THE PLANE OF THE PROPOSED FINISHED SURFACE.
13. THE STABILIZING MATERIAL SHALL BE APPLIED IN SUCH QUANTITY AS IS NECESSARY TO PRODUCE THE REQUIRED BEARING VALUE, IT SHALL BE INCORPORATED WITH THE SUBGRADE BY FLOWING, DICING, HARROWING, BLADING OR MIXING WITH ROTARY TILLERS UNTIL THE MIXED MATERIALS ARE OF A UNIFORM BEARING VALUE FOR THE FULL WIDTH AND DEPTH OF THE COURSE BEFORE COMPACTION, REGARDLESS OF THE CHARACTER OR BEARING VALUE. ALL MATERIALS IN THE STABILIZING COURSE THAT WILL NOT PASS A 3-1/2" RING SHALL BE REMOVED OR BROKEN DOWN TO A SIZE NOT LARGER THAN 3-1/2 INCHES
14. COMPACTION SHALL BE ACCOM

ABBREVIATIONS

ABN	-	ABANDONED
ACP	-	ASBESTOS CEMENT PIPE
ACCE	-	ACCESS EASEMENT
AE	-	ANCHOR EASEMENT
AERE	-	AERIAL EASMENT
ALUM	-	ALUMINUM
ASPH	-	ASPHALT
A & UE	-	ACCESS & UTILITY EASEMENT
AVE	-	AVENUE
BCR	-	BROWARD COUNTY RECORDS
BCHCED	-	BROWARD COUNTY HIGHWAY CONSTRUCTION ENGINEERING DIVISION
BCTED	-	BROWARD COUNTY TRAFFIC ENGINEERING DEPT
BCWWS	-	BROWARD COUNTY WATER & WASTEWATER SERVICES
BE	-	BURIED ELECTRIC
BFO	-	BURIED FIBER OPTICS
BLDG	-	BUILDING
BT	-	BURIED TELEPHONE
CATV	-	CABLE TELEVISION
CAE	-	CANAL ACCESS EASEMENT
CB	-	CATCH BASIN
CCTV	-	CLOSED CIRCUIT TELEVISION
CIP	-	CAST IRON PIPE
℄	-	CENTER LINE
CLF	-	CHAIN LINK FENCE
CME	-	CANAL MAINTENANCE EASEMENT
CMP	-	CORRUGATED METAL PIPE
CO	-	CLEAN OUT
COMM	-	COMMUNICATIONS
CONC	-	CONCRETE
CORP	-	CORPORATION
CS	-	CONTROL STRUCTURE
DCR	-	DADE COUNTY RECORDS
DE	-	DRAINAGE EASEMENT
DIAM	-	DIAMETER
DIP	-	DUCTILE IRON PIPE
DWG	-	DRAWING
DWY	-	DRIVEWAY
E	-	EAST
EL	-	ELEVATION
ELEC	-	ELECTRIC
EOP	-	EDGE OF PAVEMENT
EX	-	EXISTING
FF	-	FINISHED FLOOR
FFE	-	FINISHED FLOOR ELEVATION
FH	-	FIRE HYDRANT
FM	-	FORCE MAIN
FPL & CE	-	FLORIDA POWER & LIGHT COMPANY EASEMENT
G	-	GAS
GV	-	GATE VALVE
HDPE	-	HIGH DENSITY POLYETHYLENE
IE	-	INVERT ELEVATION
IE & UE	-	INGRESS EGRESS & UTILITY EASEMENT
IEE	-	INGRESS & EGRESS EASEMENT
INSTR	-	INSTRUMENT
INV	-	INVERT
IRR	-	IRRIGATION
LB	-	LICENSED BUSINESS
LF	-	LINEAR FOOT
LGTH	-	LENGTH
MAS	-	MAINTENANCE ACCESS STRUCTURE
MAX	-	MAXIMUM
MB	-	MAIL BOX
ME	-	MAINTENANCE EASEMENT
MF	-	METAL FENCE
MH	-	MANHOLE
MIN	-	MINIMUM
MTR	-	METER
N	-	NORTH
NAVD 88	-	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD	-	NATIONAL GEODETIC VERTICAL DATUM
NO	-	NUMBER
NTS	-	NOT TO SCALE
O/H	-	OVERHEAD ELECTRIC
PB	-	PLAT BOOK
PE	-	POLYETHYLENE
PF	-	PLASTIC PICKET FENCE
PG	-	PAGE
POB	-	POINT OF BEGINNING
POC	-	POINT OF COMMENCEMENT
PROP	-	PROPOSED
PSI	-	POUNDS PER SQUARE INCH
PVC	-	POLYVINYL CHLORIDE
PVMT	-	PAVEMENT
R	-	RADIUS
RCP	-	REINFORCED CONCRETE PIPE
RE	-	RIM ELEVATION
RPM	-	REFLECTIVE PAVEMENT MARKER
RT	-	RIGHT
R/W	-	RIGHT-OF-WAY
S	-	SOUTH
SAN	-	SANITARY SEWER
SD	-	STORM DRAIN
SE	-	SEWER EASEMENT
SFWMD	-	SOUTH FLORIDA WATER MANAGEMENT DEPT
SHT	-	SHEET
SQ FT	-	SQUARE FEET
ST	-	STREET
STA	-	STATION
SWK	-	SIDEWALK
TEL	-	TELEPHONE
TH	-	TEST HOLE
TOC	-	TOP OF CURB
TOP	-	TOP OF PIPE
TYP	-	TYPICAL
UE	-	UTILITY EASEMENT
UNK	-	UNKNOWN
VCP	-	VITRIFIED CLAY PIPE
W	-	WEST
WF	-	WOOD FENCE
W/R	-	WHITE & RED
WM	-	WATER MAIN
WME	-	WATER MAIN EASEMENT
WTR	-	WATER
WWED	-	WASTEWATER ENGINEERING DEPARTMENT
WWS	-	WATER & WASTEWATER SERVICES

EXISTING STORM DRAINAGE

- EX SD — EXISTING STORM DRAIN PIPE
- EXISTING CATCH BASIN OR INLET GRATE
- EXISTING GUTTER INLET
- EXISTING ROUND CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING ENDWALL OR HEADWALL

DEMOLITION

- REMOVE ASPHALT
- ITEM TO BE ABANDONED
- ITEM TO BE REMOVED

EXISTING WATER

- EX WM — EXISTING WATER MAIN
- ABANDONED WATER MAIN
- FUTURE WATER MAIN
- EX RCWM — EXISTING RECLAIMED WATER MAIN
- ABANDONED RECLAIMED WATER MAIN
- FUTURE RECLAIMED WATER MAIN
- EX RAW WM — EXISTING RAW WATER MAIN
- ABANDONED RAW WATER MAIN
- EXISTING PIPE (20"ø AND LARGER)
- W — EXISTING WATER METER AND SERVICE LATERAL
- EXISTING PLUG
- EXISTING CAP
- EXISTING FITTINGS
- EXISTING FIRE HYDRANT
- EXISTING SIAMESE OR FIRE DEPARTMENT CONNECTION
- EXISTING REDUCER
- EXISTING GATE VALVE
- EXISTING BUTTERFLY VALVE
- AAV EXISTING AIR RELEASE VALVE
- DDCV EXISTING DETECTOR DOUBLE CHECK VALVE
- RPP EXISTING BACKFLOW PREVENTER

LINE TYPES

- CENTER LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- PROJECT BOUNDRY
- EX OE — OVERHEAD ELECTRIC LINES
- EX BE — BURIED ELECTRIC LINES
- EX CATV — CABLE TELEVISION
- EX BFO — BURIED FIBER OPTICS
- EX BT — BURIED TELEPHONE
- EX BCTEDCO — BROWARD COUNTY TRAFFIC ENGINEERING DEPARTMENT COMMUNICATIONS
- WOOD FENCE
- CHAIN LINK FENCE
- METAL FENCE

TOPOGRAPHIC SURVEY

- ANCHOR
- BOLLARD / GUARD POST
- CABLE TV RISER
- CATV CABLE TV VAULT
- CLEANOUT
- COMM COMMUNICATIONS VAULT
- CONCRETE LIGHT POLE
- CONCRETE POST
- CONCRETE POWER POLE
- ELECTRIC CABINET
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC OUTLET
- E ELECTRIC VAULT
- E ELECTRIC WIRE PULL BOX
- FIRE HYDRANT
- GAS METER
- GAS VALVE
- IRR IRRIGATION BOX
- IRRIGATION PUMP
- IRRIGATION WELL
- LIFT STATION ANTENNA
- MAIL BOX
- METAL LIGHT POLE
- MULTI SUPPORT SIGN
- PLASTIC POST
- SANITARY SEWER MANHOLE
- SANITARY SEWER VALVE
- SIGN ON POST
- 9.95' SPOT ELEVATION
- STREET LIGHT POLE
- T TELEPHONE CABINET
- TELEPHONE RISER
- T TELEPHONE VAULT
- TH TEST HOLE
- UTILITY MARKER
- VENT PIPE
- WM WATER METER
- WATER VALVE
- WOOD LIGHT POLE
- WOOD POWER POLE
- 300 HORIZONTAL & VERTICAL CONTROL PT

GEOTECHNICAL

- TH B-1 BORING LOCATION
- TEST HOLE LOCATION

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954.730.0707
www.chenmoore.com

BID SET

ENGINEER:
DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ---
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: N.T.S.
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

GENERAL NOTES AND ABBREVIATIONS

DRAWING #	SHT #
GN-2	03
TOTAL:	46
CAD FILE: 12765-MULTI-NOTE	
DRAWING FILE NO. 4-141-91	

CAM #26-0038
Exhibit 1
Page 251 of 264

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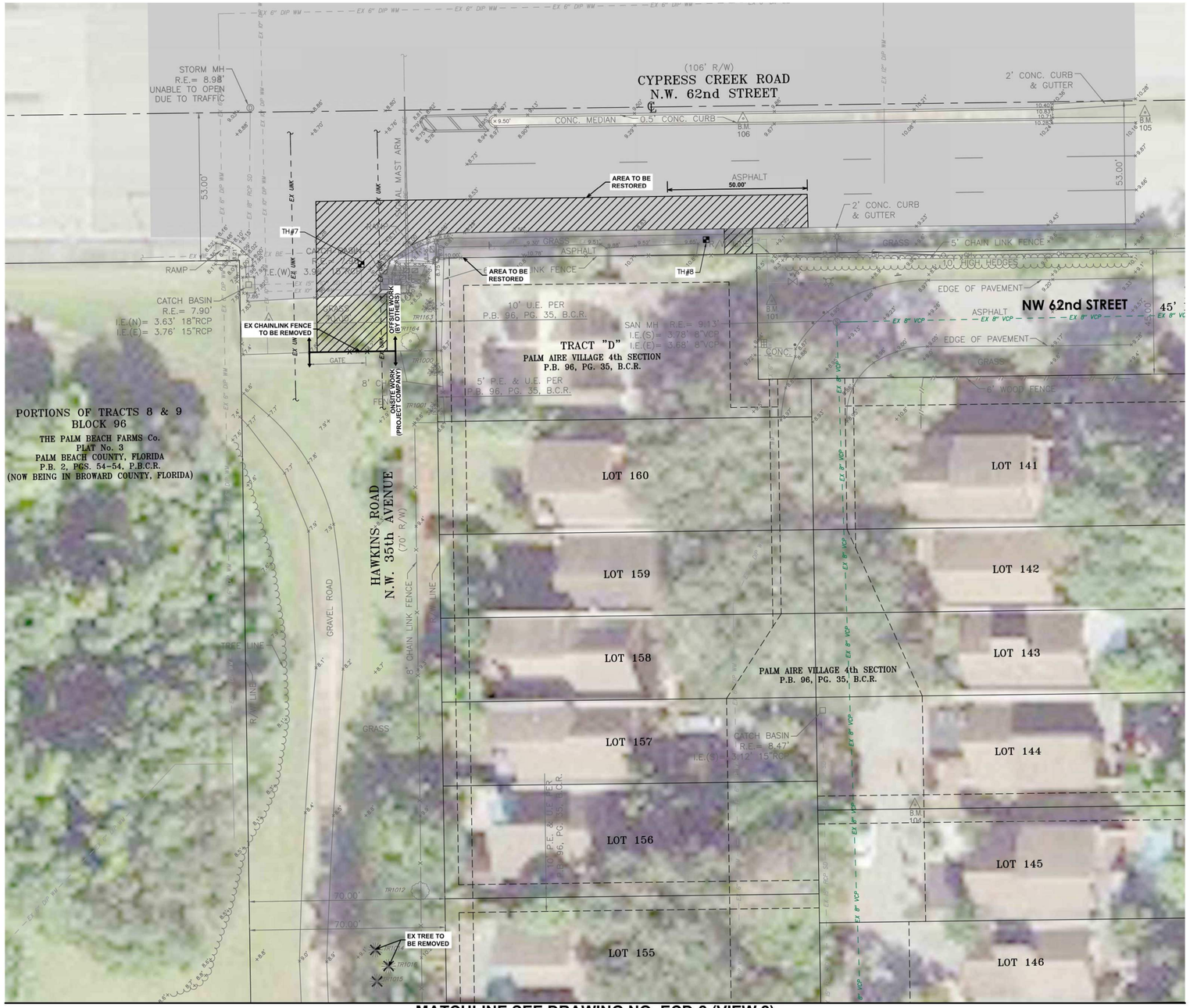
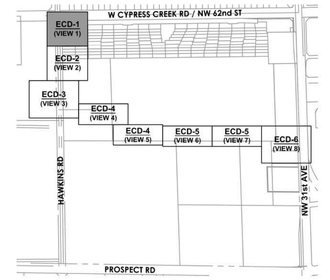


MATCHLINE SEE DRAWING NO. ECD-2 (VIEW 2)

VIEW 1



KEY MAP

N.T.S. NORTH

LEGEND

- SECTION LINE
- RIGHT-OF-WAY LINE
- PARCEL BOUNDARY
- LOT OR PROPERTY LINE
- CENTER LINE
- EASEMENT LINE
- SECTION CORNER
- QUARTER SECTION CORNER
- REMOVE MATERIAL FROM AREA
- RESTORATION AREA
- REMOVE ITEM
- ABANDON ITEM
- PIPE BURST

EXISTING CONDITIONS NOTES:

1. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY SUAREZ SURVEYING & MAPPING INC., PROJECT NUMBER 23043607 ON 06/15/2023. ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES, G.I.S. INFORMATION AND FIELD VISITS.
2. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. NATIONAL GEODETIC SURVEY (NGS) BENCHMARK USED: DESIGNATION = CITY OF FORT LAUDERDALE BM 872 DESCRIPTION = MAG NAIL IN BRASS DISC STAMPED CITY OF FORT LAUDERDALE. ELEVATION = 8.93' NAVD 88
4. CONTRACTOR IS TO PROTECT ALL EXISTING TREES, SIGNS, AND ABOVE GROUND UTILITIES NOT IMPACTED BY THIS PLAN.

