

CITY OF FORT LAUDERDALE
CONTRACT AND SPECIFICATIONS PACKAGE

BID/EVENT NO. 341

PROJECT NO. 12608

**Rehabilitation of Pump
Stations B-4, A-20**



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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
- CITB Trench Safety
- City of Fort Lauderdale Bid/Proposal Construction Bid Certification Page
- Contract Payment Method
- E-Verify Statement
- Non-Collusion Statement
- Non-Discrimination Certification Form
- Anti-Human Trafficking Affidavit

INVITATION TO BID

Sealed bids will be received electronically until **2:00 p.m.**, local time, on **September 17, 2024**, and opened online immediately thereafter for **BID/EVENT NO., 341, PROJECT NO., 12608, Triplex Pump Station B-4, A-20**.

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 pump station B-4: E Sunrise Blvd and Bayview Dr, and pump station A-20: NE 15th Ave and NE 11th St, in the City of Fort Lauderdale. The work to be accomplished under the resultant contract includes, but is not limited to, upgrade and rehabilitate dry well/wet well pump station including removal of existing mechanical, electrical, and control equipment, installation of new mechanical, electrical, and control equipment, new trailer mounted generators, rehabilitation of existing structures, and other supporting work.

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., 4-144-73, 45 sheets. Drawing plans may be obtained **free of charge** at the City's online strategic sourcing platform.

Licensing Requirements: Possession of a State of Florida Certified General Contractor's License is required for this Project.

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 **four** different ways.

- 1) Bidders may submit bid bonds **electronically** directly through the City's online strategic sourcing platform using **Surety 2000**.
- 2) Bidders may **upload** their bid bond on the City's online strategic sourcing platform to accompany their electronic bids, and **mail** the original, signed and sealed hard copy to the Finance Department, Procurement Services Division, 101 NE 3rd Ave, Suite 1650, Fort Lauderdale, Florida 33301-1016, 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 **mail** their original, signed and sealed bid bond to the Finance Department, Procurement Services Division, 101 NE 3rd Ave, Suite 1650, Fort Lauderdale, Florida 33301-1016, 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.**
- 4) Bidders can deliver their original, signed and sealed bid bond to the Finance Department, Procurement Services Division, 101 NE 3rd Ave, 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 sourcing 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.

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 A RTVFI_DIV2PR_S2-182DIREPRAWINAW](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 (2023), 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 (2023), 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>.

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.

GENERAL CONDITIONS (continued)

"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, conflicts, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory Work, faulty construction, or improper operation resulting therefrom nor from rectifying such 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 in the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2022), 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 (2022), 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 (2022), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2022), 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 (2022), 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: prcontract@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.

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 pump station upgrade and rehabilitation 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 B-4: E Sunrise Blvd and Bayview Dr, A-20: NE 15th Ave and NE 11th St, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, upgrade and rehabilitate dry well/wet well pump station including removal of existing mechanical, electrical, and control equipment, installation of new mechanical, electrical, and control equipment, new trailer mounted generators, rehabilitation of existing structures, and other supporting work.

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 Procurement Specialist Erick Martinez at (954) 828-4019 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 RFP Schedule. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. Contractors. Please note: Proposals 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 proposal 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 proposal 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 **fourteen (14)** calendar days of the date of the Notice to Proceed.
- 5.2 The Work shall be Substantially Completed within **four hundred fifty (450)** 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 **four hundred ninety-five (495)** 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:

State of Florida Certified General 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 previous experience in constructing and rehabilitating dry well/wet well pump stations and testing within the last ten (10) years. Bidder shall submit proof of permitting and 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 ALLOWANCE

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 Fees and Testing Allowance	\$25,000
TOTAL:	\$25,000

Contingencies	Amount
Additional Labor	\$100,000
Additional Material	\$100,000
TOTAL:	\$200,000

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

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. 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:

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 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.

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
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 adding 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, a Florida municipality, 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 Mark Roads whose address is 101 NE 3rd Avenue, 21st Floor, Fort Lauderdale, FL 33301, telephone number: (954) 828-5859, and e-mail address is mroads@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 Article 16, Liquidated Damages Clause, of the Contract)

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.

Payment Card Industry (PCI) 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.

CITY OF FORT LAUDERDALE
CONSTRUCTION AGREEMENT

THIS Agreement made and entered into this _____ day of _____, 2024, 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. 341, Project Number 12608, which was opened on _____; and

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

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.

- 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, volunteers, successors and assigns, 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 work.
- 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.

- 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

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:

Triplex Pump Station B-4, A-20
ITB #341 PROJECT # 12608

- 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 B-4: E Sunrise Blvd and Bayview Dr, A-20: NE 15th Ave and NE 11th St, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, upgrade and rehabilitate dry well/wet well pump

station including removal of existing mechanical, electrical, and control equipment, installation of new mechanical, electrical, and control equipment, new trailer mounted generators, rehabilitation of existing structures, and other supporting work.

- 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 Mark Roads, whose address is 101 NE 3rd Avenue, 21st Floor, Fort Lauderdale, FL 33301, telephone number: (954) 828-5859, and email address is mroads@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, which comprise the entire Agreement between the City and Contractor, are incorporated herein and attached to this Agreement, and 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. 341, Instructions to Bidders, and Bid Bond.
- 4.12 Contractor's response to the City's Invitation to Bid Event No. 341, 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.

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. 341, and the specifications prepared by the City.
- g. Contractor's response to the City's Invitation to Bid Event No. 341, 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 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 **fourteen (14)** calendar days of the date of the Notice to Proceed.
- 5.2 The Work shall be Substantially Completed within **four hundred fifty (450)** 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 **four hundred ninety-five (495)** calendar days after 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 \$ [REDACTED], 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.
- 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 (2022), 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. 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.

7.8 Payment Card Industry (PCI) 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.

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.
- 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.

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. 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.

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.
 - 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 a CD of the electronic drawings files created in AutoCad 2014 or later. 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.

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 entities 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, under, 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.

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 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 subcontractors, 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 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 City under the Contract Documents promptly and shall make payments to the Contractor promptly after they are due as provided in Article 7.
- 9.2 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, with reasonable promptness, such 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 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 (2023), 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.

- 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. 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:

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 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.

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
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 adding 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, a Florida municipality, 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.

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.
- 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.
- 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.
- 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, 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 officers, agents and employees, 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.

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 (2022), 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. 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 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, expeditors, 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%).
- 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, 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 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 Contractor 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 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 Contractor 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 addition 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). 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 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:

Mark Roads
Project Manager
City of Fort Lauderdale
101 NE 3rd Avenue, 21st Floor
Fort Lauderdale, Florida 33301-1016
Telephone: (954) 828-5859
E-mail: mroads@fortlauderdale.gov

with copies to:

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

and

City Attorney
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. Nothing contained in this paragraph or elsewhere in this Agreement is in any way intended either to be a waiver of the limitation placed upon the City's liability as set forth in Section 768.28, Florida Statutes

(2022), as may be amended or revised, or to extend the City's liability beyond the limits established in said Section 768.28, Florida Statutes (2022), 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.

- 20.2 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 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

- 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. **BY ENTERING INTO THIS AGREEMENT, THE PARTIES HEREBY EXPRESSLY WAIVE ANY AND ALL RIGHTS EITHER PARTY MIGHT HAVE TO A TRIAL BY JURY OF 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 IN ADJUDICATING THE MOTION.**

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 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 the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2022), 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 (2022), 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 (2022), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2022), 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 (2022), 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 (2022), 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 (2022), 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 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: If City or Contractor incurs any expense in enforcing the terms of this Agreement through litigation, the prevailing Party in that litigation shall be reimbursed for all such costs and expenses, including but not limited to court costs, and reasonable attorney fees incurred during litigation.

22.10 Not applicable.

22.11 Public Records

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 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 (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.

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 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 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.

22.14 As a condition precedent to the effectiveness of this Agreement, the Consultant shall provide the City with an affidavit signed by an officer or a representative of the Consultant under penalty of perjury attesting that the Consultant does not use coercion for labor or services as defined in Section 787.06, Florida Statutes (2023), as may be amended or revised.

[THIS SPACE WAS INTENTIONALLY LEFT BLANK]

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: _____
Susan Grant
Acting City Manager

Date: _____

ATTEST:

By: _____
DAVID R. SOLOMAN
City Clerk

Approved as to Legal Form and correctness:
Thomas J. Ansbro, City Attorney

By: _____
RHONDA MONTOYA HASAN
Assistant City Attorney

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 _____, 2024, 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: _____

SECTION 01010**SUMMARY OF WORK****PART I - GENERAL****1.01 WORK COVERED BY THESE CONTRACT DOCUMENTS**

- A. The two (2) pump stations associated with this project are located as follows:
1. Pump Station B-4: East Sunrise Blvd. and Bayview Drive, Fort Lauderdale, FL
 2. Pump Station A-20: NE 15th Avenue and NE 11th Street, Fort Lauderdale, FL
- B. Bidder shall furnish all labor, equipment, and materials to upgrade and rehabilitate existing dry well/wet well pump stations. The project will include, but is not limited to, removal of existing mechanical and electrical equipment, installation of new mechanical and electrical equipment, new permanent generator system (B-4), new trailer mounted generator (A-20), rehabilitation of existing structures, new pumps, lift station accessories, ventilation system, flow meter, controls, SCADA system, electrical, sanitary sewer rehabilitation, connection to existing sanitary sewer and force main piping with required fittings, start-up services, training, associated roadway, right-of-way and site restoration as needed, and all other appurtenances necessary for a complete and accepted project. Construction of this project will require close coordination with the Owner and Engineer.
- C. Contractor's Duties:
1. Except as specifically noted, provide and include all costs associated with the following:
 - a. Mobilization and demobilization
 - b. Labor, materials, and equipment
 - c. Tools, construction equipment, and fuel
 - d. Electric, water and utilities required for construction
 - e. Temporary utilities, provisions, and controls
 - f. Freight and sales tax
 - g. Maintenance of traffic
 - h. Surveying, field engineering
 - i. Record drawing information in a format acceptable to the Engineer.
 - j. Compliance with all of the conditions of the permits issued and required for this project.

- k. Construction dewatering (as required)
- l. All project testing including but not limited to trench and roadway restoration, utility testing, and operational testing.

1.02 CONTRACTS

- A. Construct the contract Work under a Lump Sum or Unit Cost basis as specified.
- B. All Lump Sum work will be paid based on a percentage of completion. The Contractor requested percent complete for all Lump Sum pay item progress payments and final payment must be coordinated in the field and approved by the Engineer and City prior to payment.
- C. All Unit Price work will be paid based on the work actually performed and completed in accordance with the drawings and described in the specifications. If any item of work, process, equipment or material is not specifically listed in the unit price bid item, the Contractor shall include and provide said work, process, equipment or material of the best quality workmanship appropriate for the intended use at no additional cost.
- D. Subcontractors (when used) shall work directly for the contractor.

1.03 WORK BY OTHERS AND FUTURE WORK

- A. The Owner reserves the right to add to the work in accordance with the Contract Documents.
- B. No work is planned to be performed by the Owner, apart from PLC control software installation and integration of the control panel into the Owner SCADA system. The Owner reserves the right to direct purchase significant pieces of equipment and/or materials by means of a Purchase Order. Contractor is responsible for coordinating ordering and delivery with suppliers.

1.04 WORK SEQUENCE

- A. Owner and site requirements which affect the sequence of work are provided in Part B below. These will be discussed and decided at the Pre-Construction Conference. Certain areas may be assigned priority to accommodate Owner's interest.
- B. It is generally desired that the contractor follows the below work sequence to carry out the Project. However, the contractor is not bound to this sequence and may submit alternative approaches for review if the contractor feels those approaches will better suit the Project from a

schedule and sequence perspective. Steps may be performed concurrently.

1. Coordinate with FPL for electrical service.
2. Set up equipment for station bypass pumping.
3. During station bypass pumping, perform site piping, remove mechanical and electrical equipment from existing dry well and wet well, perform wet well and dry well rehabilitation, install new ventilation system, construct wet well and dry well mechanical, structural, and electrical improvements.
4. Install new electrical equipment.
5. Connect new electrical service to new pump control panel.
6. Connect all new piping and electrical equipment and make pump station operational.
7. Perform all roadway restoration.
8. Perform all testing and make ready to be placed into service.
9. Perform finish work, landscaping, site cleanup, etc.

1.05 CONTRACTOR-FURNISHED PRODUCTS AND RESPONSIBILITIES

A. Products furnished to the site and paid for by Contractor:

1. All products necessary to complete the work described herein these contract documents and specifications.

B. Contractor's Responsibilities:

1. Review and incorporate Owner-reviewed shop drawings, product data, and samples into the construction of the project.
2. Prepare, apply for, and obtain permits that are specified to be obtained by the contractor.
3. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
4. Repair or replace items damaged after receipt.
5. Arrange and pay for product delivery to site.
6. Handle, store, install, and delivered products.
7. Submit claims for transportation damage and replace damaged, defective, or deficient items.
8. Arrange for manufacturers' warranties, inspections, and service.

1.06 CONTRACTOR'S USE OF THE PREMISES

A. All work shall be within the limits of City of Fort Lauderdale right-of-way. Contractor shall be responsible for maintenance of traffic when working within the public rights of way.

- B. The staging area location is the responsibility of the contractor but must be coordinated with the City of Fort Lauderdale. The contractor shall always maintain access to City of Fort Lauderdale facilities. The contractor shall restore the staging area to an equal or better condition than previously existed upon completion of the work.

- C. The Contractor shall be fully responsible for the safety and security of the construction area including any temporary measures required to maintain its protection. The Contractor will be responsible for any damages or theft incurred to his tools, equipment, machinery, and new work in-place not yet been fully accepted by the Owner.

PART 2 – PRODUCTS

- A. All products and materials must comply with the City of Fort Lauderdale Approved Manufacturers List included in Appendix A.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 01030**HURRICANE PREPAREDNESS****PART 1 -- GENERAL****1.01 HURRICANE PREPAREDNESS PLAN**

- A. The Contractor's attention is drawn to the possibility of hurricane or severe storm conditions occurring at the site of work during the course of Contract Work.
- B. Within fourteen (14) days of the date of the Notice to Proceed, the Contractor shall submit to the Engineer and Owner a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane or severe weather warning.
- C. In the event of inclement weather, or whenever the Owner shall direct, the Contractor shall, and will, cause Subcontractors to protect carefully the Work and materials against damage or injury. Work and materials damaged due to inclement weather shall be removed and replaced at the expense of the Contractor.
1. Hurricane Watch: Upon designation of a hurricane watch, the Contractor shall be responsible for storing all loose supplies and equipment on the job site that may pose a danger. In addition, the Contractor shall remove all bulkheads and plugs in pipelines that would impede drainage in the case of flooding. Structures that may be in danger of floatation shall be flooded. The Contractor shall also cooperate with the Owner in protecting any other structures at the site. Any materials that are being staged in the Intracoastal Waterway (i.e. pipeline string out operation) shall be properly secured or removed to prevent damage to the pipeline or other existing improvements.
 2. Hurricane Warning: No mobile "temporary facility" under the control of or on the property of the Owner shall be staffed during a hurricane warning. Contractor facilities meeting these criteria shall be evacuated. Reasonable steps shall be taken to protect all such facilities and their contents from damage and to avoid the facility causing damage to the surroundings. Reasonable steps shall be taken to protect existing improvements from damage and to avoid damage to the surroundings caused by staged materials, equipment, or other facilities related to the project.

- D. The Contractor may be required to backfill excavation depending on the severity of the approaching storm or the expected amount of rainfall. Additionally, erosion protection and inlet protection may also be required by the Owner depending on the site conditions at the time of the Hurricane Watch.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 01050**FIELD ENGINEERING AND SURVEYING****PART 1 - GENERAL****1.01 DESCRIPTION**

- A. Contractor shall provide and pay for field engineering and surveying services required for the project.
 - 1. Survey work is required in execution of the project.
 - 2. If easements are required from the City of Fort Lauderdale for portions of the new FPL service installation. The contractor shall prepare and pay for all documents and forms as required to obtain the appropriate easements from the City of Fort Lauderdale prior to initiating construction.
- B. Owner's representative will identify existing control points, as required.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE:

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01010 - Summary of Work
- C. Section 01300 – Submittals
- D. Section 01720 - Project Record Drawings

1.03 QUALIFICATIONS OF SURVEYOR

- A. Professional Land Surveyor (PLS) registered in the State of Florida.

1.04 SURVEY REFERENCE POINTS

- A. Contractor shall provide benchmarks as required to construct and/or prepare Record Drawings for the Project.
 - . Protect survey control points prior to starting site work; preserve permanent reference points during construction.

- C. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

1.05 PROJECT SURVEY REQUIREMENTS

- A. Establish lines, grades, and elevations by instrumentation or similar appropriate means utilizing recognized engineering survey practices.
- B. Horizontal alignment for the proposed construction will be controlled by property lines, easement boundaries, and existing structures. The Contractor shall be responsible to establish reference lines and necessary offsets to establish piping alignment, and equipment and structure location.
- C. Vertical alignment for the proposed construction will be based on the existing grades. The Contractor shall be responsible to establish proposed grades. The grade stakes shall be provided by the Contractor.
- D. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- E. Periodically verify layouts by same means.
- F. Prior to destruction of existing improvements, record existing grades to be used in reconstruction to assure proper flow of surface water runoff is maintained after restoration.

1.06 PROJECT EASEMENT REQUIREMENTS

- A. The contractor shall be responsible for providing a legal sketch and description for the FPL service line as needed. The easement sketch and description shall be prepared by a Florida licensed professional surveyor and shall be in accordance with Fort Lauderdale requirements.

1.07 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. On completion of project, prepare record drawings in accordance with related specification section.

1.08 SUBMITTALS

- A. Submit name and address of Surveyor/Engineer to Owner.

- B. On request, submit copies of field notes and documentation verifying the accuracy of the survey work.

1.09 EXAMINATION

- A. Contractor is responsible for verifying survey control points prior to initiation of work.
- B. Contractor shall promptly notify Engineer of any discrepancies discovered.

1.10 QUALITY CONTROL

- A. Quality control of the Work shall be the Contractor's responsibility and Contractor shall make every effort to produce the best quality work, as specified on the drawings and specifications.
- B. Forty eight (48) hour notification to the Engineer by the Contractor shall be required for all specified field investigations unless otherwise noted.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 01060**REGULATORY REQUIREMENTS****PART 1 - GENERAL****1.01 DESCRIPTION****A. GENERAL**

1. Contractor shall comply with and furnish all items necessary to satisfy any general and specific conditions that are part of the Contractor obtained permits and licenses.
2. Obtain and pay for all permits, easements, and licenses as provided for in the General Conditions, except as otherwise provided herein.
3. Schedule all inspections and obtain all written approvals of the agencies required by the permits, easements, and licenses.
4. The Contractor shall keep a copy of all permits and easements complete with conditions, attachments, exhibits, and modifications at the work site and provide copies of the permits to the appropriate subcontractors. The contractor is responsible for ensuring that the permit conditions are explained to the appropriate construction personnel.

B. PERMITS BY OWNER

1. Florida Department of Environmental Protection (FDEP) Wastewater Collection/Transmission System General Permit.
2. City of Fort Lauderdale Departmental Approval.

C. PERMITS/EASEMENTS BY CONTRACTOR

1. The Contractor shall prepare and pay for a building permit from the City of Fort Lauderdale prior to initiating construction. The Contractor shall conform to the conditions of these permits as part of this Contract.
2. The Contractor shall prepare, submit, and pay for the Notice of Intent (NOI) to use the Generic Permit for Stormwater Discharge from Construction Activity, which will include Stormwater Pollution Prevention Plan (SWPPP) as required by F.A.C. 62-621.300(4) and

the Environmental Protection Agency (EPA) as part of the National Pollutant Discharge Elimination System (NPDES) prior to beginning work. The application for this Notice is included in Appendix B. The Contractor will be responsible for the application fee and the costs associated with preparation of the NOI and SWPPP. The Contractor shall conform to the conditions of this permit as part of this Contract.

3. The Contractor shall prepare, submit and obtain the appropriate dewatering permits and/or any temporary stormwater discharge permits from the South Florida Water Management District and/or Florida Department of Environmental Protection as may be required to execute the project. The contractor shall be responsible for any permitting and application fees associated with these permits. The Contractor shall conform to the conditions of this permit as part of this Contract.
4. Other Permits Required: The Contractor is responsible for obtaining any other permits and easements that may be required by other agencies and shall conform to their conditions as part of this contract.

D. NOTIFICATIONS

1. City of Fort Lauderdale: The Contractor is required to notify the City of Fort Lauderdale Engineering Department 48 hours prior to initiating construction.
2. Utility Companies: Contractor shall notify the Sunshine State One Call of Florida (SSOCF) service by dialing 811, 48 hours prior to digging for direct bury and 10 day prior to digging or initiating construction of underwater construction activities, as required by Florida Statutes Chapter 556 throughout the duration of the construction project.
3. The Contractor shall give the Engineer not less than seven (7) calendar days notice of the time and place (or places) where he will start the work.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 01090**REFERENCE STANDARDS****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

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

1.02 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.
- C. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- D. Conform to reference standard by date of issue current on bid date.
- E. Obtain copies of standards when required by the Contract Documents.
- F. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- G. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- H. Neither the contractual relationship, duties, nor responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

1.03 ABBREVIATIONS, NAMES, AND ADDRESSES OR ORGANIZATIONS

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

B. The following, as appropriate to project, is a list of referenced standards and their mailing addresses for requesting copies of standards:

AA	Aluminum Association 818 Connecticut Avenue, NW Washington, D.C. 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, NW Washington, D.C. 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16 th Street, NW Washington, D.C., 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASME	American Society of Mechanical Engineers 345 East 47 th Street New York, NY 10017
ASPA	American Sod Producers' Association Association Building Ninth and Minnesota Hastings, NE 68901
ASSE	American Society of Sanitary Engineers 960 Illuminating Building Cleveland, OH 44113

ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWS	American Welding Society 2501 NW 7 th Street Miami, FL 33125
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CDA	Copper Development Association 57 th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10017
City	City of Fort Lauderdale Standards for the Construction Standards and Use of the Public Rights of Way and Easements 100 North Andrews Avenue Fort Lauderdale, FL 33301
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue Washington, D.C. 20036
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FDOT	Florida Department of Transportation Haydon Burns Building 605 Suwannee Street Tallahassee, FL 32301
FM	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specifications General Services Administration Specifications and Information Distribution
NEMA	National Electrical Manufacturers Association 2101 L Street, NW

	Washington, D.C. 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NFPA	National Forest Products Association 1619 Massachusetts Avenue, NW Washington, D.C. 20036
NSF	National Sanitation Foundation NSF Building 3475 Plymouth Road Ann Arbor, MI 48106
NSWMA	National Solid Waste Management Association 1120 Connecticut Avenue, NW Washington, D.C. 20036
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PS	Product Standard U.S. Department of Commerce Washington, D.C. 20203
TCA	Technical Aid Series Construction Specifications Institute 1150 Seventeenth Street, NW Washington, D.C. 20036
UL	Underwriters Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062

PART 2 – PRODUCTS**NOT USED.****PART 3 – EXECUTION**

NOT USED.

END OF SECTION

SECTION 01150**MEASUREMENT AND PAYMENT****PART 1 - GENERAL****1.01 SCOPE OF THIS SECTION**

- A. The following explanation of the Measurement and Payment for the Bid Form items is provided; however, the omission of reference to any item shall not alter the intent of the Bid Form or relieve the Contractor of the necessity of constructing a complete project under this Contract.
- B. The quantities set forth in the Bid Form are approximate and are given to establish a uniform basis for the comparison of bids. The Owner reserves the right to increase or decrease the quantity of any item or portion of the work during the progress of construction in accordance with the terms of the Contract.
- C. Payment shall be made for the items listed on the Bid Form on the basis of the work actually performed and completed in accordance with the drawings and described in the specifications. If any item of work, process, equipment or material is not specifically listed in the unit price bid item schedule of values, the Contractor shall include and provide said work, process, equipment or material of the best quality workmanship appropriate for the intended use at no additional cost.

1.02 DESCRIPTION OF WORK

- A. This section defines the method that will be used to determine the quantities of work performed or a material supplied and establishes the basis upon which payment will be made.
- B. Prices shall include all costs required for the completed, in-place construction of the specified unit of Work. This may include but not be limited to, materials and delivery; cost of installation; incidentals; labor including social security, insurance, and other required fringe benefits; workman's compensation insurance; rental of equipment and machinery; taxes; testing; surveys; incidental expenses; and supervision.

1.03 REFERENCES

- A. FDOT Standard Specifications for Road and Bridge Construction, Latest Edition

- B. FDOT Design Standards for Design, Construction, Maintenance and Utility Operations in the State Highway System, Latest Edition
- C. Manual of Uniform Traffic Control Devices
- D. Broward County Public Works and Transportation Department, Highway Construction and Engineering Division Minimum Standards
- E. City of Fort Lauderdale Public Works and Engineering Standards

1.04 METHOD OF MEASUREMENT

- A. **Measurement of Length:** Unless otherwise specified for the particular items involved, all measurements of distance for items to be paid for on the basis of length shall be taken horizontally or vertically.
- B. **Measurement of Area:** In the measurement of items paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the actual dimensions measured along the surface of the completed work within the neat lines shown or designated. At intersections, the measurement used for length of side area will be measured from the outside edge of the width allowed along the main trench.

1.05 PAYMENT

- A. **Lump Sum Items:** Where payment is to be made on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum item. A percentage of the Lump Sum Price equivalent to the percentage of the project completion or a schedule of values if applicable as determined by the Engineer as of the date of the pay request submitted. The percent completion of the project shall be based on the percent of the total project actually constructed and not on the percent of the Contract price completed.
- B. **Unit Price Items:** Where payment is to be made on a unit price basis, separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the Work, shall be considered to be included in the scope of the appropriate listed work items.

1.06 RESTORATION

- A. Where pavement, pipes, valves, structures, appurtenances, trees, shrubbery, fences, other property or structures not designated as pay items, have been damaged, removed or disturbed by the Contractor,

whether deliberately or through failure to carry out the requirements of the Contract Documents, state laws, municipal ordinances or the specific direction of the Engineer, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired at the expense of the Contractor to a condition equal to that before Work began within a time frame approved by the Engineer. Such restoration is considered incidental to construction and shall not be assigned to any pay item.

1.07 EXPLORATORY EXCAVATIONS

- A. Depths to existing utilities as shown on the drawings are approximate only. The Contractor shall verify the exact locations and depths of all utilities shown, and the Contractor shall make exploratory excavations of all utilities that may interfere with the Work. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's Work. When such exploratory excavations show the utility location as shown to be in error, the Contractor shall so notify the Engineer immediately. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. Excavations shall be considered incidental to the cost of construction and shall be conducted at the Contractor's expense.

1.08 TESTING, SURVEY AND RECORD DRAWINGS

- A. All survey layout and record drawings shall be considered incidental to the cost of construction as defined in individual line items and shall include all calculations and field Work required, in order to establish all horizontal and vertical controls, set all stakes needed, such as grade stakes, offset stakes, reference point stakes, slopes stakes, and other reference marks or points necessary to provide lines and grades for construction and as-building of all roadway, utility construction and miscellaneous items.
- B. All testing shall be considered incidental to the cost of construction as defined in individual line items and shall include all field testing and laboratory Work including reports as required by the plans and specifications and agencies having jurisdiction over the project.

1.09 COSTS INCLUDED IN PAYMENT ITEMS

- A. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work.
 - 1. Cleanup.
 - 2. Maintaining the existing quality of service during construction.

3. Appurtenant work as required for a complete and operable system.
 4. Products wasted or disposed of in a manner that is not acceptable.
 5. Products determined as unacceptable before or after placement.
 6. Products placed beyond the lines and levels of the required Work.
 7. Products remaining on hand after completion of the Work.
 8. Loading, hauling, and disposing of rejected Products.
 9. Response to sewer backups (at any time).
 10. Replacement of any utilities or facilities damaged by the contractor within the project limits.
- B. **Cleanup:** Contractor's attention is called to the fact that cleanup is considered a part of the work of construction. No payment will be made until cleanup is essentially complete.
- C. **Work Outside Authorized Limits:** No payment will be made for work constructed outside the authorized limits of work.

1.10 DEWATERING AND CONTAMINATED SITES

- A. The Contractor shall be responsible for anticipating groundwater conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.
- B. Per Broward County Pollution Prevention, Remediation and Air Quality Division, it is the Contractor's responsibility to obtain dewatering permits from any jurisdiction having authority such as the South Florida Water Management District or the Broward County Pollution Prevention, Remediation and Air Quality Division. The Contractor must provide any groundwater well monitoring, sampling, as well as adhere to any other permit conditions.
- C. This is in addition to a dewatering permit, if required, by SFWMD. This effort shall be considered incidental to the Contractor's cost of construction and price for each applicable bid item.

PART 2 – PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.01 BID ITEMS – PUMP STATION B-4

A. BID ITEM NO. 1 – MOBILIZATION

Measurement: Work as specified in this section shall consist of work preparatory to actual construction at the site. It shall include, but not be limited to, movement of personnel, equipment, supplies, and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities as required by these Specifications and state and local laws and regulations. This cost should include the construction of two (2) project signs that shall be displayed at approaches to the project area. The intent is that the signs will be freestanding. The sign shall display on both sides the project name, City Logo, elected officials, and contact information. The costs of any and all permits, and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall be included in this section. Also included in this section will be all costs associated with meetings and coordination with the Owner and Engineer for the purpose of discussing project progress.

Payment: Payment shall be made as a lump sum quantity in accordance with the following schedule and the contract documents:

<u>Percentage Contract Amount Earned</u>	<u>Allowable Percentage of Lump Sum Price</u>
5%	25%
10%	50%
25%	75%
50%	100%

The standard retainage will be applied to these allowances.

B. BID ITEM NO. 2 – MAINTENANCE OF TRAFFIC

Measurement: The cost shall include all services associated with traffic control on streets and roadways impacted by this project. Contractor shall provide traffic control plans as needed prepared by a certified ATSSA certified technician and obtain MOT permit from the City of Fort Lauderdale with all required signatories. Where the repair is located on streets under the jurisdiction of FDOT or Broward County, or on city streets with a classification of collector street or higher, the contractor is required to provide all information, obtain all permits, and comply with all requirements of the authority having jurisdiction.

Payment: Payment shall be made as a lump sum quantity in accordance with the contract documents and includes all traffic control, vehicular and pedestrian access, and MOT maintenance to mitigate traffic impacts

and/or always reduce inconvenience to the travelling public. All crosswalks and sidewalks shall remain open and free of obstructions. Temporary painting for roadways and crosswalks shall be maintained throughout the project. Costs shall include the use of flagmen.

C. BID ITEM NO. 3 – BYPASS PUMPING

Measurement: The cost shall include all required pipe, hose, plugs, and pump to re-route wastewater during the rehabilitation/upgrade of the pump station, force main installation, and sanitary sewer evaluation/rehabilitation. Dependent on the location, the contractor may be required to build an enclosure around pumps or use an electric pump as a primary bypass for noise abatement issues. On sewer lines with minimum flow, as authorized by the Owner, the upstream manhole may be plugged, and wastewater pumped out with a contractor supplied vacuum truck.