DEMOLITION NOTES:

1. DO NOT START DEMOLITION WORK UNTIL UTILITY DISCONNECTING AND SEALING HAVE BEEN COMPLETED AND VERIFIED IN WRITING.
2. BEFORE PROCEEDING WITH DEMOLITION OPERATIONS THE CONTRACTOR IS TO DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND DISPOSE OF CHEMICALS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS.
3. CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
4. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR IN-USE FACILITIES WITHOUT PERMISSION FROM OWNER, THE TRIBE AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS AS REQUIRED BY GOVERNING REGULATIONS.
5. CONDUCT DEMOLITION OPERATIONS TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREA.
6. ERECT TEMPORARY PROTECTION, SUCH AS WALKS, FENCES, BARRIERS, RAILINGS, ETC. WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION.
7. PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
8. ADJACENT IMPROVEMENTS SHALL BE CLEANED OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
9. FOR SELECTIVE DEMOLITION, USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION. TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES, USE HAND OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING OR CHOPPING. TEMPORARILY COVER OPENINGS TO REMAIN
10. DEMOLISH CONCRETE IN SMALL SECTIONS. CUT CONCRETE AT JUNCTURES WITH CONSTRUCTION TO REMAIN, USING POWER-DRIVEN MASONRY SAW OR HAND TOOLS; DO NOT USE POWER-DRIVEN IMPACT TOOLS.
11. INFORMATION SHOWN ON THE DRAWINGS AS TO THE LOCATION OF EXISTING UTILITIES HAS BEEN PREPARED FROM THE MOST RELIABLE DATA AVAILABLE TO THE ENGINEER; HOWEVER, THIS INFORMATION IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION, CHARACTER, AND DEPTH OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSIST THE UTILITY COMPANIES, BY EVERY MEANS POSSIBLE, TO DETERMINE SAID LOCATIONS AND THE LOCATIONS OF RECENT ADDITIONS TO THE SYSTEMS NOT SHOWN.
12. REMOVAL, DEMOLITION, HAULING, AND DISPOSAL SHALL COMPLY WITH REGULATIONS BY F.D.E.P., E.P.A., AND ANY OTHER AUTHORITY HAVING JURISDICTION.
13. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
14. ALL EXISTING PATHWAY AND STREET LIGHTING WILL REMAIN IN PLACE AND REMAIN IN SERVICE DURING CONSTRUCTION OPERATIONS.

GRAPHIC SCALE
0 10 20 40
1 INCH = 20 FEET

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500 West Cypress Creek Road,
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Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ____
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024 | SCALE: 1" = 20'
DESIGNED BY: MGM | CHECKED BY: DD | FIELD BOOK: ##

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreECD Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
EXISTING CONDITIONS AND DEMOLITION PLAN

DRAWING # ECD-1 | SHT # 04
TOTAL: 46
CAD FILE: 12765-MULTI-DEMO
DRAWING FILE NO. 4-141-91

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KEY MAP

N.T.S.

NORTH

LEGEND

- SECTION LINE
- RIGHT-OF-WAY LINE
- PARCEL BOUNDARY
- LOT OR PROPERTY LINE
- CENTER LINE
- EASEMENT LINE
- SECTION CORNER
- QUARTER SECTION CORNER
- REMOVE MATERIAL FROM AREA
- RESTORATION AREA
- REMOVE ITEM
- ABANDON ITEM
- PIPE BURST

EXISTING CONDITIONS NOTES:

1. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY SUAREZ SURVEYING & MAPPING INC., PROJECT NUMBER 230436807 ON 06/15/2023. ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES, G.I.S. INFORMATION AND FIELD VISITS.
2. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. NATIONAL GEODETIC SURVEY (NGS) BENCHMARK USED:
   DESIGNATION = CITY OF FORT LAUDERDALE BM 872
   DESCRIPTION = MAG NAIL IN BRASS DISC STAMPED CITY OF FORT LAUDERDALE.
   ELEVATION = 8.93' NAVD 88
4. CONTRACTOR IS TO PROTECT ALL EXISTING TREES, SIGNS, AND ABOVE GROUND UTILITIES NOT IMPACTED BY THIS PLAN.

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1 INCH = 20 FEET

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DRAWN BY:	DATE:
JLS	08/01/2024
DESIGNED BY:	SCALE:
MGM	1" = 20'
CHECKED BY:	
DD	
FIELD BOOK:	#

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreECD Avenue, Fort Lauderdale, Florida 33301

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

EXISTING CONDITIONS AND DEMOLITION PLAN

DRAWING #	SHT #
ECD-6	09

TOTAL: 46

CAD FILE: 12765-MULTI-DEMO

DRAWING FILE NO. 4-141-91

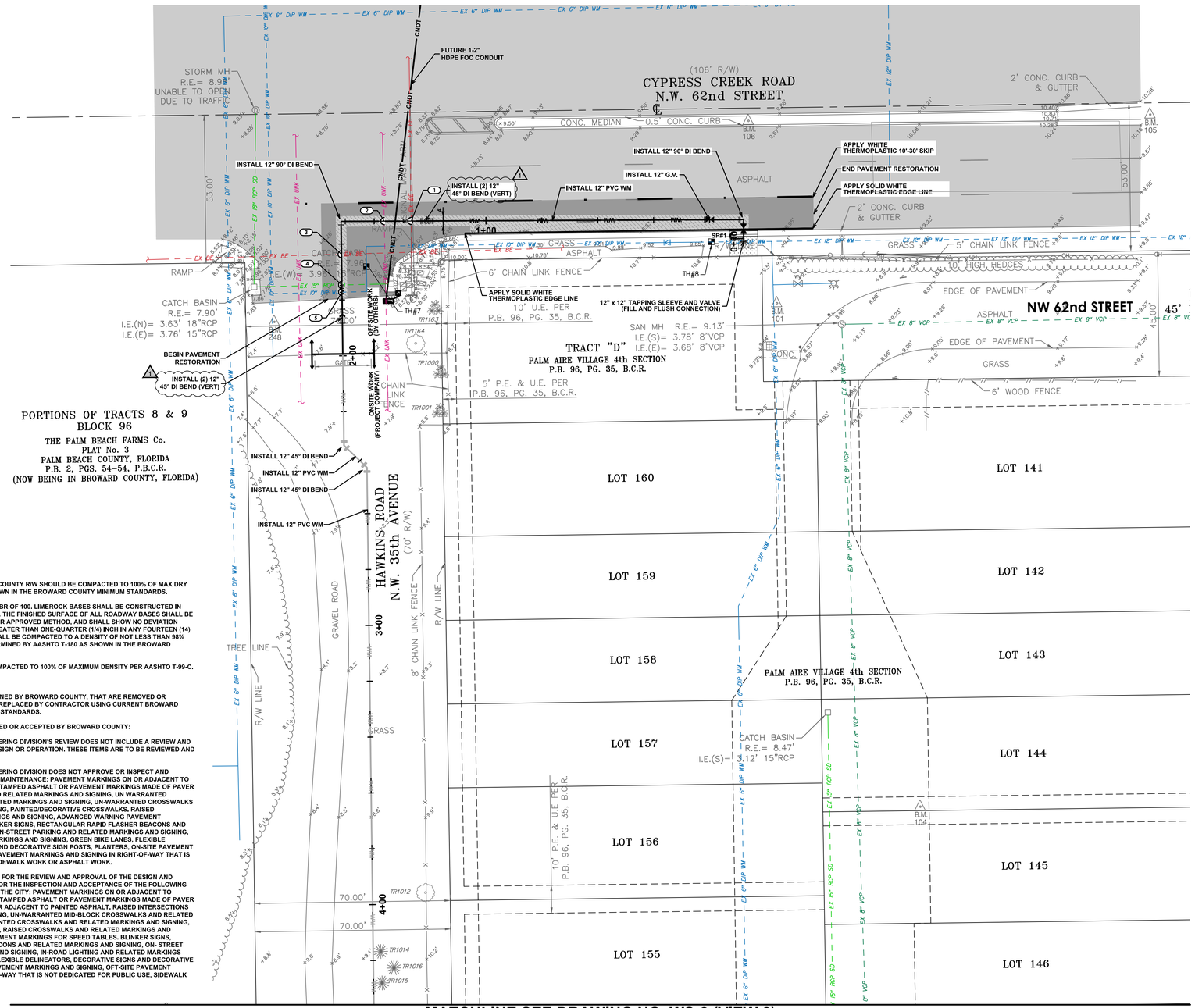
CAM #26-0038
Exhibit 1
Page 253 of 264

Plot Date: 6/9/2025 10:31:23 PM Username: vlocigno Layout Name: ECD-6
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enabl\Design\CAD\Sheets Filename: 12765-MULTI-DEMO.dwg

PIPE CROSSING TABLE

NO.	GROUND EL.	TOP PIPE	B.O.P. EL.	BOTTOM PIPE	T.O.P. EL.	CLEARANCE
1	8.32	EX 3" BE	5.02	12" WM	3.95	1.07
2	8.30	EX 3" UNK	5.07	12" WM	3.95	1.12
3	8.15	EX 3" BE	4.72	12" WM	3.95	0.77
4	7.95	EX 15" RCP	3.70	12" WM	2.71	1.00
5	7.90	EX 10" WM	4.04	12" WM	2.71	1.33

NOTE:
CONTRACTOR TO REFER TO BROWARD COUNTY PROJECT No. FIBER-010 PRIOR TO STARTING CONSTRUCTION TO COORDINATE LOCATIONS OF FIBER OPTIC CABLES.



MATCHLINE SEE DRAWING NO. WS-2 (VIEW 2)

VIEW 1

BROWARD COUNTY ROAD NOTES:

A. ALL SUBGRADES WITHIN BROWARD COUNTY R/W SHOULD BE COMPACTED TO 100% OF MAX DRY DENSITY PER AASHTO T-99-C AS SHOWN IN THE BROWARD COUNTY MINIMUM STANDARDS.

B. LIMEROCK SHALL HAVE A MINIMUM LBR OF 100. LIMEROCK BASES SHALL BE CONSTRUCTED IN LIFTS NOT TO EXCEED SIX (6) INCHES. THE FINISHED SURFACE OF ALL ROADWAY BASES SHALL BE TESTED BY "BOARDING" OR BY OTHER APPROVED METHOD, AND SHALL SHOW NO DEVIATION FROM THE REQUIRED ELEVATION GREATER THAN ONE-QUARTER (1/4) INCH IN ANY FOURTEEN (14) FOOT SEGMENT. BASE MATERIAL SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180 AS SHOWN IN THE BROWARD COUNTY MINIMUM STANDARDS.

C. BACKFILL MATERIAL SHOULD BE COMPACTED TO 100% OF MAXIMUM DENSITY PER AASHTO T-99-C.

NOTES:
ALL TRAFFIC CONTROL DEVICES MAINTAINED BY BROWARD COUNTY, THAT ARE REMOVED OR DAMAGED BY CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR USING CURRENT BROWARD COUNTY TRAFFIC ENGINEERING DIVISION STANDARDS.

THE FOLLOWING ITEMS ARE NOT REVIEWED OR ACCEPTED BY BROWARD COUNTY:

1. BROWARD COUNTY TRAFFIC ENGINEERING DIVISION'S REVIEW DOES NOT INCLUDE A REVIEW AND ACCEPTANCE OF THE PROJECT'S DESIGN OR OPERATION. THESE ITEMS ARE TO BE REVIEWED AND APPROVED BY THE CITY ENGINEER.

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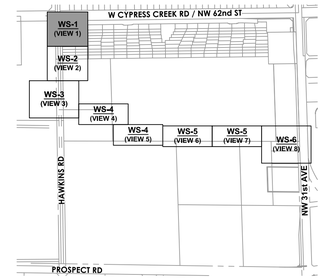

KEY MAP N.T.S. NORTH

LEGEND

- S# — SAMPLE POINT
- WM — PROPOSED WATER MAIN
- RCWM — PROPOSED RECLAIMED WATER MAIN
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- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER AND SERVICE LATERAL
- PROPOSED BACKFLOW PREVENTER
- PROPOSED MILLING AND RESURFACING (1" SP 9.5)
- FULL DEPTH RESTORATION (1.5" SP 12.5)

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4. THE EXISTING WATER MAINS AND FIRE HYDRANTS THAT ARE TO BE REMOVED SHALL REMAIN ACTIVE UNTIL A CLEARANCE LETTER HAS BEEN ISSUED AND THE NEW WATER MAINS AND FIRE HYDRANTS ARE ACTIVATED.
5. CONTRACTOR TO PROVIDE DETAILED AS-BUILTS SURVEYS THAT CLEARLY DEFINE THE AREAS OF WORK COMPLETED UNDER THIS CONTRACT INCLUDING BUT NOT LIMITED TO TOP OF PIPE ELEVATION, TOP OF ALL FITTINGS, ETC.
6. ALL DUCTILE IRON PIPE SHALL BE CLASS 350 WITH A FLEXIBLE RESTRAINED PUSH-ON JOINT IN ACCORDANCE WITH ANSI/AWWA C150/A21.50 "THICKNESS DESIGN OF DUCTILE-IRON PRESSURE PIPE"
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11. RESTRAINT OF FIELD CUT PIPE SHALL BE PROVIDED WITH U.S. PIPE'S HDSS PIPE FIELD WELDMENTS OR APPROVED EQUAL.
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PAVEMENT MARKING RESTORATION:

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GRAPHIC SCALE
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1 INCH = 20 FEET

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Ft. Lauderdale, FL 33309
954.730.0707
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BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ---
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreWS Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	DESCRIPTION	CHK'D
1	2024-08-22	DD	DROP MANHOLE, ADJUST UTILITIES	DD

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
WATER AND SEWER PLAN

DRAWING # WS-1 | SHT # 10
TOTAL: 46
CAD FILE: 12765-MULTI-PLAN
DRAWING FILE NO. 4-141-91

CAM #26-0038
Exhibit 1
Page 254 of 264

Plot Date: 6/9/2025 10:14:54 PM Username: vlocigno Layout Name: WS-1
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enabl\Design\CAD\Sheets Filename: 12765-MULTI-PLAN.dwg

MATCHLINE SEE DRAWING NO. WS-3 (VIEW 6)

PIPE CROSSING TABLE

NO.	GROUND EL.	TOP PIPE	B.O.P. EL.	BOTTOM PIPE	T.O.P. EL.	CLEARANCE
11	8.17	EX 20" RAW	2.80	12" WM	1.81	1.00
12	8.47	EX 4" BE	5.07	12" WM	4.57	0.50
13	9.09	EX 2" BTV	5.90	12" WM	5.04	0.86
14	9.74	12" WM	5.27	EX 2" FBO	4.47	0.80
15	9.76	EX 30" RCP	2.78	12" WM	1.92	0.86
16	9.76	12" WM	5.27	EX 3" BT/COM	0.63	4.64
17	9.79	EX 8' WM	6.22	12" WM	4.81	1.41
18	9.90	EX 2" UNK	6.72	12" WM	4.81	1.91

NOTE:
CONTRACTOR TO REFER TO BROWARD COUNTY PROJECT No. FIBER-010 PRIOR TO STARTING CONSTRUCTION TO COORDINATE LOCATIONS OF FIBER OPTIC CABLES.

INSTALL 12" 45° DI BEND
INSTALL 12" PVC WM
35+00
PLAT LINE
INSTALL (2) 12" 45° DI BEND (VERT)
90' INGRESS, EGRESS, UTILITY AND WELL EASEMENT PB 96 PG 35 BCR
INSTALL 12" PVC WM
36+00
INSTALL 12" 45° DI BEND
SP#4
37+00
38+00
38+27
INSTALL 12" PVC BY PROJECT COMPANY
ONSITE WORK (PROJECT COMPANY)
OFFSITE WORK (BY OTHERS)
INSTALL 15-LF OF TYPE "F" CURB
FUTURE 3-2" HDPE FOC CONDUIT
APPLY THERMOPLASTIC 10'-30' SKIP
APPLY SOLID WHITE THERMOPLASTIC EDGE LINE
INSTALL (2) 12" 11.25° DI BEND (VERT)
INSTALL 12" G.V.
APPLY WHITE THERMOPLASTIC 10'-30' SKIP
APPLY YELLOW 2'-4' SKIP
BEGIN PAVEMENT RESTORATION
INSTALL 20"X12" TAPPING SLEEVE & VALVE
INSTALL 12" PVC WM
END PAVEMENT RESTORATION
APPLY SOLID WHITE THERMOPLASTIC EDGE LINE
APPLY WHITE THERMOPLASTIC 10'-30' SKIP
TH#1
TH#2
TH#3
TH#4
TH#5
TH#6
SP#5
NW 31st AVENUE
ASPHALT PAVEMENT
(106' R/W)
EX 15" RCP SD
EX 30" RCP SD
EX 8" WM
EX 2" BTV
EX 3" BT/COM
EX 2" FBO
EX BE
EX X3
CHAIN LINK FENCE
CONC. SWK.
EDGE OF PAVEMENT
0.5' CONC. CURB & GUTTER
2' CONC. CURB & GUTTER
CATCH BASIN N:678868.48 E:922459.94 RIM ELEV.=9.97' I.E.(N)= 3.07' ø18" CONC. I.E.(S)= 2.77' ø18" CONC. BOTTOM=2.37'
CATCH BASIN N:678596.63 E:922548.71 RIM ELEV.=9.73' INV.(W)=5.33' ø15" CONC. BOTTOM=5.13'
EX. YELLOW 2'-4' SKIP
EX. BIKE LANE PAVEMENT MARKING
EX. WHITE EDGE LINE
EX. YELLOW SOLID EDGE LINE
EX. WHITE 10'-30' SKIP
EX. WHITE "LEFT TURN ARROW"
EX BIKE LANE PAVEMENT MARKING
53.00'
GROUND
NOT SUBDIVIDED ACREAGE

VIEW 8

BROWARD COUNTY ROAD NOTES:

A. ALL SUBGRADES WITHIN BROWARD COUNTY R/W SHOULD BE COMPACTED TO 100% OF MAX DRY DENSITY PER AASHTO T-99-C AS SHOWN IN THE BROWARD COUNTY MINIMUM STANDARDS.

B. LIMEROCK SHALL HAVE A MINIMUM LBR OF 100. LIMEROCK BASES SHALL BE CONSTRUCTED IN LIFTS NOT TO EXCEED SIX (6) INCHES. THE FINISHED SURFACE OF ALL ROADWAY BASES SHALL BE TESTED BY "BOARDING" OR BY OTHER APPROVED METHOD, AND SHALL SHOW NO DEVIATION FROM THE REQUIRED ELEVATION GREATER THAN ONE-QUARTER (1/4) INCH IN ANY FOURTEEN (14) FOOT SECTION. BASE MATERIAL SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180 AS SHOWN IN THE BROWARD COUNTY MINIMUM STANDARDS.

C. BACKFILL MATERIAL SHOULD BE COMPACTED TO 100% OF MAXIMUM DENSITY PER AASHTO T-99-C.

NOTES:
ALL TRAFFIC CONTROL DEVICES MAINTAINED BY BROWARD COUNTY, THAT ARE REMOVED OR DAMAGED BY CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR USING CURRENT BROWARD COUNTY TRAFFIC ENGINEERING DIVISION STANDARDS.

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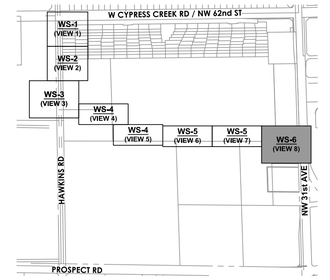

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BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ---
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreWS Avenue, Fort Lauderdale, Florida 33301

REVISIONS

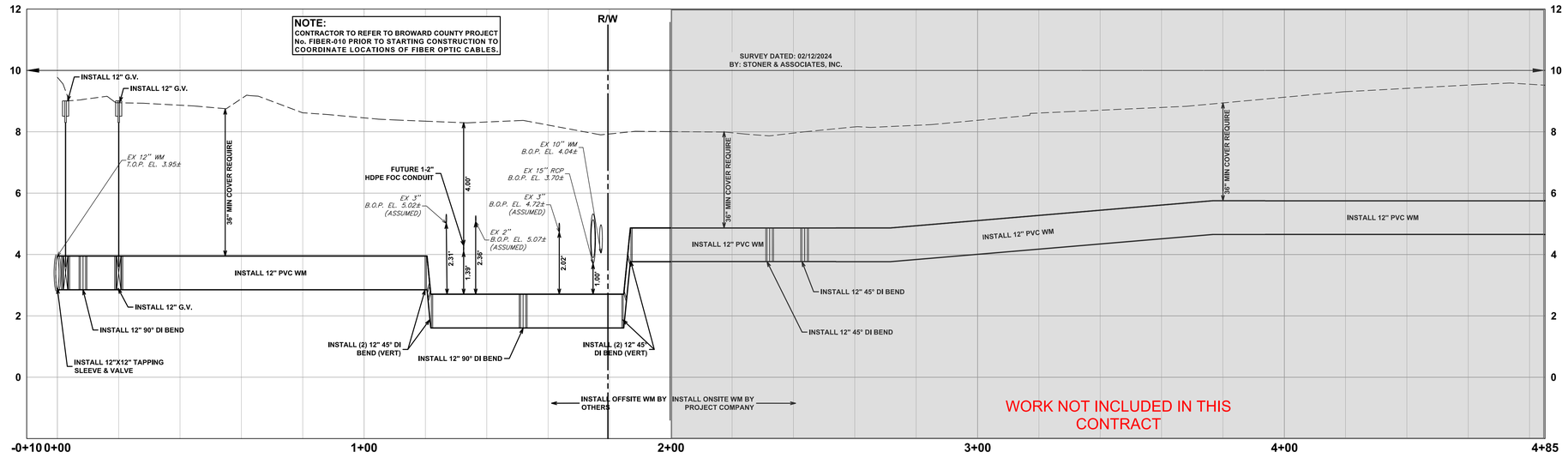
NO.	DATE	BY	CHK'D	DESCRIPTION
1	2024-08-22	DD	DD	ADJUST UTILITIES, ADD DIMENSIONS

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
WATER AND SEWER PLAN

DRAWING # WS-6 | SHT # 15
TOTAL: 46
CAD FILE: 12765-MULTI-PLAN
DRAWING FILE NO. 4-141-91

Plot Date: 6/9/2025 10:15:06 PM Username: vlocigno Layout Name: WS-6
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enab\Design\CAD\Sheets Filename: 12765-MULTI-PLAN.dwg

PROP. 12" PVC WM
STA. -0+10.00 thru STA. 4+85.00
SCALE: 1"=20' HORZ | 1"=2' VERT



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BID SET

ENGINEER:
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100 North AndreWS Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
WATER MAIN PROFILES

DRAWING # PRO-1 | SHT # 16
TOTAL: 46
CAD FILE: 12765-MULTI-PROF
DRAWING FILE NO. 4-141-91

Plot Date: 6/9/2025 10:53:35 PM Username: vlocigno Layout Name: PRO-1
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enabl\Design\CAD\Sheets Filename: 12765-MULTI-PROF.dwg

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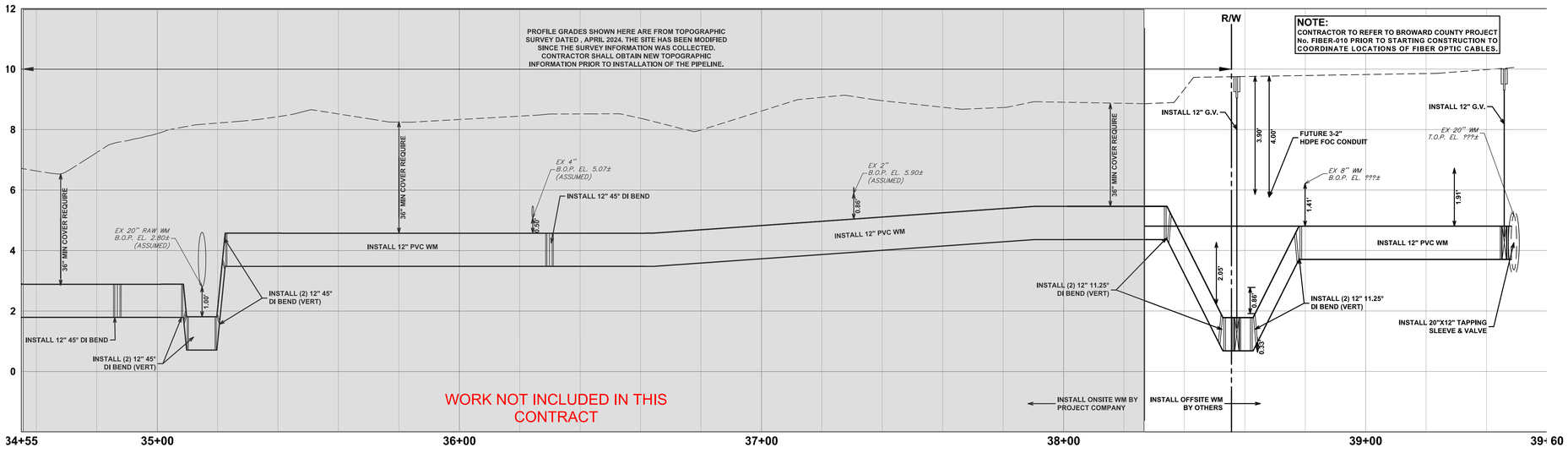
STA. 34+55.00 thru STA. 39+60.00

SCALE: 1"=20' HORZ | 1"=2' VERT



GRAPHIC SCALE

0 10 20 40

1 INCH = 20 FEET

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Ft. Lauderdale, FL 33309
954.730.0707
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BID SET

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreWS Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: JLS	DATE: 08/01/2024
DESIGNED BY: MGM	SCALE: 1" = 20'
CHECKED BY: DD	
FIELD BOOK: #	

ENGINEER:
DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ____
TEL: 954.730.0707
FAX: 954.730.2030

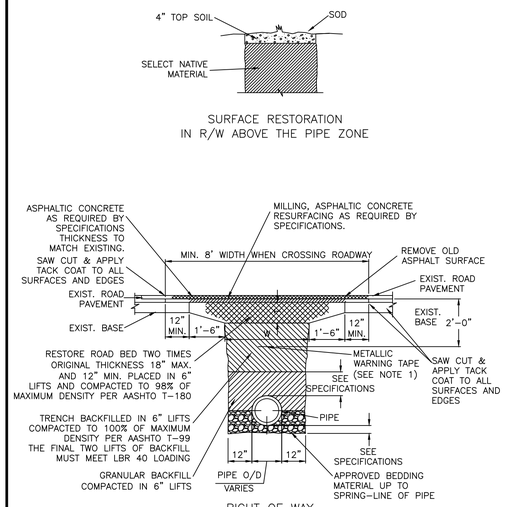
CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

WATER MAIN PROFILES

DRAWING #	SHT #
PRO-4	19
TOTAL:	46
CAD FILE: 12765-MULTI-PROF	
DRAWING FILE NO. 4-141-91	

CAM #26-0038
Exhibit 1
Page 257 of 264

Plot Date: 6/9/2025 10:53:48 PM Username: vlocigno Layout Name: PRO-4
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enabl\Design\CAD\Sheets Filename: 12765-MULTI-PROF.dwg



SURFACE RESTORATION
IN R/W ABOVE THE PIPE ZONE

RIGHT OF WAY
TRENCH REPAIR, MILLING, AND OVERLAY

NOTES:

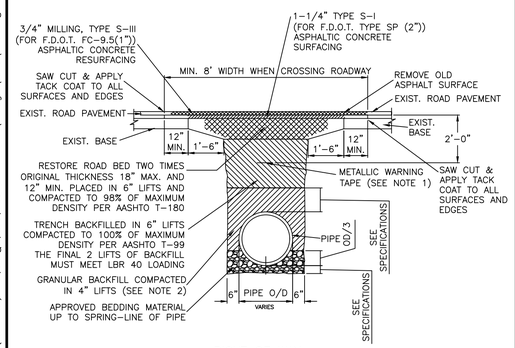
1. METALLIC WARNING TAPES SHALL BE INSTALLED 24" BELOW FINISH GRADE ABOVE MAIN. (SEE SPECIFICATION 2320 SECTION 3.6 FOR MARKING TYPE)
2. UNLESS OTHERWISE SPECIFIED SELECTED MATERIAL SHALL BE FREE OF STONES LARGER THAN 3/8" DIA.
3. REPLACE ALL LANE MARKINGS AND REFLECTIVE MARKERS.