Payment: Payment shall be made as a lump sum quantity in accordance with the contract and includes all labor, equipment, material, shop drawings for approval, location and coordination of all existing utilities prior to construction, bypass pumping system installation, fittings, connection to existing system, restraining devices, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, associated trench restoration, safety, dust/erosion, and repair or replacement of existing utilities impacted or damaged during construction for a complete bypass pumping system installation. Any item not specified shall be considered incidental to the work.

D. BID ITEM NO. 4 - REMOVAL AND SALVAGE/DISPOSAL OF EXISTING PUMP STATION EQUIPMENT AND MATERIALS

Measurement: The cost shall include demolition, removal and salvage/disposal of all existing pump station equipment, materials, sump pump system, ventilation system, controls, associated electrical system components, pipe supports, ladders and railing, and existing piping as shown on the plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor and equipment needed to salvage/dispose of all existing equipment, materials, and piping as indicated on the plans off site in a legal manner. The Owner has a franchise agreement in place to haul recyclable materials from the project for a credit against this line item. Prior to disposal, the Contractor will coordinate with Owner on any items to be recycled, salvaged or kept by the City.

E. BID ITEM NO. 5 – REHABILITATION OF PUMP STATION DRY PIT AND WET WELL STRUCTURES

Measurement: The cost shall include modification, cleaning, evaluation, and coating of the existing dry pit and wet well structures prior to rehabilitation/upgrade of the pump station.

Payment: Payment for this work shall be made at the lump sum price and shall include, but not be limited to, all necessary equipment, labor, and materials required to perform the dry pit and wet well rehabilitation including emptying the wetwell, sand blasting, pressure washing, cleaning, structure inspection/evaluation, modifications to existing walls/floors, wall openings and closures, ancillary structural components, coating the dry pit and wet well structures, and any other items required for a complete dry pit and wet well rehabilitation. Costs shall also include equipment, labor, and materials required to perform minor structural improvements such as concrete and rebar repairs.

F. BID ITEM NO. 6 – INSTALL/MODIFY NEW PUMP STATION EQUIPMENT, PUMPS, PIPING, FITTINGS, AND ACCESSORIES

Measurement: The unit price shall include work associated with installing new submersible wastewater pump for use in a dry pit application including but not limited to all pump station accessories and sump pump system.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, and materials required to construct the lift station pumps and sump pump system as shown on the plans including piping, fittings, expansion joints, restraining devices, pipe supports, wall sleeves, hatch covers, manhole frame and covers, valves, actuators, pressure gauges, grates, internal and external ladders, landings, handrails, internal water piping with hose bibs, all attachment hardware, any other miscellaneous mechanical improvements as shown on the construction plans, coordination of all existing utility connection points, site and confined space safety, asbuilt drawings, clearing, grubbing, excavation and back fill, dewatering, repair or replacement of existing utilities impacted or damaged during construction, operation and maintenance manuals, start-up services/testing, training, and any other items required for a complete pump station rehabilitation/upgrade installation.

G. BID ITEM NO. 7 – INSTALL/MODIFY NEW PUMP STATION VENTILATION SYSTEM

Measurement: The unit price shall include work associated with installing a new pump station ventilation and odor control systems.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, and materials required to construct the ventilation system including fans, ductwork, louvers, vent stacks, attachment hardware, odor control units, all piping, fitting, system connections and modifications, and miscellaneous mechanical improvements as shown on the construction plans, operation and maintenance manuals, start-up services/testing, training for complete and functional ventilation and odor control systems.

H. BID ITEM NO. 8 – INSTALL NEW MAGNETIC FLOW METER VAULT ASSEMBLY

Measurement: The unit price shall include work associated with installing a new magnetic wastewater flow meter vault assembly and accessories as shown on the construction plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all costs for labor, equipment, and materials required to construct the magnetic flow meter vault assembly including magnetic wastewater flow meter, fittings, reinforced concrete structure, aluminum hatch cover, connection to proposed force main, grouting, interior and exterior protective coatings, clearing, grubbing, excavation and back fill, dewatering, compaction, disposal of undesirable material, new fill, grading, survey layout, asbuilt drawings, operation and maintenance manuals, start-up services/testing, training, and any other items required for a complete magnetic flow meter vault assembly installation.

I. BID ITEM NO. 9 – INSTALL 12-INCH DIP FORCE MAIN WITH FITTINGS, OPEN CUT

Measurement: The cost shall include material and work associated with installing DIP force main piping, flow meter vault bypass piping, and emergency bypass connection modification with piping, fittings and components as needed and as shown on the plans on a lineal foot basis in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to open cut construction, force main installation, DIP fittings as needed, protective coatings, all system connections, emergency camlock, restraining devices, concrete slab, bollards, clearing, grubbing, excavation and back fill, sheeting and shoring as needed, dewatering, compaction, disposal of undesirable material, new fill, grading, associated

trench restoration, safety, dust/erosion, pressure testing, survey layout, asbuilt drawings, and repair or replacement of existing utilities impacted or damaged during construction for a complete force main installation.

J. BID ITEM NO. 10 – INSTALL 12-INCH PLUG VALVES

Measurement: The cost shall include material and work associated with installing plug valves as shown on the plans unless included as part of a separate bid item in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to construction, valve installation, valve box installation, concrete pads, extension nuts, restraining devices, fittings, clearing, grubbing, excavation and back fill, dewatering, compaction, disposal of undesirable material, new fill, grading, associated trench restoration, safety, dust/erosion, pressure testing, survey layout, asbuilt drawings, and repair or replacement of existing utilities impacted or damaged during construction for complete a complete plug valve installation.

K. BID ITEM NO. 11 – CLEAN AND VIDEO SANITARY SEWER

Measurement: The cost shall include material and work associated with cleaning, videoing, and evaluating the existing sanitary sewer as shown on the plans on a lineal foot basis in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to inspection, videoing (CCTV), and cleaning. Cleaning to include potential tuberculation removal in CIP sewers. Confirmation of cleaning shall be provided via video and written report with findings and pipe rehabilitation recommendations.

L. BID ITEM NO. 12 – 18-INCH CIP SANITARY SEWER LINING

Measurement: The cost shall include material and work associated with lining sanitary sewer piping with a cured-in-lace process on a lineal foot basis for the pipe diameters shown lined in accordance with the unit prices contained in the proposal. Measurement shall be made from center of upstream manhole casting to center of downstream manhole casting.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, materials, shop drawings, cured-in-

place installation, lateral connection reinstatement, safety, testing, post-construction televising, and all other work as specified for a complete sanitary sewer rehabilitation. Contractor shall include all incidental costs such as water use in the unit price for the cured-in-place pipe installation.

M. BID ITEM NO. 13 – REHABILITATE EXISTING SANITARY SEWER MANHOLE

Measurement: The cost shall include rehabilitating existing sanitary manholes. Costs shall include cleaning, evaluation, and coating of existing sanitary manholes as part of the adjacent gravity sewer rehabilitation process.

Payment: Payment for this work shall be made at the unit cost basis for sanitary manhole rehabilitation. Price shall include, but not be limited to, all labor, equipment, material, location/coordination of existing utility, cleaning, removal of any wastewater in a legal manner, sand blasting, pressure washing, cleaning, installing invert flow channels as needed and coatings. Costs shall also include equipment, labor, and materials required to perform minor structural improvements such as concrete and rebar repairs.

N. BID ITEM NO. 14 - INSTALL WATER SERVICE WITH RPZ AND HOSE BIB

Measurement: The cost shall include material and work associated with installing a new above ground service piping with accessories as shown on the plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, material, location and coordination of all existing utilities prior to construction, removal of existing components as needed, new water service installation, piping, new meter box, RPZ backflow assembly, hose bib, corporation stops, fittings, couplings, connection to existing water system, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, associated site restoration, safety, disinfection, pressure testing, and asbuilt drawings for a complete water service installation.

O. BID ITEM NO. 15 – INSTALL/MODIFY ELECTRICAL SERVICE

Measurement: The cost shall include material and work associated with the replacement of the existing electrical service including but not limited to conduit, pullboxes, wiring, trenching and backfill, and grounding.

Payment: Payment for replacement of existing electrical service shall be made at the lump sum price and shall include all materials, labor, and all terminations and tie-in at the control panel for a complete electrical service/distribution system. Cost shall also include coordination with FPL and the Owner as well as any fees charged by FPL for the new electrical service.

P. BID ITEM NO. 16 – INSTALL NEW CONTROL PANEL SYSTEM AND ELECTRICAL PUMP STATION COMPONENTS

Measurement: The cost shall include material and work associated with replacement of existing pump control panel and electrical components for an upgraded pump station system, ventilation system, flow meter system, pressure monitoring system and sump pump system as shown on the plans. The cost shall also include coordination with the Owner/Engineer to schedule a visit at the System Supplier’s manufacturing facility so that the Owner/Engineer can inspect/approve the constructed Process Instrumentation and Control System (PICS) prior to release for shipment.

Payment: Payment for this work shall be made at a lump sum cost and shall include all labor, equipment, materials, location and coordination of all existing utilities prior to construction, lift station control panel, bubbler system and other level and pressure instruments, equipment rack, power, controls and instrumentation wiring, conduit, sump pump electrical, flow meter electrical, replacement of all lighting, switches, and outlets, concrete work, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, safety, dust/erosion control, survey layout, asbuilt drawings, repair or replacement of existing utilities impacted or damaged during construction, operation and maintenance manuals, Owner/Engineer shop inspection, start-up/testing, and training for a complete electrical system rehabilitation and upgrade.

Q. BID ITEM NO. 17 – INSTALL NEW EMERGENCY GENERATOR SYSTEM

Measurement: The cost shall include material and work associated with installing a new permanent weatherproof diesel engine driven emergency generator system as shown on the plans.

Payment: Payment for this work shall be made at a lump sum cost and shall include all labor, equipment, materials, location and coordination of all existing utilities prior to construction, new generator, generator pad, structural shop drawings for review, controls and instrumentation, automatic transfer switch, wiring, fuel system, stairs and platforms, conduit, concrete work, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, safety,

dust/erosion control, survey layout, asbuilt drawings, repair or replacement of existing utilities impacted or damaged during construction, operation and maintenance manuals, start-up/testing, and training for a complete emergency generator system.

R. BID ITEM NO. 18 – INSTALL NEW EMERGENCY GENERATOR ARCHITECTURAL WALL ENCLOSURE

Measurement: The cost shall include material and work associated with installing a new architectural wall enclosure around the emergency generator system as shown on the plans. This bid item will require a Schedule of Values to be prepared and submitted by the successful Contractor as a basis of partial payment for work against the lump sum bid item.

Payment: Payment for this work shall be made at a lump sum cost and shall include all labor, equipment, materials, location and coordination of architectural wall enclosure prior to construction, new wall, gates, concrete work, stucco, surface finishes, painting, clearing, grubbing, site work, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, safety, dust/erosion control, survey layout, and asbuilt drawings for a complete architectural wall enclosure around the emergency generator system.

S. BID ITEM NO. 19 – PUMP STATION SITE RESTORATION

Measurement: The cost shall include all construction requirements for project restoration not included as part of a separate bid item so that all areas disturbed or damaged during construction shall be installed as shown on the plans or restored to conditions existing prior to the work.

Payment: Payment for all site restoration work shall be made at the lump sum price and shall include all materials, labor and equipment necessary to perform site restoration work including grading, milling, asphalt over restored utility trench, asphalt in milled areas, base material, limerock, and asphalt in new paved areas, new or restored concrete sidewalk, curbing, valley gutter, driveways, bollards, planting, sodding, landscape, irrigation, lighting, striping, signage, clean-up, and any other work required for project completion and acceptance. Any trench or site restoration costs referenced as part of other bid items should be included in those bid items accordingly.

Restoration other than or in addition to what is indicated by the plans, specifications, and defined herein will be considered incidental to the construction and the costs of this incidental restoration should be included in the cost of project.

T. BID ITEM NO. 20 – PERMITTING AND FPL ALLOWANCE

Measurement: The costs shall include permitting and FPL fees associated with constructing the pump station rehabilitation project complete and accepted.

Payment: Payment for Permitting and FPL Allowances shall be made at the amount that will be determined when the services are provided by the Contractor. The cost included under this Bid Item is an allowance amount that will be adjusted to the actual amount with approval from the Owner and Engineer by Change Order.

3.02 BID ITEMS – PUMP STATION A-20

A. BID ITEM NO. 21 – MOBILIZATION

Measurement: Work as specified in this section shall consist of work preparatory to actual construction at the site. It shall include, but not be limited to, movement of personnel, equipment, supplies, and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities as required by these Specifications and state and local laws and regulations. This cost should include the construction of two (2) project signs that shall be displayed at approaches to the project area. The intent is that the signs will be freestanding. The sign shall display on both sides the project name, City Logo, elected officials, and contact information. The costs of any and all permits, and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall be included in this section. Also included in this section will be all costs associated with meetings and coordination with the Owner and Engineer for the purpose of discussing project progress.

Payment: Payment shall be made as a lump sum quantity in accordance with the following schedule and the contract documents:

<u>Percentage</u> <u>Contract</u> <u>Amount Earned</u>	<u>Allowable</u> <u>Percentage of</u> <u>Lump Sum Price</u>
5%	25%
10%	50%
25%	75%
50%	100%

The standard retainage will be applied to these allowances.

B. BID ITEM NO. 22 – MAINTENANCE OF TRAFFIC

Measurement: The cost shall include all services associated with traffic control on streets and roadways impacted by this project. Contractor shall provide traffic control plans as needed prepared by a certified ATSSA certified technician and obtain MOT permit from the City of Fort Lauderdale with all required signatories. Where the repair is located on streets under the jurisdiction of FDOT or Broward County, or on city streets with a classification of collector street or higher, the contractor is required to provide all information, obtain all permits, and comply with all requirements of the authority having jurisdiction.

Payment: Payment shall be made as a lump sum quantity in accordance with the contract documents and includes all traffic control, vehicular and pedestrian access, and MOT maintenance to mitigate traffic impacts and/or always reduce inconvenience to the travelling public. All crosswalks and sidewalks shall remain open and free of obstructions. Temporary painting for roadways and crosswalks shall be maintained throughout the project. Costs shall include the use of flagmen.

C. BID ITEM NO. 23 – BYPASS PUMPING

Measurement: The cost shall include all required pipe, hose, plugs, and pump to re-route wastewater during the rehabilitation/upgrade of the pump station, force main installation, and sanitary sewer evaluation/rehabilitation. Dependent on the location, the contractor may be required to build an enclosure around pumps or use an electric pump as a primary bypass for noise abatement issues. On sewer lines with minimum flow, as authorized by the Owner, the upstream manhole may be plugged, and wastewater pumped out with a contractor supplied vacuum truck.

Payment: Payment shall be made as a lump sum quantity in accordance with the contract and includes all labor, equipment, material, shop drawings for approval, location and coordination of all existing utilities prior to construction, bypass pumping system installation, fittings, connection to existing system, restraining devices, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, associated trench restoration, safety, dust/erosion, and repair or replacement of existing utilities impacted or damaged during construction for a complete bypass pumping system installation. Any item not specified shall be considered incidental to the work.

D. BID ITEM NO. 24 - REMOVAL AND SALVAGE/DISPOSAL OF EXISTING PUMP STATION EQUIPMENT AND MATERIALS

Measurement: The cost shall include demolition, removal and salvage/disposal of all existing pump station equipment, materials, sump pump system, ventilation system, controls, associated electrical system components, pipe supports, ladders and railing, and existing piping as shown on the plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor and equipment needed to salvage/dispose of all existing equipment, materials, and piping as indicated on the plans off site in a legal manner. The Owner has a franchise agreement in place to haul recyclable materials from the project for a credit against this line item. Prior to disposal, the Contractor will coordinate with Owner on any items to be recycled, salvaged or kept by the City.

E. BID ITEM NO. 25 – REHABILITATION OF PUMP STATION DRY PIT AND WET WELL STRUCTURES

Measurement: The cost shall include modification, cleaning, evaluation, and coating of the existing dry pit and wet well structures prior to rehabilitation/upgrade of the pump station.

Payment: Payment for this work shall be made at the lump sum price and shall include, but not be limited to, all necessary equipment, labor, and materials required to perform the dry pit and wet well rehabilitation including emptying the wetwell, sand blasting, pressure washing, cleaning, structure inspection/evaluation, modifications to existing walls/floors, wall openings and closures, ancillary structural components, coating the dry pit and wet well structures, and any other items required for a complete dry pit and wet well rehabilitation. Costs shall also include equipment, labor, and materials required to perform minor structural improvements such as concrete and rebar repairs.

F. BID ITEM NO. 26 – INSTALL/MODIFY NEW PUMP STATION EQUIPMENT, PUMPS, PIPING, FITTINGS, AND ACCESSORIES

Measurement: The unit price shall include work associated with installing new submersible wastewater pump for use in a dry pit application including but not limited to all pump station accessories and sump pump system.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, and materials required to construct the lift station pumps and sump pump system as shown on the plans including piping, fittings, expansion joints, restraining devices, pipe supports, wall sleeves, hatch covers, manhole frame and covers, valves, actuators, pressure gauges, grates, internal and external ladders, landings,

handrails, internal water piping with hose bibs, all attachment hardware, any other miscellaneous mechanical improvements as shown on the construction plans, coordination of all existing utility connection points, site and confined space safety, asbuilt drawings, clearing, grubbing, excavation and back fill, dewatering, repair or replacement of existing utilities impacted or damaged during construction, operation and maintenance manuals, start-up services/testing, training, and any other items required for a complete pump station rehabilitation/upgrade installation.

G. BID ITEM NO. 27 – INSTALL/MODIFY NEW PUMP STATION VENTILATION SYSTEM

Measurement: The unit price shall include work associated with installing a new pump station ventilation and odor control systems.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, and materials required to construct the ventilation system including fans, ductwork, louvers, vent stacks, attachment hardware, odor control units, all piping, fitting, system connections and modifications, and miscellaneous mechanical improvements as shown on the construction plans, operation and maintenance manuals, start-up services/testing, training for complete and functional ventilation and odor control systems.

H. BID ITEM NO. 28 – INSTALL NEW MAGNETIC FLOW METER VAULT ASSEMBLY

Measurement: The unit price shall include work associated with installing a new magnetic wastewater flow meter vault assembly and accessories as shown on the construction plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all costs for labor, equipment, and materials required to construct the magnetic flow meter vault assembly including magnetic wastewater flow meter, fittings, reinforced concrete structure, aluminum hatch cover, connection to proposed force main, grouting, interior and exterior protective coatings, clearing, grubbing, excavation and back fill, dewatering, compaction, disposal of undesirable material, new fill, grading, survey layout, asbuilt drawings, operation and maintenance manuals, start-up services/testing, training, and any other items required for a complete magnetic flow meter vault assembly installation.

I. BID ITEM NO. 29 AND 30 – INSTALL 6-INCH AND 12-INCH DIP FORCE MAIN WITH FITTINGS, OPEN CUT

Measurement: The cost shall include material and work associated with installing DIP force main piping, flow meter vault bypass piping, and emergency bypass connection with fittings and components as shown on the plans on a lineal foot basis in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to open cut construction, force main installation, DIP fittings as needed, protective coatings, all system connections, emergency camlock, restraining devices, concrete slab, bollards, clearing, grubbing, excavation and back fill, sheeting and shoring as needed, dewatering, compaction, disposal of undesirable material, new fill, grading, associated trench restoration, safety, dust/erosion, pressure testing, survey layout, asbuilt drawings, and repair or replacement of existing utilities impacted or damaged during construction for a complete force main installation.

J. BID ITEM NO. 31 AND 32 – INSTALL 6-INCH AND 12-INCH PLUG VALVES

Measurement: The cost shall include material and work associated with installing plug valves as shown on the plans unless included as part of a separate bid item in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to construction, valve installation, valve box installation, concrete pads, extension nuts, restraining devices, fittings, clearing, grubbing, excavation and back fill, dewatering, compaction, disposal of undesirable material, new fill, grading, associated trench restoration, safety, dust/erosion, pressure testing, survey layout, asbuilt drawings, and repair or replacement of existing utilities impacted or damaged during construction for complete a complete plug valve installation.

K. BID ITEM NO. 33 – CLEAN AND VIDEO SANITARY SEWER

Measurement: The cost shall include material and work associated with cleaning, videoing, and evaluating the existing sanitary sewer as shown on the plans on a lineal foot basis in accordance with the unit prices contained in the proposal.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, material, location and coordination of all existing utilities prior to inspection, videoing (CCTV), and cleaning.

Cleaning to include potential tuberculation removal in CIP sewers. Confirmation of cleaning shall be provided via video and written report with findings and pipe rehabilitation recommendations.

L. BID ITEM NO. 34 – 16-INCH CIP/15-INCH VCP SANITARY SEWER LINING

Measurement: The cost shall include material and work associated with lining sanitary sewer piping with a cured-in-place process on a lineal foot basis for the pipe diameters shown lined in accordance with the unit prices contained in the proposal. Measurement shall be made from center of upstream manhole casting to center of downstream manhole casting.

Payment: Payment for this work shall be made at the unit cost basis and shall include all labor, equipment, materials, shop drawings, cured-in-place installation, lateral connection reinstatement, safety, testing, post-construction televising, and all other work as specified for a complete sanitary sewer rehabilitation. Contractor shall include all incidental costs such as water use in the unit price for the cured-in-place pipe installation.

M. BID ITEM NO. 35 – REHABILITATE EXISTING SANITARY SEWER MANHOLE

Measurement: The cost shall include rehabilitating existing sanitary manholes. Costs shall include cleaning, evaluation, and coating of existing sanitary manholes as part of the adjacent gravity sewer rehabilitation process.

Payment: Payment for this work shall be made at the unit cost basis for sanitary manhole rehabilitation. Price shall include, but not be limited to, all labor, equipment, material, location/coordination of existing utility, cleaning, removal of any wastewater in a legal manner, sand blasting, pressure washing, cleaning, installing invert flow channels as needed and coatings. Costs shall also include equipment, labor, and materials required to perform minor structural improvements such as concrete and rebar repairs.

N. BID ITEM NO. 36 - INSTALL WATER SERVICE WITH RPZ AND HOSE BIB

Measurement: The cost shall include material and work associated with installing a new above ground service piping with accessories as shown on the plans.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor, equipment, material, location and coordination of all

existing utilities prior to construction, removal of existing components as needed, new water service installation, piping, new meter box, RPZ backflow assembly, hose bib, corporation stops, fittings, couplings, connection to existing water system, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, associated site restoration, safety, disinfection, pressure testing, and asbuilt drawings for a complete water service installation.

O. BID ITEM NO. 37 – INSTALL/MODIFY ELECTRICAL SERVICE

Measurement: The cost shall include material and work associated with the replacement of the existing electrical service including but not limited to conduit, pullboxes, wiring, trenching and backfill, and grounding.

Payment: Payment for replacement of existing electrical service shall be made at the lump sum price and shall include all materials, labor, and all terminations and tie-in at the control panel for a complete electrical service/distribution system. Cost shall also include coordination with FPL and the Owner as well as any fees charged by FPL for the new electrical service.

P. BID ITEM NO. 38 – INSTALL NEW CONTROL PANEL SYSTEM AND ELECTRICAL PUMP STATION COMPONENTS

Measurement: The cost shall include material and work associated with replacement of existing pump control panel and electrical components for an upgraded pump station system, ventilation system, flow meter system, pressure monitoring system and sump pump system as shown on the plans. The cost shall also include coordination with the Owner/Engineer to schedule a visit at the System Supplier’s manufacturing facility so that the Owner/Engineer can inspect/approve the constructed Process Instrumentation and Control System (PICS) prior to release for shipment.

Payment: Payment for this work shall be made at a lump sum cost and shall include all labor, equipment, materials, location and coordination of all existing utilities prior to construction, lift station control panel, bubbler system and other level and pressure instruments, equipment rack, power, controls and instrumentation wiring, conduit, sump pump electrical, flow meter electrical, replacement of all lighting, switches, and outlets, concrete work, clearing, grubbing, excavation and back fill, compaction, disposal of undesirable material, new fill, grading, safety, dust/erosion control, survey layout, asbuilt drawings, repair or replacement of existing utilities impacted or damaged during construction, operation and maintenance manuals, Owner/Engineer shop inspection, start-up/testing, and training for a complete electrical system rehabilitation and upgrade.

Q. BID ITEM NO. 39 – PROVIDE TRAILER MOUNTED ENGINE DRIVEN GENERATOR

Measurement: The cost shall include material and work associated with providing a new trailer mounted diesel engine driven emergency generator for Pump Station A-20 as specified.

Payment: Payment for this work shall be made at a lump sum cost and shall include all labor, equipment, procurement to provide, new trailer mounted diesel engine driven generator, controls and instrumentation, wiring, fuel system, operation and maintenance manuals, start-up/testing, and training for a complete trailer mounted diesel engine driven generator.

R. BID ITEM NO. 40 – PUMP STATION SITE RESTORATION

Measurement: The cost shall include all construction requirements for project restoration not included as part of a separate bid item so that all areas disturbed or damaged during construction shall be installed as shown on the plans or restored to conditions existing prior to the work.

Payment: Payment for all site restoration work shall be made at the lump sum price and shall include all materials, labor and equipment necessary to perform site restoration work including grading, milling, asphalt over restored utility trench, asphalt in milled areas, base material, limerock, and asphalt in new paved areas, new or restored concrete sidewalk, curbing, valley gutter, driveways, bollards, planting, sodding, landscape, irrigation, lighting, striping, signage, clean-up, and any other work required for project completion and acceptance. Any trench or site restoration costs referenced as part of other bid items should be included in those bid items accordingly.

Restoration other than or in addition to what is indicated by the plans, specifications, and defined herein will be considered incidental to the construction and the costs of this incidental restoration should be included in the cost of project.

S. BID ITEM NO. 41 – PERMITTING AND FPL ALLOWANCE

Measurement: The costs shall include permitting and FPL fees associated with constructing the pump station rehabilitation project complete and accepted.

Payment: Payment for Permitting and FPL Allowances shall be made at the amount that will be determined when the services are provided by the Contractor. The cost included under this Bid Item is an allowance amount

that will be adjusted to the actual amount with approval from the Owner and Engineer by Change Order.

END OF SECTION

SECTION 01152**APPLICATIONS FOR PAYMENT****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the contract and Agreement between Owner and Contractor.

1.02 RELATED REQUIREMENTS

- A. In other parts of the Construction Documents:
 - 1. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section
 - 2. Agreement between Owner and Contractor
 - 3. General Conditions and Terms of the Contract

- B. Specified in Other Sections:
 - 1. Section 01010: Summary of Work
 - 2. Section 01700: Contract Closeout

1.03 FORMAT AND DATA REQUIRED

- A. Submit itemized applications typed in a format approved by Engineer. All applications for payment must be numbered, dated, and signed by the Contractor.

- B. Provide itemized data on payment application (format, schedules, line items and values accepted by Engineer).

- C. Percent complete for Lump Sum pay items.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to the date of submittal of application
 - 2. Fill in summary of dollar values

3. Execute certification with the signature of a responsible officer of the contract firm
4. Have resident project representative review and sign application prior to submission to Engineer
5. Include substantiating data as needed.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
 1. Project
 2. Application number and date
 3. Detailed list of enclosures
 4. For stored products:
 - a. Item number and identification
 - b. Description of specific material
- B. Submit one copy of data and cover letter for each copy of application.
- C. Substantiating data for progress payments includes, but is not limited to, the following items:
 1. Project schedule updates
 2. Contractor certification
 3. Partial releases of lien
 4. Construction/dewatering permits
 5. Applicable testing results/data
 6. Equipment start-up test reports
 7. Shop drawing log
 8. Red lined as-builts reflecting project changes
 9. Stored materials with supporting documentation
- D. The Contractor requested percent complete for all Lump Sum pay item progress payments must be coordinated in the field and approved by the Engineer and City prior to payment.
- E. Only one application will be acceptable in any one month.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Application Form:

1. Fill in required information, including that for Change Orders executed prior to the date of submittal of application
 2. Fill in summary of dollar values
 3. Execute certification with the signature of a responsible officer of the contract firm
 4. Have resident project representative review and sign application prior to submission to Engineer
 5. Include substantiating data as needed.
- B. Substantiating data for final payments includes, but is not limited to, the following items:
1. Final Contractor certification/affidavits
 2. Final release of lien
 3. Final testing certifications
 4. Confirmation of all permit closures
 5. Final as-builts/record drawings signed and sealed
 6. Maintenance and operation instructions
 7. Warranties/guarantees
- C. Only one application will be acceptable in any one month.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Engineer at the time stipulated in the Agreement.
- B. Number: Four copies of each progress Application.
- C. When Engineer finds the Application properly completed and correct, he will transmit the applications for payment to the Owner.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01153**CHANGE ORDER PROCEDURES****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDE**

- A. Promptly implement Change Order Procedures
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material/force account basis.
 - 3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Who is authorized to accept changes in the Work.
 - 2. Who is responsible for informing others in the contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS

- A. The amount of established unit prices, if used.
- B. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- C. Terms and Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time-and-materials basis.
 - 2. Contractor's claims for additional costs.
- D. Section 01152: Applications for Payment
- E. Section 01300: Submittals and Progress Schedules
- F. Section 01720: Project Record Documents

1.03 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a proposal Request to Contractor. Request will include the following:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
 - 4. A specific period of time during which the requested price will be considered valid.
 - 5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.

- B. Contractor may initiate changes by submitting a written notice to Engineer, containing:
 - 1. Description of the proposed changes
 - 2. Statement of the reason for making the changes.
 - 3. Statement of the effect on the Contract Sum and the Contract Time.
 - 4. Statement of the effect on the work of separate contractors.
 - 5. Documentation supporting any changes in Contract Sum or Contract Time, as appropriate.

1.04 CONSTRUCTION CHANGE AUTHORIZATION

- A. In lieu of Proposal Request, Engineer may issue a "Construction Change Directive" (CCD) for Contractor to proceed with a change for subsequent inclusion in a Change Order.

- B. Authorization will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

- C. Owner and Engineer will sign and date the CCD as authorization for the Contractor to proceed with the Changes.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.

- B. On request, provide additional data to support time and cost computation including the following:
 - 1. Labor required.
 - 2. Equipment required.
 - 3. Products required:
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 - 4. Taxes
 - 5. Credit for work deleted from Contract, similarly documented.
 - 6. Overhead and profit.
 - 7. Justification for any change in Contract Time.

- C. Support each claim for additional costs, and for work done on a time-and-material / force account basis, with documentation as required for a lump sum proposal, plus the following additional information:
 - 1. Name of the Owner's authorization agent who ordered the work, and date of the order.
 - 2. Dates and time work performed, and by whom.
 - 3. Time record, summary of hours worked, and hourly rates paid.
 - 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing quantities.
 - c. Subcontracts.

- D. Document requests for substitutions for Products as specified in Section 01600.

1.06 PREPARATION OF CHANGE ORDERS

- A. Engineer will prepare each Change Order.
- B. Form: Change Order format provided in the Contract Documents.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.07 LUMP SUM / FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 - 1. Engineer's Proposal Request and Contractor's responsible Proposal as mutually agreed upon between Owner and Contractor.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the contractor to proceed with the changes.
- C. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

1.08 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. Engineer definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
 - 3. Survey of completed work
- B. The amount of the unit prices shall be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
 - 1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 - 2. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the work:
 - 1. Engineer or Owner will issue a Change Order directing Contractor to proceed with the change on the basis of unit prices and will cite the applicable unit prices.