T=6" PARKING
T=8" RESIDENTIAL STREETS
T=10" MAJOR STREETS (4 LANE)
T=12" MAJOR STREETS (6 LANE)

2T=18" MAX. 12" MIN.

100 TYPICAL TRENCH AND PAVEMENT RESTORATION FOR TRANSVERSE CROSSING

Scale: 1' = 3'



RIGHT OF WAY
TRENCH REPAIR, MILLING, AND OVERLAY

NOTES:

1. 2" WIDE METALLIC WARNING TAPES SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE MAIN.
2. UNLESS OTHERWISE SPECIFIED SELECTED MATERIAL SHALL BE FREE OF STONES LARGER THAN 3/8" DIA.
3. REPLACE ALL LANE MARKINGS, REFLECTIVE MARKERS AND DAMAGED TRAFFIC SIGNS.

100BC F.D.O.T. & BROWARD COUNTY TYPICAL TRENCH AND PAVEMENT RESTORATION

Scale: 1' = 3'

WATER SYSTEM NOTES:

PIPE D.I.P.

1. Ductile Iron water main pipe shall conform to the requirements of A.N.S.I./A.W.W.A. C-151/A 21.51-02 and lined and coated per A.N.S.I./A.W.W.A. C-104/A-214-03. 20" and smaller pipe shall be pressure class 350; 24" and larger, pipe shall be pressure class 250.
2. All DIP shall have adequate protective measures against corrosion and it shall be used only if as determined by the design engineer, based on field conditions.
3. All DIP shall be installed in accordance with A.N.S.I./A.W.W.A. C-600-99, or latest revision.

PIPE P.V.C.

4. All P.V.C. mains shall be series 1120, class 150 (DR 18) pressure pipe, conforming to A.N.S.I./A.W.W.A. C-900-07', or latest revision, and shall have push on joints, and iron pipe O.D.
5. All P.V.C. pipe shall be installed in accordance with the Uni-Bell plastic pipe Association's "Guide for installation of P.V.C. pressure pipe for Municipal water distribution system". Water distribution pipe shall be of "BLUE" color. All water main installations shall comply with the color coding requirements of Chapter 62-555.320(21)(b)3 F.A.C. (Florida Administrative Code).
6. Detector tape on all P.V.C. mains shall be installed 18" above the water main.
7. All P.V.C. mains must have #6 copper wire, single strand, placed on top of pipe, shall be electrically continuous over the entire length of the pipe, and fastened every 10' with a #12 wire.

FITTINGS

8. Fittings shall be ductile iron meeting A.N.S.I./A.W.W.A. C153/21.00 and shall be coated with 6 to 8 mil. Thickness coal tar epoxy conforming to the requirements of A.N.S.I./A.W.W.A. C550-05 and C116/A21.03.
9. Restrained joint pipe shall be used for all bends, tees, crosses, plugs, and fire hydrants. Thrust blocks shall not be allowed.
10. Retainer glands/mechanical joint restraint shall be used only if authorized by the Engineer and shall conform to A.N.S.I./A.W.W.A. standards C 111/A-21.11-03, or latest revision.
11. All glands shall be manufactured from ductile iron as listed by underwriter's laboratory for 250 P.S.I. minimum water pressure rating.
12. Glands shall be CLOW Corporation model F-1058, standard fire protection equipment company, or approved equal.

VALVES

13. Tapping valves shall be Mueller H667 or approved equal.
14. Tapping sleeves shall be Mueller H615 or approved equal.
15. Gate valves 3" or less shall be NIBCO T-133 OR T-136 with malleable hand wheels. No substitutions allowed.
16. Gate valves 4" or larger shall meet A.W.W.A. C-500-02 specification (latest revision). Valves shall be Mueller Co. or approved equal.
17. All valves shall be furnished with extension type cast iron valve boxes of proper length for pipe depth. All boxes shall conform with A.W.W.A. specifications with a shaft of no less than 5 inches and have the word "WATER" cast in the cover. Base of valve box shall have a flared section to fit over stuffing box of valve.

HYDRANTS

18. Fire hydrants shall be breakaway Mueller Super Centurion 250, US Pipe Metropolitan 250, American Darling B-84B, Clow Medallion, or approved equal.
19. Fire hydrants shall be installed with the center of the nozzle 18" above finished grade.
20. Dead-end water mains 6" or larger shall terminate with a fire hydrant.

PLACEMENT

21. All water mains shall be installed with a minimum cover of 36" for P.V.C and 30" for DIP except where shown differently on plans.
22. A continuous and uniform bedding shall be provided. Backfill material shall be tamped in layers around the pipe as shown on the plans and/or City of Fort Lauderdale Construction Standards and Specifications, January 1982. Rocks or stones larger than 3/4" diameter found in the trench shall be removed for a depth of at least 6" below the bottom of the pipe.
23. Pipe deflection shall not exceed 75% of the maximum deflection recommended by the manufacturer.

SEPARATION

24. Sanitary sewers and force mains should cross under water mains whenever possible. Sanitary sewers and force mains crossing water mains shall be laid to provide a minimum vertical distance of 18" between the invert of the upper pipe and the crown of the lower pipe whenever possible.
25. Where sanitary sewer force mains must cross a water main with less than 18" vertical separation, both the sewer and water main shall be constructed of ductile iron pipe (DIP) at the crossing. Sufficient lengths of DIP must be used to provide a minimum separation of 10 feet between any two joints. All joints on the water main within 20 feet of the crossing must be mechanically restrained. A minimum vertical clearance of 6" must be maintained at all crossings.
26. A minimum 10 foot horizontal separation shall be maintained between any type of sewer and water main in parallel installations whenever possible.
27. The preferred separation between water mains and sewer mains shall be 10 feet. In cases where it is not possible to maintain a 6 foot horizontal separation between the water mains and sewer mains, one of the following conditions must be met. The minimum separation between water and sewer mains shall be 3 feet:

SEPARATION (CONT'D)

27.a The water main must be laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer or force main at such elevation that the bottom of the water main is at least 18 inches above the top of the sewer.

27.b The sewer or force main is encased in concrete or a watertight carrier pipe.

27.c Both the sewer and the water main are constructed of pressure pipe tested to 150 p.s.i.

28. Where it is not possible to maintain a vertical distance of 18" in parallel installations, the water main shall be constructed of DIP and the sanitary sewer or force main shall be constructed of DIP, with a minimum vertical clearance of 6". The water main should be above the sewer. Joints on the water main shall be located as far apart as possible from the joints on the sewer or force main (staggered joints).
29. All crossings shall be arranged so that the sewer pipe joints and the water main pipe joints are equidistant from the point of crossing (pipes centered on the crossing).
30. Where a new pipe conflicts with an existing pipe with less than 18" vertical clearance, the new pipe shall be arranged to meet the crossing requirements above.

TESTING, DISINFECTION

31. Pipe shall be tested under constant pressure of 150 P.S.I. for a minimum test period of 2 hours and shall not exceed the leakage requirements as per A.N.S.I./A.W.W.A. specifications of C-600-05 leakage formula: $Q = (LD\sqrt{P})/148{,}000$
    Q = QUANTITY OF MAKEUP WATER, (IN GALLONS PER HOUR)
    L = LENGTH OF PIPE SECTION BEING TESTED, (IN FEET).
    D = NOMINAL DIAMETER OF THE PIPE, (IN INCHES).
    P = AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST, (IN POUNDS PER SQUARE INCH GAUGE).
32. The City of Fort Lauderdale Public Services Department will take all bacteriological tests, to be scheduled via inspector. If otherwise specified in contract detailed specification and/or authorized by the engineer of record, bacteriological tests may be performed by a certified environmental testing laboratory.
33. Disinfection of mains shall comply with A.N.S.I./A.W.W.A. C-651-05standard. Bacteriological sampling points shall be designated on the engineering plans. Minimum one sampling point at each end. Maximum space between sampling points is 1200 feet.

CONNECTION

34. All connections to existing mains shall be made under the direction of the City of Fort Lauderdale.
35. There shall be no connection to an existing water main until pressure and bacteriological tests have been conducted and the results are approved and accepted by the City of Fort Lauderdale.

SERVICE CONNECTIONS

36. All meter service connections shall be bronze from plug valve. No gate valves are to be used (2" or less).
37. Service saddles shall be ductile iron with stainless steel straps. Saddles shall be double strap type. All service saddles shall conform to A.N.S.I./A.W.W.A. C 111/A-21.11-00 and A.S.T.M. A588.
38. All service lines shall be copper tubing, type "K", or plasticized polyethylene 3408, A.S.T.M. D-2737, S.D.R. 9, 200 P.S.I.

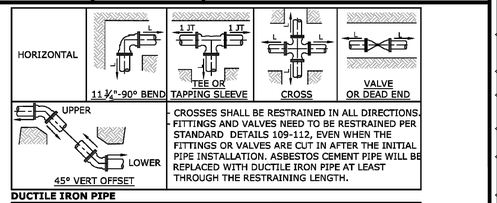
GENERAL NOTE:

All existing 2" water mains are to be capped and abandoned in place. New water service lines shall be installed to service the existing properties.

BROWARD COUNTY
PUBLIC WORKS DEPARTMENT

WATER & WASTEWATER SERVICES
ENGINEERING DIVISION
2555 WEST COPANS ROAD
POMPANO BEACH, FL 33069
PHONE NO. 954-831-0745
FAX: 954-831-0925

STANDARD DETAIL



- CROSSES SHALL BE RESTRAINED IN ALL DIRECTIONS.
- FITTINGS AND VALVES NEED TO BE RESTRAINED PER STANDARD DETAILS 109-112, EVEN WHEN THE FITTINGS OR VALVES ARE CUT IN AFTER THE INITIAL PIPE INSTALLATION. ASBESTOS CEMENT PIPE WILL BE REPLACED WITH DUCTILE IRON PIPE AT LEAST THROUGH THE RESTRAINING LENGTH.

DUCTILE IRON PIPE

	HORIZONTAL, L (FEET)						45° VERTICAL OFFSET (FEET)	
Diameter	11 ¼°	22 ½°	45°	90°	Tee or Cross	Valves and Dead End	UPPER	LOWER
4	1	2	4	10	7	20	9	4
6	2	3	6	14	15	28	12	5
8	2	4	8	17	23	37	16	7
10	2	5	9	21	30	44	19	8
12	3	5	10	24	38	52	22	9

PVC PIPE

	HORIZONTAL, L (FEET)						45° VERTICAL OFFSET (FEET)	
Diameter	11 ¼°	22 ½°	45°	90°	Tee or Cross	Valves and Dead End	UPPER	LOWER
4	2	3	5	12	11	32	14	5
6	2	4	7	16	23	45	19	6
8	3	5	9	21	37	59	25	8
10	3	5	11	25	48	71	30	9
12	3	6	12	29	61	83	35	11

THE NOTED REQUIREMENTS WERE CALCULATED IN ACCORDANCE WITH THRUST RESTRAINT CALCULATOR V7.2 BY EBAA IRON WITH THE FOLLOWING ASSUMPTIONS:
SOIL CONDITIONS: SW OR GW; NOMINAL SIZE EQUALS BRANCH SIZE; LENGTH ALONG RUN EQUALS 4 FEET
LAYING CONDITION: 4, SAND BEDDING, BACKFILL COMPACTED > 80%; VERTICAL LOW SIDE DEPTH EQUALS 3.5 FEET
MINIMUM COVER: 3.0 FT SAFETY FACTOR: 1.5 BARE PIPE (NO POLY WRAP)
IF FIELD CONDITIONS DIFFER FROM THE ABOVE, CONTRACTOR SHALL NOTIFY WWS.
FOR PIPE LARGER THAN INCLUDED IN THE ABOVE TABLES, ENGINEER OF RECORD SHALL SUBMIT CALCULATIONS FOR EACH JOINT REQUIRING RESTRAINT.

SINGLE FITTING RESTRAINED JOINT
150 PSI TEST PRESSURE

REVISED	RESTRAINED JOINT REQUIREMENTS SINGLE FITTING	FIGURE 109
7/7/2021		

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BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ----
TEL: 954.730.0707
FAX: 954.730.2830

DRAWN BY: JLS | DATE: 08/01/2024 | SCALE: 1" = 20' | DESIGNED BY: MGM | CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	2024-08-22	DD	DD	ADD DETAIL

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
WATER DETAILS

DRAWING #	SHT #
D-1	20
TOTAL:	46
CAD FILE: 12765-MULTI-DETL	
DRAWING FILE NO. 4-141-91	

CAM #26-0038
Exhibit 1
Page 258 of 264

Filename: 12765-MULTI-DETL.dwg
Layout Name: D-1
Plotted: 8/19/2024 5:39:59 PM by: JTamalis
Folder Path: P:\Projects\2023\12765- Prospect Lake 2\05 Design\CAD\Sheets\MULTI-DETL.dwg

WATR001 - WATER MAIN SEPARATION Tuesday, September 20, 2016

WATER MAIN SEPARATION IN ACCORDANCE WITH F.A.C. RULE 62-555.314

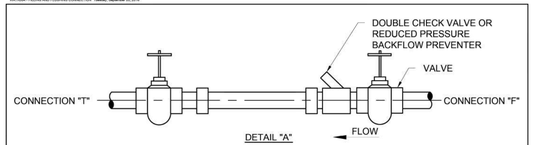
OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (NOTE 1)	JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER (NOTE 2)	WATER MAIN 3 FT. MINIMUM OTHER PIPE	WATER MAIN 12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND12 INCHES IS PREFERRED OTHER PIPE	NOTE 4 WATER MAIN JOINT (TYP.)
VACUUM SANITARY SEWER	WATER MAIN 10 FT PREFERRED 3 FT. MINIMUM OTHER PIPE	WATER MAIN 12 INCHES IS PREFERRED 6 INCHES MINIMUM OTHER PIPE	NOTE 4 WATER MAIN
GRAVITY SANITARY SEWER, (NOTE 3) SANITARY SEWER FORCE MAIN, RECLAIMED WATER	WATER MAIN 10 FT PREFERRED 6 FT. MINIMUM OTHER PIPE	WATER MAIN 12 INCHES IS THE MINIMUM, EXCEPT FOR GRAVITY SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED OTHER PIPE	NOTE 4 WATER MAIN OTHER PIPE (TYP.)
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 FT. MINIMUM	—	—

NOTES:

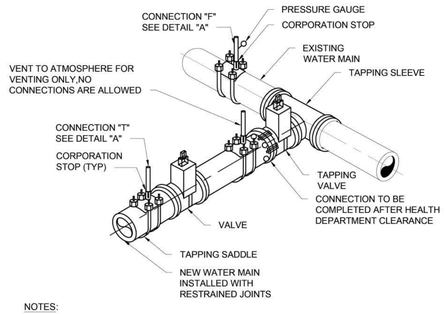
1. WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
2. RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
3. 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
4. ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPE SO THAT THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATE JOINT LOCATIONS ALLOWED UNDER FAC 62-555.314 WILL ONLY BE ALLOWED BY THE ENGINEER ON A CASE-BY-CASE BASIS.

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | WATER MAIN SEPARATION | DETAIL NO. WATR 001 | REVISED 2016/08/01

WATR004 - FILLING AND FLUSHING CONNECTION Tuesday, September 20, 2016



DETAIL "A"

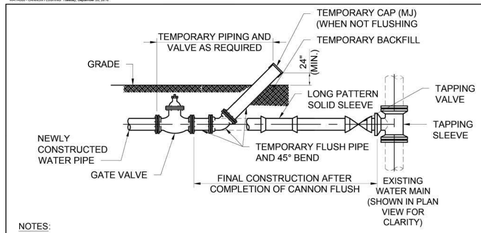


NOTES:

1. REMOVE TEMPORARY CONNECTION AT CORPORATION STOP ON EXISTING MAIN AFTER FILLING AND FLUSHING OF NEW LINE.
2. DO NOT REMOVE TEMPORARY CONNECTION AT CORPORATION STOP ON NEW MAIN UNTIL ALL TESTING HAS BEEN CLEARED BY HEALTH DEPARTMENT.
3. CLOSE CORPORATION STOPS AND PLUG/CAP WITH LEAD-FREE BRASS FITTINGS AFTER SAMPLING IS COMPLETED.
4. CONTRACTOR WILL INSTALL A PRESSURE GAUGE AT OR NEAR THE FILL AND FLUSH LOCATION AND MAINTAIN A MINIMUM PRESSURE OF 40 PSI AT ALL TIMES. THE FILL VALVE WILL BE OPENED AND CLOSED SLOWLY TO AVOID RAPID PRESSURE CHANGES IN THE WATER SYSTEM.

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | FILLING AND FLUSHING CONNECTION | DETAIL NO. WATR 004 | REVISED 2016/08/21

WATR005 - CANNON FLUSHING Tuesday, September 20, 2016



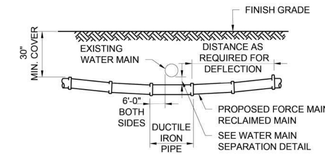
NOTES:

1. FLUSHING LOCATIONS ARE TO BE PROPOSED BY CONTRACTOR AND APPROVED BY ENGINEER OF RECORD.
2. UPON COMPLETION OF THE PIPE INSTALLATION FOR ANY SECTION, THE MAINS SHALL BE CANNON FLUSHED TO REMOVE DIRT AND ANY OTHER FOREIGN MATTER.
3. INSTALL A TEMPORARY 45° BEND, VALVE AND ASSOCIATED TEMPORARY PIPING AS SHOWN TO DIRECT THE FLUSHING WATER AWAY FROM THE IMMEDIATE WORK AREA AND EXERCISE DUE CARE SO AS TO ENSURE THAT THE WATER USED IN FLUSHING DOES NOT CAUSE A NUISANCE OR INFLICT PROPERTY DAMAGE.
4. BENDS AND PIPING SHALL BE THE SAME SIZE OR LARGER AS THE LINE BEING FLUSHED.
5. PRIOR TO THE ACTUAL LINE FLUSHING OPERATION THE CONTRACTOR SHALL PROPERLY NOTIFY OWNER'S INSPECTOR OF SUCH INTENDED WATER USE.
6. NO EXISTING VALVES SHALL BE OPERATED, EXCEPT BY AUTHORIZED OWNER PERSONNEL.
7. FLUSHING SHALL NOT BE ACCOMPLISHED WITHOUT THE ACTUAL PRESENCE OF THE OWNER'S INSPECTOR.
8. AFTER THE LINE UNDER CONSTRUCTION HAS BEEN SUCCESSFULLY FLUSHED, THE CONTRACTOR SHALL REMOVE THE TEMPORARY PIPING ARRANGEMENT AND PROCEED WITH THE REMAINING CONSTRUCTION AS SPECIFIED.
9. ALL PIPING SHALL BE RESTRAINED.
10. CONTRACTOR WILL INSTALL A PRESSURE GAUGE AT OR NEAR THE FILL AND FLUSH LOCATION AND MAINTAIN A MINIMUM PRESSURE OF 40 PSI AT ALL TIMES. THE FILL VALVE WILL BE OPENED AND CLOSED SLOWLY TO AVOID RAPID PRESSURE CHANGES IN THE WATER SYSTEM.
11. CONTRACTOR IS CAUTIONED THAT GOVERNING AGENCIES OR UTILITIES MAY HAVE REGULATIONS LIMITING OR PROHIBITING DISCHARGE INTO SEWERS, SURFACE WATERS, CANALS, DITCHES AND OTHER CONVEYANCES/RETENTION AREAS. ALL COMPLIANCE WITH GOVERNING AGENCY REQUIREMENTS (INCLUDING PERMITTING, IF REQUIRED) IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
12. CANNON FLUSHING TO PROCEED AFTER HEALTH DEPARTMENT CLEARANCE IS RECEIVED.

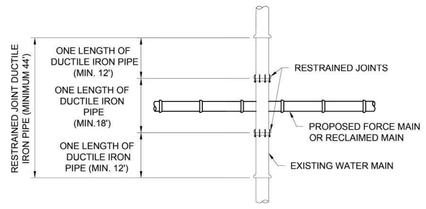
FLUSHING CONNECTION
NOT TO SCALE

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | CANNON FLUSHING | DETAIL NO. WATR 005 | REVISED 2016/08/21

WATR013 - UTILITY CROSSING - DEFLECTION TYPE Tuesday, September 20, 2016



SECTION



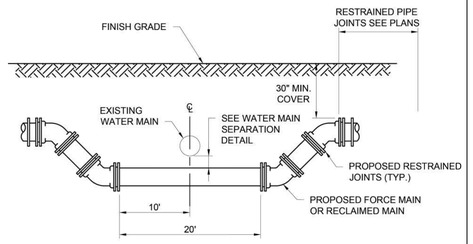
PLAN

NOTE:

1. JOINTS SHALL NOT BE DEFLECTED MORE THAN 50% OF MANUFACTURER'S RECOMMENDED DEFLECTION.

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | UTILITY CROSSING DEFLECTION TYPE | DETAIL NO. WATR 013 | REVISED 2016/08/21

WATR014 - UTILITY CROSSING - FITTING TYPE Tuesday, September 20, 2016



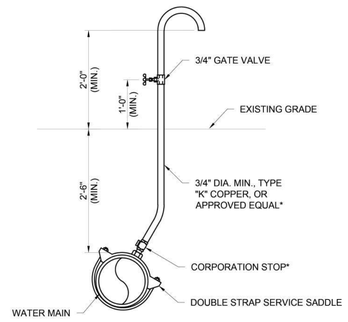
SECTION

NOTE:

1. WHEREVER POSSIBLE, DEFLECTION OF THE PIPE (PER THE DETAIL TITLED "UTILITY CROSSING - DEFLECTION TYPE") SHALL BE USED TO AVOID EXISTING OBSTRUCTIONS. THIS DETAIL SHALL BE USED ONLY WHEN APPROVED BY ENGINEER.

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | UTILITY CROSSING FITTING TYPE | DETAIL NO. WATR 014 | REVISED 2016/08/21

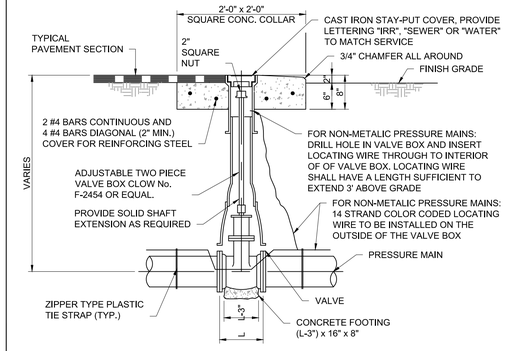
WATR002 - BACT SAMPLE POINT - TEMPORARY Wednesday, September 21, 2016



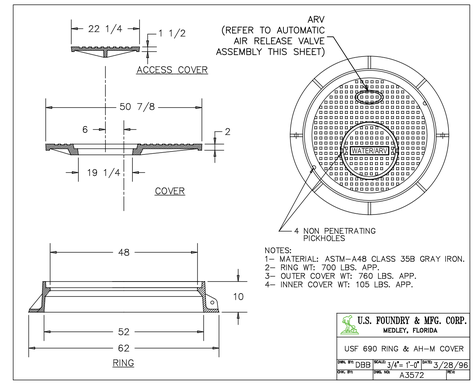
* NOTE: AFTER TESTS REMOVE 3/4" TUBING AND INSTALL PLUG ON CORPORATION STOP.

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | BACT SAMPLE POINT - TEMPORARY | DETAIL NO. WATR 002 | REVISED 2016/08/21

12765-MULTI-DETL Monday, June 09, 2025



CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING DETAILS, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301 | VALVE BOX | DETAIL NO. WATR 015 | REVISED 2016/08/21



AIR RELEASE VALVE MANHOLE DETAIL IN PAVED AREAS
SCALE: NTS

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Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: - - -
TEL: 954.730.0707
FAX: 954.730.2830

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
WATER DETAILS

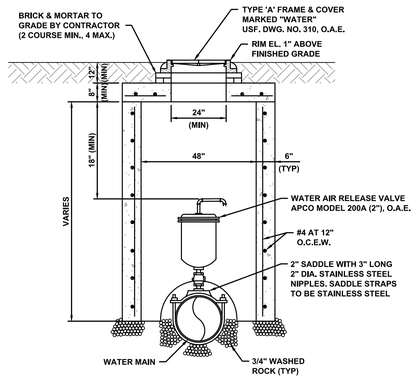
DRAWING # D-2 | SHT # 21
TOTAL: 46
CAD FILE: 12765-MULTI-DETL
DRAWING FILE NO. 4-141-91

CAM #26-0038
Exhibit 1
Page 259 of 264

Plot Date: 6/9/2025 9:52:25 AM
Plotted By: JTamdjidi
Layout Name: D-2
Filename: 12765-MULTI-DETL.dwg

-M SHOWN

LOAD RATING	RING TYPE
HEAVY DUTY	A
HEAVY DUTY	A
HEAVY DUTY	B
HEAVY DUTY	B
HEAVY DUTY	A
HEAVY DUTY	C
HEAVY DUTY	B
HEAVY DUTY	A
HEAVY DUTY	A
HEAVY DUTY	A
HEAVY DUTY	A
HEAVY DUTY	A
HEAVY DUTY	A



AIR RELEASE VALVE (WATER) AND MANHOLE ENCLOSURE

N.T.S.

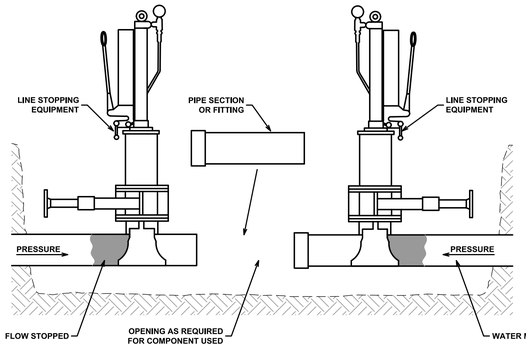
TEE & WYE | 90° BEND | 45° & 22-1/2° BEND

RESTRAINED PIPE LENGTH (LINEAL FEET)					
PIPE SIZE	TEE & WYE	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
6"	27	27	16	9	5
8"	34	34	20	11	6
10"	41	41	24	14	7
12"	48	48	28	16	8
14"	55	55	32	18	10
16"	62	62	35	20	11
18"	69	69	39	22	12
20"	75	75	42	24	13
24"	87	87	49	27	14
30"	104	104	57	31	17
36"	120	120	65	35	19
42"	134	134	72	39	21
48"	147	147	79	42	22
54"	160	160	85	45	24

THE FIGURES IN THIS TABLE ARE BASED ON 150 PSI TEST PRESSURE WITH 2.5 FEET OF COVER AND 2000 POUNDS PER SQUARE FOOT SOIL BEARING AGAINST UNDISTURBED TRENCH. A 20% SAFETY FACTOR HAS BEEN ADDED.