2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. Engineer will sign and date a second Change Order to establish the change in Contract Sum and in Contract Time.
4. Owner and Contractor will sign and date the second Change Order to indicate their agreement with the terms therein.

1.09 CORRELATION WITH CONTRACTOR’S SUBMITTALS

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

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Owner shall schedule and administer a general preconstruction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work. Owner/Engineer shall:
 - 1. Distribute written notice of each meeting.
 - 2. Make physical arrangements for meetings.
 - 3. Preside at meetings.
 - 4. Record the minutes, include all significant proceedings and decisions.
 - 5. Reproduce and distribute copies of minutes:
 - a. To all participants in the meeting.
 - b. To all parties affected by decisions made at the meeting.

- B. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

- B. Section 01010 - Summary of Work

- C. Section 01060 – Regulatory Requirements and Notifications

1.03 PRE-CONSTRUCTION MEETING

- A. To be held prior to the Notice to Proceed.

- B. Location: The project site, or as designated by the Owner/Engineer.

- C. Attendance:
 - 1. Owner's Representative
 - 2. Engineer's Representative
 - 3. Contractor

4. Contractor's Superintendent
5. Major Subcontractors
6. Others as appropriate

D. Agenda:

1. Record of Attendance.
2. Project Summary Description.
3. Local Utilities to be affected.
 - a. Water lines
 - b. Sewer lines
 - c. Storm lines
 - d. Gas lines
 - e. Telephone lines
 - f. Cable TV lines
 - g. Electric lines
 - h. Roadways
 - i. Waterways
4. Contractor Responsibilities:
 - a. Start date
 - b. Completion date
 - c. Work schedule
 - d. Notification Requirements
 - e. Regulatory Permit Requirements
 - f. Testing
 - g. Space utilization
 - h. Rights-of-Way occupancy
 - i. Progress Meetings
 - j. Progress Payment Application
 - k. As-builts (Records/Drawings)
 - l. Photographs
 - m. Shop drawings
 - n. Subcontractors
 - o. Project coordination
 - p. Operation and maintenance manuals
5. Owner Responsibilities:
 - a. Monthly meetings
 - b. Special meetings
 - c. Partial and final payment
 - d. Change Orders
 - e. Public announcements and public relations

- f. Project acceptance
6. Engineer Responsibilities:
- a. Technical representative of Owner
 - b. Interpreter of contract documents
 - c. Periodic inspections of job progress
 - d. Reviews partial and final payment applications
 - e. Prepares Change Orders
 - f. Checks and approves shop drawings
 - g. Reviews record drawings
 - h. Performs final inspection and issues certificate of completion
7. Resident Inspector Responsibilities:
- a. Owner's representative on site
 - b. Review materials and work and reports any deficiencies to Owner/Engineer
 - c. Reviews applications for payment
 - d. Works with Contractor on public notification of work items
 - e. Attends progress meetings
 - f. Observes testing work
 - g. Maintains daily diary of work tasks
 - h. Furnishes reports to Owner/Engineer as deemed advisable

1.04 PROGRESS MEETINGS

- A. Hold periodic meetings as required by progress of the work.
- B. Location of the meetings: Project site, or as designated by the Owner or Engineer.
- C. Attendance:
 - 1. Owner's Representative
 - 2. Engineer's Representative
 - 3. Subcontractors as appropriate
 - 4. Suppliers as appropriate

1.05 EMERGENCY MEETINGS

- A. May be called by Owner, Engineer or Contractor with a minimum of three hours notice to resolve conditions of an emergency nature.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01300**SUBMITTALS AND PROGRESS SCHEDULES****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. Submit, to the Owner and Engineer as applicable, shop drawings, estimated construction progress schedule, project data and samples required by specification sections.
- B. All products and materials must comply with the City of Fort Lauderdale Approved Manufacturers List included in Appendix A.

1.02 RELATED WORK

- A. General Conditions and Terms of the Contract
- B. Section 01010: Summary of Work

1.03 SCHEDULES

- A. Promptly after award of contract, prepare and submit to the Engineer estimated construction progress schedules for the work, including a separate schedule listing dates for submission and dates reviewed shop drawings, project data and samples will be needed for each product.

1.04 FORM OF SCHEDULES

- A. Prepare schedules in suitable format with dated schedule printout. A horizontal bar chart should be used as additional illustration and for revised progress schedules.
 - 1. Provide separate horizontal bar for each trade or operation
 - 2. Horizontal time scale: Identify the first work day of each week.
 - 3. Scale and spacing: To allow space for notations and future revisions.
 - 4. Minimum sheet size: 11" x 17"
- B. Format of listings: The chronological order of the start of each item of work.
- C. Identification of listings: By major specification section numbers.

1.05 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission of schedule.
- B. Show changes occurring since previous submission of schedule.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other contractors working in the area.

1.06 SUBMISSIONS

- A. Submit initial schedules within 7 days after award of Contract.
 - 1. Engineer will review schedules with Owner and return review copy within 5 days after receipt.
 - 2. If required, resubmit within 2 days after return of review copy.
- B. Submit updated progress schedules with each application for payment.

1.07 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 - 1. Job site file.
 - 2. Subcontractors.
 - 3. Other concerned parties.
- B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 - PRODUCTS

2.01 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details including, but not limited to the following:

1. Pumps and all other rotating equipment
 2. Mechanical equipment
 3. Valves and appurtenances (w/specific locations)
 4. Piping and fittings (w/specific locations)
 5. Electrical wiring diagrams
 6. Panel fabrication drawings
 7. Instrumentation
 8. Concrete mix designs (with specific locations), grouts, etc.
 9. Precast structures
 10. Structural metal fabrication drawings
 11. Paintings, coatings, liners, etc.
 12. Electrical and control equipment and materials
 13. Louvers, fans, and all ventilation equipment
 14. Asphalt and base material
 15. Dewatering plans
 16. Operation and maintenance manuals
- B. Shop drawings shall be prepared by a qualified detailer.
- C. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

2.02 PROJECT DATA

- A. Manufacturer's standard schematic drawings
1. Modify drawings to delete information which is not applicable to project.
 2. Supplement standard information to provide additional information application to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
1. Clearly mark each copy to identify pertinent materials, products or models.
 2. Show dimensions and clearances required.
 3. Show performance characteristics and capacities.
 4. Show wiring diagrams and controls.

2.03 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of product or material, with integrally related parts and attachment devices.
2. Full range of color samples.

2.04 PAY REQUESTS

- A. Pay Requests shall be made in accordance with the requirements of the Agreement between Owner and Contractor.

PART 3 - EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Project Data and Samples prior to submission. Contractor's approval stamp shall be on each submittal when received by the Engineer. Unstamped submittals will not be reviewed and will be returned "rejected" to the Contractor.
- B. Verify
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of Work and the Contract Documents.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.
- F. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- G. Begin no work which requires submittals until return of submittals with Engineer's stamp and initials or signature indicating review.
- H. After Engineer's review, distribute copies.

3.02 SUBMISSION REQUIREMENTS

- A. Schedule submissions at least 14 days before dates reviewed submittals will be needed.
- B. Submit number of copies of Shop Drawings, Project Datum and Samples which Contractor requires for distribution plus 4 copies which will be retained by Architect/Engineer.
- C. Accompany submittals with transmittal letter, in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Notification of deviations from Contract Documents.
 - 5. Other pertinent data.
- D. Submittals must include:
 - 1. Date of submittal and revision dates.
 - 2. Project title and number.
 - 3. The names of:
 - a. Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier.
 - e. Manufacturer.
 - f. Separate detailer when pertinent.
 - 4. Identification of product or material.
 - 5. Relation to adjacent structure or materials.
 - 6. Field dimensions, clearly identified as such.
 - 7. Identification of deviations from Contract Documents.
 - 8. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

3.03 RESUBMISSION REQUIREMENTS

- A. Shop Drawings.
 - 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 - 2. Indicate on drawings any changes which have been made other than those requested by Engineer.
- B. Project Data and Samples:
 - 1. Submit new datum and samples as required for initial submittal.

3.04 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and Project Datum which carry Engineer's stamp, to:
1. Contractor's file.
 2. Job site file.
 3. Record Documents file.
 4. Other prime contractors.
 5. Subcontractors.
 6. Supplier.
 7. Fabricator.

END OF SECTION

SECTION 01410**TESTING LABORATORY SERVICES****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Contractor will employ and pay for the services of an independent testing laboratory to perform certain specified testing. All testing described in the Contract Documents shall be paid for by the Contractor.
- B. Owner may employ and pay for the services of an independent testing laboratory to perform certain specified testing in addition to what is called for in the Contract Documents.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
 - 2. Employment of a laboratory by the Owner shall in no way relieve Contractor's obligations to perform the work of the Contract.
- C. Inspection, Sampling and Testing is required for:
 - 1. Densities and Proctors (for soil compaction)
 - 2. Cast-in-place Concrete (slump and compressive strength)
 - 3. Additional soil testing as needed.
 - 4. Other operations specified in these specifications or as required by the Engineer or Owner.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. General Conditions of the contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

1.03 QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.

- B. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
- C. Authorized to operate in the City, County, and State in which the Project is located.
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.
- E. Testing Equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards
 - b. Accepted values of national physical constants.

1.04 LABORATORY DUTIES

- A. Cooperate with Engineer and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling, and testing of materials and methods of construction:
 - 1. Comply with specified standards
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit written report of each test and inspection; one copy each to Engineer, Owner, and Contractor, and one copy to Record Documents File. Each report shall include:
 - 1. Date issued
 - 2. Project title and number
 - 3. Testing laboratory name, address, and telephone number
 - 4. Name and signature of laboratory inspector
 - 5. Date and time of sampling or inspection
 - 6. Record of temperature and weather conditions
 - 7. Date of test

- 8. Identification of product and specification section
 - 9. Location of sample or test in the Project
 - 10. Type of inspection or test
 - 11. Results of tests and compliance with Contract Documents
 - 12. Interpretation of test results, when requested by Engineer
- E. Perform additional tests as required by Engineer or the Owner

1.05 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
- 1. Release, revoke, alter, or enlarge on requirements of Contract Documents
 - 2. Approve or accept any portion of the work
 - 3. Perform any duties of the Contractor

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work and to manufacturer's facilities.
- B. Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Provide to the laboratory a representative proctor sample of the materials to be used for backfilling throughout the project.
- E. Furnish copies of product test reports as required.
- F. 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
- G. Notify laboratory, in advance of operations to allow for laboratory assignments of personnel and scheduling of tests.

- H. Pay for services of the Testing Laboratory to perform additional inspections, sampling and testing required:
 - 1. For Contractor's convenience.
 - 2. When initial tests indicate Work does not comply with Contract Documents.
 - 3. Such payment shall be made directly by the Contractor.

- I. Contractor will be responsible for payment for all failing tests.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01510
TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain temporary utilities required for construction; remove on completion of entire project.
- B. Provide temperature, ventilation, and lighting requirements, if applicable, as specified in each individual section.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01010: Summary of Work

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 - PRODUCTS

2.01 MATERIALS (GENERAL)

Materials may be new or used but must be adequate in capacity for the required usage. They MUST NOT create unsafe conditions and MUST NOT violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. The Contractor must maintain power to all existing buildings, pump stations, businesses, residences, and other related areas.
- B. The Contractor is responsible for providing and paying for all power required for his operations. Contractor shall make arrangements with Owner for temporary power.

- C. Contractor is responsible for arranging power for his office trailers(s), power tools, etc., at his own expense. The Contractor shall pay the costs of all power used.
- D. Provide Power Centers for miscellaneous tools and equipment used in the work:
 - 1. Weatherproof distribution box with minimum of four 20-amp., 120-volt grounded outlets.
 - 2. Locate so that power is available at any point of use with minimum 100-foot Construction-Type power cords.
 - 3. Provide circuit breaker protection for each outlet.
- E. Provide adequate artificial lighting for all areas of work, when natural light is not adequate for work, and for areas accessible to persons other than Contractor's employees.
- F. If Contractor requires service other than specified above, he shall arrange for, provide maintenance, and pay all costs incurred.

2.03 TEMPORARY WATER

- A. The Contractor will be responsible for making application to the City of Fort Lauderdale for hydrant meters with backflow preventers. The City of Fort Lauderdale will install necessary connections and backflow preventers at locations needed by the Contractor and approved by the Engineer. Maintenance of such is the responsibility of the Contractor.
- B. Construction water will be paid for by the Contractor. In an event that damage to these facilities occurs, the Contractor will be responsible for all costs associated with their replacement by the City's standard rate.

2.04 TEMPORARY SANITARY FACILITIES

- A. Contractor shall provide temporary sanitary facilities in compliance with laws and regulations. Location of such facilities will be subject to the approval of the City. Existing City/Residence facilities are not available for use by the Contractor.
- B. Contractor shall provide for regular service, cleaning, and maintenance of temporary facilities and enclosures.

PART 3 - EXECUTION

3.01 GENERAL

- A. Maintain and operate systems to ensure continuous service.

3.02 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore existing facilities used for temporary services to specified, or to original, condition.

END OF SECTION

SECTION 01560**TEMPORARY CONTROLS****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Furnish, install, and maintain temporary control facilities required for construction; remove on completion of entire project any features not intended to remain on the project site.
- B. Provide noise control, dust control, water control, debris control, pollution control and erosion control as specified in the appropriate sections of these documents.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with federal, state, and local codes and regulations and utility company requirements.
- B. Comply with the requirements of all permits and easements issued by the FDEP, SFWMD, and City of Fort Lauderdale and any other agencies that have issued permits for the project.

1.03 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

PART 2 - PRODUCTS**2.01 MATERIALS (GENERAL)**

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

2.02 TEMPORARY NOISE CONTROL

- A. Mechanical equipment shall be fitted with mufflers to reduce noise from internal combustion type engines. The City of Fort Lauderdale has specific requirements for sound levels within their municipal limits. The Contractor shall familiarize himself with these requirements and adhere to them during the construction of the project. This will be strictly enforced during the

project. Special provisions for noise, especially for those pieces of equipment that are required to run on a continuous basis, shall be made.

- B. Bells, sirens, alarms, etc., shall be adjusted to provide adequate warnings to personnel on the project site; however, they shall be regulated to an intensity that is amenable to the neighboring communities and within applicable limitations stated within the local Code of Ordinances.
- C. Exterior construction work noises shall be kept to a minimum during evening, night, and early morning hours. All construction noise shall not exceed the limits set forth with the applicable limits stated in the local Code of Ordinances. If noise levels need to exceed these levels to allow the work to progress, special permission from the City shall be requested by the Contractor a minimum of 60 days before this work is to begin.
- D. In addition to on-site control, noise considerations shall be made to off-site vehicles and equipment (mobilization, demobilization, deliveries, etc.).

2.03 TEMPORARY DUST CONTROL

Dust formed as a result of the construction shall be controlled by the Contractor. Cleaning of work areas and application of dust control materials are the most effective methods of dust control. Contractor shall adhere to the methods indicated in the Stormwater Pollution Prevention Plan (SWPPP) prepared by the Contractor for the NPDES permit.

2.04 TEMPORARY WATER CONTROL

- A. The flow of water through the construction site shall be controlled by the Contractor such that it does not damage any constructed items; however, it shall be diverted and channeled to effectively leave the site as soon as possible. Puddling and ponding on the site is not permitted.
- B. Water shall be controlled such that it does not enter excavated areas, nor is deposited on or against constructed features.

2.05 TEMPORARY DEBRIS CONTROL

- A. Provision shall be made by the Contractor to have available adequate containers to hold any and all debris that is to be generated from the project. Containers should be covered to prevent wind blowing paper, plastic, and lightweight products around and off the site.
- B. Instructions shall be given to personnel to utilize the trash containers. Containers shall be placed in convenient places at the site.

- C. At least once per week, a thorough cleaning of trash and debris shall be made at the construction site. An acceptable method of disposal shall be employed.

END OF SECTION

SECTION 01590

PROJECT SIGN

PART 1 - GENERAL

1.01 PROJECT SIGN

- A. Contractor shall furnish and install a 4' x 8' sign (with white painted posts) prior to start of construction. A sample sign template is below but is not specific to the project. The exact style and design of the sign will be provided by the CITY to the Contractor during the preconstruction meeting in PDF format.



PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 01600**MATERIAL AND EQUIPMENT****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Products
- B. Workmanship
- C. Manufacturer's Instructions
- D. Transportation and Handling
- E. Storage and Protection
- F. Substitutions and Product Options

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01010: Summary of Work – Provisions and performance of work under the Contract.
- C. Section 01090: Reference Standards – Provision and identification of publication sources for referenced standards.
- D. Section 01300: Submittals and Progress Schedules – Submittal of manufacturer's drawings, descriptive literature, samples and certificates.
- E. Section 01740: Warranties and Bonds – Form and time of submission.

1.03 PRODUCTS

- A. Products include materials, products, equipment and systems.
- B. Comply with specifications and referenced standards as minimum.
- C. DO NOT provide used materials and products, except as specifically allowed by notation or indication in Contract Documents.

1.04 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and rocking.

1.05 MANUFACTURER'S INSTRUCTIONS

- A. When work is specified to comply with manufacturer's printed instructions, obtain and distribute copies to persons involved, and maintain one set at job site in field office.
- B. Perform work in accordance with manufacturer's instructions and specified requirements.
- C. Should a conflict exist between Specifications and manufacturer's instructions, consult with Engineer.

1.06 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules; coordinate to avoid delay of progress, conflict with work and with conditions at the site.
- B. Transport products by methods to avoid product damage; deliver dry in an undamaged condition in manufacturer's unopened containers or packaging.
- C. Provide equipment and personnel to handle product by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

1.07 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

- B. Store sensitive products in weather-tight enclosures; maintain within temperatures and humidity ranges recommended/required by manufacturer's instructions. PVC pipe shall not be stored in a place where it can be exposed to ultraviolet light.
- C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.
- F. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

1.08 PRODUCT OPTIONS

- A. Within 30 days after date of Contract, submit complete list of major products proposed, with name of manufacturer, trade name and model.
- B. Options:
 - 1. Products specified only by reference standard: Any product meeting that standard.
 - 2. Product specified by naming several manufacturers: Product of any named manufacturer meeting specifications.
 - 3. Products specified by naming one or more manufacturers and "or equivalent": Submit a request for substitution for any manufacturer not specifically named. See bid documents for specific instructions regarding substitution requests.

1.09 SUBSTITUTIONS

- A. Substitutions will be considered during the bidding process. See the instructions to bidders for more information on how to propose a substitution. Subsequent to the bidding process, substitutions will be considered only when a product becomes unavailable due to no fault of the Contractor.
- B. Document each request with five sets (5) of complete data, drawings and samples as appropriate, substantiating compliance of proposed substitution with Contract Documents including:

1. General information about the proposed substitution:
 - a. For Products:
 - 1) Product identification, including manufacturer's name and address.
 - 2) Manufacturers' literature:
 - a) Product description.
 - b) Performance and test data.
 - c) Reference standards.
 - 3) Samples
 - 4) Name and address of similar projects on which product was used, and date of installation.
 - b. For construction methods:
 - 1) Detailed description of proposed method.
 - 2) Drawings illustrating methods
 2. Comparison of the qualities of the proposed substitution with the specified.
 3. Changes required in other elements of the work because of the substitution.
 4. Effect on the construction schedule.
 5. Cost data comparing the proposed substitution with the product specified.
 6. Any required license fees or royalties
 7. Availability of maintenance service, and the source replacement materials.
- C. Request constitutes a representation that Contractor:
1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
 2. Will provide the same warranty for substitution as for specified product.
 3. Will coordinate installation and make other changes which may be required for work to be complete in all respects.
 4. Waives claims for additional costs which may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request, or when acceptance will require significant revision of the Contract Documents.
- E. Engineer will review to determine acceptability of proposed substitution and will notify Contractor of acceptance or rejection in writing within a reasonable time.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

- B. Related requirements specified in other sections:
 - 1. Section 01720: Project Record Documents
 - 2. Section 01730: Operating and Maintenance Manuals
 - 3. Section 01740: Warranties and Bonds

1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers his work is substantially complete, he shall submit to Engineer:
 - 1. A written notice that the work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.

- B. Within a reasonable time after receipt of such notice, Engineer will review the work to determine the status of completion.

- C. Should Engineer determine that the work is not substantially complete:
 - 1. Engineer will promptly notify the Contractor, in writing, giving the reasons.
 - 2. Contractor shall remedy the deficiencies in the work, and shall send a second written notice of substantial completion to Engineer
 - 3. Engineer will re-review the work

- D. When Engineer concurs that the work is substantially complete, he will:
 - 1. Prepare a Certificate of Substantial Completion, accompanied by a list of items to be completed or corrected
 - 2. Submit the Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the certificate.

1.03 1.03 FINAL INSPECTION

- A. When Contractor considers the work is complete, he shall submit written certification that:
1. Contract Documents have been reviewed
 2. Work has been inspected for compliance with Contract Documents
 3. Work has been completed in accordance with Contract Documents
 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational
 5. Equipment and systems instructions to Owner's personnel have been completed in accordance with Section 01730
 6. Work is completed and ready for final inspection
- B. Engineer will review the work to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Engineer consider that the work is incomplete or defective:
1. Engineer will promptly notify the Contractor, in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Engineer that the work is complete.
 3. Engineer will re-review the work
- D. When Engineer finds that the work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 RE-INSPECTION FEES

Should the Engineer perform re-inspection due to failure of the work to comply with the claims of status of completion made by the Contractor, Contractor will compensate Engineer/Owner for such additional services.

1.05 ADDITIONAL SERVICES

Should Engineer be required to provide representation at the site for the administration of the Contract for Construction, more than thirty days after the specified Date of Substantial Completion of the work, Contractor will compensate Engineer for such additional services.

1.06 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Evidence of compliance with requirements of governing authorities.

- B. Project Record Documents: To requirements of Section 01720 and the General Conditions and Terms of the Contract.
- C. Warranties and Bonds: To requirements of Section 01740 and the General Conditions and Terms of the Contract.
- D. Evidence of Payment and Release of Liens: To requirements of the General Conditions and Terms of the Contract.
- E. Certificate of Insurance for Products and Completed Operations.
- F. One (1) Year Maintenance Bond
- G. Certificate of Operation from equipment manufacturers

1.07 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum
 - 2. Additions and deductions resulting from:
 - a. Previous change orders
 - b. Unit prices
 - c. Deductions for uncorrected work
 - d. Deductions for liquidated damages
 - e. Deductions for re-inspection payments
 - f. Other adjustments
 - 3. Total Contract sum, as adjusted
 - 4. Previous payments
 - 5. Sum remaining due
- C. Engineer will prepare a final change order, reflecting approved adjustments to the Contract sum which were not previously made by change order.

1.08 FINAL APPLICATION FOR PAYMENT

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

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01720**PROJECT RECORD DRAWINGS****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Contractor shall maintain at the site for the Owner one record copy of the following:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change orders and other modifications to the Contract
 - 5. Engineer field orders or written instructions
 - 6. Approved shop drawings, product data, and samples
 - 7. Field test records

- B. Related requirements in the other parts of the Contract Documents:
 - 1. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

- C. Related requirements specified in other sections:
 - 1. Section 01300: Submittals
 - 2. Section 01700: Contract Close-out

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Contractor shall store documents and samples in the field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.

- B. File documents and samples in accordance with Specifications – Table of Contents.

- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

- D. Make documents and samples available at all times for inspection by Engineer and City. Record drawing information shall be maintained concurrently with Pay Requests.

1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color red.

1.04 RECORDING (SEE ALSO GENERAL CONDITIONS AND TERMS)

- A. The Contractor shall provide record drawings for all pay applications, partial releases and final release submittals. With each submittal provide survey data, signed and sealed by the Contractor's Surveyor, to support elevation information depicted on the record drawings.
- B. Label each document "PROJECT RECORD" in neat large printed letters.
- C. Record information concurrently with construction progress. DO NOT conceal or backfill any work until required information is recorded.
- D. Drawings-General: The Record Drawings shall correctly and accurately be drawn to record actual construction. Legibly mark to record actual construction:

1. Horizontal location of pipes and other improvements shall be provided any time the pipe passes a permanent surface reference point. Permanent surface reference points must be permanent structures manholes, catch basins, concrete sidewalk or concrete curbs. Edge of pavement and road intersections may not be used without the Engineer's approval. Any deviations from the alignment shown on the drawings must be noted.

Vertical location of piping shall be provided at fittings, tie-ins and 25 foot intervals. Vertical location shall be pipe elevation as called for on the drawings.

All fittings, including sleeves and valves shall be located vertically and horizontally by two measurements to permanent surface reference points.

All building, electrical, and mechanical deviations, additions or deletions, not shown on the design plan shall be recorded.

2. Existing utilities that are not shown on the plans that are found in the field are to be noted and recorded on the record drawings.

Actual locations of all utilities shall be noted and recorded on the record drawings.

3. Field changes of dimension and detail.
4. Changes made by Work Change Directives or by Change Order.
5. Details not on original Contract Drawings
6. Limits of work including temporary storage equipment area
7. All information required by the City Standards.

E. Drawings – General Requirements for Pressure Mains. Record Drawings shall legibly and accurately depict record actual construction and showing the following, as a minimum:

1. Material used to construct mains.
2. Location and top of pipe elevation of all fittings, including sleeves, and valves by stationing and offsets
3. Top of pipe elevation at every 25 feet and at every change of direction.
4. Length of restrained pipe
5. All elevations and horizontal control of all storm sewer, sanitary sewers including laterals, electric cables, television cables, telephone cables, force mains and water mains which are crossed or exposed.
6. Locations and elevations as required to define major horizontal/vertical pipe deflections/conflicts. Data shall include beginning and end of deflection/conflicts, all changes in elevations and alignment and the location and elevation of subject conflict item.
7. Location and elevation of all connections to existing systems.
8. Locations and elevations as required to describe all other improvements.

F. Drawings – Specific Requirements for Pressure Mains

1. General - FOR ALL LAYERS:
 - a. All references to "proposed" and "plan" are to be removed from the Final Record Drawings
 - b. All lines, structures, and other items that are relocated will be removed and shown in the proper location (hand written notes and "x"ing out will not be allowed)
 - c. All record drawings will be signed and sealed by Certified Land Surveyor or Professional Engineer licensed to practice in the State of Florida. If certified by a Surveyor, P.E. will sign off stating that the record drawings was checked by the engineer, verifying that they inspected the work
 - d. Clearly mark existing infrastructure which is to remain.

- e. Clearly mark existing infrastructure which has been abandoned, and how it was abandoned.
 - f. Station, length, width and depth of flowable fill used.
 - g. Record Drawings shall not be greater than 1" - 30' in scale
 - h. All Detail sheets shall be included with each record drawing
 - i. Location by station and elevation, width, depth and length of flowable fill used for all uses.
 - j. Supply all surveys of the project and or property.
2. Water and Force Mains - TO BE SHOWN ON ONE layer:
- a. Location of all meter boxes, valves, tees, bends, reducers, caps, plugs, fire hydrants, backflow preventers, water services, taps, air release valves, including top of pipe at ARV, and centerline of water main on station and offset not to exceed 100'. All horizontal deflections shall be called out.
 - b. Top of pipe elevations should be shown on all tees, valves, bends, reducers, caps, plugs, centerline of water main not to exceed 100 lineal feet, and bottom flange of barrel section of the fire hydrant. All vertical deflections shall be called out
 - c. Restrained joint pipe length (station to station).
 - d. Manufacturer, model, usage, type and size of valves shall be shown on the plan
 - e. Numbered sample points locations needed for Health Dept. submittal (to be removed from "final" as-built).
 - f. Length of run between fittings, type of and size of pipe material.
 - g. Call out variation (if it exists) in stationing of corporation compared to meter box
3. Sanitary Sewers - TO BE LOCATED ON THE SAME layer AS WATER AND FORCE MAINS
- a. Manhole rim elevation, invert elevations and directions.
 - b. Length of run between sanitary structures, type of and size of pipe material with calculated percentage of slope for the run of pipe.
 - c. Location of sanitary service wyes with station and offset, together with the invert elevation, station and offset, pipe diameter and material (only at clean-out).
 - d. Locations and type of flexible eccentric coupling with station and offset, and adjoining pipe diameters and materials.
 - e. Applicable lift station information should be filled out on the detail sheet for lift stations.

4. Water/Sanitary/Storm Pipe Crossings and Separations - Part of WATER, SANITARY, AND/OR STORM layer
 - a. Pipe types, sizes and material
 - b. Crossings: Top and bottom elevations of pipes crossing each other and the distance between the outside of the two lines
 - c. Separation: Distance between the OD of the two lines
5. Conflict Storm/Water/Sanitary Structures - Part of each APPLICABLE layer:
 - a. Top and bottom of casing
 - b. All info asked for in storm or sanitary manhole descriptions with the addition of top of all pipes.
6. Casings - Part of each APPLICABLE layer:
 - a. Material and thickness
 - b. Top of and invert of casing
 - c. Length and station and offset of ends
 - d. If used, station and offset for vent, including tap location, and fittings
7. Storm Sewers - TO BE LOCATED ON A separate layer:
 - a. Manhole and catch basin rim elevation, outfalls and top of headwall invert elevations and direction, weir elevations, bottom of manholes and catch basins (sumps)
 - b. Length of run between storm structures, type of and size of pipe material with calculated percentage of slope for the run of pipe
 - c. Location of service connections (without manholes) together with the invert elevation, pipe diameter and material
 - d. Dry retention, wet retention, dry detention, wet detention areas
 - e. Exfiltration trenches, Station at beginning and end of system, width, depth
 - f. Top of and toe of slope on berm elevation designed to stop flooding
8. Street Lights - TO BE LOCATED ON A separate layer:
 - a. Manufacturer, model, and height of poles shall be shown on the record drawings

- b. Manufacturer, model, and wattage and voltage of lights shall be shown on the record drawings
 - c. Pull boxes, station and offset.
 - d. Length of conduit runs between boxes and poles, type of, and size of pipe material. Show as laid in the ground, not as a wiring schematic, with amount, by color, type of, and size of wiring material
 - e. Service connection, type (FP&L owned, City metered) station and offset
9. Irrigation - TO BE LOCATED ON A separate layer:
- a. Backflow preventer, control stand location, Control valve, zone, station and offset
 - b. Main line piping size, material, lengths, depth
 - c. Heads, Type (1/4, half, 3/4, full circle) zone, station and offset
 - d. Control Stand, station and offset
10. Landscaping - TO BE LOCATED ON A separate layer:
- a. Tree type, caliper, and height
 - b. Tree grate, size, and model
 - c. Station, elevation, length, width, and depth of Structural Soil used
 - d. Top of and toe of slope on berm elevation for landscaping
11. Private Construction Impacts to Right-of-Way - TO BE LOCATED ON A separate Layer:
- a. Private utility or revocable easements in the City ROW's or on City property must be shown on the plan. Any improvements within the easement need to be shown and called out as private. The recording information should be on the as-built.
 - b. Privately owned lighting, irrigation and landscaping in the City right-of-way needs to be called out as private and identified.
 - c. All aerial and underground footer easements (in ROW)
- G. Specifications and Addenda: Legibly mark each section to record:
- 1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 - 2. Changes made by field order or by change order.