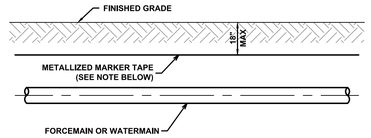
RESTRAINED JOINT LENGTH TABLE

N.T.S.



LINE STOP

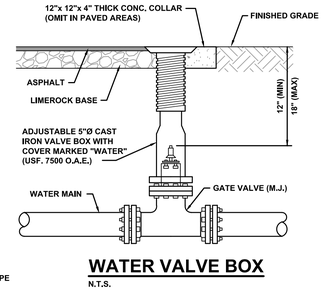
N.T.S.



NOTE:
MARKING TAPE SHALL BE INSTALLED WITH ALL NEW WATERMAINS AND FORCEMAINS CONTINUOUSLY FOR THE ENTIRE LENGTH OF THE LINES. THE TAPE SHALL BE METALLIZED AND SHALL BE IMPRINTED WITH THE CONTINUOS MESSAGE "CAUTION - WATERMAIN BURIED BELOW" FOR WATERMAINS AND "CAUTION - FORCEMAIN BURIED BELOW" FOR FORCEMAINS. THE TAPE MUST CONFORM TO ALLEN SYSTEMS INC. DETECTABLE OR ENGINEER APPROVED ALTERNATIVE. MINIMUM WIDTH SHALL BE 3" AND THE MAXIMUM DEPTH OF BURIAL SHALL BE 18" INCHES. COST OF THE MARKER TAPE SHALL BE INCLUDED IN THE LINEAR FOOT PRICE OF THE PIPE BID.

MARKER TAPE PLACEMENT

N.T.S.

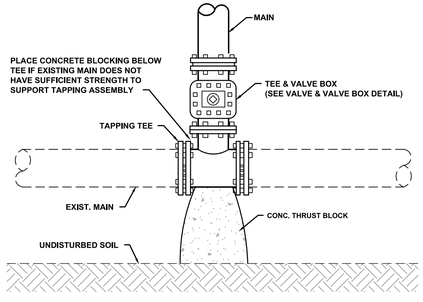


WATER VALVE BOX

N.T.S.

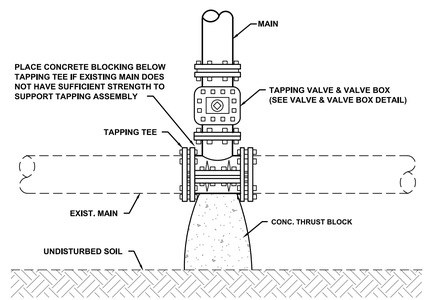
POTABLE WATER AND SANITARY OR REUSE WATER SEPARATION NOTES

1. VERTICAL CROSSINGS
   SANITARY SEWER SYSTEMS AND/OR REUSE WATER MAINS SHALL CROSS UNDER POTABLE WATER MAINS WHENEVER PHYSICALLY POSSIBLE. SANITARY SEWERS SYSTEMS AND/OR REUSE WATER MAINS CROSSING BELOW POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE.
2. HORIZONTAL SEPARATIONS
   WHEREVER IT IS PHYSICALLY POSSIBLE, SANITARY SEWER SYSTEMS REQUIRE A MINIMUM OF A 10-FOOT HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN PARALLEL INSTALLATIONS. REUSE WATER MAINS REQUIRE A MINIMUM OF A 5 FOOT CENTER TO CENTER (ABSOLUTE MINIMUM OF 3 FOOT OUTSIDE OF PIPE) HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN AND/OR A SANITARY SEWER SYSTEM PARALLEL INSTALLATIONS. WHEREVER EITHER ARE NOT PHYSICALLY POSSIBLE, THEN THE POTABLE WATER MAIN SHALL BE LAID AT THE MAXIMUM PHYSICAL HORIZONTAL SEPARATION DISTANCE POSSIBLE, AND EITHER LAID:
   A) IN A SEPARATE TRENCH
   B) ON AN UNDISTURBED EARTH SHELF
   WITH A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES PROVIDED BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE. THUS CONFORMING TO THE MINIMUM VERTICAL CROSSINGS IN PARAGRAPH 1).
3. CONFLICTS
   WHEREVER IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM STANDARDS IN 1) AND 2), THEN ALL PIPING MATERIAL SHALL BE BE DUCTILE IRON PIPE (DIP). ALL DIP SHALL BE CLASS 50 OR HIGHER. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN AND SITE CONDITIONS. ADDITIONALLY, ALL JOINTS ON THE POTABLE WATER MAIN, WITHIN 20 FEET OF THE THE CONFLICT, SHALL BE MECHANICALLY RESTRAINED. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF 6 INCHES SHALL BE PROVIDED BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE.



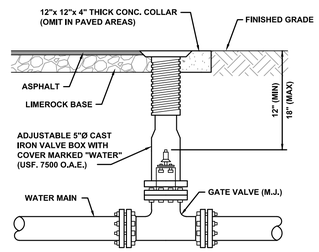
TEE AND VALVE

N.T.S.



TAPPING SLEEVE AND VALVE

N.T.S.



WATER VALVE BOX

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954.730.0707
www.chenmoore.com

BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ____
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

WATER DETAILS

DRAWING # D-3 | SHT # 22
TOTAL: 46
CAD FILE: 12765-MULTI-DETL
DRAWING FILE NO. 4-141-91

CAM #26-0038
Exhibit 1
Page 260 of 264

Plot Date: 6/9/2025 3:52:38 PM Username: JTamo Layout Name: D-3
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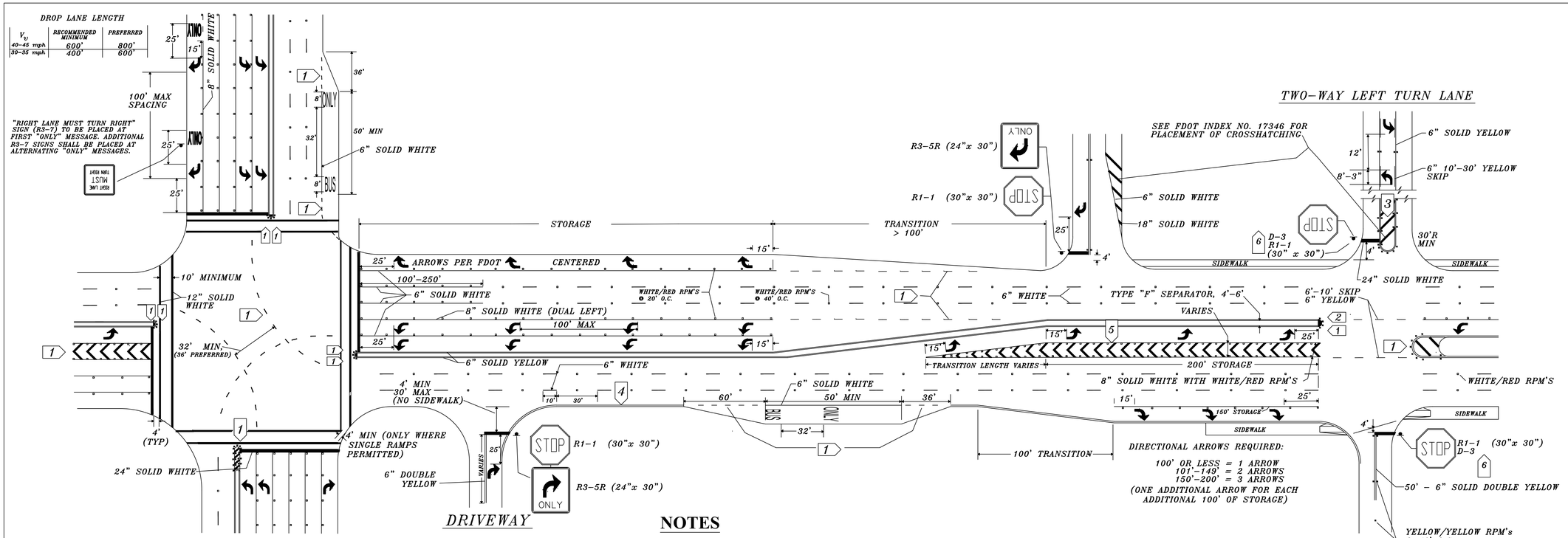


NOTES

(a) ALL PAVEMENT MARKINGS SHALL BE ALKYD BASED THERMOPLASTIC AND FULLY RETROREFLECTORIZED.

(b) ALL PAVEMENT MARKINGS ON PAVER SYSTEMS SHALL BE 3M 5730/31 TAPE AND APPLIED WITH AN E44 CONTACT CEMENT AS PER MANUFACTURER'S SPECIFICATIONS.

(c) ALL PAVEMENT MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.

(d) SEE FDOT INDEX NO. 17352 FOR PLACEMENT OF RPM's. (FOR BULLNOSE RPM TREATMENT, SEE LEGEND NO. 1)

(e) RPM's SHALL BE CLASS "B" 911 OR EQUIVALENT, APPLIED WITH EPOXY OR BITUMINOUS ADHESIVE.

(f) FDOT APPROVED SEALER SHALL BE USED WHEN APPLYING MARKINGS ON CONCRETE.

(g) FOR BIKE LANE DETAILS SEE FDOT INDEX NO. 17346, SHEET 9 OF 13.

(h) MARKINGS IN AND ADJACENT TO BIKE LANES SHALL BE THERMOPLASTIC WITH A MIXTURE OF 50% GLASS SPHERES AND 50% SHARP SILICA SAND APPLIED AT A RATE OF 0.2 LBS. PER SQUARE FOOT.

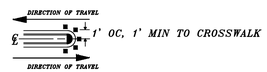
(i) EXISTING MARKINGS SHALL BE REMOVED BY WATER BLASTING OR SANDBLASTING ONLY.

(j) ALL STOP BARS TO BE 4' BEHIND CROSSWALK OR SIDEWALK.

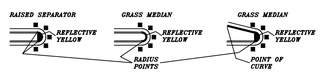
(k) PAVEMENT MARKING REFLECTIVITY SHALL BE 250 MILLICANDELLAS FOR WHITE AND 175 MILLICANDELLAS FOR YELLOW.

LEGEND

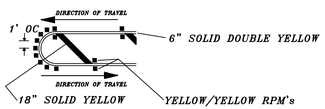
1 YELLOW/YELLOW RPM DETAILS



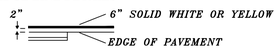
1 MEDIAN NOSE PAINT DETAILS



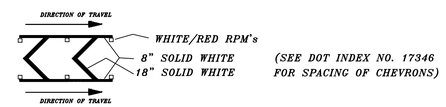
1 PAINTED MEDIAN DETAILS



1 EDGE LINE DETAILS



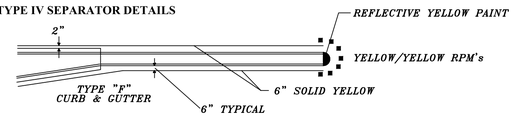
1 CHEVRON DETAILS



6 STREET NAME BLADE DETAILS

D–3's SHALL HAVE 6" BLADES WITH A 3/8" WHITE BORDER AND 4" SERIES "C" HIGHWAY GOTHIC LETTERS EXCEPT ON COLLECTOR/LOCAL STREETS WHERE COLLECTOR IS 40 MPH OR GREATER, BLADE SHALL BE 9" WITH A 1/2" WHITE BORDER FOR THE LOCAL ROAD AND 6" SERIES "C" HIGHWAY GOTHIC LETTERS.

7 TYPE IV SEPARATOR DETAILS



1 6'-10' SKIP DETAILS

6' – 10' SKIPS 6" WHITE SHALL BE USED FOR THE FOLLOWING CONDITIONS:

- *HORIZONTAL CURVE SECTIONS*
- *CHANGES IN HORIZONTAL ALIGNMENT*
- *TRANSITIONS GREATER THAN 100'*

1 2'-4' SKIP DETAILS

2' – 4' SKIPS 6" WHITE SHALL BE USED FOR THE FOLLOWING

- *RADIUS GUIDE LINES BETWEEN DUAL LEFT TURN MOVEMEN PREFERRED OR AS NOTED ON PLANS)*
- *BUS BAY TRANSITIONS*

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MISC CORRECTIONS	KS	1/04		NAMES	DATES	SCALE: N – T – S
RPM REVISIONS	KS	1/05	DESIGNED BY	KS	3/99	
			DRAWN BY	KS	3/99	PLANNING & DESIGN ENGINEER:
REVISION	BY	DATE	CHECKED BY	GWR	6/02	GEORGE ROBERTSON, P.E.

DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION

DRAWING NO. PVMTMARK.DWG

SHEET NO. 1 OF 1

PAVEMENT MARKINGS AND SIGNS DETAIL SH

cma
chen moore and associates
500 West Cypress Creek Road,
Suite 600
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

BID SET

ENGINEER: DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ----
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

BCTED DETAILS

DRAWING # TD-1 | SHT # 39
TOTAL: 46
CAD FILE: 12765–MULTI–DETL
DRAWING FILE NO. 4–141–91

Plot Date: 6/9/2025 3:52:42 PM Username: JTamo Layout Name: TD-1
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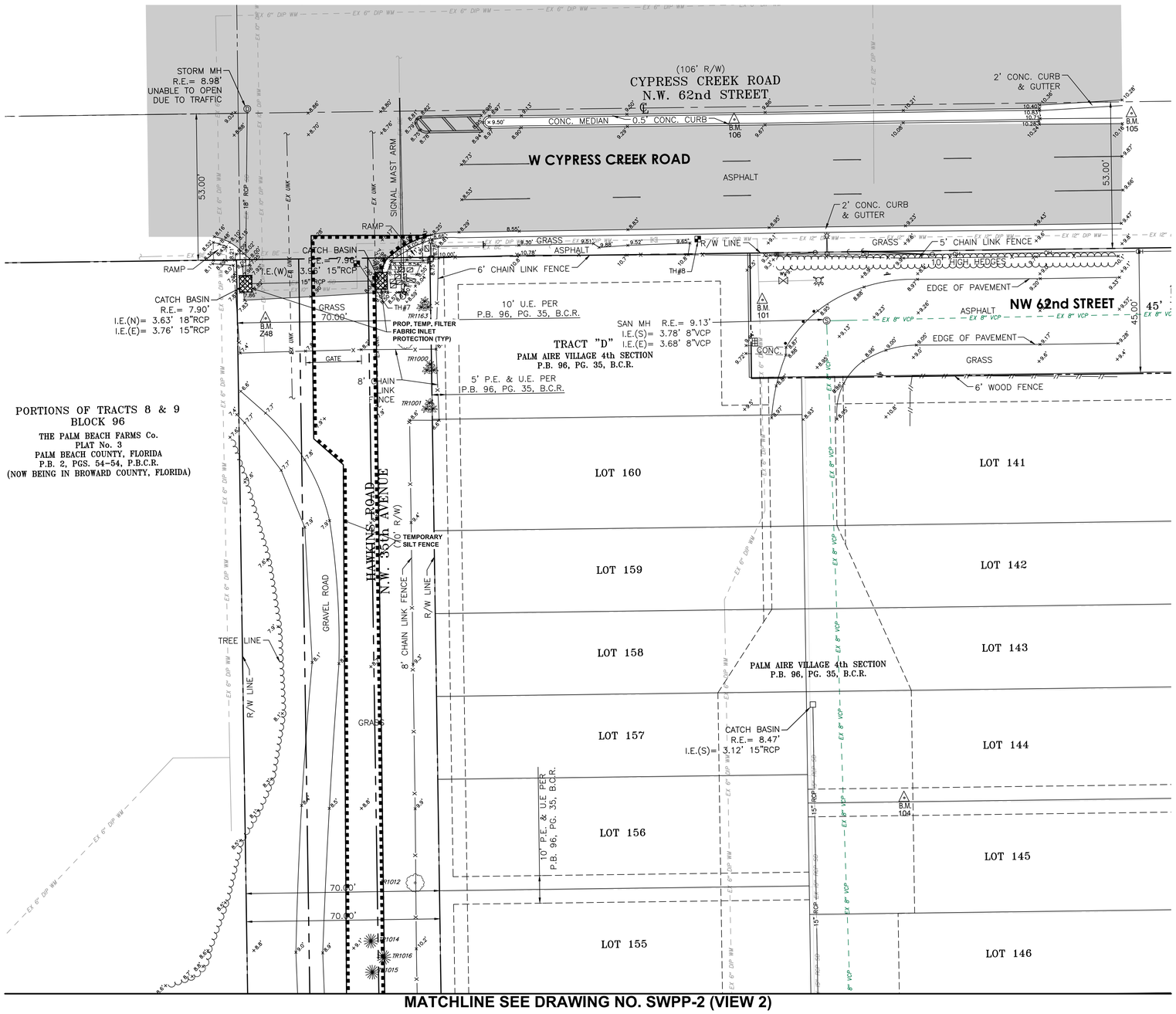
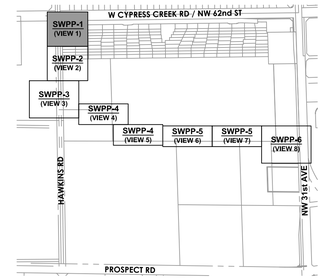


MATCHLINE SEE DRAWING NO. SWPP-2 (VIEW 2)

VIEW 1



KEY MAP

N.T.S.

NORTH

LEGEND

- TEMPORARY SILT FENCE
- TEMPORARY TURBIDITY BARRIER
- TEMPORARY ROCK BAGS
- TEMPORARY HAYBALES
- TEMPORARY FILTER FABRIC INLET PROTECTION

NOTE:

1. ADJUST SILT FENCE AND SWPP AS NECESSARY. CONTRACTOR TO IMPLEMENT BEST MANAGEMENT PRACTICES DURING CONSTRUCTION.

GRAPHIC SCALE
0 10 20 40
1 INCH = 20 FEET

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500 West Cypress Creek Road,
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Ft. Lauderdale, FL 33309
954.730.0707
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BID SET

ENGINEER:
DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ---
TEL: 954.730.0707
FAX: 954.730.2030

DRAWN BY: JLS | DATE: 08/01/2024
DESIGNED BY: MGM | SCALE: 1" = 20'
CHECKED BY: DD | FIELD BOOK: #

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndrewsWPP Avenue, Fort Lauderdale, Florida 33311

REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK'D

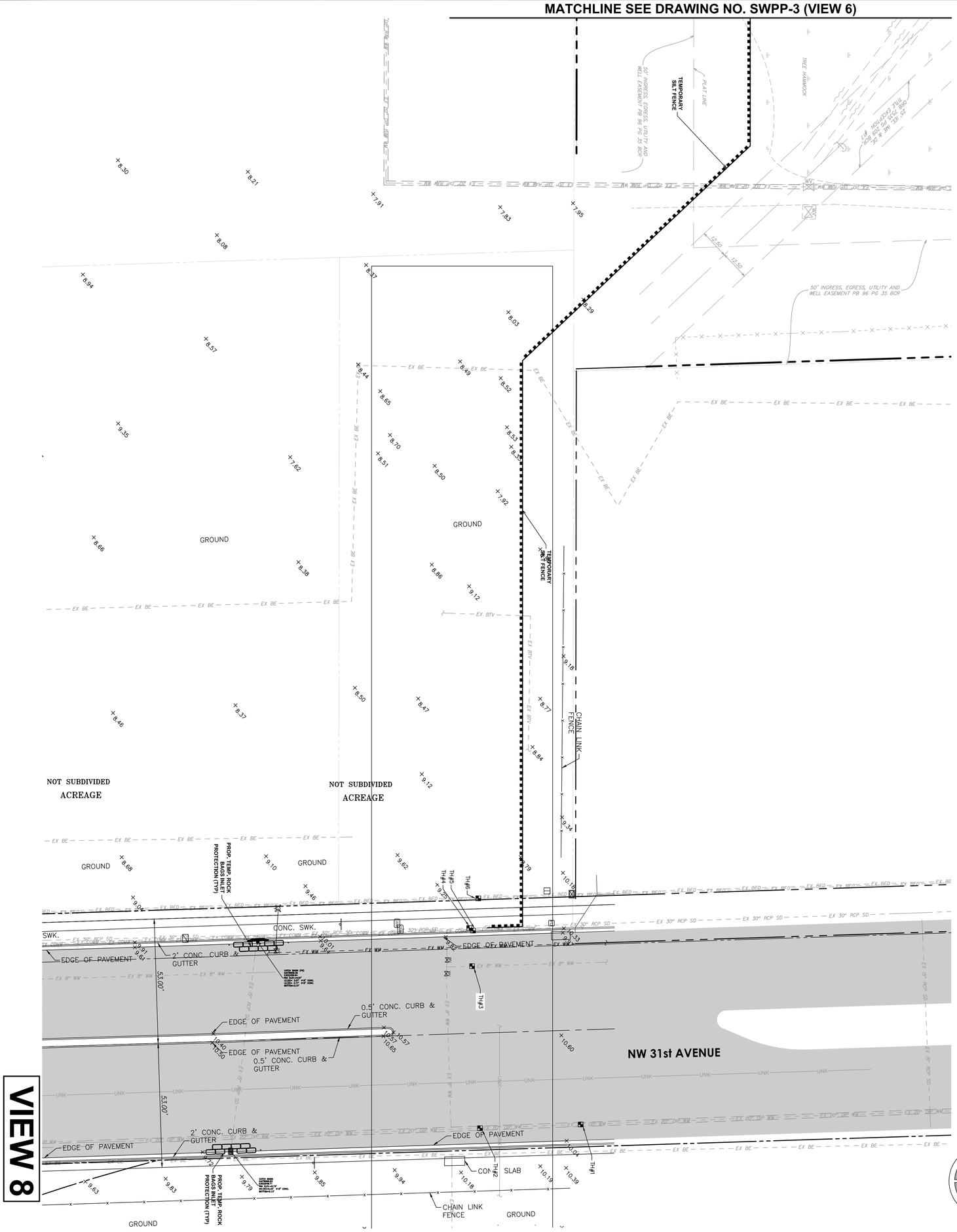
CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT
STORMWATER POLLUTION PREVENTION PLAN

DRAWING # SWPP-1 | SHT # 40
TOTAL: 46
CAD FILE: 12765-MULTI-SWPP
DRAWING FILE NO. 4-141-91

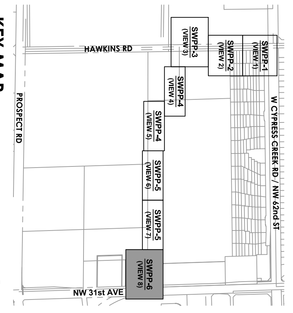
CAM #26-0038
Exhibit 1
Page 262 of 264

Plot Date: 6/9/2025 3:53:53 PM Username: JTamo Layout Name: SWPP-1
Folder Path: V:\Projects\2023\23-0047.00070 - TO-01 (P12765) - Prospect Lake WTP Enabl\Design\CAD\Sheets Filename: 12765-MULTI-SWPP.dwg

MATCHLINE SEE DRAWING NO. SWPP-3 (VIEW 6)



VIEW 8



LEGEND

TEMPORARY SILT FENCE
TEMPORARY TURBIDITY BARRIER
TEMPORARY ROCK BAGS
TEMPORARY HAYBALES
TEMPORARY FILTER FABRIC INLET PROTECTION

NOTE:
1. ADJUST SILT FENCE AND SWPP AS NECESSARY. CONTRACTOR TO IMPLEMENT BEST MANAGEMENT PRACTICES DURING CONSTRUCTION.

GRAPHIC SCALE
0 10 20 40
1 INCH = 20 FEET

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BID SET

DRAWING #	SWPP-6
SHT #	45
TOTAL:	46
CAD FILE:	12765-MULTI-SWPP
DRAWING FILE NO.	4-141-31

CITY PROJECT # 12765
PROSPECT LAKE ENABLING PROJECT

STORMWATER POLLUTION PREVENTION PLAN

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North AndreSWPP Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: JLS	DATE: 08/01/2024
DESIGNED BY: MGM	SCALE: 1" = 20'
CHECKED BY: DD	
FIELD BOOK: #	

ENGINEER:
DANIEL DAVILA, P.E.
REG. No: 63014
DATE: ----
TEL: 954.730.0707
FAX: 954.730.2030

STORMWATER POLLUTION PREVENTION GENERAL NOTES

GENERAL EROSION SITES

1. THE STORMWATER POLLUTION PREVENTION PLAN IS COMPOSED OF THIS DRAWING (SITE MAP), THE STANDARD DETAILS AND THE PLAN NARRATIVE INCLUDED IN SPECIFICATIONS PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
2. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH THE STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND BECOME FAMILIAR WITH THEIR CONTENTS.
3. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS INDICATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
4. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
5. THE CONTRACTOR SHALL PROTECT INLETS AND OTHER SITE APPURTENANCES FROM SEDIMENTATION USING PROTECTION AS DETAILED IN THESE SHEET AND IN FDOT INDEX NO. 104.
6. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
7. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
8. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
9. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BUOYS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN–UP FUEL OR CHEMICAL SPILLS AND LEAKS.
10. DUST ON THE SITE SHALL BE CONTROLLED BY WATERING. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TONIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
12. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN AND IN THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE INITIATED AS SOON AS PRACTICABLE.
13. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 30 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.
14. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY WAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS, REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
15. THE CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCES AT POINTS OF INGRESS AND EGRESS ONTO ANY ROADWAY OPEN TO PUBLIC USE WITHIN THE PROJECT AREA. THESE LOCATIONS AND THE METHOD OF STABILIZATION SHALL BE INCLUDED IN THE EROSION CONTROL PLAN. THE CONTRACTOR SHALL PROVIDE #57 ROCK AT CONSTRUCTION ENTRANCE TWELVE FEET WIDE AND FIFTY FEET LONG MINIMUM. THE CONTRACTOR SHALL ROUTINELY REMOVE EXCESS SEDIMENT FROM THE ROADWAY AND OTHER REQUIRED AREAS PROMPTLY.
16. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
17. ALL MATERIAL SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
18. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE. ON–SITE AND OFF–SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE TO WITH GENERAL PERMIT REQUIREMENTS.
19. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
20. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO PREVENT EROSION.
21. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUNMOUS PAVING FOR ROAD CONSTRUCTION.
22. CONTRACTOR SHALL PROVIDE TREE PROTECTION MEASURES AS NEEDED.
23. DEWATERING IS NOT ANTICIPATED FOR THE INSTALLATION OF UTILITIES.
24. ALL WORK SHALL BE IN COMPLIANCE WITH NPDES.

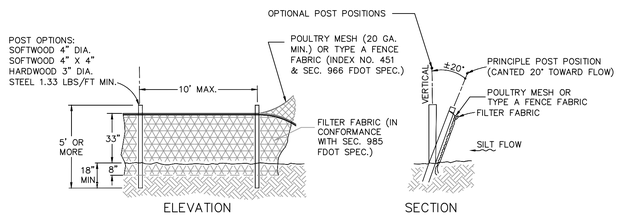
MAINTENANCE

1. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:
2. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
3. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
4. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED SEDIMENT SHALL BE REMOVED FROM THE FENCES WHEN IT REACHES ONE–HALF THE HEIGHT OF THE SILT FENCE.
5. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
6. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING ON THE TEMPORARY PARKING AS CONDITIONS DEMAND.
7. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
8. IF CONTAMINATED SOIL OR GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR IS TO CEASE OPERATIONS IN THAT AREA. THE CONTRACTOR SHALL CONTACT THE ENGINEER WHO WILL NOTIFY THE BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT.