H. Photographs:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Changes made by field order or by change order.

1.05 SUBMITTAL

A. Record drawings shall be submitted to the Engineer with pay applications, and partial and final releases in the following formats:

1. All incoming as-built survey AutoCAD drawing files shall be received on CD-ROM in a jewel case and in state plane coordinates. The disk label shall include the following:
 - a. Engineering and/or Survey Company Name with prepared by statement
 - b. Project Name
 - c. City of Fort Lauderdale Project Number
 - d. Date the data is burned onto disk
 - e. Designate "Record Drawings", "Preliminary Record Drawings", or "Final Record Drawings"
2. Four (4) - 24" by 36" hard copies, signed and sealed.
3. One (1) – 24" by 36" mylar set, signed and sealed.
4. An electronic PDF of the record drawing.
5. AutoCAD Files must be submitted in DWG format, latest AutoCAD version.
6. Each file should be for one section of development and one layer as described in 1.04. Multiple sections will not be accepted in one file.
7. Tie into section corners in the Florida State Plane Coordinate System to insure proper orientation at each end of baseline.

B. At Contract close-out, deliver Record Documents to Engineer for the Owner.

C. 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

1.06 AS-BUILT SURVEYS

A. CONTROL INFORMATION FOR AS-BUILT UTILITY SURVEY WORK

1. All as-built drawings shall state in 1" lettering "AS-BUILT RECORD SURVEY" located in the bottom right hand side of the drawing original and/or copies, along with the as-built date.
2. All as-built surveys shall meet the minimum requirements of the Chapter 61G17, Florida Administrative Code Pursuant to Section 472 of the Florida Statutes. All surveys shall be based on a minimum horizontal control Third Order, "Class 2."
3. All state plane coordinates shall be based on the Florida State Plane Horizontal Data (East Zone); Florida High Precision Geodetic Network (Superstation) and NAD 83/1990 – final adjustment.
4. State plane coordinates shall be physically tied to a minimum of two known state plane coordinate benchmarks that utilize number 3 above. State plane coordinates shall be shown on survey at benchmarks used.
5. All elevations shown shall be based on NGVD 29.
6. All record data shall be digitally positioned on the design drawings prepared by the engineer of record. Said design drawings shall be complete and include both plan and profile views of the infrastructure.
7. All as-builts shall clearly depict as-built utility lines that were constructed along with all easements.
8. All as-builts shall include the information required by the City Standards.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01730**OPERATION AND MAINTENANCE MANUALS****PART 1 – GENERAL****1.01 RELATED INFORMATION**

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
 - 1. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of Specifications.
- B. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01300 - Submittals
- C. Section 01720 - Project Record Drawings

I.03 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual and electronic format for use by Owner's personnel.
- B. Hard-Copy Format:
 - 1. Size: 8-1/2 in. x 11 in.
 - 2. Text: Manufacturer's printed data, or neatly typewritten.
 - 3. Drawings:
 - a. Provide reinforced punch binder tab, bind in with text.
 - b. Fold larger drawings to the size of the text pages.
 - 4. Provide fly-leaf for each separate product, or each piece of operating equipment.

- a. Provide typed description of product, and major component parts of equipment.
5. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
 1. Commercial quality expandable catalog binders with durable and cleanable plastic covers.
 2. When multiple binders are used, correlate the data into related consistent groupings.
- D. Electronic format shall be in .pdf file format. Copies of specific manuals shall either be scanned or converted to .pdf format and submitted on CD disc to Owner. Submit after approval of hard copies.

I.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in a systematic order.
 1. Contractor, name of responsible principal, address and telephone number.
 2. A list of each product required to be included, indexed to the content of the volume.
 3. List, with each product, the name, address and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify the area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
 1. Include only those sheets which are pertinent to the specific product.

- 2. Annotate each sheet to:
 - a. Clearly identify the specific product or part installed.
 - b. Clearly identify the data applicable to the installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
 - 1. Supplement product data with drawings as necessary to clearly illustrate relations of component parts of equipment and systems.
 - 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - 3. Do not use Project Record Documents as maintenance drawings.
- D. Written text, as required to supplement product data for the installation:
 - 1. Organize in a consistent format under separate headings for different procedures.
 - 2. Provide a logical sequence of instructions for each procedure.
- E. Copy of each warranty issued.
 - 1. Provide information sheet for Owner's personnel, give:
 - a. Proper procedures in the event of failure.
 - b. Instances which might affect the validity of warranties.

I.05 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit three (3) complete copies of manual in final form.
- B. Content, for each unit of equipment and system, as appropriate:
 - 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of all replaceable parts.
 - 2. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.

- c. Summer and winter operating instructions.
 - d. Alignment, adjusting and checking.
 3. Servicing and lubrication schedule:
 - a. List of lubricants required for each piece of equipment.
 - b. Schedule for manufacturer recommended maintenance.
 4. Manufacturer's printed operating and maintenance instructions.
 5. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 6. Manufacturer's written warranties for parts and labor.
 7. Other data as required under pertinent sections of specifications.

I.06 SUBMITTAL SCHEDULE

- A. Submit one copy of completed data in final form fifteen days prior to final inspection or acceptance.
 1. Copy will be returned after final inspection or acceptance, with comments.
- B. Submit specified number of copies of approved data in final form 10 days after final inspection or acceptance.

I.07 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01740**WARRANTIES AND BONDS****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittal when so specified.
- D. Review submittals to verify compliance with Contract Documents
- E. Submit to Engineer for review and transmittal to Owner

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01700: Contract Closeout.
- C. Each respective section of Specifications shall have Warranties and Bonds required for specific products.
- D. Provisions of Warranties and Bonds, Duration: The respective section of specification which specifies the product.

1.03 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item
 - 2. Firm, with name of principal, address, and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.

5. Duration of warranty, bond or service maintenance contract.
6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure
 - b. Instances which might affect the validity of warranty bonds.
7. Contractor, name of responsible principal, address and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size 8-1/2" X 11" punched sheets for 3-ring binder
 - a. Fold larger sheets to fit into binders
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS." List:
 - a. Title of project
 - b. Name of Contractor
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic cover.
- D. Provide one electronic Adobe Acrobat format copy of warranties, bonds, and service maintenance contract on Compact Disc.

1.05 TIME OF SUBMITTALS

- A. Make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing the date of acceptance as the start of the warranty period.

1.06 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, and service and maintenance contracts as specified in the respective sections of Specifications, as appropriate.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTIVE

NOT USED

END OF SECTION

SECTION 02016**EXISTING UTILITIES AND STRUCTURES****PART 1 – GENERAL****1.01 GENERAL**

- A. The plans depict the approximate location of the existing utilities. The locations of those facilities (horizontal and vertical) were obtained from record drawings. Guarantee is not made that all existing underground utilities are shown or that the location of those shown are entirely accurate. Finding the actual location of any existing utilities is the contractor's responsibility and shall be done before he commences and work in the vicinity. Furthermore, the contractor shall be fully responsible for any and all damages due to the contractor's failure to exactly locate and preserve any and all underground utilities.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor shall notify the Sunshine State One Call of Florida (SSOCF) service at 811, 48 hours prior to digging.
- B. Locate the cables, ducts, conduit, pipeline, etc. in advance of the proposed construction.
- C. Notify Engineer of any substantial changes and/or conflicts that would require a deviation in the plans. Late discovery of existing underground utilities does not constitute "required" deviations should early discovery prevent them.
- D. Repair any damage done to existing utilities at no additional expense to the Owner.
- E. Remove or modify those utilities scheduled to be removed or modified on the plans.

1.03 PRECONSTRUCTION VIDEO

- A. At least one (1) week prior to the start of construction, the contractor shall have video recordings taken of the entire project area. This area includes but is not limited to, the entire length of the uplands utility and FPL work, the construction staging area, the site area around the new and existing building, and the inside of the existing building including the upstairs, dry

pit, and wetwell. Such recordings shall be provided to the Owner and Engineer before the commencement of construction. These recordings shall serve as record of the conditions as they existed prior to the start of the work. They will be used in the event of a dispute that arises from restoration or damage claims. The contractor shall pay particular attention to existing damage on public and private property near the work area and ensure that these items are documented on the video.

- B. Video tapes are to be delivered to the Owner and Engineer on a DVD in a standard video format that is able to be viewed on a Windows operating system. All videotapes shall become the property of the Owner.

END OF SECTION

SECTION 02060**SANITARY SEWER****PART 1 - GENERAL****1.01 SYSTEM DESCRIPTION**

- A. These Specifications shall govern the design, materials and installation requirements for sanitary sewer systems constructed within the City of Fort Lauderdale as shown on the plans.
- B. This Specification does not purport to cover all material or installation procedures which may be required, whether by the nature of the proposed work, or by the City, or by other regulatory agencies.
- C. It is 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.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01090 – Reference Standards
- B. Section 01300 - Submittal and Progress Schedules
- C. Section 15060 – Pressure Piping Systems

1.03 SUBMITTALS

- A. Submit manufacturers' literature and data for all materials.
- B. Submit drawings accurately showing wastewater collection systems and related site improvements in their installed locations prior to the placement of any asphalt or concrete pavement.
- C. Submit complete "as-built" information in the form of Project Record Documents as required by Section 01300, "Submittal and Progress Schedules":
 - 1. Maintain accurate, clear, legible and complete records forming a true representation of the Work completed and in progress.
 - 2. Provide drawing and specification documentation relative to:
 - a. Center of manholes, valves, services and fittings

- b. Vertical and horizontal locations of all fittings, cleanouts, and connection points.
- c. Pipe length, size, and material type.
- d. Television inspection, lamping tests, and any other required testing results.
- e. Dimensioned locations and elevations of all other related improvements and system components.

1.04 QUALITY ASSURANCE

- A. All material and installation shall be in accordance with the City of Fort Lauderdale Specifications and Standard Details.
- B. The material and installation for this project shall be in full compliance with all applicable standards listed in Section 01090 – Referenced Standards.
- C. Inspections: Contractor shall notify the City of Fort Lauderdale, Engineer, and any other local, state or federal agencies having jurisdiction at least 48 hours prior to arrange the required inspection of the sanitary sewer system.

1.05 DESIGN REQUIREMENTS

- A. General:
 - 1. Sanitary sewer systems shall be designed in accordance with State of Florida Department of Environmental Protection (FDEP) rules for wastewater facilities (Chapter 62-604), with the Recommended Standards for Wastewater Facilities ("Ten States Standards"), and the recommendations of Chapter 12 of ASCE Manual No. 37, "Sewer Design and Construction", except as otherwise provided herein. Wet wells and manholes shall be classified as hazardous areas, Class 1, Division 2, Group C.
 - 2. In addition, systems shall be designed in accordance with the requirements of the Broward County Environmental Protection and Growth Management Department Development and Environmental Regulation Division, the requirements of the latest edition of the Florida Building Code and the City of Fort Lauderdale Engineering Department Standards and Specifications.
 - 3. Manhole to manhole runs shall be kept in the range of no more than 300 feet without permission.
 - 4. Minimum slope for terminal runs shall be 0.40 percent for eight-inch pipe. This slope shall be maintained for a minimum of 300 feet and longer if loading is abnormally light.
 - 5. Design shall be performed by experienced personnel who have previously designed sewerage collection systems in the State of

Florida. All design work submitted for approval shall be signed, sealed and dated by a registered professional engineer licensed to practice in the State of Florida.

6. Sewer pipe shall be installed in accordance with ASTM D-2321, and the manufacturers "recommended practice for the installation of PVC sewer pipe".
7. DIP shall be installed in accordance with ANSI/AWWA C600 latest revision.
8. Minimum design slopes for sanitary sewers as flows:

8 inch – 0.40%, 10 inch – 0.28%, 12 inch – 0.22%, 18 inch – 0.12%

1.06 SAFETY REQUIREMENTS

- A. The Contractor shall be in compliance with all applicable provisions of the Occupational Safety and Health Act of 1970, in general, and any subsequent amendments and revisions thereto, especially the provisions concerning confined space entry.
- B. The Contractor's personnel will be in the vicinity of raw sewage. For their own protection, the Contractor shall check with the Florida Department of Environmental Protection, and based upon their recommendation, shall have his personnel properly immunized against disease.
- C. Under this project, personnel may be required to enter existing manholes and/or sewers to perform work. Before entering, the Contractor shall be in compliance with OSHA, and shall make certain that above-ground safety personnel be on duty at all times when someone enters or works in a manhole/sewer and shall test the air within the manhole/sewer with a combination oxygen deficiency meter/explosion meter to determine oxygen content and explosion potential. A test for the presence of hydrogen sulfide shall also be performed. The work area must be ventilated mechanically by the use of an air blower before entry and during occupancy, to ensure that an adequate quantity of oxygen is supplied to the work area.
- D. The Contractor shall comply with all requirements for Traffic Regulations and Maintenance of Traffic per the jurisdiction having authority, and shall have the required traffic control devices, flagmen and uniformed police officers in place for the protection of the public and of the workers.
- E. In the instance of men working within the manholes, the Contractor shall provide safety provisions to cover any possible consequences of structural failure and/or flooding. Such provisions might take the form of, but not be limited to, ladders in position to permit rapid egress, safety harnesses,

stand-by pumping equipment, extra air supplies, and such other measures as the situation and good construction practices might indicate.

- F. Certain products specified for use on this project may include warnings from the manufacturers stating that under certain conditions, if instructions for proper use of the product are not followed, hazardous conditions may arise. It is the Contractor's responsibility to instruct all workmen in the safe use of all specified products or approved substitutes.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All material for use in the Project shall be new and of recent domestic manufacture and shall be the products of reliable manufacturers or suppliers who, unless otherwise specified, have been regularly engaged in the manufacture of such materials and equipment for at least five (5) years.
- B. All fittings and components shall, wherever possible, be standard stock articles of well-known manufacturers.
- C. Where the Specifications designate the products of a particular manufacturer, the product specified has been found suitable for the intended use, but, unless otherwise provided, articles or products of similar characteristics may be offered for the approval of the City.
- D. Copies of complete descriptive data shall be furnished regarding all material, consisting of dimension drawings, catalog references and other information necessary to clearly identify each article.
- E. When substitutions are permitted, the Contractor shall make all necessary changes in adjacent or connected structures and equipment, at his expense
- F. Unless otherwise specified, all bolts, nuts, washers and all other miscellaneous ferrous metal items (except ductile iron) furnished by the Contractor shall be AISI Type 316 stainless.

2.02 CASTINGS

- A. General:
 - 1. Material used in the manufacture of the castings shall conform to ASTM A48, "Gray Iron Castings", for Class 30 iron. Manhole and

valve box covers shall have a roadway or pedestrian type surface as required by location and shall be non-rocking.

2. Castings shall be delivered unpainted with a shot-blasted finish.

B. Manhole Frames and Covers:

Refer to Section 02070, "Sanitary Sewer Manholes".

C. Air Release Valve Manhole Frames and Covers:

1. Air release valve (ARV) manhole covers and frames shall be U.S.F. Type 1341 ring with AG-M cover as manufactured by U.S. Foundry, Inc., or approved equal. The smaller cover shall have two adjustable Camlocks for securing it to the larger cover, and four 1"-diameter vent holes to prevent uplift during sudden bursts of air. The covers shall be cast labeled "AIR RELEASE".

D. Clean-out Covers:

1. Clean-outs shall have brass, threaded plugs on 6-inch risers or CISP clean-out extensions set flush with surrounding grade. If the cleanout is within an unpaved area, it shall be set on a 18"x18"x4" thick square concrete collar reinforced with a continuous #3 bar.

2.03 BRICK

- A. Clay Brick: Bricks for manhole construction shall be dense, hard burned, common clay brick conforming to ASTM Standard C62, "Building Brick (Solid Masonry Units made from Clay or Shale)", except that brick absorption shall be between 5 and 25 grams of water absorbed in 1 minute by dried brick, set flat face down, in 1/8 inch of water.
- B. Concrete Brick: Concrete bricks shall conform to ASTM Standard C55, "Concrete Building Brick".
- C. All bricks shall have true edges and sharp corners and shall have been cured for at least 14 days before being placed.
- D. Thoroughly wet all brick before laying up.
- E. Lay up with shove joint in full beds, thoroughly slushed up with mortar at every corner.

2.04 CONCRETE, MORTAR AND GROUT

See Section 03310 – Mortar and Section 03315 - Grout.

2.05 EMBEDMENT MATERIAL

- A. Embedment material for bedding, haunching and initial backfill shall conform to the requirements of Section 02200 - Earthwork, Excavation and Backfill.

2.06 MANHOLES

Refer to Section 02070 - Sanitary Sewer Manholes.

2.07 SANITARY SEWER PIPE AND FITTINGS

- A. General:

- 1. Pipe for use in sanitary sewer systems shall be Ductile Iron lined with polyethylene or ceramic epoxy (Protecto 401), PVC SDR 26, or AWWA C900, C905 PVC as shown on the plans or called out elsewhere herein. For further information on these types of pipe, refer to Section 15060, "Pressure Piping Systems".

- B. Sanitary sewer pipe and fittings:

- 1 PVC sewer pipe and fittings shall be non-pressure polyvinyl chloride pipe conforming to ASTM D-3034, SDR 26, with push-on rubber gasket joints unless otherwise noted.
- 2 Ductile Iron Pipe (DIP) shall be epoxy lined conforming to ANSI / AWWA C104/A21.4 latest revision, or polyethylene lined inside conforming to ANSI / AWWA C105/A21.5 or approved equal and shall have a coal tar epoxy exterior coating, manufactured in accordance to ANSI / AWWA C151/A21.51 latest revision, minimum wall thickness class 350 (unless otherwise specified). Class 52 shall be used in paved areas.
- 3 All fittings and accessories shall be as manufactured or supplied by the pipe manufacturer.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Existing Utilities

1. Provide temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the Work.
 2. Permanently support, relocate, remove, or reconstruct existing utility structures (such as conduits, ducts, pipe branch connections to main sewers, main drains or other structures) where the grade or alignment of the pipe is obstructed Deviations from the required line or grade: Not permitted.
 3. Contact the "No-Cuts" Center and verify existing utility field locations at least 48 hours prior to beginning any excavation.
 4. Verify the size, location, elevation, and material of all existing utilities within the area of construction.
- B. Unloading Materials: Exercise care in unloading and handling pipe, valves, fittings, and all other material.
- C. Excavation
1. Excavate pipe trenches to required depths.
 2. In general, water distribution lines have a minimum of 36 inches cover.
 3. If rock is encountered, excavate to a minimum of 6 inches below bottom of pipe, and backfill trench.
 4. Width of trench: Sufficient to allow workmen to perform all operations incidental to constructing the pipeline.
 5. Provide hand dug bell holes to permit proper joint making.
 6. Pipe bearing on rock: Not Permitted.

3.02 INSTALLATION

- A. Install sewer pipe under provisions of ASTM D2321 and the Uni-Bell Plastic Pipe Association's "Recommended Practice for the Installation of PVC Sewer Pipe".
- B. Lay pipe commencing at the lowest point, with spigot ends pointing in the direction of flow:
1. Lay all pipes with ends abutting and true to line and grade.
 2. Carefully center pipe and form a uniform invert.
 3. Lay pipe under provisions of manufacturer's requirements.
- C. Lay pipe accurately to the line and grade required for system performance:
1. Clean and dry all surfaces of the portions of the pipe to be jointed or of the factory-made jointing material.

2. Use lubricant, primers, adhesives, etc. as recommended by the pipe or joint manufacturer's specifications.
 3. Place, fit, join and adjust jointing materials or factory-fabricated joints in such a manner as to obtain a watertight line.
 4. Place sufficient backfill material along each side of the pipe to prevent movement of pipe off line and grade as soon as possible after the joint is made.
- D. Plug exposed ends of pipes to prevent earth, water or other substances from entering the pipe when construction is not in progress.
- E. Neoprene boot with stainless steel accessories: Grout Harco or similar manhole couplings in place with non-shrink grout at each pipe connection into a manhole wall.
- F. Cleanouts: Install at all services exceeding 75 feet in length with cleanouts at the property line, or 5 feet from a building.
- G. All sanitary sewer service piping/laterals shall be 6-inch minimum diameter with minimum slope of 1/8-inch (vertical) per foot (horizontal) and 36-inch minimum ground cover.
- H. Minimum slope of all service lines shall be as indicated in the "Florida building code".
- I. Service laterals shall terminate at a depth not to exceed 30 inches below finished grade.
- J. Each service connection shall be plugged watertight with an approved plug.
- K. The end of each service connection shall be marked with 2" x 4" treated stake painted, extending 18 inches (minimum) above grade. If house connection is not made within thirty days, a clean-out inside a valve box with an electronic marker must be installed.
- L. Contractor shall rough in riser to 1 foot above finished grade and plug. At project completion, cut back to finished grade.
- M. Connection of services to building's plumbing shall be coordinated with the City of Fort Lauderdale building department, plumbing section.
- N. Concrete Encasement of Sewer Pipe:
1. Excavate trenches with mechanical equipment.

2. Provide temporary supports consisting of timber, wedges or masonry prior to formation of the encasement to support the pipe in place.
3. Provide temporary supports of minimum dimensions and support the pipe at not more than 2 places, 1 at the bottom of the barrel of the pipe adjacent to the shoulder of the socket, and the other near the spigot end.
4. After completion of jointing of the pipe has been completed, uniformly pour concrete beneath and on both sides of the pipe. Provide uniform encasement of at least 4 inches thick at all points.

3.03 FIELD QUALITY CONTROL

- A. Protect pipe during handling against impact shocks and free falls. Keep pipe clean at all times. Do not use pipe that does not conform to the specifications.
- B. Notify the utility company and authorities having jurisdiction at least 48 hours prior to beginning construction in order to arrange inspection of the sanitary sewer.
- C. The entire sewer system, including services/laterals and manholes, shall be tested in whole or in sections in accordance with the specifications and permits.
- D. Temporary Drainage During Construction
 1. Construct and maintain temporary drainage facilities, which may be required to provide drainage relief for the new construction without causing abnormal or adverse flooding impacts to the existing or new facilities.
 2. Temporary facilities may include swales, pipe, etc. as necessary.
- E. Restoration of Surfaces and Structures
 1. Restore and replace paving, curbing, sidewalks, fences, sod, survey points, or other disturbed surfaces or structures to a condition equal to that before the work was begun.
- F. Cleaning Up
 1. Remove surplus pipeline material, tools, temporary structures, etc.
 2. Dispose of all dirt, rubbish, and excess earth off site.

END OF SECTION

SECTION 02064**MODIFICATIONS TO EXISTING STRUCTURES AND EQUIPMENT****PART 1 - GENERAL****1.01 SCOPE OF WORK**

- A. The Contractor shall furnish all supervised labor, materials, equipment, and incidentals required to remove, modify, rehabilitate, alter and/or convert existing structures as shown or specified and as required for the installation of new mechanical equipment, piping, and appurtenances.
- B. Rehabilitation includes but is not limited to the following:
 - 1. Remove, salvage, abandon, or dismantle existing piping and equipment as specified.
- C. After removal of existing equipment, the City does want to retain all submersible pumps, pump station control panels and generator systems. Contractor to clean all equipment and return to the City accordingly.

1.02 NOTICES

- A. The Contractor shall inform the City and the Engineer of the date of commencement and anticipated completion of the work one week before actual work begins. The Contractor shall coordinate all work and scheduling with the City.

PART 2 – PRODUCTS (Not Used)**PART 3 - EXECUTION****3.01 GENERAL**

- A. The Contractor shall cut, repair, re-use, excavate, demolish, or otherwise remove parts of the existing structures or appurtenances, as indicated on the Contract Drawings, herein specified, or as necessary to allow completion of the Work under this Contract. Contractor shall dispose of unwanted surplus materials resulting from the above work in a manner consistent with all Federal, State and local laws.
- B. The Work shall include all necessary cutting and bending of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.

- C. The Contractor shall dismantle and remove all existing equipment, piping, and other appurtenances required for the completion of the Work. Where called for or required, the Contractor shall cut existing pipelines for the purpose of making connections thereto. Anchor bolts for equipment and structural steel removed shall be cut off 1" below the concrete surface.
- D. No existing structure, equipment, or appurtenances shall be shifted, cut, removed, or otherwise altered except as indicated in the Contract Documents or with the express approval of and to the extent approved by the Engineer.
- E. When removing materials or portions of existing structures, or when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work and so as not to damage the structures or contents by falling or flying debris. Unless otherwise permitted, line drilling will be required in cutting existing concrete.
- F. All cutting of existing concrete or other material which requires bonding to new work shall be done in a manner to meet the requirements of the respective section of these Specifications covering the new work. If the work is not covered, the cutting shall be carried on in the manner and to the extent directed by the Engineer.
- G. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved, restrained, joint. Where required, the Contractor shall weld beads, flanges, or provide Dresser couplings, as required.
- H. Blasting will not be permitted to complete work under this Contract.

3.02 CONNECTING TO EXISTING PIPING AND EQUIPMENT

- A. The Contractor shall verify exact location, material, alignment, joint, etc., of existing piping and equipment prior to making the connections called out in the Drawings. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection.

END OF SECTION

SECTION 02065

DEMOLITION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all supervised labor, materials, equipment, and incidentals required for the removal of the existing wastewater pumps with associated piping, electrical and mechanical equipment, etc.
- B. The Contractor shall furnish all supervised labor, materials, equipment, and incidentals required for the miscellaneous pump station structural, mechanical, and electrical demolition as shown on the plans.
- C. The Contractor shall furnish all supervised labor, materials, equipment, and incidentals required for the removal of the existing ventilation system and associated mechanical, electrical, ducting, silencers, exhaust fans, mufflers, etc.
- D. The Contractor shall furnish all supervised labor, materials, equipment and incidentals required for the above grade and below grade structural demolition as shown on the plans.
- E. Removal procedures are as outlined below:
 - 1. Install approved bypass pumping system, remove and dispose of specified existing piping, mechanical equipment, electrical equipment and miscellaneous appurtenances encountered during construction operations.
 - 2. Temporarily modify structures, equipment, appurtenances and utilities as necessary to allow for operation of the facilities during construction.
 - 3. Demolish, remove and cut existing concrete and masonry structures as required for the new construction.
 - 4. Handle existing equipment to be reinstalled or salvaged as specified.
 - 5. Arrange for off-site disposal of excess and unacceptable materials including but not limited to concrete, concrete blocks, bricks, steel,

PVC, DIP, fuel, etc. All materials are to be disposed of in a legal manner.

6. This section may not cover all of the activities necessary to perform the work. The Contractor shall exercise due concern for the utility system operation and shall diligently direct all of the Contractor's activities toward maintaining continuous operation of the existing facilities and minimizing operation impacts.
7. The general sequence of demolition is described in Section 01010, Work Sequence.
8. It is understood that there will be certain times that the station will be out of service. During these times, the Contractor shall provide for the appropriate bypass pumping or make the modifications necessary to maintain at least one main pump in service at all times.

1.02 RULES AND REGULATIONS

- A. The Building Code of the State of Florida shall control the demolition, modification or alteration of the existing site.
- B. No blasting shall be done on site.
- C. Refer to the City of Fort Lauderdale and the project permits for additional requirements.

1.03 ACCESS

- A. Conduct demolition and modification operations, and the removal of equipment and debris to ensure minimum interference with roads and walks both on-site and off-site and to ensure minimum interference with occupied or used facilities.
- B. Special attention is directed towards maintaining safe and convenient access to the existing facilities.
- C. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the Owner. Provide alternate routes around closed or obstructed traffic in access ways.

1.04 PROTECTION

- A. The Contractor shall conduct construction activities to minimize damage to adjacent buildings, structures, roadways, utilities, storm drainage, and other facilities, including persons.

1.05 DAMAGE

- A. The Contractor shall immediately report damage caused to adjacent facilities by demolition operations. The Contractor shall promptly make all required repairs as directed by the Engineer and at no cost to the Owner.

1.06 UTILITIES

- A. It shall be the Contractor's responsibility to maintain existing utilities in service and protect against damage during demolition operations.

1.07 POLLUTION CONTROL

- A. For pollution control, use sprinkling, temporary enclosures, and other suitable methods as necessary to limit the amount of dust and dirt rising and scattering in the air to the lowest level of air pollution practical for the conditions of work. Comply with the governing regulations.
- B. Clean adjacent structures and improvements of all dust, dirt, and debris caused by demolition operations. Return areas to conditions existing prior to the start of work.
- C. Pollution control measures outlined in the Stormwater Pollution Prevention Plan shall be implemented during the entire construction timeline to control turbidity and sediment discharges to the stormwater system
- D. The Contractor shall provide for any required water quality monitoring programs as may be outlined in the SFWMD Dewatering Permit, if applicable.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 02070**SANITARY SEWER MANHOLES****PART 1 - GENERAL****1.01 SCOPE**

- A. The work specified in this Section includes all labor, materials, accessories, equipment and tools required for the construction, installation and testing of precast concrete sanitary sewer manholes, with or without outside drop connections. Manholes shall be located along sanitary sewer mains or at the intersection ("T") of sanitary sewer mains. Work in this section also includes frame/rim leveling and adjustment, manhole coatings, invert flow channels, connections to new and existing manholes, and connections to existing sewer.

1.02 RELATED WORK

- A. Section 01300 – Submittal and Progress Schedules
- B. Section 02200 - Earthwork, Excavation and Backfill

1.03 REFERENCES

- A. American Society for Testing and Materials/Latest Edition
 - 1. ASTM A-48 - Specification for Gray Iron Casting
 - 2. ASTM C-62 - Specification for Sewer and Manhole Brick
 - 3. ASTM C-139 - Specification for Concrete Masonry Units for Construction
 - 4. ASTM C-443 - Specification for Joints for Circular Concrete, Sewer and Culvert
 - 5. ASTM C-478 - Specification for Pre-Cast Reinforced Concrete Manhole Sections
 - 6. ASTM C-923 - Specification for Resilient Connections Between Reinforced Concrete Manhole Structures, Pipes and Laterals
 - 7. ASTM C-1244 - Air Testing

1.04 SUBMITTALS

- A. The Contractor shall submit Shop Drawings and other information for review in accordance with Section 01300 - Submittals, including: dimensions; elevations; dewatering, sheeting and bracing plans; cement type; concrete strength; reinforcement; lifting hooks; joint material; openings; castings; and other applicable information.

B. Qualification

1. The Qualifications of the Manhole Installation Contractor shall be submitted prior to contract award. These qualifications shall include detailed description of the following:
 - a. Name, business address and telephone number of the Manhole Installation Contractor.
 - b. Names of all supervisory personnel to be directly involved with manhole installation for the project.
 - c. The Contractor shall sign and date the information provided and certify that to the extent of his/her knowledge, the information is true and accurate, and that supervisory personnel will be directly involved in this project. Substitutions of personnel and/or methods will not be allowed without written authorization of the City.
 - d. The Contractor shall provide his references of previous project lists going back five years including his customers' name, address, and telephone number.
 - e. Five years of previous related experience shall be required to be qualified in bidding this project.

1.05 UPLIFT

- A. All precast concrete manholes placed below grade shall have adequate safety factors against uplift (excluding weight of soil and associated skin friction) as follows:

<u>Water Elevation</u>	<u>Safety Factor</u>
High Water Level (H.W.L.)	1.5
100-year flood elevation	1.2

PART 2 - PRODUCTS

2.01 FRAMES AND COVERS

- A. All workmanship and materials shall be of the highest quality. The manhole ring and cover shall be the product of a manufacturer actively engaged in research, development, and manufacturing of watertight manhole rings and covers.
- B. Castings for frames and covers for manholes shall be composed of best quality, tough, gray iron, free from cold shuts, blow holes, and other imperfections, and shall meet the requirements of ASTM A-48 for Class No. 30B, designed for AASHTO Highway Loading Class H-20.

- C. All bearing surfaces shall be machined to fit true and shall be watertight. No plugging or filling will be allowed.
- D. The combined weight of the frame and cover shall not be less than 395 pounds and cover shall weigh a minimum of 155 pounds.
- E. All sanitary sewer manhole covers shall bear the words "Sanitary Sewer" and contain two non-penetrating pick holes.
- F. Frame and cover shall be set to grade. Lid adapters or adjustment rings shall not be used on new construction.
- G. Frames and covers shall be U.S. Foundry or approved equal.

2.02 PRECAST MANHOLES

- A. Precast concrete manholes or sections (hereinafter referred to as "precast sections") shall be furnished with waterstops, sleeves and openings as noted on the Drawings. Box out for wall pipes shall conform accurately to the sizes and elevations of the adjoining pipes. Precast sections shall be watertight and conform to the requirements of ASTM C 478 with reinforcement of ASTM A 615, Grade 60 bars and the following modifications there to:
 - 1. The minimum wall thickness shall be 8 inches.
 - 2. Cement to be used in precast manholes and grout shall be ASTM C 150, Type II.
 - 3. The date and name of manufacturer shall be marked inside each precast sections.
 - 4. No more than 2 lift holes may be cast or drilled in each section.
 - 5. Minimum 28-day concrete strength shall be 4,000 psi.
- B. Walls of manholes shall be constructed of reinforced concrete ring sections with a minimum inside diameter of forty-eight (48) inches. Riser sections shall have tongue and groove ends (tongue on top of section). Top sections shall be of eccentric cone or flat slab top design as required by the Drawings. Eccentric cones shall have the same minimum wall thickness and area of circumferential steel reinforcement as the round riser sections. Flat slab tops shall have a minimum thickness of eight (8) inches and shall be reinforced with steel in accordance with the design requirements specified in ASTM C-478.
- C. Top sections shall have a top width of such design and dimensions as to properly support the required manhole frame and cover and the lower joint shall be of tongue and groove design.

- D. Top sections of cones or flat tops shall have an opening of thirty (30) inches.
- E. Manholes shall be precast per ASTM C-478 type 2 with 4000 psi concrete and Grade 60 steel, monolithically poured bases only.

2.03 REINFORCED CONCRETE BASES

- F. Pre-cast reinforced concrete bases shall normally be used in lieu of cast-in-place concrete bases.
- G. The base, for either type, shall extend six (6) inches beyond the outside face of the manhole wall and shall be at least eight (8) inches thick.
- H. Bottom section walls shall be monolithically cast with the base section to a minimum height of three feet (3') from the bottom of the base slab.
- I. Pre-poured flow lines in base are generally not accepted and will be approved only after inspection of a completed example.

2.04 MANUFACTURER

- J. Manhole structure shall be manufactured by U.S. Precast Corporation or approved equal.

2.05 PRE-CAST CONCRETE GRADE RINGS

- K. Grade rings shall be pre-cast; reinforced concrete in solid rings a minimum of 8" wide from 1" to 4" thick.
- L. Pre-cast concrete (grade) rings shall be manufactured in accordance with ASTM C-478.
- M. Rings shall have dimensions matching inside diameter of cone or flat top sections and be of adequate outside diameter to support full manhole frame.
- N. Field molding of grade rings is prohibited.

2.06 GRADE RING SEALANTS

- O. Grade rings shall be installed using modified polymer sealant/adhesive between each sealing face, Evergrip 990 Series or equal with approved submittal

2.07 GASKETS AND FINISH

- P. Sections shall be joined with a mastic compound set into the annular space cast into the spigot ends of bell and spigot type joints to form a watertight seal. Sealing compound shall be of either bituminous or butyl rubber. Material shall be in strip or rope form, supplied with a two-piece cover to preclude adhesion until use. Approved sealing compounds:
1. Ramnek
 2. Lockstop
 3. Equal with approved submittals.
- H. Finish for inside of new concrete manhole sections shall be SewperCoat® mortar (or approved equal) applied in accordance with the manufacture's recommendations.
- I. The entire exterior of the manholes shall be coated with one coat of Devoe Devtar 247 coating or approved equal.
- J. Manholes openings are to be sealed with anti-hydro cement or approved equal. No molding plaster will be allowed.
- K. Manhole joints shall be sealed with "ramnek" gaskets or approved equal and with anti-hydro cement on the inside and outside.
- L. All openings and joints shall be sealed water-tight.

2.08 PIPE-TO-MANHOLE CONNECTIONS

- A. Pipe-to-manhole connectors are required on all pipe connections to the structure, sized for respective pipe.
- B. Pipe opening shall be fitted with seals cast integrally with manhole section, sized to fit pipe specified, and set at correct elevation and location, or,
- C. Pipe openings shall be pre-cast four inches (4") larger than the pipe with a keyway all around the opening.
- D. Sewer pipe connections to manholes shall be made with flexible, resilient, waterproof connectors designed in accordance with ASTM C923, "Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals". Resilient pipe connectors shall be installed following casting in a cored or cast opening of the manhole wall. When the pipe is installed in the resilient manhole connector, the pipe shall be capable of a 20 degree minimum deflection in any direction.

- E. Resilient connectors shall either be of the gasket-type, or flexible neoprene boot with stainless steel clamps.
- F. Approved pipe seal manufacturers:
 - 1. Trelleborg Pipe Seals Milford, Inc. (NPC Kor-N-Seal)
 - 2. A-Lok Products, Inc.
 - 3. Dura Tech, Inc. - DUAL SEAL II-III
 - 4. Press Seal Gasket Corporation - PRES SEAL

PART 3 - EXECUTION

3.01 PREPARATION

- A. Traffic Control. The Contractor is required to obtain all permits, use appropriate traffic regulating devices, notify all appropriate governmental agencies and conform to all the requirements as specified.
- B. Flow Control. Flow control shall be exercised as required to ensure that no flowing sewage comes into contact with sections of the manhole under construction.
 - 1. Plugging and Blocking of Flow. A sewer line plug shall be inserted into the line at a manhole upstream from the section to be inspected. The plug shall be so designed that all or any portion of the sewage flows can be released. During the inspection, testing and replacement portion of the construction, flows shall be shut off or substantially reduced as indicated by the City. The upstream manholes shall be constantly monitored for degree of surcharging. After the testing, inspection or repair is complete, flows shall be restored to normal level.
 - 2. Pumping and Bypassing of Flow. Wherever lines are blocked off and the possibility of backing up the sewage and causing harm to public and private property is foreseen, it shall be the Contractor's responsibility to bypass flow from manhole to manhole as specified.
- C. Manholes shall be installed away from parking areas on the centerline of the roadway.

3.02 EXCAVATION AND BACKFILL

- A. The Contractor shall excavate, backfill, and compact in accordance with Section 02200 - Earthwork, Excavation and Backfill. Under no circumstances shall the Contractor be allowed to remove concrete or asphalt without prior cutting. The saw cutting shall be deep enough to

produce an even, straight cut. Backfilling shall occur in MAX 12-inch lifts with compaction by an engine driven hand tamp or other mechanical means as acceptable to the City.

3.03 DEWATERING, SHEETING AND BRACING

- A. The Contractor shall dewater, sheet and/or brace all excavations in accordance with Section 02200 - Earthwork, Excavation and Backfill. Well points, pumps, sheeting, bracing and/or sock drain shall be used to provide a safe, dry, open hole for all repairs or replacements specified herein.

3.04 NEW MANHOLE CONSTRUCTION

- A. General:

1. At the locations indicated by the City, the Contractor shall excavate and locate the existing piping in order to obtain the relative elevations of existing sanitary sewer pipes with respect to ground surface elevation. Excavation shall be non-disruptive and non-destructive soil extraction as provided by Accurate Locating, Inc. or approved equal. After all measurements have been obtained, the excavated hole shall be backfilled and surface shall be restored to its original condition. Excavation and measurements shall be witnessed by the City. Inside measurement shall be used when replacing existing manholes.
2. The sewer pipe connections shall be cut to 2 to 3 feet outside the existing manhole exterior wall. Proper dewatering sheeting and bracing of the hole is critical; no manhole shall be allowed to be installed in an unsafe or wet hole.

- B. Bedding Requirements: The Contractor shall excavate an additional 18 inches below the base of the manhole and fill with "Crushed Stone" as defined in Section 02200 - Earthwork, Excavation and Backfill and shown in the Drawings. The Contractor shall also use this crushed stone for bedding of all the sewer connections. No excavated fill shall be allowed in the hole until all connections are complete and proper bedding requirements have been met.

- C. Bases

1. Cast-in-Place
 - a. Base shall be to the design and dimensions indicated on the Drawings.
 - b. Set pre-cast wall section into fresh concrete for integral joint.

- c. When using wall sections that contain no integral pipe seals, use length of pipe which extends five (5) feet minimum from outside of base dimension. Place approved waterstop on pipe at center point of wall thickness.
- d. Flow channels shall be formed directly in the concrete of the manhole base and shall be smooth and accurately shaped to a semi-circular bottom conforming to the inside of the adjacent sewer sections. Changes in the direction of the sewer and entering branches shall have a true curve of as large a radius as the size of the manhole will permit. Channels shall be so conformed as to allow the unrestricted entry of television cameras into the sewer line.
- e. Complete concrete placement around pipe openings, working well into water stop. Finish flush on outside.
- f. All slopes (benches) outside flow channels shall be sloped gradual toward invert.

2. Pre-Cast

- a. Flow channels shall be placed after pipe placement.
- b. Flow channels, same size as pipe, may be constructed directly with the pre-cast base at time of manufacture. Submit manufacturer's product data to City for approval before placing order.

D. Setting Precast Sections

1. Precast reinforced concrete sections shall be set so as to be vertical and with sections in true alignment. A flexible, watertight gasket such as "Ram-Nek" or approved equal shall be used between sections. After the sections are assembled, the remaining space in the joint shall be pointed up and filled with a dense cement mortar and finished so as to make a smooth, continuous surface inside and outside the wall sections.
2. All holes in sections, used for their handling, shall be thoroughly plugged with mortar. All seams, keyways, and pipe connections shall be thoroughly plugged with brick and mortar inside and out as needed. The mortar shall be hammered into the holes until it is dense and an excess of paste appears on the surface; then finished smooth and flush with the adjoining surfaces.
3. The Invert Elevations that were surveyed by the Contractor prior to manhole construction shall be used to install the inverts in the new manhole. The inverts shall be resurveyed and submitted to the City for as-built purposes.
4. Manholes shall be set plumb to line and grade on firm clean subgrade providing uniform bearing under the base.

E. Frames and covers

1. Install pre-cast concrete grade rings, minimum of 4" and total maximum of 12", set in two (2) strips of modified polymer sealant/adhesive compound on each sealing face.
2. Bricks shall not be used for grade adjustment.
3. Set maintenance access structure frame to proper elevation and to cross-section slope where required. Set in two strips of sealing compound and cover with a bed of Portland cement and silica sand. Set frame in cement bedding and bring mortar up over frame. Recheck elevation due to possible sealant compression.
4. Contractor shall be responsible for adjusting the tops of all frames and covers to match the new paving elevation and providing a smooth even transition from pavement to maintenance access structure cover.
5. All lids shall be provided with a polyethylene watertight manhole insert.

F. Finish

1. The inside of the precast sections shall be finished in accordance with the following:

<u>Application</u>	<u>Description</u>	<u>DFT</u>
Primary – 1 Coat	SewperCoat PG Wet Spray mortar or approved equal	6-8
Second – 1 Coat	SewperCoat PG Wet Spray mortar or approved equal	8-10

G. Backfill

1. The backfill shall be compacted; road subgrade (if in paved area) shall be replaced with acceptable material and compacted as specified in Section 02200 – Earthwork, Excavation and Backfill. Prior to backfilling, ensure that all concrete cradles and encasements are dry; all spalls, scars, etc. are repaired; and all coatings have been applied.

3.05 DISPOSAL

- A. All excavated material such as pipe sections, concrete, debris or any other items excavated shall become property of the Contractor. The Contractor

shall take full responsibility for proper disposal and include the cost in the appropriate bid items.

3.06 TESTING

- A. After construction or replacement work at each manhole has been completed and the materials used have been allowed to cure, it shall be tested for excess infiltration by the Contractor in the presence of the City. The maximum allowable rate of infiltration is 0.0 gallon per hour per vertical foot of depth of the manhole. **THERE SHALL BE NO VISIBLE INFILTRATION.** All manholes must meet this requirement before acceptance by the City.
- B. Manhole leakage shall be nonexistent.
- C. Visible manhole and sewer pipe infiltration leakage shall not be permitted.

3.07 COVER ADJUSTMENT

- A. Adjustment of existing (old) work requiring raising shall be performed in accordance with this Section.
- B. Rises in excess of twelve (12) inches shall be made by removing the top section of the manhole and inserting pre-cast sections required to meet the required elevation.
- C. When elevation changes require removal of an existing manhole section(s), the City shall be consulted in advance of the work to determine the best method to accomplish the work. The City will inspect all work.
- D. Methods and materials for lowering manhole frames shall comply with this Sections.

3.08 CONNECTIONS TO EXISTING MANHOLE

- A. Contractor shall cut an opening (core-bore) in the existing manhole to a size to allow the pipe with a waterstop attached plus one (1) inch clearance on all sides. Cut out existing concrete channel fill, allowing room to form satisfactory new flow channel.
- B. Coupling Adapters (Boots) shall be installed sized for the opening and the pipe diameter.
- C. Place length of pipe to provide joint at five (5) feet minimum from outside of manhole wall or base. Center waterstop in wall, fill opening with waterproof non-shrink grout material and form new flow channel. Second

joint shall be five (5) feet ahead/back. Encase to first joint with Type II concrete.

- D. Pipe connection into manhole wall shall be PVC pipe, cast-in neoprene rubber boot, or equal as approved by the City of Fort Lauderdale Engineering Department.

3.09 CONNECTIONS TO EXISTING SEWERS

- A. For proposed sewers of a diameter equal to the existing sewer, a new manhole shall be constructed over the existing sewer to the proper invert elevation.
- B. Existing sewer service shall be maintained during base and flow channel work.
- C. When broken or damaged pipe results from this operation, replace with new pipe to meet current standards. Saw any piping to be removed to preclude cracking or irregular edges caused by breaking out with a hammer or using other methods.
- D. When replacing pipe, use pipe length to have a joint at five (5) feet minimum from manhole wall or base. Cradle and doghouse pipe to first joint with Class A concrete.
- E. For proposed sewers of eight (8) inch diameter or less, a direct connection to an existing sewer may be permitted by using a cutting-in saddle or wye. This method would generally apply to single family dwelling units. For industrial, commercial, or multifamily residences, the City may require that a manhole be constructed on the property to be served and over an existing sewer should one exist. All connections to existing sewers are subject to review by the City on an individual basis.
- F. Proposed sewers of a diameter larger than the existing sewer to which it is to be connected will not be normally permitted without providing additional capacity to the existing sewer.

3.010 DROP MANHOLES

- A. Drop connection shall be made where the invert of any inlet pipe is two (2) feet or higher than the invert out of the manhole.
- B. Pre-cast manhole sections shall have openings with integrally cast pipe seals to fit design elevations for new installations.

- C. Connection configuration to manhole shall be made in accordance with Standard Details.
- D. Entire configuration of piping shall be encased in Type II concrete to a minimum thickness of six (6) inches.

3.011 PLANNED PIPE OPENINGS

- A. When future pipe connections have been planned for manholes, they shall be plugged to preclude exfiltration and infiltration.
- B. With integral pipe seals, place a pipe stopper/plug of the size required, properly secured, for any thrust caused by testing, etc.

END OF SECTION

SECTION 02110**CLEARING AND GRUBBING****PART 1 - GENERAL****1.01 SCOPE**

- A. The work to be performed under this item shall consist of either the clearing of or the clearing and grubbing of the area of construction as designated on the drawings.
- B. Clearing - Where clearing only is required it shall consist of the cutting and removal of all trees, stumps, bush, logs, hedges, and the removal of all fences, concrete, debris, asphalt, and other loose or projecting material from the designated area. The grubbing of stumps and roots will be required.
- C. Clearing and Grubbing - Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which, in the opinion of Engineer, is unsuitable, including grubbing of stumps, roots, matter roots, foundations and disposal from the project of all spoil materials resulting from clearing and grubbing by burning or otherwise.

1.02 REFERENCES

- A. Florida Department of Transportation Standard Specifications for Road and Bridge construction (F.D.O.T.), latest edition.

PART 2 - MATERIALS**2.01 MATERIALS FOR REPLACEMENT**

- A. All materials required to be brought on to the site for filling of holes caused by grubbing or otherwise shall be as specified in Section 02200 – Earthwork, Excavation and Backfill.

PART 3 - EXECUTION**3.01 SCHEDULE**

- A. Contractor shall schedule the clearing or clearing and grubbing work at a satisfactory time in advance of the project improvement construction operation.

3.02 SPOIL MATERIALS REMOVAL

- A. All materials to be disposed of by removal from the site shall be disposed of offsite in a legal manner by Contractor at the Contractor's expense. The manner and location of disposal of materials shall be subject to review by Engineer and shall not create an unsightly or objectionable view.

3.03 CLEARING

- A. Clear the area of all objectionable materials. Trees and other debris unavoidably falling outside the specified limits must be cut up, removed, and disposed of in a satisfactory manner. Preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut to a height of not more than 12-inches above the ground. The grubbing of stumps and roots will be required.
- B. On site burning of debris will not be allowed.

3.04 CLEARING AND GRUBBING

- A. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass and other unsatisfactory materials shall be removed.
- B. All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required in Section 02200. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

END OF SECTION

SECTION 02113**CCTV INSPECTION OF SEWER LINES****PART 1 - GENERAL****1.01 INTENT**

- A. It is the intent of this Specification to provide for the inspection of pipelines utilizing Closed Circuit Television Inspection (CCTV) techniques to identify the location and extent of sewer line defects to allow for a determination of rehabilitation needs, to document pre-rehabilitation line condition, and/or to document post-rehabilitation line condition.

1.02 SCOPE OF WORK

- A. Prior to performing closed circuit television inspection activities, Contractor shall thoroughly clean the sewer line(s) and sanitary sewer lateral service connections designated to be televised as specified.
- B. Upon cleaning, the Contractor is to perform a CCTV inspection of the sanitary sewer and provide the resulting video and written report summarizing the findings and providing a rehabilitation recommendation.

1.03 SAFETY

- A. Contractor shall be solely responsible for safety during the performance of all Work. Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions is identified and eliminated by Contractor and/or Owner. Contractor shall perform all work in accordance with the latest OSHA confined space entry regulations. Contractor shall coordinate his work with local fire, police and emergency rescue units.
- B. Contractor shall be responsible for any damage to public or private property resulting from his/her televising activities and shall repair or otherwise make whole such damage at no cost to Owner.

PART 2 - PRODUCTS**2.01 EQUIPMENT**

- A. Television inspection equipment shall have an accurate footage counter that displays on a remote monitor the exact distance of the camera from the centerline of the starting manhole. The camera shall be of the

remotely operated pan and tilt type. The rotating camera and lighthouse configuration shall provide 240 degrees of pan and tilt angle measuring centerline to centerline and 70 degree lens viewing angle.

- B. The camera shall be color and shall provide a minimum of 460 lines of horizontal resolution and 400 lines of vertical resolution. The image pick-up device shall contain in excess of 379,000 picture elements (pixels). Geometrical distortion of the image shall not exceed one percent.
- C. The color camera shall be equipped with the necessary circuitry to allow for the remote adjustment of the optical focus and iris from the power control unit at the viewing station.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections by closed-circuit television inspection techniques. The interior of the pipeline shall be carefully inspected to determine the location and extent of all pipeline defects. The location of any conditions which may result in a limitation of rehabilitation techniques that could be used and/or prevent proper installation of designated rehabilitation materials in the pipelines shall be noted so that these conditions can be considered and, if necessary, corrected prior to actual rehabilitation.
- B. Contractor shall internally inspect, via closed circuit television inspection, the sewer segments as required. Generally, inspection shall be completed one sewer line section at a time. Access for televising purposes shall only be via existing manholes. Should access to particular sewer section be difficult and adjacent sections require television inspection, Contractor may be allowed to complete inspection in multiple sewer line sections. When multiple sewer line sections are inspected using one setup, Contractor shall zero the camera's footage metering device at each subsequent sewer manhole to establish uniform starting location of Station 0+00, in middle of each manhole, for each line section televised.
- C. At all defects and service connections, the camera shall be stopped and the pan and tilt features shall be used to obtain a clear picture. The camera shall be panned to view up each lateral or point of connection no less than six (6) feet up the sanitary lateral service connection. Operator shall also pan the pipe face while at 0+00 showing detail regarding pipe connection to manhole structure

- D. Contractor shall record these inspections on indexed digital recordable disk. Video shall be recorded in a non-proprietary video format to allow for playback on any PC computer and/or DVD player. The video shall include a visual and audio narrative noting:
1. Date, time of day, and depth of flow;
 2. Sewer segment number. Segment numbers shall be designated by Owner.
 3. Upstream manhole number.
 4. Downstream manhole number.
 5. Size of sewer
 6. Sewer materials of construction
 7. Closest street address and street name on which sewer is located
 8. Beginning and ending tape counter numbers for each run (manhole to next manhole) of sewer inspected
 9. Direction of movement of camera, heading, and direction of flow
 10. Locations of service connections into sewer by clock position and with counter distance in feet from beginning manhole's centerline and the sanitary lateral service inspection condition no less than six (6) feet up the lateral
 11. Location (start and end counter distances in feet from the beginning manhole's centerline) and description of obstructions, structural defects, missing pieces of pipe, longitudinal and/or circumferential cracking, joint deterioration including open and/or offset joints, ovality, leakage or evidence thereof, corrosion, erosion, break-in connections, protruding connections, mineral deposits, roots, previous repairs, grease/fats/oil deposits on pipe walls, sags, and other abnormalities with respect to the sewer's condition with counter distance in feet from the beginning manhole's centerline.
 12. Contractor's log shall contain the same information.
- E. Digital disk shall visually display at a minimum the date, pipe segment number (manhole number) and distance from the centerline of the upstream manhole. The distance between manholes shall be verified by measuring tape. If the counter distance and the taping distance differ by

more than 2 feet per 100 feet, the run shall be re-televised by Contractor at no additional cost to Owner.

- F. Digital disk shall be maintained and delivered in a case, which shall display the project name, project number, and date of inspection, manhole segment number inspected, and crew ID number. The entire length of any one sewer segment shall be on one disk. No segment shall be split between two disks. A disk may have multiple segments, so long as an entire section is on one disk. Original disks of all sections shall be provided to Engineer along with the respective television inspection field logs.
- H. If during television operation television camera will not pass safely through entire sewer line section being investigated, Contractor shall, at no additional cost to Owner, set up equipment so that inspection can be performed from opposite (downstream) manhole. Where an obstruction is encountered and a reverse set up is required, the distance shall be entered into the log and verbally noted on the digital disk from which manhole the measurements are being made. If under the reverse set-up the camera again fails to pass through the entire sewer line section, inspection shall be considered complete. All obstructions in the sewer segment that prohibit passage of the television camera shall be immediately reported to the Engineer by Contractor referencing location and nature of the obstruction. No rehabilitation work shall proceed until Contractor receives direction from Owner regarding removal of the obstruction.
- I. Should Contractor's televising equipment become lodged in any sewer line, it shall be removed by Contractor at his expense. This shall include, if necessary, excavation and repair of the sewer, underground utility repairs, backfilling and surface restoration. Contractor shall re-televise any line segment in which his equipment became lodged after said equipment has been removed to demonstrate to the Owner that no damage exists as a result of his televising operations.

3.02 BYPASS PUMPING / FLOW CONTROL

- A. Should bypass pumping or other form of sewage flow control be required by/of Contractor to facilitate sewer line televising, Contractor shall be solely responsible for providing all labor, equipment and materials necessary to control the flow of sewage in and/or around sewer segment(s) being televised as specified.

3.03 ACCEPTANCE

- A. Contractor shall present on digital disk a continuous image in complete conformance with these Specifications of not less than ninety percent (90%) of the internal pipe surface at all times, (not based on an average throughout the pipe segment) including sags in sewer lines. The digital disk shall be accompanied by a complete log. Maximum acceptable speed of camera through sewer shall be thirty (30) feet per minute. Lighting system shall be adequate for quality color picture at least 5 feet in front of the camera's lens. Contractor shall re-clean and televise any segment for which digital disk does not present a clear image of at least 90% of the internal pipe surface at all times, and/or is accompanied by an incomplete log.

END OF SECTION

SECTION 02120**PREPARATORY CLEANING****PART 1 - GENERAL****1.01 CONTRACTOR-FURNISHED PRODUCTS AND RESPONSIBILITIES**

- A. This section covers the preparatory cleaning of sewer lines and manholes as needed prior to the internal survey of the sewer lines by closed-circuit television. It also includes preparatory cleaning and root removal of sewer lines and cleaning of manholes prior to rehabilitation. The Contractor shall furnish all necessary material, labor, equipment and services required for cleaning the specific sewer lines.

1.02 GENERAL

- A. Sewer Line Cleaning: The intent of PVC and/or cast iron sewer line cleaning is to remove foreign materials from the lines and restore the sewer to a minimum of 95% of the original carrying capacity or as required for proper installation of the cured-in-place pipe liner. Since the success of other phases of work depends a great deal on the cleanliness of the lines, the importance of this phase of the operation is emphasized. Sewer Line Cleaning must be performed no more than 48 hours prior to lining the sewer pipe. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result where cleaning was attempted or continued. Should such conditions be encountered and approved by City, the CONTRATOR will not be required to clean those specific sewer sections.
- B. Manhole Cleaning: All concrete and masonry surfaces must be cleaned prior to repair. Grease, loose bricks, mortar, unsound concrete, and other materials must be completely removed. Water blasting (minimum 1200 psi) utilizing proper nozzles shall be the primary method of cleaning; however, other methods such as acid wash, concrete cleaners, degreasers or mechanical means may be required to properly clean the surface. Surfaces on which the other methods are used shall be thoroughly rinsed, scrubbed and neutralized to remove cleaning agents and their reactant products.

1.03 HYDRAULIC CLEANING EQUIPMENT

- A. Hydraulically Propelled Equipment: The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to

protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

- B. High Velocity Jet (Hydrocleaning) Equipment: All high velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designed to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.
- C. Mechanically Powered Equipment: Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt- operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat-treated steel. To insure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. The designated sewer manhole sections shall be cleaned using hydraulically propelled, high-velocity jet or mechanically powered equipment according to the recommended Specification for Sewer Collection System Rehabilitation reference in ASTM 1216-03. The equipment shall be capable of removing dirt, grease, rocks and sand, and other materials and obstructions from the sewer lines and manhole and cleaning again attempted. The equipment shall be capable of removing tuberculation in cast iron mains as well. Cleaning shall not occur until all root removal and treatment activities have been accomplished.

3.02 CLEANING PRECAUTIONS

- A. During all cleaning and preparation operations, all necessary precautions shall be taken to protect the sewer from damage. During these operations, precautions shall also be taken to insure that no damage or back up is caused to public or private property adjacent to or served by the sewer or its branches.
- B. When possible, the flow of sewage in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

3.03 MATERIAL REMOVAL

- A. All sludge, dirt, sand, rocks, great, roots and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section which could cause line stoppages, accumulations of sand in wet wells or damage pumping equipment shall not be permitted.
- B. Under no circumstances shall sludge or other debris removed during these operations be dumped or spilled into the streets, ditches, storm drains or other sanitary sewers.
- C. The Contractor is advised that he shall not dispose of this material by legal or illegal dumping on private or public property, by sale to others or any means other than those stated herein. Any load of material or any portion thereof, disposed of in a non-permitted fashion will result in a charge to the Contractor in the amount of \$5,000.00 per load, or any portion thereof, which sum will be deducted by the City from any money due to the Contractor.
- D. The Contractor shall keep his haul route and work area(s) neat and clean and reasonably free of odor, and shall bear all responsibility for the cleanup of any spill which occurs during the transport of cleaning / surface preparation by products and the cleanup of any such material which is authorized by or pursuant to this contract and in accord with applicable law and regulations. The Contractor shall immediately cleanup any such spill or waste. If the Contractor fails to cleanup such spill or waste immediately, the City shall have the right to cleanup or arrange for its cleanup and may charge to the Contractor all costs, including administrative cost and overhead, incurred by the City in connection with such cleanup. The City may also charge to the Contractor any costs

incurred or penalties imposed on the City as a result of any spill, dump or discard. Under no circumstances is this material to be discharged into the waterways or any place other than where authorized to do so by the appropriate authority.

- E. The routes used by the Contractor for the conveyance of the waste material on a regular basis shall be subject to approval by the governing authority having jurisdiction over such routes.

3.04 DISPOSAL OF MATERIALS

- A. All solids or semisolids resulting from the cleaning operations shall be removed from the site and disposed of by the Contractor in a legal and sanitary manner as approved by appropriate authorities at the Contractor's cost.
- B. Copies of records of all disposals shall be furnished to the City, indicating disposal site, date, amount and a brief description of material disposed. All materials shall be removed from the site no less often than at the end of each workday. Under no circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work beyond each work day.

3.05 ACCEPTANCE OF CLEANING OPERATION

- A. Acceptance of the sewer line cleaning shall be made upon the successful completion of the television survey and shall be to the satisfaction of the City. If television survey shows the cleaning to be unsatisfactory, the Contractor shall be required to re-clean and re-inspect the sewer line until the cleaning is deemed satisfactory by City.
- B. For lines which have sags or dips to an extent that the television camera becomes submerged for three or more feet during the television inspection, the Contractor shall pull double squeegee and / or sponges through the line in order to remove the water from those dips or sags. Water removal through squeegee and / or sponges shall be performed until the television camera lens will no longer be submerged. This requirement may be waived by the City if the water in which the camera lens is submerged is clear enough to allow the identification of pipe defects, cracks, holes and location of the service taps.

END OF SECTION

SECTION 02134**CHEMICAL GROUTING PIPE LINER****PART 1 - GENERAL****1.01 REQUIREMENTS**

- A. The work specified in this section includes all labor, materials, accessories, equipment and tools necessary for grouting and sealing of:
1. Leaks in defective joints or cracks that may affect the installation of the cured- in-place pipe liner.
 2. Open holes or voids associated with root penetration.

1.02 SUBMITTALS

- A. The Contractor shall submit the following in accordance with these specifications:
1. A specimen product label showing the United States Environmental Protection Agency (EPA) registration number of the product.
 2. Material Safety Data Sheets (MSDS) for the products
 3. Grout, design mix, and testing reports.
 4. Brand name manufacturer of the chemical grout and equipment to be used.

PART 2 - PRODUCTS**2.01 CHEMICAL GROUT**

- A. The Contractor shall provide a chemical sealant solution containing principal chemical sealant constituent, initiator, and catalyst specifically recommended for the purpose of sealing leaks in sanitary sewer lines.
- B. While being injected, the chemical sealant must be able to react / perform in the presence of water (groundwater and seawater).

- C. The cured material must withstand submergence in water without degradation.
- D. The resultant sealant (grout) formation must prevent the passage of water (infiltrations) through the sewer pipe joints.
- E. The sealant material, after curing, must be flexible as opposed to brittle.
- F. The chemical sealant shall be compatible with the CIPP resin as specified.
- G. The chemical sealant selected by the Contractor is subject to approval by the Engineer and shall be one of the following types:
 - 1. Acrylic chemical sealing material
 - 2. Acrylate chemical sealing material
 - 3. Urethane chemical sealing material
- H. The grout design mix shall meet the following standards: Recommended Specifications for Sewer Collection System Rehabilitation, as referenced in ASTM F1216-03.

PART 3 - EXECUTION

3.01 SEALING PIPE DEFECTS AND JOINTS

- A. The Contractor shall perform chemical root treatment, if needed, as specified.
- B. Prior to performing chemical grouting, the Contractor shall remove roots and clean the sewer as specified.
- C. In every case, mixing and handling of chemical sealing materials shall be in accordance with the manufacturer's recommendations.
- D. The application of the sealing grout within the pipe shall be by means of remote- controlled equipment designed to be positioned at the specific point to be sealed and to apply the grout under sufficient pressure for the grout to pass through the opening and fill voids outside the pipe as well as the opening in the pipe wall. Review of the results shall be by closed-circuit television camera.

- E. The methods of sealing used shall not damage the pipe or change pipe alignment and the original cross sectional area shall not be permanently reduced or changed.

3.02 FLOW CONTROL

- A. Sewer service shall not be interrupted during root treatment. In situations where it is necessary, the Contractor shall block / bypass flow as specified.

3.03 PERSONAL PROTECTIVE EQUIPMENT

- A. The Contractor shall use appropriate protective clothing and equipment as recommended by the manufacturer during the use and handling of the material.

END OF SECTION

SECTION 02140**CURED-IN-PLACE PIPE LINER****PART 1 - GENERAL****1.01 REQUIREMENTS**

- A. The Work of this Section includes providing a cured-in-place-pipe (CIPP) liner to rehabilitate sewer lines which will stabilize structural defects and prevent inflow and infiltration. The liner shall be smooth, hard, strong, and chemically inert. Additionally, the interior surface shall closely follow the contours of the host pipe. Applicable standards (latest versions) include:
1. ASTM D-790
 2. ASTM D5813
 3. ASTM F-1216
 4. ASTM F-1743
 5. ASTM F-2019
 6. ASTM F-3240
- B. The scope of work requires the Contractor to provide all materials, labor, equipment, and services necessary for: bypass pumping and/or diversion of sewage flows, rehabilitation of existing sanitary sewers by lining the existing pipe, connecting into manhole, reconnecting service laterals, restoring affected manhole conditions, initial and final cleaning, CCTV inspection, and final testing of the pipe system.
- C. Measurement shall be based upon linear footage of pipe rehabilitated. Measurement for rehabilitation shall be the actual distance measured from manhole to manhole, of each sewer pipe lined.

1.02 PRE-BID SUBMITTALS

- A. Submit with Bid Documents:
1. Manufacturer's technical literature on the proposed lining system conforming to this specification and standards referenced herein, including an affidavit attesting to the previous successful use of the material for lining sanitary sewers and references for projects completed within the past 5 years.
 2. Written certification from the manufacturer that the Contractor is an approved applicator of the proposed lining system, with a minimum of 5 years' experience with the proposed product rehabilitation. The Contractor's proposed superintendent for the work shall have a

minimum of 5 years' experience with 2.5 years as a superintendent and shall be approved in writing as superintendent by the manufacturer of the lining system being bid.

1.03 SUBMITTALS

A. Submit Prior to Mobilization:

1. The Contractor shall submit to the Engineer for review complete design calculations for the liner thickness per ASTM F1216. The design shall be signed and sealed by a professional Engineer and certified by the manufacturer as to the compliance of his material to the values used in the calculations. Review of the calculations shall not relieve the Contractor of any contractual obligations.
2. The Contractor shall submit an installation method statement to the Engineer. The installation method statement shall include details concerning curing methods, repairing sewer defects in conjunction with manholes, joints, laterals, active infiltration, and other requirements concerning quality control/quality assurance including testing of the material of which the repair is made. The Contractor shall include a typical schedule for "wet out" of the flexible tube in the method statement together with a typical insertion and curing schedule/plan at the outset of the Contract. For each and every lining section proposed, the Contractor shall submit a schedule for "wet out" of the flexible tube together with the specific insertion and curing schedule/plan at least 24 hours in advance of installation.
3. Submit proposed testing laboratory with qualifications, experience history, and references.

B. After Completion of Each Section:

1. Process control sheet to include temperature/time log information, tap cut information and curing cycle.
2. Pre and Post CCTV inspection tapes or DVD's.
3. CIPP supplier certification of proper installation.
4. Certified copies of test reports on CIPP samples obtained during actual installation in the presence of the Contractor.
5. Physical samples. Samples removed for testing as requested by the Engineer, shall be individually labeled and logged to record the following:

- a. Owner's Project number and title.
- b. Sample number.
- c. Segment number of line as noted on plans.
- d. Date and time of sample.
- e. Name of Contractor.
- f. Location and by whom tested.
- g. Results of test.
- h. Street name and address
- i. Starting and ending manhole ID # for each length of pipe lined
- j. Samples shall be labeled as Follows:
 - 1) Sample A: Restrain Sample
 - 2) Sample B: Restrain Sample

1.04 RESPONSIBILITY FOR OVERFLOWS OR SPILLS

- A. It shall be the responsibility of the Contractor to schedule and perform his work in a manner that does not cause or contribute to incidence of overflows or spills of sewage from the sewer system.
- B. In the event that the Contractor's work activities contribute to overflows or spills, the Contractor shall immediately take appropriate action to contain and stop the overflow, clean up the spillage, disinfect the area affected by the spill, and notify the designated Owner in a timely manner.
- C. Contractor shall indemnify and hold harmless the Owner and Engineer for any fines or third-party claims for personal or property damage arising out of a spill or overflow that is fully or partially the responsibility of the Contractor, including the legal, engineering, and administrative expenses of the Owner and Engineer in defending such fines and claims.

1.06 WARRANTY

- A. A written guarantee of 2 years in length shall be provided by the Contractor to the Owner against any breakdown of the liner material, inadequate structural strength or any shortcoming in workmanship.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Flexible Liner Tube:
 1. The flexible liner shall be a composite tube with one or more layers of needled felt or equivalent non-woven material

manufactured under quality controlled conditions set by the manufacturer. Tube shall be sized for each section so that, when installed, it will fit snugly and firmly inside the existing sewer and produce the required thickness after the resin is cured.

2. The flexible liner tube shall fit completely by length and diameter in the sewer, with allowance for proper longitudinal or circumferential stretching or shrinkage due to pressure or expansion being made. Maximum stretching allowances shall be as defined in ASTM F1216.
3. The Contractor shall verify the lengths in the field before cutting liner to length. The lining shall be fabricated in such a length that when installed, it will occupy exactly the length of the pipeline between the launch and reception manholes.
4. The lining shall be of the correct diameter so that after installation, it does not wrinkle by more than two percent for linings in sewers equal to or greater than 24 inches internal diameter, and by more than one percent for linings in sewers less than 24-inch internal diameter.
5. The tube shall contain no intermediate layers that may delaminate after resin curing. It shall not be possible to separate any layers with a probe or knife blade such that the layers separate cleanly or the probe or knife blade moves freely between the layers. Where several layers of felt are required, the inner layer shall be stitched to form a tube. Each successive layer shall be individually wrapped around the previous one and stitched together. The outer layer of felt shall have an installation tube pre-bonded to it, or a sheet of this material shall be wrapped around the completed felt tube. Where a pre-bonded material is used, a covering strip shall be bonded over the seam to form an airtight joint.
6. The dimensions of the lining shall account for any loss of pipe wall thickness due to hydrogen sulfide corrosion and deformation of the pipe to be lined where this is less than 10 percent of diameter.
7. The liner shall be fabricated from materials which when cured, will be chemically resistant to reagents as defined in ASTM D543.

8. A pre-liner shall be applied to the tube on what will become the interior wall of the finished CIPP. The pre-liner shall be polypropylene and shall be compatible with the resin system used and shall not adversely affect the adhesive properties of the resin used in either the mainline or the lateral liners. If a plastic film is applied to the CIPP after curing, this film shall be translucent enough that the resin is clearly visible, and it shall be firmly bonded to the felt material.
9. At the time of manufacture, each lot of liner shall be inspected and certified to be free of defects. The tube shall be marked for distance at regular intervals along its entire length.

B. Resin:

1. The resin used to impregnate the tube shall produce a cured tube that shall be resistant to shrinkage, shall not corrode or oxidize, and shall also be resistant to abrasion from solids, grit, and sand in wastewater. The resin shall have proven resistance to the municipal wastewater environment that may comprise, as a minimum, all of the following factors:
 - a. Immersion in septic sewage at temperatures up to 75 degrees F.
 - b. Exposure in hydrogen sulfide gas from septic sewage at temperatures up to 75 degrees F.
2. The resin shall have proven resistance to ultra-violet light (sunlight) at any stage prior to installation.
3. Resin systems shall be neat resins with no additives.
4. The internal wall color of the cured liner shall be a light reflective color so that a clear, detailed CCTV inspection can be accomplished.
5. The chemical resistance of the resin system selected shall have been tested by the resin manufacturer in accordance with ASTM C543. Exposure to the chemical solutions listed in Table 1 at temperatures of up to 75 degrees F shall be conducted for a minimum period of one month and shall result in a loss of not more than 20 percent of the initial structural properties.

Table 1. Minimum Chemical Resistance Requirements for Typical Municipal Sewer Applications – ASTM D F1216

<u>Chemical Solution</u>	<u>Concentration, %</u>
Tap Water	100
Nitric Acid	5
Phosphoric Acid	10
Sulfuric Acid	10
Gasoline	100
Vegetable Oil	100
Detergent or Soap	0.1

6. The resin system shall be manufactured by a company selected by the CIPP supplier. Polyester, vinylester, or epoxy resins complying with the requirements in Table 2 shall be used.

C. CIPP Properties:

1. The CIPP after curing shall meet the structural properties listed below:

Table 2. CIPP Initial Structural Properties

<u>Property</u>	<u>ASTM Method</u>	<u>Value (+/- 10%)</u>
Flexural Strength	D790	4,500 psi
Short Term Flexural Modulus of Elasticity	D790	250,000 psi

D. CIPP Thickness:

1. The minimum thickness for the CIPP, after curing, shall be calculated based on the following design conditions in accordance with ASTM F-1216:
 - a. Fully deteriorated pipe condition.
 - b. Ovality reduction factor C equal to 0.64
 - c. The CIPP is subjected to a full soil load of 120 pounds per cubic foot.
 - d. The CIPP is subjected to traffic live loads as calculated by AASHTO Standard Specifications for Highway Bridges, HS-20-44 Highway Loading.
 - e. The modulus of soil reaction for pipe zone backfill material is 1,000 psi.
 - f. The CIPP is subject to a groundwater elevation at ground surface.

- g. The long-term flexural strength and long-term flexural modulus of elasticity for CIPP shall be equivalent to 50 percent of the initial flexural strength and initial flexural modulus of elasticity, respectively, as measured in accordance with ASTM D790.
 - h. The minimum overall factor of safety is 2.0.
 - i. The design life of the CIPP repair shall be 50 years.
 - j. The thickness of the CIPP shall be as specified in standards ASTM F 1216, ASTM F 1743, or ASTM F 2019.
- E. Manufacturers:
- 1. Insituform / Insituform Technologies, Inc.
 - 2. Inliner / Inliner Technologies, Inc.
 - 3. Approved Equal

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

- A. If the flexible tube is impregnated with resin at the factory, it shall be transported, installed, and cured before expiration of the shelf life. The Contractor must have a wetout facility in the State of Florida.
- B. Impregnated tube shall be stored and transported under refrigerated, ultraviolet light-free conditions.
- C. No cuts, tears, or abrasions shall occur during handling. The Owner may inspect the tube before it is placed into the host pipe.

3.02 TEMPORARY FLOW BYPASS AND DIVERSION PUMPING

- A. The Contractor shall provide for the transfer of flow, through or around section or sections of pipe that are to be repaired. The proposed bypassing system shall be approved in advance by the Engineer. The acceptance of the bypassing system in advance by the Engineer shall in no way relieve the Contractor of responsibility and/or public liability. Temporary flow bypass and diversion pumping shall be carried out as needed and in accordance with these specifications.

3.03 PRE-INSTALLATION PROCEDURES

- A. All requisite pre-installation submittals shall be approved by Engineer, including traffic management measures, safe pedestrian passage, provision of vehicular access to property, bypass/diversion pumping and emergency measures before any work can be commenced.
- B. Preconditioning shall be carried out as specified. In addition, the Contractor shall, prior to installation of the lining: high pressure flush and vacuum every sewer section to be rehabilitated including pertinent manholes and remove grease buildup or any other obstruction that may interfere with lining operations.
- C. All debris removed from the sewer during cleaning shall be transported in watertight containers and disposed of in accordance with all local, State, and Federal regulations.
- D. Condition of existing line shall be verified following cleaning by CCTV as specified.
- E. Damaged sewers unsuitable for lining shall be reported to the Owner.
- F. The accurate location and serviceability of any existing laterals and/or service connections (taps) shall be confirmed. Serviceability shall be confirmed by flowing water, dye testing or visually with CCTV inspection.

3.04 GENERAL INSTALLATION PROCEDURES

- A. Wet Out:
 - 1. Thoroughly saturate flexible tube prior to installation. Catalyst system or additives compatible with the resin and flexible tube shall be as recommended by the manufacturer.
 - 2. Handle the resin impregnated flexible tube to retard or prevent resin setting until it is ready for insertion.
 - 3. The Contractor shall complete a wet-out process control sheet for every lining completed. The control sheets shall provide the following information:
 - a. Liner Manufacturer
 - b. Liner Diameter
 - c. Number of layers
 - d. Resin amount
 - e. Resin type
 - f. Resin Manufacturer
 - g. Batch number

- h. Catalyst and accelerator name/type
- i. Hardener name/type
- j. Percent of filler, if any
- k. Filler name/type
- l. Batch number
- m. Mixing ratios
- n. Vacuum pressure of impregnation process
- o. Wet-out start time and date

B. Insertion:

1. CIPP shall be installed in accordance with the practices outlined in ASTM F1216 for direct inversion installations and ASTM F 1743, or ASTM F2019 for pull-in installations.
2. Insert flexible tube through an existing manhole by a manufacturer approved method. The insertion method shall not cause abrasion or scuffing of the tube.
3. When using the inversion method, the addition of water pressure shall be adjusted to cause the impregnated flexible tube to invert from manhole to manhole, holding the tube tight against the host sewer pipe as described in the ASTM F 1216 standard.
4. The Contractor shall complete an installation process control sheet for every lining completed. The control sheets shall provide the following information:
 - a. Liner length
 - b. Hydrostatic head at the point of inversion
 - c. Hydrostatic head at the termination point
 - d. Time when inversion process starts
 - e. Time start cutting ends
 - f. Time start cutting laterals
 - g. Number of laterals cut

C. Curing:

1. Curing may be accomplished by the application of hot water as recommended by the liner manufacturer.
2. Curing shall be accomplished by utilizing hot water under hydrostatic pressure in accordance with the manufacturer's recommended cure schedule.

3. The heat source should be fitted with suitable monitors in accordance with the ASTM F 1216. The temperature of the incoming and outgoing heat source shall be recorded in order to determine when uniform temperature is achieved throughout the length of the liner. Thermocouples shall be installed at the top and bottom of the liner between the liner and the host pipe to appropriately control the curing process of the resin.
4. The Contractor shall complete a curing process control sheet for every lining completed. The control sheets shall provide the required temperatures and time for the different steps of the curing process such initial cure, post- cure, and cooling as outlined in ASTM F1216-03. Initial cure may be considered completed when exposed portions of the flexible tube pipe take a hard set and temperatures are adequate, as recommended by the manufacturer.

D. Cool Down:

1. A cool-down process shall be conducted that complies with the resin manufacturer's specification. Cool down may be accomplished by the introduction of cool water or air into the installation standpipe to replace the initial heating agent. The contractor shall cool the hardened pipe to a temperature below 100 degrees F before relieving the pressure in the pressure apparatus. If the installed tube is a fiberglass tube, it shall be cooled down in accordance with ASTM F2019.

E. Finish:

1. The finished CIPP shall be continuous and free from visual defects such as foreign inclusions, dry spots, pinholes, delamination, and wrinkles as specified above. Any section of lining with such defects shall be removed and replaced at no additional cost to the Owner.

F. Lateral Reconnection:

1. After the liner has been cured in placed, the Contractor shall reconnect the lateral (service) connections. Cutting of the liner pipe shall be done from the interior of the pipeline using a robotic cutter. Where the holes are cut through the liner, they shall be neat and smooth in order to prevent blockage at the service connections. Cut-in service connections shall be

opened to a minimum of 95 percent of the flow capacity of the building sewer.

2. The annular space between the mainline CIPP liner and each service lateral shall be fully sealed with chemical grout in accordance with the specification 02134 unless lining of the service lateral is required.
3. All coupons shall be recovered at the downstream manhole and removed. The Contractor shall not reactivate any line sections until accepted by the Engineer.

G. Clean Up:

1. After the liner installation has been completed and accepted by Owner, the Contractor shall clean up the entire project area and restore the site to its original condition prior to the commencement of work. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor.

3.05 MANHOLES

- A. CIPP connections at the manhole opening shall be a watertight seal. The materials and installation practices shall adhere to the requirements of ASTM F2561-17 "Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One-Piece Main and Lateral Cured-in-Place Liner" and ASTM F3240-17 "Standard Practice for Installation of Seamless Molded Hydrophilic Gaskets (SMHG) for Long-Term Watertightness of Cured-in-Place Rehabilitation of Main and Lateral Pipelines."
- B. Hydrophilic Gasket Seals - The gaskets and the installation of the gaskets shall conform to ASTM F3240. The hydrophilic gasket seals must be manufactured in a controlled factory environment with strict quality control and quality assurance protocols. A liquid sealant, adhesives or other fluid like materials having paste like consistency will not be accepted.
- C. The hydrophilic gasket seals shall include test data that supports substantial expansion properties so to form a watertight compression end seal at the terminating ends of the CIP liner. Gasket seal submittals must include tests data simulating hydration/dehydration conditions for a period of 10,000-hours and the test results must successfully demonstrate and document long-term performance without deterioration, loss of material, flexibility, and expansion of the gasket during repeated cycles of hydration and dehydration.

- D. CIPP connections and invert rehabilitation shall be compatible with manhole rehabilitation activities. Coordination and compatibility of materials and methods shall be submitted for approval prior to commencing any work onsite.

3.06 POST-TELEVISIONING OF COMPLETED WORK

- A. Following CIPP liner installation, a television survey shall be performed as specified, including preconstruction and post construction surveys. The finished inspections shall be continuous over the entire length of the sewer between two manholes. The completed line shall be completely free from visual defects that are deemed significant by the Engineer.
- B. Submit to the Owner color DVD compact discs showing completed work.
- C. Correction of failed CIPP or CIPP deemed defective from post-installation television inspection or test reports for structural values, thickness, etc., as determined by Owner and/or Engineer shall be repaired at no extra cost to the Owner. Method of repair, which may require field or workshop demonstration, shall be approved by Engineer prior to the commencement of work.

3.07 TESTING

- A. Chemical Resistance - The CIPP shall meet the chemical resistance requirements of ASTM F1216. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.
- B. Hydraulic Capacity - Overall, the hydraulic profile shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.
- C. CIPP Field Samples - When requested by the Owner, the Contractor shall submit test results from past field installations in North America of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in Section 2.01 have been achieved in previous field applications.

END OF SECTION

SECTION 02150**DEWATERING****PART 1 – GENERAL****1.01 SECTION INCLUDES**

The work covered by this Section consists of furnishing all permits, labor, equipment, appliance and materials, and performing all operations required for dewatering all excavations, if required, complete.

1.02 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01060 – Regulatory Requirements and Notifications
- C. Section 02200 – Earthwork, Excavation, and Backfill.

PART 2 - PRODUCTS**2.01 TEMPORARY FACILITIES**

- A. All materials and equipment shall be suitable and adequate to function continuously as a dewatering system.
- B. All material and equipment used in the dewatering system remain the property of the Contractor and shall be removed off-site when dewatering is completed.
- C. All dewatering equipment shall conform with the noise standards set forth in the City of Fort Lauderdale standards.

2.02 SUBMITTALS

- A. Submit the dewatering method or plan in accordance with Submittal specifications prior to commencing dewatering if it is determined by the Contractor that dewatering beyond that allowed by a no-notice dewatering permit is required to construct the project.
- B. The Contractor shall prepare and submit the necessary permit applications and supporting documents for the purposes of obtaining a

dewatering permit from the South Florida Water Management District and any other required agencies.

PART 3 - EXECUTION

3.01 METHODS

- A. The method of dewatering is to be selected by the Contractor and may include:
1. Wellpoints
 2. Sump pumps
 3. Bedding rock
 4. Dewatering wells
 5. Other approved items.

3.02 DISCHARGE

- A. The Contractor shall provide all labor, materials, tools and equipment necessary to properly control the quality of the discharge from his dewatering operations as described herein. The Contractor shall comply with all applicable laws, rules and regulations governing the discharge of water from his dewatering operations.
- B. Contractor shall not discharge water in any manner that will:
1. Adversely affect water quality of nearby water bodies.
 2. Violate Federal, State or local laws or regulations.
 3. Allow discharge to flow onto private property.
 4. Hamper movement of traffic.
 5. Damage portions of the work previously constructed.
 6. Damage portions of existing facilities or structures.
 7. Violate the conditions of the SFWMD Dewatering Permit.
 8. Violate the conditions of the Stormwater Pollution Prevention Plan.
- C. Contractor shall obtain and pay for any permits required to discharge the dewatering waters.
- D. Contractor shall coordinate and pay for any water quality monitoring program that may be required by the applicable dewatering permit(s).

END OF SECTION

SECTION 02200

EARTHWORK, EXCAVATION, AND BACKFILL

PART 1 - GENERAL

1.01 SECTION INCLUDES

The work covered by this section consists of furnishing all labor, equipment, and materials, and performing all earthwork operations to include:

- A. Excavation and backfill of structures, foundations, and pavements.
- B. Surface preparation for structures, foundations, and pavements.
- C. Excavation and backfill of pipe trenches.
- D. Soil testing for pipe trenches and parking areas.
- E. Site grading

1.02 REFERENCES

- A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition.
- B. American Society for Testing and Materials (ASTM)
 - D698 Moisture-Density Relationship of Soils.
 - D1556 Standard Method of Test for Density of Soil in Place by Sand Cone Method.
 - D1557 Method for Test for Moisture-Density Relations of Soils Using a 10-Pound Rammer and 18-Inch Drop.
 - D2487 Classification of Soils for Engineering Purposes.
 - D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.03 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this

section.

- B. Section 01410 - Testing Laboratory Services
- C. Section 02016 - Existing Utilities and Underground Structures
- C. Section 02150 - Dewatering
- D. Section 02510 - Paving and Surfacing
- E. City of Fort Lauderdale Engineering Services Department Standards
- F. City of Fort Lauderdale Standards for Construction and Use of Public Rights-of-Ways and Easements

1.04 FIELD MEASUREMENTS AND COORDINATION

- A. Verify that survey benchmark, control point, and intended elevations for the work are as shown on the Drawings.
- B. Verify that work associated with lower elevation utilities is complete before placing higher elevation utilities.

1.05 SUBSURFACE SOILS DATA

- A. Owner and Engineer make no representations or statements as to site or soil conditions, and therefore do not assume any responsibility for actual site or soil conditions. It shall be Contractor's responsibility to determine for himself existing site and/or soil conditions. Soil explorations have been made related to this project and are included in the Appendix C of the specifications.
- B. The Contractor shall be aware that buried debris is anticipated to exist within the project area at depths as shown in the soils report. The contractor will be required to excavate to, remove, haul away, legally dispose of, and replace this material with suitable structure backfill as specified. All costs associated with additional soil testing/borings, debris excavation, disposal, and approved backfill shall be contained in the Contractor's bid price.

PART 2 - PRODUCTS

2.01 EXCAVATION

- A. All excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

2.02 SOURCE QUALITY CONTROL

- A. If tests for a material type fail three times, the Engineer may reject the source supplier and require the contractor to submit a new source for approval, at no additional cost to the Owner. The in-situ material is considered acceptable material and may be used, provided it meets the specified requirements.
- B. Quality control of the work shall be the Contractor's responsibility and Contractor shall make every effort to produce the best quality work as specified on the Drawings and in these Specifications.

2.03 STRUCTURAL FILL AND BACKFILL

- A. Fill and backfill under and around all structures shall be suitable on-site excavated material or approved imported material. Material shall be free of organic material, shall not have more than 10 percent by dry weight passing the U.S. Standard No. 200 sieve, and shall have no rocks larger than 3 inches in size. On-site Fine Sand (SP), without roots or other deleterious materials, is suitable material. Imported material may be provided by the Contractor at no additional cost to the Owner.
- B. On site soils with more than 10% by dry weight passing the U.S. Standard No. 200 sieve and/or particle sizes larger than 3 inches are not suitable for use as fill under pavements or structures.
- C. Backfill around structures shall be as specified above except that they shall not have more than 4% by dry weight passing the U.S. Standard No. 200 sieve.

2.04 EARTHFILL

- A. On-site excavated material free from roots, trash, and rocks larger than 3 inches.

2.05 FLOWABLE FILL

- A. Provide and place flowable fill in accordance with the requirements of Section 121 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition.

2.06 WATER FOR COMPACTION

- A. Contractor shall furnish potable water, as required. Contractor may

coordinate with the City of Fort Lauderdale Utility Department to arrange for a hydrant meter for water during construction. Costs associated with the hydrant meter shall be paid for by the Contractor. Water trucks shall be used as required.

2.07 EQUIPMENT

- A. All equipment shall be suitable and adequate to perform the work specified. Compaction equipment shall be vibratory type. It is recommended that the contractor perform a preconstruction assessment of existing adjacent structures and monitor those structures for settlement during the construction period. Contractor shall notify Owner of any settlements that occur at existing adjacent structures.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum locations. Protect bench marks, survey control points, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- B. Locate, identify, and protect utilities that remain from damage.

3.02 STRIPPING TOPSOIL

- A. See Section 02110, Site Clearing. Stripping of topsoil shall be performed prior to any cutting, excavation, removal and/or replacement or fill materials.
- B. Strip topsoil from entire site within boundaries of proposed construction lines to a depth of approximately 6" to 8.5". The top materials stripped shall be removed and disposed of offsite, unless authorized for use on the site landscaping areas by the Engineer or Owner. Top materials shall not be used under roadway or parking areas.
- C. Stripping of topsoil shall ensure that entire site is stripped and scraped clean of all brush, weeds, grass, roots, vegetation, etc.

3.03 CUTTING

- A. Except as otherwise specified, after stripping of topsoil all site areas which are above elevation required shall be cut to subgrades required by drawings.

3.04 FILLING

- A. Except as otherwise specified, after stripping of topsoil all site areas which are below elevation required shall be compacted as specified and then over such areas clean granular fill placed and compacted in layers not exceeding 12" in uncompacted thickness. Each layer of fill shall be compacted to at least 95% of the modified proctor maximum dry density (ASTM D1557). If hand held compaction equipment is used, the lift thickness should be reduced to 6 inches. Filling and compaction shall continue until subgrades required for various areas are reached. All holes and depressions caused from removal of trees, stumps, etc. shall be filled and compacted. Fill shall be good clean material as previously specified.

3.05 EXCAVATION UNDER STRUCTURES AND PAVEMENT AREAS

- A. Excavation shall be performed to elevations and dimensions required by drawings with suitable allowance made for construction operations and inspections. Excavation carried to depths below required elevations shall be replaced in loose layers a maximum of 6" in depth and compacted in a manner to achieve a minimum density of 98% as determined by a modified proctor in accordance with ASTM D-1557. Contractor may place additional concrete in lieu of replacing and compacting excess excavation as specified above to fill excess cut. Correction of excess cut shall be responsibility of Contractor at no additional cost to Owner.
- B. Compact disturbed load bearing soil in direct contact with foundations to achieve a minimum density of 98% as determined by a modified proctor in accordance with ASTM D-1557.
- C. Verify that the specified density extends to 2 feet below the bottom of the structure or pavement base course to be installed.
- D. Slope banks with machine to angle of repose or provide necessary shoring.
- E. Do not interfere with 45 degree bearing splay of existing foundations without providing adequate means of shoring protection.
- F. Grade top perimeter of excavating to prevent surface water from draining into excavation.
- G. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- H. Correct areas over excavated in accordance with this section.

- I. Remove excavated material unsuitable for backfill from site.
- J. When muck or other deleterious materials is encountered in the excavation, it shall be completely removed within the area of the structure or pavement and to a depth where acceptable material is encountered. After removal of all muck or other deleterious material, the area shall be backfilled with approved fill material to the specified grade.

3.06 TRENCH EXCAVATION AND PREPARATION

- A. Excavation: Excavate as required for the installation of all piping, utilities, conduits, and appurtenances.
- B. Trench Width: Cut trenches sufficiently wide to enable installation, compaction and inspection. The maximum width will not be limited except where excessive trench width would cause damage to adjacent structures or piping.
- C. Grade: Excavate the bottom of the trench to the line and grade shown, or as established by the Engineer with proper allowance for pipe bedding.
- D. All trench work shall comply with the Trench Safety Act of 1990, with latest revisions.
- E. Piping shall be installed in a dry trench.
- F. The trench bottom shall provide a uniform and continuous support for the pipe. If materials are encountered in the trench unsuitable for proper bedding they shall be removed for the full trench width to a depth where suitable materials are encountered. The over excavated trench shall be backfilled with Pipe Bedding material in maximum 6 inch lifts and compacted to a minimum 90 percent modified Proctor maximum dry density (ASTM D-1557).
- G. Bell holes shall be provided at each joint to permit the joint to be made properly. At no time shall the bells support the pipe when in the trench.
- H. When muck or other deleterious materials is encountered in the trench, it shall be completely removed for the width of the trench at the pipe and to a depth where acceptable material is encountered. After removal of all muck or other deleterious material, the trench shall be backfilled with bedding material to the bottom of pipe grade.
- I. See City Standards for additional requirements.

3.07 MAINTENANCE OF EXCAVATION

- A. The excavation shall be maintained at a dry condition at all times.
- B. All side slopes shall be such that material will not slide into the bottom of the excavation and any material doing so shall be immediately removed. Trench side slopes shall be in accordance with local codes, OSHA requirements, and the Trench Safety Act.
- C. All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the work is completed.
- D. Trees, shrubbery, fences, poles, bollards and all other property and surface structures shall be protected unless their removal is shown on the drawings or authorized by the Engineer. When it is necessary to cut roots and tree branches, such cutting shall be done under the supervision and direction of the Engineer.
- E. The attention of the Contractor is drawn to the fact that during excavation at the project site, the possibility exists of the Contractor encountering various utilities (water, chemical, electrical, gas, or other) not shown on the drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the Owner.
- F. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while the work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

3.08 BACKFILL UNDER STRUCTURES AND PAVEMENT AREAS

- A. Backfilling of excavated areas under, around or over building and structural appurtenances and pavement, concrete or pavers shall be performed with clean fill materials which are free of debris, organics, trash or other deleterious substances. Suitable compaction equipment shall be used to obtain density described previously for entire depth of backfilling. Each layer of backfill under structures, pavements, and pavers shall be compacted to a minimum of 98% density as determined by a modified proctor in accordance with ASTM D-1557. Each layer of compacted backfill shall not exceed 12 inches in thickness. If hand-held compaction equipment is used, reduce the loose lift thickness to 6 inches. The completed, compacted surface shall be

at the proper final subgrade elevation.

- B. Verify that the specified density extends to 12 inches below the bottom of the structure or pavement base course to be installed.
- C. For precast structures whose foundations will be placed on bare rock, fill may consist of #57 bedding stone as shown on the plans. Filter fabric shall be installed over the bedding stone at the rock horizon to prevent fines from migrating into the stone backfill.
- D. For cast-in-place structures whose foundations will be placed on bare rock, the foundations may be cast directly onto the rock surface so long as the rock surface is properly dewatered and concrete is placed in the dry.

3.10 TRENCH BACKFILLING

- A. Haunch Backfill: Carefully place Pipe Bedding material so as not to damage the pipe in maximum 6 inch loose lifts and compact to the pipe centerline. Use hand-held compaction equipment.
- B. Pipe Zone: Backfill with Pipe Bedding material in maximum 12 inch loose lifts and compact to a point 12 inches above the pipe crown.
- C. Under Pavement/Concrete/Paver Areas, and Structures: In areas where backfill settlement must be held to a minimum, backfill above the pipe zone with Pipe bedding material in maximum 12 inch loose lifts and compact to a minimum 98% maximum dry density (ASTM D1557) up to the subgrade elevation. Backfilling and compaction within the FDOT Rights of Way shall be in accordance with the FDOT Standard Specifications for Road and Bridge Construction, latest edition.
- D. Outside Pavement/Concrete/Paver Areas: In areas where backfill settlement is not critical, backfill above the pipe zone with earthfill material to a density equal to or greater than the soil adjacent to the pipe trench, but not less than 90% of the maximum dry density (ASTM D1557), to final grade.
- E. No material shall be used for backfill which contains muck or other deleterious material or material with an excessive void content. All backfill shall be composed of select clean granular material.
- F. All trenches and excavation shall be backfilled immediately after all pipe and joints have been investigated and approved by the Engineer or Utility Department, subject to satisfactory pressure and leakage test results, as required.
- G. Backfill, in general, shall be kept up with the rate of pipe laying. No more

than 200 feet of pipe trench shall be open at one time at any one project location.

- H. See City Standards for additional requirements.

3.11 BACKFILL AROUND STRUCTURES

- A. Obtain Engineer's acceptance of concrete work and attained concrete strength prior to backfilling.
- B. Backfill with Structural Backfill material placed in maximum 12 inch loose lifts and compacted to a minimum 98% of maximum dry density (ASTM D 1557).
- C. Compact backfill adjacent to structures with equipment that will not damage the structure.
- D. Backfill with flowable fill or other material shall be only if reviewed and approved by the Engineer.

3.12 SITE GRADING

- A. Fill and contour site areas with Earthfill material to elevations shown and as required to prepare the site for landscape grading and sodding.
- B. Place materials in maximum 8 inch loose lifts and compact as required to limit subsequent settlement.

3.13 COMPACTION TESTING

- A. In-situ compaction testing shall be performed by a certified laboratory.
- B. Compaction testing shall be done by nuclear density equipment or other approved methods. (ASTM D-2937, D-1557, D-6938)
- C. Density testing shall be performed as follows:
 - 1. Pipe Trenches: 1 test per lift per 100 feet of pipe.
 - 2. Fill Under/Around Structures: 1 test per lift under each structure or 1 backfill test per lift per drainage or sanitary structure installed.
 - 3. Fill Under Pavement Areas: 1 test per lift per 2,000 square feet of compacted surface area.
- D. Test results in a specific location are only representative of a larger area if the contractor has used consistent compaction means and methods and the soils are practically uniform throughout. If it is determined by the Owner/Engineer that there are variations in the compaction methods

and/or soil uniformity, additional testing may be required.

3.14 FINAL AND FINISH GRADING

- A. Using clean topsoil, perform all final and finish grading in all yard and planting areas. Topsoil shall be placed to a minimum of 4" thickness, rototilled to a minimum depth of 8", leveled and finish graded in all areas. No pavement base course material or broken asphalt will be allowed as topsoil materials in landscaping areas.
- B. Finish grades (top of the soil) shall be approximately 1-1/2" below edges of pathways, curbs and other paved or concrete slabs. After sod installation, the top of the sod shall not be more than 1/2" below or shall be flush with the grade established by any adjacent paved or curbed surface.
- C. The Contractor shall verify that all finish subgrades are correct prior to beginning installation of sod and planting materials. Upon completion of the project work, the Contractor shall prepare "record drawings" verifying that all finish grades are in accordance with the contract documents and shall submit same to the Engineer for review and acceptance prior to requesting final inspection of the project. The "record drawings" shall be prepared by a surveyor registered in the State of Florida.
- D. Upon project completion, all areas of site within immediate construction and adjacent areas shall be completely cleaned of all debris. Particular attention is called to any cement, mortar, masonry drippings and plaster which shall be completely removed from planting and lawn areas and shall be disposed of offsite.
- E. All areas adjacent to site and all areas not within contract construction areas shall be left in reasonably same condition as they were found prior to commencement of construction.
- F. Any damage to the existing adjacent facilities including adjacent lakes or roads, and related areas such as, but not limited to, finish grades, slopes, grass sod, structures, pipe, etc. shall be repaired and restored to a proper and appropriate condition acceptable to the Owner and Engineer.

3.15 EXCESS MATERIAL

- A. Remove all excess suitable and unsuitable materials from the site and dispose of at Contractor's expense.

END OF SECTION

SECTION 02270**EROSION AND SEDIMENTATION CONTROL****PART 1 - GENERAL****1.01 DESCRIPTION**

The work specified in this Section consists of measures required to control erosion on the project and in areas outside the project area where work is accomplished in conjunction with the project, so as to prevent pollution of water, detrimental effects of public or private property adjacent to the project area and damage to work on the project. These measures will consist of construction and maintenance of temporary erosion control features or, where practical, the construction and maintenance of permanent erosion control features.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Section 02485 – Grassing.

1.03 START OF WORK

Do not start work until erosion control measures are in place.

PART 2 - PRODUCTS**2.01 GENERAL**

- A. No testing of materials used in construction of temporary erosion control features will be required.
- B. Materials used for the construction of the temporary erosion and sedimentation control measures not to be incorporated into the completed project may be new or used.

PART 3 - EXECUTION**3.01 GENERAL**

- A. Temporary erosion control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, artificial coverings, berms, baled hay or straw, floating silt barriers, staked silt barriers and staked silt fences. Design details for some of these items may be found in the Water Quality Section of the applicable edition of the FDOT Roadway and Traffic Design Standards.
- B. Incorporate permanent erosion control features into the project at the earliest practical time. Correct conditions, using temporary measures, that develop during construction to control erosion prior to the time it is practical to construct permanent control features.
- C. Construct temporary and permanent erosion and sediment control measures to prevent the pollution of adjacent water ways in conformance with the laws, rules and regulations of Federal, State and local agencies.

3.02 INSTALLATION

- A. Temporary Grassing: This work shall consist of furnishing and placing grass seed in accordance with Section 02485 – Grassing.
- B. Baled Hay or Straw:
 - 1. This work shall consist of construction of baled hay or straw dams to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in FDOT's Roadway and Traffic Design Standards.
 - 2. The dam shall be placed so as to effectively control silt dispersion under conditions present on this project. Alternate solutions and usage of materials may be used if approved.
- C. Temporary Silt Fences and Staked Silt Barriers: This work shall consist of furnishing, installing, maintaining and removing staked turbidity barriers in accordance with the manufacturer's directions, these specifications and the details as shown in FDOT's Roadway and Traffic Design Standards.

3.03 REMOVAL OF TEMPORARY EROSION CONTROL FEATURES

In general, remove or incorporate into the soil any temporary erosion control features existing at the time of construction of the permanent erosion control features in such a manner that there will be no detrimental effect.

3.04 MAINTENANCE OF EROSION CONTROL FEATURES

General: Provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted.

3.05 PROTECTION DURING SUSPENSION OF CONTRACT TIME

In the event that it is necessary that the construction operations be suspended for any appreciable length of time, shape the top of the earthwork in such a manner as to permit runoff of rainwater and construct earth berms along the top edges of embankments to intercept runoff water. Provide temporary slope drains to carry runoff from cuts and embankments which are located in the vicinity of rivers, streams, canals, lakes, and impoundments. Should such preventive measures fail, immediately take such other action as necessary to effectively prevent erosion and siltation.

END OF SECTION

SECTION 02485**GRASSING****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. The Contractor shall furnish all labor, equipment, and materials necessary for grassing all areas disturbed by his operations and any other areas on the plans indicated to receive grassing. It is the intent of this specification that damaged areas are to be replaced in kind, with sod to be used for all maintained yard areas. Contractor shall take all steps practical to minimize the area required to be sodded. All grassing shall be in accordance with Section 570 of the current FDOT Standard Specifications for Road and Bridge Construction, except as modified herein.

1.02 STORAGE OF MATERIALS

- A. The Contractor shall provide space for storage of sod prior to placement in a manner that will not endanger or restrict pedestrian or vehicular traffic or interfere with other aspects of the work.

1.03 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.

PART 2 - PRODUCTS**2.01 SOD**

- A. Types: Sod shall be St. Augustine Floratam, Argentine Bahia, Centipede, or Bermuda, depending on type of existing sod in adjacent area to be matched. Sod shall be well matted with roots. Where sodding will adjoin, or be in sufficiently close proximity to private lawns, types of sod other than those listed above may be used if desired by the affected property owners and approved by the Engineer. Sod shall be delivered in commercial-size rectangles, preferably 12-inch by 24-inch or larger.
- B. Condition: The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh, and uninjured at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds and

other grasses. It shall be planted as soon as possible after being dug and shall be kept moist from the time it is planted.

2.02 GRASSING EQUIPMENT

- A. Rollers: A cultipacker, traffic roller, or other suitable equipment will be required for rolling the grassed areas.

PART 3 - EXECUTION

3.01 GENERAL CONSTRUCTION METHODS

- A. No grassing shall be done when the ground is unduly wet or otherwise not in a suitable condition. Whenever a suitable length of right-of-way, disturbed area, or other area has been graded, it shall be made ready, when directed by the Owner/Engineer, and grassed in accordance with these specifications. Grassing shall be incorporated into the project at the earliest practical time in the lift of the contract.

3.02 SODDING

- A. Preparation of Area to be Sodded: The ground which is to receive sod shall have been graded to proper elevations (2" below sodded grade) to match pre-construction conditions or proposed grades. All disturbed swales and ditches shall have been restored to their pre-construction condition or better. The pre-construction grade shall be maintained and the prepared soil shall be loose and reasonable smooth. It shall be reasonable free of large clods, roots, patches of existing grass, and other material which will interfere with the sod-laying operations or subsequent mowing and maintenance operations.
- B. Laying of Sod: Sod shall be installed in all areas so designated by Owner/Engineer. Sod shall be carefully placed so that each piece abuts flush to all surrounding sod, regardless of whether surrounding sod is new or existing. All sod joints shall be staggered. Where new sod is to be placed adjacent to existing sod, the new sod must be cut in to match the elevation of the existing sod. Uneven sod which might cause mowing problems will be rejected. New sod laid on top of existing sod will also be rejected. All sod placed on steep slopes (greater than 1:1) shall be pinned with a wooden pin to keep it in place.
- C. Rolling: Immediately after completion of the sod laying, the entire sodded area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.

- D. Watering: Newly-sodded areas are to be watered by Contractor as necessary to keep sod alive until the Contractor is closed out. Dead sod shall be replaced by Contractor prior to contract closeout.

END OF SECTION

SECTION 02510**PAVING AND SURFACING****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. The work covered by this section of the Specifications consists of furnishing all labor, materials, equipment and supplies and performing all operations for the construction of pavements under this Contract.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General Conditions and Terms and Division 1 Specification sections, apply to this section.
- B. Section 01410 - Testing Laboratory Services
- C. Section 02200 – Earthwork, Excavation and Backfill
- D. Section 02580 – Pavement Markings

1.03 REFERENCED SPECIFICATIONS

- A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition. Referred to in this section as DOT Std. Specs.
- B. City of Fort Lauderdale Engineering Standards, referred to in these documents as “City Standards.”

1.04 SUBMITTALS

- A. Submit in accordance with Section 01300.
- B. Submit name of all material sources to the Engineer. Provide materials from the same approved source throughout the project. All material sources shall be Florida DOT approved.
- C. Submit proposed job-mix design to the Engineer for review.
- D. Submit written certifications that each material conforms to these specifications.

PART 2 -PRODUCTS**2.01 BASE MATERIAL**

- A. Limerock material shall meet the requirements of Section 911 of the DOT Std. Specifications for base material placed within FDOT right of way.
- B. Limerock material shall meet the requirements of the City Standards for base material placed within City right of way.
- C. Contractor to bid and use only one base material throughout the City right of way.

2.02 PRIME AND TACK COATS

- A. The materials used for prime and tack coats shall meet the requirements of Section 300 of the DOT Std. Specs and the City Standards, as applicable.

2.03 ASPHALTIC CONCRETE

- A. Type S-III: Type S-III Asphaltic Concrete shall be used within City of Fort Lauderdale right of way and shall meet the requirements of the City Standards.

2.04 EQUIPMENT

- A. All equipment associated with the operations of pavement placement and related work shall be entirely suitable for the applicable operations performed and shall be maintained in good condition.

2.05 QUALITY CONTROL

- A. Quality control of the work shall be the Contractor's responsibility and said Contractor shall make every effort to produce the best quality work as specified on the Plans and in these Specifications.
- B. Density tests on the compacted subgrade and base shall be performed by an independent testing laboratory at locations designated by the Engineer.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Verify underground utilities are completed and inspected.

- B. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.

3.02 SUBGRADE AND SHOULDER STABILIZATION (TYPE C)

- A. The pavement subgrade and roadway shoulders within City right of way shall be prepared, graded, stabilized and compacted to the lines and grades as shown on the Plans and in accordance with the City Standards.

3.03 BASE

- A. Base within the City of Fort Lauderdale right of way shall be prepared, graded and compacted to the lines and grades as shown on the Plans and in accordance with the City Standards.

3.04 PRIME AND TACK COAT

- A. Base shall receive a prime coat with cover material in accordance with Section 300 of the DOT Std. Specs.
- B. Pavement overlays shall receive a tack coat in accordance with Section 300 of the DOT Std. Specs.

3.05 ASPHALTIC CONCRETE SURFACE COURSE

- A. Asphaltic concrete surface course shall be constructed to a minimum thickness as specified on the Plans and be placed in a minimum of two (2) lifts.
- B. Asphaltic concrete surface course shall be constructed in accordance with Sections 320 and 330 of the DOT Std. Specifications.
- C. All existing exposed edges which abut to new Asphaltic Concrete Surface Course shall be saw cut in a straight and neat appearing line.
- D. All asphaltic concrete surface course pavement replacement shall be placed by mechanical spreading and screeding equipment as specified in Article 320-6.1 of the DOT Std. Specifications unless otherwise indicated. This will require at least an 8 ft. width for surface course placement unless specialty equipment is used which has received prior approval of the Engineer.

3.06 FIELD QUALITY CONTROL

- A. Section 01410 - Testing Laboratory Services: Contractor to provide field inspection and testing for compaction densities.

3.07 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F (60 degrees C).

END OF SECTION

SECTION 02670
FLUSHING AND TESTING

PART 1 - GENERAL**1.01 WORK INCLUDED**

- A. Flushing and Pressure Testing of systems including, but not limited to, the force mains shown on the plans.
- B. Contractor shall furnish all necessary pumps, hoses, piping, fittings, meters, gauges, chemicals and labor to conduct specified testing.
- C. Testing shall be repeated at the Contractor's expense until satisfactory results are achieved.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Section 15060 – Pressure Pipe Systems
- C. City of Fort Lauderdale Engineering Department Standards.

1.03 REFERENCES

- A. AWWA C600 – Standards for Installation of Ductile-Iron Water Mains and Their Appurtenances.

1.04 SUBMITTALS

- A. Test Reports: Indicate results comparative to specified requirements. Submit two (2) copies of test results to Engineer in accordance with Submittal specifications.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with AWWA C600 or C605 requirements as applicable.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable Florida Department of Environmental Protection requirements for performing the work of this Section.
- B. Work shall conform to the Fort Lauderdale Engineering Department Standards.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that the installed force main systems have been cleaned, inspected, and tested.
- B. Coordinate scheduling with the Engineer and the City of Fort Lauderdale Engineering Department.

3.02 FLUSHING AND PRESSURE TESTING - PIPING

- A. The Contractor shall furnish and install suitable temporary testing plugs or caps for the water lines and/or force mains, all necessary pressure pumps, hose, pipe connections, meters, gauges and other similar equipment, and all labor required, all without additional compensation for conducting pressure and leakage tests and flushing of the new water lines and/or force mains. Flushing and pressure testing shall be in accordance with the City of Fort Lauderdale Engineering Department Standards. If no standards exist, flushing and pressure testing shall be conducted in the following order.
- B. After all piping lines have been installed and before pressure testing and final connections to existing piping, each run of pipe shall be thoroughly flushed so as to remove all debris and foreign matter from the piping and equipment. Clean and flush all piping using potable water. Cleaning and Flushing shall be achieved by pigging or cannon flushing if approved by the City of Fort Lauderdale. Contractor shall furnish and install required pig launch and exit assemblies or temporary piping required for cannon flushing. Non-abrasive pigs shall be employed. Flushed water may be discharged to the onsite catch basins or water bodies and be coordinated

with the City. Contractor to provide means of discharging water to catch basins or water bodies at Contractor's expense.

C. Pressure testing piping systems:

1. The test pressure for the force main piping shall be 100 psi and this pressure shall be maintained for a period of not less than two hours. Tests shall be made between valves and as far as practicable and as approved by the Engineer. Potable water shall be used for the test. Pressure shall not vary more than five (5) psi for piping during the test periods or as approved by the Engineer. Additionally, allowable leakage shall be computed on the basis of AWWA C-600, C-605 where practical.
2. All leaks evident at the surface shall be uncovered and repaired regardless of the total leakage as indicated by the test, and all pipes, valves and fittings and other materials found defective under the test shall be removed and replaced at the Contractor's expense. Tests shall be repeated until leakage has been reduced below the allowable amount.
3. Should, in the judgment of the Engineer, it not be practical to follow the foregoing procedures exactly for any reason, modifications in the procedure shall be made as approved by the Engineer and the City of Fort Lauderdale. In any event, the Contractor shall be responsible for the ultimate water tightness of the piping within the preceding requirements.

END OF SECTION

SECTION 02750**TEMPORARY BYPASS PUMPING SYSTEMS****PART 1 - GENERAL****1.01 SCOPE OF WORK**

- A. The design, installation and operation of temporary bypass pumping systems shall be the Contractor's responsibility. The Contractor shall provide the services of a professional pump bypass company who can demonstrate to the City that the company specializes in the design prepared by a licensed professional engineer and operation of temporary bypass pumping systems. The bypass pumping system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Society for Testing and Materials (ASTM): D3350-84, Polyethylene Plastics, Pipe and Fittings Materials.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements:
1. It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the Project. Provide, maintain, and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and backup units as required), conduits, and all necessary power to intercept the sewage flow before it reaches the point where it would interfere with the Work, carry it past the Work, and return it to the existing sewer downstream of the Work.
 2. Design, install, and operate the temporary pumping system.
 3. Convey the sewage safely past this Work area. Do not stop or impede the main flows under any circumstances.
 4. Maintain sewer flow around the Work area in a manner that will not cause surcharging of sewers, damage to sewers, and that will protect public and private property from damage and flooding.
 5. Protect water resources, wetlands, and other natural resources.
- B. Design Requirements:

1. The proposed temporary bypass pumping system including pumps, pump drives, piping, piping restraints, pipe supports, cross-over steps, piping headers, fittings, valves, isolation knife gate valves, flow meters, controls, wiring and any other related accessories required to provide a complete operating system in conformance with the requirements of this section.
2. Provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping, to ensure that the total flow of the sewer and service connections can be safely diverted around the section to be replaced. Bypass pumping system will be required to be operated 24 hours per day 7 days per week, including holidays during bypass pumping operation. The system operating pressure shall be as required to pump into the system.
3. Install one bypass pump at each pump station or manhole to be bypassed. There shall be one back-up pump ready for immediate use in the event of an emergency or breakdown of any of the pumps. Each pumping location shall have provisions for immediate installation of a redundant pump without shutting the system down.
4. Single discharge piping shall be provided for all bypass pumping operations. Each individual discharge pipeline shall be of adequate size to convey the required flow for the system's normal operating pumps.
5. Provide adequate enclosure around all bypass pumping equipment.
6. Pumping system control panels shall be NEMA 4 and include flow indication, a flow totalizer, indicator lamps showing which pumps are operating, selector switch for auto or manual start and stop for each pump and visual and audible alarms for indication of operation failure and alarm conditions.
7. To minimize odors, install the discharge piping to within 2 feet of the manhole bottom and provide lockable security covers with an inspection door over all suction and discharge manholes. Covers can be made of ¾-inch plywood, securely fastened over the manholes.
8. Maintain onsite portable lights for emergency use only.
9. Discharge must have an isolation valve and a check valve.
10. Pump station cleanouts shall not be used for bypass pumping.

1.04 SUBMITTALS

- A. Shop Drawings: Detailed plans and descriptions outlining all provisions and precautions regarding the handling of existing wastewater flows. This plan must be specific and complete including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to ensure proper protection of the facilities, including protection of public and private property from damage and flooding

by surcharging of sewers. The plan shall include, but not be limited to, details of the following:

1. Staging areas for pumps.
2. Sewer plugging method and types of plugs.
3. Size, material, location and method of installation of suction piping.
4. Size, material, method of installation and location of installation of discharge piping.
5. Bypass pump sizes, capacity, controls, and power requirements.
6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted).
7. Standby power generator size, location.
8. Downstream discharge plan.
9. Method of protecting discharge manholes or structures from surface water infiltration, erosion, and damage.
10. Thrust and restraint block sizes and locations.
11. Sections showing any suction and discharge pipe depth, embedment, select fill and special backfill where required.
12. Method of noise control for each pump and/or generator.
13. Any temporary pipe supports and anchoring required.
14. Plans for access to bypass pumping locations.
15. Calculations for selection of bypass pumping pipe size.
16. Schedule for installation of and maintenance of bypass pumping lines.
17. Plan indication selected location of bypass pumping line and air valve locations.
18. Inventory of disinfection materials in case of spillage.

B. Quality Control Submittals:

1. Certification of vendor's compliance with qualifications included in Article QUALITY ASSURANCE.
2. Weekly maintenance and inspection logs.

1.05 QUALITY ASSURANCE

- A. System operators to be full-time employees or specialized vendor with minimum 1 year experience in operating and maintaining bypass systems.
1. Provide five references from projects of similar size performed in the past 3 years.
- B. Be responsible for any spillage of raw sewage that results in civil or criminal charge from any local, state, or federal agency. Bear costs for these charges and any required restoration.

1.06 MAINTENANCE

- A. Maintenance Service: Ensure that the temporary pumping system is properly maintained and that a responsible operator is on call at all times when pumps are operating.
- B. Extra Materials: Spare parts for pumps and piping shall be kept onsite as necessary. Spare parts shall include, but not be limited to, the following: Extra pipe for each size and repair clamps for each bypass discharge line installed.
- C. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

PART 2 - PRODUCTS

2.01 BYPASS PIPING MATERIALS

- A. Header Piping: Header piping shall be used to connect the pumps to the discharge piping. The header shall be constructed of rigid pipe with positive, restrained joints, with a total maximum length of 50 feet. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Header piping will only be allowed in short sections and by specific permission from the Engineer or Owner.
- B. Discharge Piping: Discharge piping shall be used from the connection at the header piping to the discharge point. At the beginning of the Project, all discharge piping shall be new high density polyethylene pressure piping conforming to ASTM D3350 with a minimum SDR of 32.5. Discharge piping may be reused for subsequent flow bypass pumping system placements, however, the Owner or Engineer at their sole discretion shall have the right to reject sections of discharge piping deemed by either of them to be unserviceable. Joints shall be butt fusion welded. Discharge piping shall be as manufactured by Phillips Driscopipe, Inc., or equal.

2.02 EQUIPMENT

- A. All pumps used shall be fully automatic self priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The primary pumps must be electric with diesel powered backup. Pumps can be trailer mounted. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.
- B. Provide the necessary stop/start controls and a visual alarm indicating a pump malfunction for each pump.

- C. The back-up pumps shall be online, isolated from the primary system by a valve.
- D. Incorporate noise prevention measures for any and all equipment being used to insure minimum noise impact on the surrounding areas.
 - 1. Include: hospital grade silencers or mufflers, equipment modifications, and special equipment or sound barrier walls as necessary to limit noise levels below 55 decibels at a distance of 25 feet in the direction of any residential home for all diesel powered back-up pumps.
 - 2. In the event the Contractor fails to comply with maximum permissible noise level decibels in the operation of the flow bypass pumping system, the Owner or Engineer may order the Contractor to stop operation of the flow bypass pumping system until such time as specified noise levels are achieved. The termination of the flow bypass pumping system for such reason shall not be the basis for any extension of Contract time not for any claim for additional compensation.
- E. Repair clamps shall be full circle, stainless steel clamps, Style FS2 or FS3 as manufactured by the Ford Meter Box Company, Inc., or equal.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Precautions:
 - 1. Locate any existing utilities in the area selected to locate the bypass pipelines. Locate bypass pipelines to minimize any disturbance to existing utilities and obtain approval of the pipeline locations from Owner, property owners, all utilities, and the Engineer prior to installation.
 - 2. Bypass pump all wastewater flows during all phases of the Work and coordinate all bypass pumping operations with the Engineer or Owner.

3.02 INSTALLATION

- A. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of Work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

- B. When working inside manholes, exercise caution and comply with combustible or oxygen-deficient atmospheres, and confined spaces.
- C. The bypass pipeline must be located off streets, sidewalks, and shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, place the bypass pipelines in trenches and cover with temporary pavement or other approved methods. Obtain approvals for placement of the temporary pipeline within public rights-of-ways.
- D. Protect the bypass discharge line from damage in the areas of backhoe operations. Protection shall be by either concrete jersey barriers or wood timbers.
- E. Confine the bypass discharge pipeline to the area within the temporary construction area and permanent easement, for in-place or during relocation of the pipeline. Concrete barriers or timber deadman posts can be used to confine the movement of the discharge pipeline during relocation.

3.03 FIELD QUALITY CONTROL

- A. Test: Perform a hydrostatic pressure test for each section of discharge piping with a maximum pressure equal to 1.5 times the maximum operation pressure of the system. The Engineer or Owner shall witness the test to ensure that there are no leaks in the discharge piping prior to actual operation.
- B. The Operator shall inspect the bypass pumping system every hour, or on a schedule approved by the Engineer or Owner.
 - 1. An inspection log shall be kept at each pumping location. Each inspection log shall be marked with a time clock stamp to ensure the required maintenance and inspections are being performed.

3.04 CLEANING

- A. Sewage remaining in the bypass discharge pipeline and/or pumping equipment shall be flushed with City water and discharged to a working sewer before the bypass pumping system is broken down and moved to the next section. City water service must be protected by use of a backflow preventor.
- B. Disturbed Areas: Upon completion of the bypass pumping operation, the contractor shall clean up all areas disturbed by these operations, restoring same to a condition, including pavement restoration, at least equal to that which existed prior to the start of the Work.

3.05 TRAFFIC CONTROL

- A. The Contractor shall take appropriate steps to ensure that all pumps, piping and hoses that carry raw sewage are protected from traffic. Traffic control shall be performed in accordance with City of Fort Lauderdale and Broward County requirements as needed.

3.06 SEWAGE SPILLS

- A. In the event, during any form of "Sewage Flow Control", that raw sewage is spilled, discharged, leaked or otherwise deposited in the open environment, due to the Contractor's work, the Contractor is responsible for any clean up of solids and disinfection of the area affected. This work will be performed at the Contractor's expense with no additional cost to the Owner. The Contractor is also responsible for notifying the sewer system maintenance personnel and complying with any and all regulatory requirements in regards to the size spill with no additional cost to the Owner.

END OF SECTION

SECTION 03100
CONCRETE FORMWORK

PART 1 - GENERAL**1.01 WORK INCLUDED**

- A. Formwork for cast-in place concrete, with shoring, bracing, and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.02 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Section 03200 - Concrete Reinforcement
- B. Section 03300 - Cast-in-Place Concrete

1.03 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements for Reinforced Concrete.
- C. ACI 347 - Recommended Practice for Concrete Formwork.
- D. PS 1 - Construction and Industrial Plywood.
- E. Florida Building Code, latest edition

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.
- B. Maintain one copy of each document on site.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable code for design, fabrication, erection, and removal of formwork.

1.06 COORDINATION

- A. Coordinate this Section with other Sections of work which require attachment of components to formwork.
- B. Coordinate formwork with reinforcement installation to provide sufficient concrete cover over reinforcement.

PART 2 – PRODUCTS**2.01 WOOD FORM MATERIALS**

- A. Form Materials: At the discretion of the Contractor.

2.02 FORMWORK ACCESSORIES

- A. Wall Form Ties: Removable Snap-off type, 316 stainless steel, fixed length, cone type, with waterproofing rubber washer, 1-1/2 inch back break dimension, free of defects that could leave holes larger than 1-inch in concrete surface.
- B. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- C. Corners Chamfer, wood strip type; 3/4 x 3/4 inch size; maximum possible lengths.
- D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 – EXECUTION**3.01 EXAMINATION**

- A. Verify lines, levels, and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 EARTH FORMS

- A. Earth forms are not permitted.

3.03 ERECTION - FORMWORK

- A. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 318.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members which are not indicated on Drawings.
- F. Provide chamfer strips on external corners of all exposed concrete elements.
- G. Induce camber on existing roof slab structure prior to casting concrete.

3.04 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water.
- D. Keep surfaces coated prior to placement of concrete.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items which will be cast directly into concrete.

- C. Coordinate with work of other sections in forming and placing openings, slots, regrets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
- D. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- E. Install waterstops continuous without displacing reinforcement. Heat seal joints watertight. Conform to manufacturers recommendations.
- F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.06 FORM CLEANING

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Use compressed air to remove remaining foreign matter.

3.07 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 318.
- B. Camber slabs and beams 1/4 inch per 10 feet in accordance with ACI 318.

3.08 FIELD QUALITY CONTROL

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- B. Do not reuse wood formwork more than three times for concrete surfaces to be exposed to view.

3.09 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

SECTION 03200**CONCRETE REINFORCEMENT****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. Reinforcing steel bars, wire fabric, and accessories for cast-in-place and precast concrete.

1.02 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Section 01300 - Submittals
- B. Section 03100 - Concrete Formwork
- C. Section 03300 - Cast-in-Place Concrete
- D. Section 03410 – Structural Precast Concrete

1.03 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 – Building Code Requirements for Reinforced Concrete
- C. ACI SP-66 - American Concrete Institute -Detailing Manual.
- D. ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- E. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- F. ANSI/AWS D1.4 - Structural Welding Code for Reinforcing Steel.
- G. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- H. ASTM A704 - Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
- I. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts, and Connections in Reinforced Concrete Construction.
- J. CRSI -Concrete Reinforcing Steel Institute -Manual of Practice.

- K. CRSI 63 -Recommended Practice For Placing Reinforcing Bars.
- L. CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications, and Nomenclature.
- M. Florida Building Code, latest edition

1.04 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01300.
- B. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.
- B. Maintain one copy of document on site.

1.06 QUALIFICATIONS

- A. Welders' Certificates: Submit under provisions of Section 01300 Manufacturer's Certificates, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.07 COORDINATION

- A. Coordinate with placement of formwork, formed openings, and other Work.

PART 2 - PRODUCTS

2.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615, 60-ksi yield grade; deformed billet steel bars, unfinished.
- B. Welded Steel Wire Fabric: ASTM A185 Plain Type; in flat sheets unfinished.

2.02 ACCESSORY MATERIALS

- A. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.
- B. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather-exposed Concrete Surfaces: Plastic coated steel or stainless steel type; size and shape as required.

2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 318.
- B. Locate reinforcing splices not indicated on drawings, at point of minimum stress. Review location of splices with Engineer.

PART 3 - EXECUTION**3.01 PLACEMENT**

- A. Place, support, and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing according to ACI-318 and plans.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART I - GENERAL

1.01 NOTICE

- A. Engineer shall be given 48 hours advance notice to all concrete placements and no concrete shall be placed without approval of Engineer.

1.02 WORK INCLUDED

- A. Cast-in-place concrete foundations, walls, parapets, columns, slabs on grade, equipment pads, underground concrete vaults and structures, pipe supports, beams, curbs, and sidewalks.

1.03 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Section 01300 – Submittals
- B. Section 01410 – Testing Laboratory Services
- C. Section 03100 - Concrete Formwork
- D. Section 03200 - Concrete Reinforcement

1.04 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements for Reinforced Concrete
- C. ASTM C33 - Concrete Aggregates.
- D. FDOT Standard Specifications for Road and Bridge Construction
- E. ASTM C94 - Ready-mixed Concrete.
- F. ASTM C150 - Portland cement.
- G. ASTM C260 - Air Entraining Admixtures for Concrete.
- H. ASTM C494 – Chemical Admixtures for Concrete
- I. ASTM C618 – Pozzolonic Materials.

1.05 QUALITY ASSURANCE

- A. Perform Work: in accordance with ACI 301 and FDOT Standard Specifications.
- B. Obtain materials for same source throughout the Work.
- C. Submit manufacturer's certification that materials meet specification requirements.
- D. Submit ready-mix delivery tickets, ASTM C94-78.

1.06 TESTS

- A. Testing and analysis of concrete will be performed under provisions of this Section and Section 01410.
- B. Submit proposed mix design of each class of concrete to Engineer for review prior to commencement of work in accordance with Submittal Section. Submittal shall include proposed location for each class of concrete.
- C. Independent Testing laboratory shall take cylinders and perform slump and air entrainment tests in accordance with ACI 301.
- D. Provide 5 cylinders per set. Test one at 3 days, one at 7 days, two at 28 days, and hold one.
- E. Slump tests shall be taken for every truck delivery and each set of test cylinders taken.
- F. In general, cylinders shall be taken for each concrete pour event, and every 50 cubic yards placed.
- G. All tests failing minimum specified criteria shall be billed to and paid for by the Contractor.

1.07 SUBMITTALS

- A. Submit product data under provisions of Section 01300 for Fine and Coarse aggregates, admixtures, concrete mix design, joint devices, attachment accessories, and curing compounds.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. Cement: ASTM C150 -Type II Cement.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: Clean potable water.

2.02 ADMIXTURES

- A. Air Entrainment: ASTM C260. Use Darex II AEA or equal.
- B. Water-reducing admixture may be used and must meet ASTM C-494 as a Type A and Type D. Use WRDA 64 or equal. Add in accordance with ACI-350.
- C. Use of calcium chloride is not permitted.
- D. Air entraining agent to normal weight concrete mix if used, shall not exceed 4%.
- E. Superplasticizers must meet all ASTM requirements and have compatibility test results with approved mix design.

2.03 CONCRETE MIX

- A. Mix concrete in accordance with ASTM C94.
- B. Provide concrete to satisfy the following requirements
 - 1. Compressive Strength (28 days): 3000 psi for sidewalks and curbs, 4000 psi all other locations.
 - 2. Water/Cement ratio maximum 0.48 without admixtures by weight.
 - 3. Fly Ash Content: maximum 15% of cement content, Type F only.
 - 4. Slump 4 ± 1 inch regular, 7-8 inch with superplasticizer, 6-8 inch pea rock pump mix.
- C. Use set-retarding admixtures during hot weather only when approved by Engineer.
- D. Air entraining agent may be considered in concrete mix, however, content must be kept to a minimum, and carefully monitored for addition to mix design.

- E. Superplasticizer shall be used in all R/C walls that are water holding structures; i.e., clearwell, containment walls, etc.

2.04 ACCESSORIES

- A. Vapor Barrier: 10 mil thick clear polyethylene film, type recommended for below-grade application.
- B. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.
- C. Water Stop (PVC): 4" x 3/16" water stop, Dumbell polyvinylchloride Greenstreak - Style 741 or approved equivalent.
- D. Water Stop (Other): Bentonite type strips Rx101, or applicable to condition, as manufactured by Volclay, or equal.
- E. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.
- F. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel or Stainless steel type; size and shape as required. Do not use concrete or clay bricks to support reinforcing.
- G. Backing rod and sealant as indicated on drawings for construction joints.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.
- B. Verify site dewatering conditions. All foundations shall be cast in the dry.
- C. Verify requirements for concrete cover over reinforcement.
- D. Clean forms of trash, wood, excess steel, and deleterious materials.

3.02 PREPARATION

- A. Install vapor barrier under all slabs, footings, and other concrete exposed to earth. Lap joints a minimum of 6 inches. Do not disturb or damage vapor barrier while placing concrete. Repair damaged vapor barrier.
- B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, clean holes, insert steel dowels and epoxy in accordance with manufacturer's installation instructions keeping the minimum embedments specified on drawings.
- C. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.03 PLACING CONCRETE

- A. Notify Engineer and Owner's Representative minimum 48 hours prior to commencement of concreting operations.
- B. Place concrete in accordance with ACI 301 and FDOT Standard Specifications.
- C. Hot Weather Placement ACI 301.
- D. Cold Weather Placement ACI 301.
- E. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- F. Place concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.
- G. Contractor shall be responsible for means and methods to ensure concrete is poured in a dry area.
- H. Contractor needs to use mechanical vibrating equipment for consolidating concrete and should have a minimum of (2) two operable vibrators on the job.
- I. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- J. Saw cut curb joints within 24 hours after placing. Use 3/16 inch thick blade, cut 1/4 of slab thickness.

- K. Screed floors level, maintaining surface flatness of maximum 1/4 inch in 10 ft.

3.04 FINISHING

- A. Provide formed concrete walls, columns, beams, Class 5 finish above the water line.
- B. Finish concrete floor surfaces in accordance with ACI 301 steel trowel finish.
- C. Finish exterior walking surfaces with light broom.

3.05 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Water cure concrete surfaces in accordance with ACI 301 for 7 days or apply curing compound.
- C. Contractor shall use curing compounds for vertical surfaces.

3.06 PATCHING

- A. Notify Engineer immediately upon removal of forms. No surfaces are to be patched or backfilled prior to being reviewed by the Engineer.
- B. Patch imperfections as requested by the Engineer or his field representative in accordance with ACI 301 and FDOT Standard Specifications.
- C. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

3.07 DEFECTIVE CONCRETE

- A. Modify or replace concrete not conforming to required levels, lines, details, elevations, dimensions, tolerances, or specified requirements.
- B. Repair or replace concrete not properly placed will be determined by the Engineer or Owner's Representative.
- C. Unless the removal of a defective slab is required by the Engineer, defective surfaces, such as honeycomb, shall be cut out entirely until homogeneous concrete is met, even if it means going through the slab.

- D. Such areas shall be coated with an approved epoxy bonding material, which shall be applied in accordance with the manufacturer's instruction, before damp packing the area with a mix consisting of one part of Portland cement and two parts of sand and fine gravel, epoxy and sand mix, or any combination of materials and mixes as the situation dictates in the opinion of the Engineer.
- E. The water content of the damp-pack material shall be such that a ball of the mix may be squeezed in the hand without bringing free water to the surface.
- F. Damp-pack material shall be tamped into place and finished to match adjacent concrete surfaces.
- G. Particular care shall be taken that no sagging of the material will occur.
- H. The bond between any two layers of damp-pack shall be improved through the use of an approved epoxy bond agent.
- I. Surfaces which have been damp-packed shall be kept continuously damp during and for a period of not less than seven days after completing the damp-pack operation, by polyethylene coverings thoroughly taped to the original concrete surface in a manner that loss of moisture, evidence by lack of water droplets on the inside surface of the polyethylene, is avoided. If this moisture condition cannot be maintained, a continuous water cure may be required by the Engineer.
- J. Under no circumstances shall Contractor apply a plaster coat over the honeycomb areas to conceal the existence of the honeycomb in the concrete.
- K. Neither Embeco nor calcium chloride shall be used for filling honeycomb areas, nor shall they be mixed with damp-pack material.
- L. Any concrete with excess air entraining agent will be rejected.

3.08 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Contractor will be required to contact Testing Lab to be present for concrete deliveries.

- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

END OF SECTION

SECTION 03310**MORTAR****PART 1 - GENERAL****1.01 SCOPE OF WORK**

- A. Mortar shall conform to the property or proportion requirements of ASTM C270, latest edition. Non-load bearing and load-bearing concrete masonry shall be laid in mortar Type M.

1.02 STANDARDS

- A. National Concrete Masonry Association Specifications for the Design and Construction of Load Bearing Concrete Masonry.
- B. American National Standard Building Code requirements for reinforced masonry.
- C. National Concrete Masonry Association, T.E.K. Series.
- D. Florida Building Code, current edition.

1.03 RELATED SECTIONS

- A. Section 02070 - Sanitary Sewer Manholes.
- B. Section 03300 - Cast in Place Concrete.

1.04 SUBMITTALS

- A. The Engineer of Record shall be supplied with shop drawings consisting of product data and samples. Include design mix, required environmental conditions, and admixture limitations.
- B. Submit reports to the Engineer of Record on mortar indicating conformance of mortar to property requirements of ASTM C270

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI530 and ACI530.1.
- B. Where references are made to standards, the latest edition of the listed standard shall apply.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products in conformance with manufacturer's recommendations
- B. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

PART 2 - DOCUMENTS

2.01 MATERIALS

- A. Portland cement: ASTM C150. Portland cement shall be Type II where exposed to sewage. Otherwise, Type I shall be used.
- B. Masonry cement: ASTM C91, Type II, white or gray.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Sand: ASTM C144, sharp, natural sand mined in fresh water, hard durable grains, free of soft, flaky particles, salt, alkalis and organic material. Salt water sand strictly prohibited.
- E. Water: Potable.
- F. Waterproofing additive: Omicron mortar-proofing as manufactured by the Master Builders Co.
- G. Mortar: Mortar for above ground masonry shall conform to ASTM Standard C270, latest edition, "Mortar for Unit Masonry" and the following requirements:
 - 1. Use no antifreeze ingredient in the mortar.
 - 2. Color shall be natural.
 - 3. Submit data indicating proportions and materials to be used.

PART 3 - EXECUTION

3.01 PREPARATION AND MIXING

- A. Mortar for Masonry Walls and Partitions: Cement mortar mix for all unit masonry work shall be according to ASTM C270, Type M, 2500 psi minimum compressive strength at 28 days.
- B. Mortar for Glass Unit Masonry: ASTM C270, Type S, using the Property specification.

C. Mortar Mix proportions:

1. One-part Portland cement.
2. One quarter part hydrated lime (Lime putty shall not exceed 10% of the cement used).
3. 3 to 4 parts of damp loose sand.
4. Water: Sufficient for workable mix. Re-tempering not permitted.
5. Water proofing additive: add to mix for all exterior walls. Use a waterproofing admix equal to "OmicronOM" by Master Builders or "Mortarite" by Lambco, or approved equal, in all mortar for exterior use if the masonry cement has not been waterproofed by the addition of a waterproofing agent by the manufacturer. Proportion and use in accordance with the manufacturer's printed directions.

D. Colors: natural.

E. Mixing:

1. Measurement of materials shall be such that the specified proportions are controlled and accurately maintained.
2. Initially, sand and cement shall be thoroughly dry mixed, hydrated lime then added to the mix and then water to obtain a proper working consistency. Materials shall be evenly distributed and dry as good workability will allow.
3. Workability or consistency of mortar on the board shall be sufficiently wet to be worked under the trowel. Water for tempering shall be available on the scaffold at all times.
4. Mortar which has begun to set or has stood for more than one hour shall be discarded and in no event shall an unbalanced or stale mix be re-tempered or used.
5. Mix all cementitious materials and sand in mechanical batch mixer for minimum of 5 minutes. Adjust consistency of mortar to satisfaction of mason but add only as much water as is compatible with convenience in using mortar. If mortar begins to stiffen from evaporation or from absorption of part of mixing water, re-temper mortar immediately by adding water, and remix mortar to restore its workability. Re-temper only within two hours of mixing.

F. All mortar shall be used and placed in final position within two hours after mixing when air temperature is 80o F or higher and within three hours when air temperature is less than 80o F. Discard all mortar not used within these limits.

END OF SECTION

SECTION 03315**GROUT****PART 1 - GENERAL****1.01 THE REQUIREMENT**

- A. The Contractor shall furnish all materials for grout in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other work as required to produce finished grout, in accordance with the requirements of the Contract Documents.
- B. The following types of grout shall be covered in this Section
 - 1. Non-Shrink Grout: This type of grout is to be used wherever grout is shown in the Contract Documents, unless another type is specifically referenced.
 - 2. Cement Grout
 - 3. Epoxy Grout
 - 4. Topping Grout and Concrete Fill

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Specifications, codes, and standards shall be as specified in Section 03300 - Cast in Place Concrete and as referred to herein.
- B. Commercial Standards:
 - CRD-C 621 Corps of Engineers Specification for Non-shrink Grout
 - ASTM C 109 Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or 50-mm Cube Specimens)
 - ASTM C 531 Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical- Resistant Mortars, Grouts, and Monolithic Surfacing
 - ASTM C 579 Test Methods for Compressive Strength of Chemical-Resistant Mortars and Monolithic Surfacing
 - ASTM C 827 Test Method for Early Volume Change of Cementitious Mixtures
 - ASTM D 696 Test Method for Coefficient of Linear Thermal Expansion of Plastics

1.03 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit certified test results verifying the compressive strength, shrinkage, and expansion requirements specified herein; and manufacturer's literature containing instructions and recommendations on the mixing, handling, placement and appropriate uses for each type of non-shrink and epoxy grout used in the work.

1.04 QUALITY ASSURANCE

- A. Field Tests:
1. Compression test specimens will be taken during construction from the first placement of each type of grout, and at intervals thereafter as selected by the Engineer to ensure continued compliance with these specifications. The specimens will be made by the Engineer or its representative.
 2. Compression tests and fabrication of specimens for cement grout and non-shrink grout will be performed as specified in ASTM C 109 at intervals during construction as selected by the Engineer. A set of three specimens will be made for testing at 7 days, 28 days, and each additional time period as appropriate.
 3. Compression tests and fabrication of specimens for epoxy grout will be performed as specified in ASTM C 579, Method B, at intervals during construction as selected by the Engineer. A set of three specimens will be made for testing at 7 days, and each earlier time period as appropriate.
 4. All grout, already placed, which fails to meet the requirements of these specifications, is subject to removal and replacement at the cost of the Contractor.
- B. Construction Tolerances: Construction tolerances shall be as specified in the Section 03300 - Cast in Place Concrete except as modified herein and elsewhere in the Contract Documents.

PART 2 - PRODUCTS

2.01 CEMENT GROUT

- A. Cement Grout: Cement grout shall be composed of one-part cement, three parts sand, and the minimum amount of water necessary to obtain the desired consistency. Where needed to match the color of adjacent concrete, white Portland cement shall be blended with regular cement as needed. The minimum compressive strength at 28 days shall be 4000 psi.

- B. Cement grout materials shall be as specified in Section 03300 - Cast in Place Concrete.

2.02 PREPACKAGED GROUTS

A. Non-Shrink Grout:

1. Non-shrink grout shall be a prepackaged, inorganic, non-gas-liberating, non-metallic, cement-based grout requiring only the addition of water. Manufacturer's instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation for each class of non-shrink grout specified herein shall be that recommended by the manufacturer for the particular application.
2. Class A non-shrink grouts shall have a minimum 28 day compressive strength of 5000 psi; shall have no shrinkage (0.0 percent) and a maximum 4.0 percent expansion in the plastic state when tested in accordance with ASTM C-827; and shall have no shrinkage (0.0 percent) and a maximum of 0.2 percent expansion in the hardened state when tested in accordance with CRD C 621.
3. Class B non-shrink grouts shall have a minimum 28-day compressive strength of 5000 psi and shall meet the requirements of CRD C 621.
4. Application:
 - a. Class A non-shrink grout shall be used for the repair of all holes and defects in concrete members which are water bearing or in contact with soil or other fill material, grouting under all equipment base plates, and at all locations where grout is specified in the contract documents; except, for those applications for Class B non-shrink grout and epoxy grout specified herein. Class A non-shrink grout may be used in place of Class B non-shrink grout for all applications.
 - b. Class B non-shrink grout shall be used for the repair of all holes and defects in concrete members which are not water-bearing and not in contact with soil or other fill material, grouting under all base plates for structural steel members, and grouting railing posts in place

B. Epoxy Grout:

1. Epoxy grout shall be a pourable, non-shrink, 100 percent solids system. The epoxy grout system shall have three components: resin, hardener, and specially blended aggregate, all premeasured

and prepackaged. The resin component shall not contain any non-reactive diluents. Resins containing butyl glycidyl ether (BGE) or other highly volatile and hazardous reactive diluents are not acceptable. Variation of component ratios is not permitted unless specifically recommended by the manufacturer. Manufacturer's instructions shall be printed on each container in which the materials are packaged.

2. The chemical formulation of the epoxy grout shall be that recommended by the manufacturer for the particular application.
3. The mixed epoxy grout system shall have a minimum working life of 45 minutes at 75 degrees F.
4. The epoxy grout shall develop a compressive strength of 5000 psi in 24 hours and 10,000 psi in seven days when tested in accordance with ASTM C 579, Method B. There shall be no shrinkage (0.0 percent) and a maximum 4.0 percent expansion when tested in accordance with ASTM C 827.
5. The epoxy grout shall exhibit a minimum effective bearing area of 95 percent. This shall be determined by a test consisting of filling a 2-inch diameter by 4-inch high metal cylinder mold covered with a glass plate coated with a release agent. A weight shall be placed on the glass plate. At 24 hours after casting, the weight and plate shall be removed and the area in plan of all voids measured. The surface of the grout shall be probed with a sharp instrument to locate all voids.
6. The peak exotherm of a 2-inch diameter by 4-inch high cylinder shall not exceed 95 degrees F when tested with 75 degree F material at laboratory temperature. The epoxy grout shall exhibit a maximum thermal coefficient of 30×10^{-6} inches/inch/degree F when tested according to ASTM C 531 or ASTM D 696.
7. Application: Epoxy grout shall be used to embed all anchor bolts and reinforcing steel required to be set in grout, and for all other applications required in the Contract Documents.

2.03 TOPPING GROUT AND CONCRETE FILL

- A. Grout for topping of slabs and concrete fill for built-up surfaces of tank, channel, and basin bottoms shall be composed of cement, fine aggregate, coarse aggregate, water, and admixtures proportioned and mixed as specified herein. All materials and procedures specified for normal concrete in Section 03300 - Cast in Place Concrete.
- B. Topping grout and concrete fill shall contain a minimum of 564 pound of cement per cubic yard with a maximum water cement ratio of 0.45. Where concrete fill is thicker than 3 inches, "Cast-in-Place Concrete," may be used when accepted by the Engineer.

C. Coarse aggregate shall be graded as follows:

<u>U.S. STANDARD SIEVE SIZE</u>	<u>PERCENT BY WEIGHT PASSING</u>
1/2"	100
3/8"	90-100
No. 4	20-55
No. 8	5-30
No. 16	0-10
No. 30	0

D. Final mix design shall be as determined by trial mix design under supervision of the approved testing laboratory.

E. Strength: Minimum compressive strength of topping grout and concrete fill at the end of 28 days shall be 3000 psi.

2.04 CONSISTENCY

A. The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of that consistency; the type of grout to be used shall be as specified herein for the particular application.

B. The slump for topping grout and concrete fill shall be adjusted to match placement and finishing conditions but shall not exceed 4 inches.

2.05 MEASUREMENT OF INGREDIENTS

A. Measurements for cement grout shall be made accurately by volume using containers. Shovel measurement shall not be allowed.

B. Prepackaged grouts shall have ingredients measured by means recommended by the manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

A. All surface preparation, curing, and protection of cement grout shall be as specified in Section 03300 - Cast in Place Concrete. The finish of the grout surface shall match that of the adjacent concrete.

- B. The manufacturer of Class A non-shrink grout and epoxy grout shall provide on-site technical assistance upon request.
- C. Base concrete or masonry must have attained its design strength before grout is placed, unless authorized by the Engineer.

3.02 GROUTING PROCEDURES

- A. Prepackage Grouts: All mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution for prepackaged grouts shall be done according to the instructions and recommendations of the manufacturer.
- B. Base Plate Grouting
 - 1. For base plates, the original concrete shall be blocked out or finished off a sufficient distance below the plate to provide for a one-inch thickness of grout or a thickness as shown on the Drawings.
 - 2. After the base plate has been set in position at the proper elevation by steel wedges or double nuts on the anchor bolts, the space between the bottom of the plate and the original pour of concrete shall be filled with non-shrink-type grout. The mixture shall be of a trowelable consistency and tamped or rodded solidly into the space between the plate and the base concrete. A backing board or stop shall be provided at the back side of the space to be filled with grout. Where this method of placement is not practical or where required by the Engineer, alternate grouting methods shall be submitted for acceptance by the Engineer.
- C. Topping Grout:
 - 1. All mechanical, electrical, and finish work shall be completed prior to placement of topping or concrete fill. The base slab shall be given a roughened textured surface by sandblasting or hydroblasting exposing the aggregates to ensure bonding to the base slab.
 - 2. The minimum thickness of grout topping and concrete fill shall be one inch. Where the finished surface of concrete fill is to form an intersecting angle of less than 45 degrees with the concrete surface it is to be placed against, a key shall be formed in the concrete surface at the intersection point. The key shall be a minimum of 3-1/2-inches wide by 1-1/2-inches deep.
 - 3. The base slab shall be thoroughly cleaned and wetted prior to placing topping and fill. No topping concrete shall be placed until

the slab is complete free from standing pools or ponds of water. A thin coat of neat Type II cement grout shall be broomed into the surface of the slab just before topping of fill placement. The topping and fill shall be compacted by rolling or tamping, brought to established grade, and floated. Grouted fill for tank and basin bottoms where scraping mechanisms are to be installed shall be screeded by blades attached to the revolving mechanism of the equipment in accordance with the procedures outlined by the equipment manufacturer after the grout is brought to the established grade.

4. Topping grout placed on sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the placement.
5. The surface shall be tested with a straight edge to detect high and low spots which shall be immediately eliminated. When the topping and fill has hardened sufficiently, it shall be steel troweled to a smooth surface free from pinholes and other imperfections. An approved type of mechanical trowel may be used as an assist in this operation, but the last pass over the surface shall be by hand-troweling. During finishing, no water, dry cement or mixture of dry cement and sand shall be applied to the surface.

3.03 CONSOLIDATION

- A. Grout shall be placed in such a manner, for the consistency necessary for each application, so as to assure that the space to be grouted is completely filled.

END OF SECTION

SECTION 03410**STRUCTURAL PRECAST CONCRETE****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. Precast concrete structures.
- B. Connection and supporting devices.

1.02 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements for Reinforced Concrete.
- C. ANSI/AWS D1.1 - Structural Welding Code.
- D. ANSI/AWS D1.4 - Structural Welding Code - Reinforcing Steel.
- E. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A36 - Structural Steel.
- H. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- I. ASTM A615 - Deformed and Plain Billet-steel Bars for Concrete Reinforcement.
- J. ASTM C150 - Portland cement.
- K. PCI MNL-116 - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.
- L. PCI MNL-120 - Design Handbook - Precast and Prestressed Concrete.
- M. UL - Underwriters Laboratories.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Shop Drawings: Shall be submitted prior to fabrications, and should indicate layout, unit locations, fabrication details, unit identification marks, reinforcement, connection details, support items, dimensions, openings, and relationship to adjacent materials.

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with the requirements of PCI MNL-116.

1.05 QUALIFICATIONS

- A. Fabricator: Company specializing in manufacturing the work of this section with minimum five years documented experience.
- B. Erector: Company specializing in erecting the work of this section with five years documented experience approved by manufacturer.
- C. Design precast concrete members under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Florida.
- D. Welder: Qualified within previous 12 months in accordance with ANSI/AWS D1.1.

1.06 REGULATORY REQUIREMENTS

- A. Conform to ACI 318 and Florida Building Code for design load and construction requirements applicable to work of this Section.

1.07 PRE-INSTALLATION REQUIREMENTS

- A. Verify with Engineer any field cutting required for all openings.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site.
- B. Handle precast members in position consistent with their shape and design. Lift and support only from approved and designated support points.
- C. Lifting or Handling Devices: Capable of supporting member in positions anticipated during manufacture, storage, transportation, and erection.
- D. Protect members to prevent staining, chipping, or spalling of concrete.

- E. Mark each member with date of production and final position in structure.

1.09 COORDINATION

- A. Coordinate work under provisions of Section 01200.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: Gray Portland, conforming to ASTM C150 Type III, 4000 psi min compressive strength
- B. Aggregate, Sand, Water, Admixtures, slump: Determined by precast fabricator as appropriate to design requirements and PCI MNL-116.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615 Grade 60, deformed steel bars.
- B. Welded Steel Wire Fabric: ASTM A185 Plain Type flat sheets galvanized.

2.03 ACCESSORIES

- A. Connecting and Supporting Devices: ASTM A36 carbon steel Plates, angles, items cast into concrete or items connected to steel framing members, inserts, conforming to PCI MNL-123; unfinished. Do not paint surfaces in contact with concrete or surfaces requiring field welding.
- B. Grout: Non-shrink, Non-metallic, minimum yield strength of 7,000 psi at 28 days.
- C. Bolts, Nuts and Washers: High strength steel type recommended for structural steel joints.
- D. Prime Paint: Zinc-rich alkyd type.

2.04 FABRICATION

- A. Fabrication procedure to conform to PCI MNL-116.
- B. Maintain plant records and quality control program during production of precast members. Make records available upon request.
- C. Ensure reinforcing steel, anchors, inserts, plates, angles, and other cast-in items are embedded and located as indicated on shop drawings.

- D. Tension reinforcement tendons as required to achieve design load criteria.
- E. Provide required openings with a dimension larger than 8 inches and embed accessories provided by other Sections, at indicated locations.
- F. Pre-stressed concrete hollow core shall be machine extruded. Holes shall not be cut in hollow core roof slab without approval/coordination of the Engineer and the pre-stressed concrete manufacturer.

2.05 FINISHES

- A. Ensure exposed-to-view finish surfaces of precast concrete members are uniform in color and appearance. Provide $\frac{3}{4}$ " chamfer on all exposed concrete edges unless otherwise specified.
- B. Cure members under identical conditions to develop required concrete quality and minimize appearance blemishes such as non-uniformity, staining, or surface cracking.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that site conditions are ready to receive work and field measurements are as shown on Drawings.

3.02 PREPARATION

- A. Prepare support equipment for the erection procedure, temporary bracing, and induced loads during erection.

3.03 ERECTION

- A. Erect members without damage to structural capacity, shape, or finish. Replace or repair damaged members.
- B. Align and maintain uniform horizontal and vertical joints as erection progresses.
- C. Maintain temporary bracing in place until final support is provided.

3.04 PROTECTION

- A. Protect structures from damage caused by erection operations.

- B. Construction loads on hollow core concrete roof shall not exceed design loads.

3.05 CLEANING

- A. Clean weld marks, dirt, or blemishes from surface of exposed structures.

END OF SECTION

SECTION 05120
STRUCTURAL STEEL

PART 1 - GENERAL**1.01 SCOPE**

- A. Structural steel beams, plates, angles, inserts and anchor bolts.

1.02 RELATED SECTIONS

- A. Section 05500 – Miscellaneous Metals
- B. Section 09900 - Painting

1.03 REFERENCES

- A. ASTM A992 and ASTM A36 - Structural Steel
- B. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners
- C. ASTM A325 - High Strength Bolts for Structural Steel
- D. ASTM A490 - Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints
- E. AWS A2.0 - Standard Welding Symbols
- F. AWS D1.1 - Structural Welding Code
- G. AISC - Specification for the Design, Fabrication, and Erection of Structural steel for Buildings (latest edition).
- H. SSPC - Steel Structures Painting Council

1.04 SUBMITTALS

- A. Submit shop drawings of all structural steel proposed for fabrication to Engineer for prior approval. The Engineer's approval does not relieve the Contractor of responsibility for accuracy.
- B. Shop Drawings:
 - 1. Indicate sizes, spacing, and locations of structural plates and anchor bolts including openings, attachments, and fasteners.

2. Indicate welded connections with AWS A2.0 welding symbols and net weld lengths.
- C. Manufacturer's Mill Certificate: Submit under provisions of Section 01300 certifying that products meet or exceed specified requirements.
- D. Mill Test Reports: Submit under provisions of Section 01300 Manufacturer's Certificates, indicating structural strength, destructive, and non-destructive test analysis.
- E. Welders' Certificates: Submit under provisions of