SHEET FLOW APPLICATION: SILT FENCE

THIS SEDIMENT BARRIER USES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (90 cm). HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED AS DESCRIBED IN ITEM NO. 8 BELOW.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET (3 m) APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12 INCHES (30 cm). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET (1.8 m).
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES (10cm) WIDE AND 4 INCHES (10 cm) DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH (25 mm) LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES (5 cm) AND SHALL NOT EXTEND MORE THAN 36 INCHES (90 cm) ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES (20 cm) OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABIRC SHALL NOT EXTEND MORE THAN 36 INCHES (90 cm) ABOVE THE ORIGINAL GROUND SURFACE.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. WHEN ATTACHING TWO SLIT FENCES TOGETHER, PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS AT LEAST 180 DEGREES ON A CLOCKWISE DIRECTIONS TO CREATE A TIGHT SEAL WITH THE FILTER FABRIC. DRIVE BOTH POSTS INTO THE GROUND AND BURY THE FLAP.
9. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
10. THE MOST EFFECTIVE APPLICATION CONSISTS OF A DOUBLE ROW OF SILT FENCES SPACED A MINIMUM OF THREE FEET APART. THE THREE FOOT SEPARATION IS SO THAT IF THE FIRST ROW COLLAPSES IT WILL NOT FALL ON THE SECOND ROW. WIRE OR SYNTHETIC MESH MAY BE USED TO REINFORCE THE FIRST ROW.
11. WHEN USED TO CONTROL SEDIMENTS FROM A STEEP SLOPE, SILT FENCES SHOULD BE PLACED AWAY FROM THE TOE OF THE SLOPE FOR INCREASED HOLDING CAPACITY.
12. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.



TYPE IV SILT FENCE

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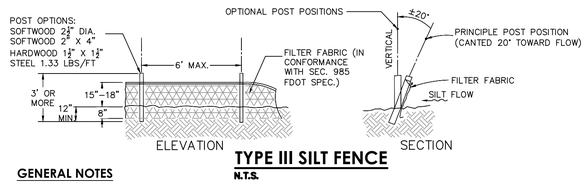


TYPE III SILT FENCE

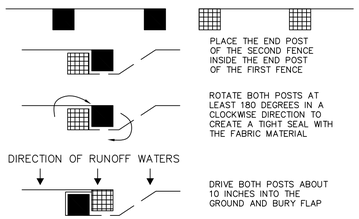
N.T.S.

GENERAL NOTES

1. TYPE III SILT FENCE TO BE USED AT MOST LOCATIONS. WHERE USED IN DITCHES.
2. TYPE IV SILT FENCE TO BE USED WHERE LARGE SEDIMENT LOADS ARE ANTICIPATED. SUGGESTED USE IS WHERE FILL SLOPE IS 1:2 OR STEEPER AND LENGTH OF SLOPE EXCEEDS 25 FEET. AVOID USE WHERE THE DETAINED WATER MAY BACK INTO TRAVEL LANES OR OFF THE RIGHT–OF–WAY.
3. DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
4. WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGHT OF THE FENCE.

EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION IN ORDER TO ENSURE POLLUTION PREVENTION. CONTRACTOR TO COMPLY WITH ALL LOCAL STATE AND OTHER GOVERNMENTAL ENVIRONMENTAL REGULATIONS THROUGHOUT CONSTRUCTION.
2. DURING CONSTRUCTION ALL CATCH BASIN INLETS WITHIN THE AFFECTED AREA SHALL BE PROTECTED TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE CATCH BASIN.
3. SILT FENCES SHALL BE INSTALLED AS NECESSARY TO CONTROL OR PREVENT DISCHARGE OF SEDIMENT ONTO ADJACENT UNDISTURBED AREAS, OR OFF–SITE AREAS.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITHIN A REASONABLE PERIOD OF TIME TO ASSURE MINIMUM EROSION OF SOILS.
5. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
6. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
7. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
8. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
9. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY CITY, COUNTY, AND STATE OF FLORIDA ON SITE INSPECTION, AT NO ADDITIONAL COST TO THE OWNER.
10. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
11. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
12. BURNING OF DEBRIS WILL NOT BE ALLOWED.
13. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
14. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATER WAYS. IN ADDITION CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES IF EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF–SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC. THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. EROSION CONTROL BARRIER SHALL BE ESTABLISHED AS THE FIRST ITEM OF WORK.
15. THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM APPLIES TO ALL CONSTRUCTION ACTIVITY THAT: 1) CONTRIBUTE STORMWATER DISCHARGES TO SURFACE WATER OF THE STATE OR INTO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4); 2) DISTURBS ONE OR MORE ACRES OF LAND; OR 3) LESS THAN ONE ACRE IS INCLUDED IF THE ACTIVITY IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT THAT WILL MEET OR EXCEED THE ONCE ACRE THRESHOLD. DISTURB INCLUDES CLEARING, GRADING AND EXCAVATING.
16. FOR CONSTRUCTION ACTIVITY THAT IS SUBJECT TO THE NPDES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM, THE CONTRACTOR SHALL:
    - 16.1. OBTAIN A GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DOCUMENT 62–621.300(4)(A).
    - 16.2. COMPLY WITH ALL REQUIREMENTS OF THE GENERIC PERMIT.
    - 16.3. DEVELOP AND IMPLEMENT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
    - 16.4. COMPLETE A NOTICE OF INTENT (NOI) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION FORM 62–621.300(4)(B) IN ITS ENTIRETY USING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S WEBSITE.
17. SUBMIT COPIES OF THE SWPPP AND THE NOI TO THE ENGINEER AS INFORMATIONAL RECORDS. THESE SUBMITTALS WILL NOT BE REVIEWED BY THE ENGINEER.
18. CONTRACTOR TO CLEAN AND REPAIR ALL EXISTING STORMWATER INFRASTRUCTURE THAT IS IMPACTED BY CONSTRUCTION ACTIVITIES, BEFORE LEAVING THE JOBSITE.
19. CONTRACTOR TO REMOVE ALL FILTER FABRIC AND POLLUTION PREVENTION ITEMS BEFORE THE FINAL WALK–THROUGH.
20. DUST ABATEMENT: CONTRACTOR SHALL LIMIT THE NUMBER OF TRIPS ONLY FOR THE NECESSARY OPERATIONS TO PERFORM THE WORK. OPERATIONAL SPEED OF VEHICLES SHALL BE REDUCED WHENEVER NECESSARY TO CONTROL AND PREVENT DUST WITHIN THE SITE. CONTROLLED WATERING AND MOISTURE OF THE SURFACES AND DIRT ROADS SHALL BE APPLIED TO AVOID UNNECESSARY DUST WHEN APPLICABLE.
21. CONTRACTOR TO USE SYNTHETIC BALE BARRIERS ONLY. HAY / STRAW BALES ARE NOT ALLOWED.
22. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH FDOT INDICES 102, 103 AND 106, THE FDEP NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT (IF APPLICABLE), AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). FILTER FABRIC, HAY BALES, OR ROCK BAGS SHALL BE INSTALLED IN EACH INLET THROUGHOUT THE CONSTRUCTION PERIOD. A SOIL TRACKING PREVENTION DEVICE (STPD) SHALL BE CONSTRUCTED AT ALL UNSTABILIZED CONSTRUCTION ACCESS POINTS, PER FDOT INDEX NO. 106.
23. THE INTENT OF EROSION CONTROL MEASURES IS TO PROVIDE A BARRIER TO CONTAIN SILT AND SEDIMENT ON THE PROJECT SITE. THIS REPRESENTATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE TEST OF EROSION CONTROL EFFECTIVENESS IS TO BE DETERMINED BY MEETING THE REGULATIONS SET FORTH BY THE AUTHORITY HAVING JURISDICTION OVER WATER QUALITY CONTROL AND OTHER SEDIMENTATION RESTRICTION REQUIREMENTS.
24. APPROVED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CLEARING, GRADING, EXCAVATION, FILLING, OR OTHER LAND DISTURBANCE ACTIVITIES, EXCEPT THOSE OPERATIONS NEEDED TO INSTALL SUCH MEASURES.
25. INSPECTION OF ALL EROSION CONTROL MEASURES SHALL BE CONDUCTED WEEKLY, OR AFTER EACH RAINFALL EVENT, REPAIR, AND/OR REPLACEMENT OF SUCH MEASURES SHALL BE MADE PROMPTLY, AS NEEDED.
26. KEEP DUST WITHIN TOLERABLE LIMITS BY SPRINKLING OR OTHER ACCEPTABLE MEANS.
27. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED IF DEEMED NECESSARY BY ONSITE INSPECTION.
28. FAILURE TO PROPERLY INSTALL AND MAINTAIN EROSION CONTROL PRACTICES SHALL RESULT IN CONSTRUCTION BEING HALTED.
29. DRAINAGE INLETS SHALL BE PROTECTED BY FILTER OR OTHER APPROVED MATERIALS.
30. ANY ACCESS ROUTES TO SITE SHALL BE BASED WITH CRUSHED STONE, WHERE PRACTICAL.
31. EROSION CONTROL MEASURES ARE TO BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
32. PRIOR TO CONSTRUCTION AND DURING ALL OPERATIONS THAT MAY DEGRADE WATER QUALITY, THE CONTRACTOR SHALL PRACTICE TURBIDITY CONTROLS TO PREVENT VIOLATION OF THE WATER QUALITY STANDARDS AS OUTLINED IN CHAPTER 62–302, F.A.C



SILT FENCE ATTACHMENT

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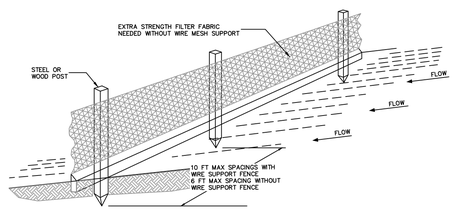

SILT FENCE INSTALLATION

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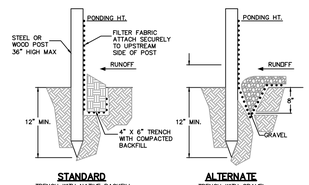
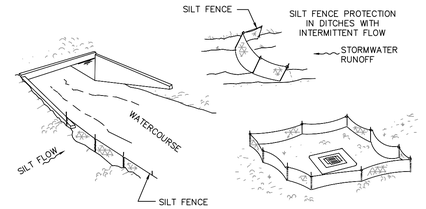


NOTES

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF–SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.



SILT FENCE APPLICATIONS

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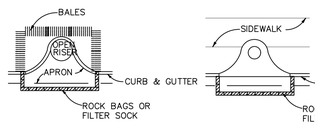

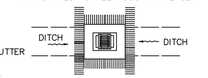

NOTES:

1. DURING CONSTRUCTION ALL CATCH BASIN INLETS SHALL BE PROTECTED TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE CATCH BASIN.
2. INSTALL FILTER SOCK AT INLETS TO KEEP SILT, SEDIMENT AND CONSTRUCTION DEBRIS OUT OF THE STORM SYSTEM.
3. INSTALL FILTER SOCK AROUND THE ENTIRE CIRCUMFERENCE OF THE DROP INLET AND ALLOW FOR AT LEAST 1 FOOT OF OVERLAP ON EITHER SIDE OF THE OPENING BEING PROTECTED, OR INSTALL FILTER SOCK AROUND INLET AND ENSURE THAT THE CURB SIDE CREATES A SEAL WITH THE FILTER.
4. UNDER LOW–FLOW CONDITIONS, A 9" OR 12" SOCK DIAMETER SHOULD SUFFICE.
5. SEDIMENT COLLECTED AROUND THE OUTSIDE OF FILTER SOCK TO BE REMOVED WHEN SEDIMENT REACHES ONE–HALF OF THE SOCK HEIGHT.

FOR ADDITIONAL INFORMATION REFERENCE FDOT INDEX 104

INLET PROTECTION

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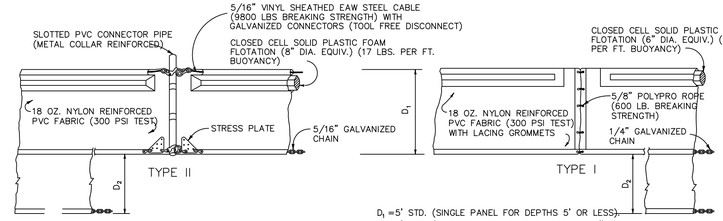

NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

D_1 =5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D_2 =5' STD. (ADDITIONAL PANEL FOR DEPTHS 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS

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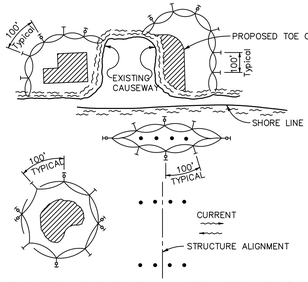


NOTES:

1. TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
2. TURBIDITY BARRIERS SHALL BE OF SUFFICIENT LENGTH & DEPTH & SUFFICIENTLY STABILIZED IN ORDER TO MINIMIZE TURBIDITY.
3. NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
4. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
5. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.
6. FOR ADDITIONAL INFORMATION SEE SECTION 104 OF THE STANDARD SPECIFICATIONS.

TURBIDITY BARRIER APPLICATIONS

GENERAL NOTES

1. FLOATING TURBIDITY BARRIERS ARE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR FLOATING TURBIDITY BARRIER, LF.
2. STAKED TURBIDITY BARRIERS ARE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED TURBIDITY BARRIER, LF.

WATER QUALITY

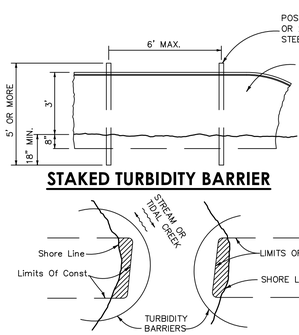
1. PRIOR TO CONSTRUCTION AND DURING ALL OPERATIONS THAT MAY DEGRADE WATER QUALITY, THE CONTRACTOR SHALL PRACTISE TURBIDITY CONTROLS TO PREVENT VIOLATIONS FO THE WATER QUALITY STANDARDS AS OUTLINED IN CHAPTER 62–302, F.A.C

LEGEND

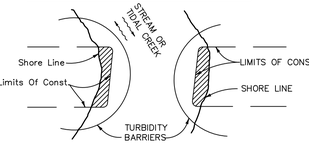
- PILE LOCATIONS
- DREDGE OR FILL AREA
- MOORING BUOY W/ANCHOR
- ANCHOR
- BARRIER MOVEMENT DUE TO CURRENT ACTION

TURBIDITY BARRIER

N.T.S.



STAKED TURBIDITY BARRIER



NOTE:
TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEK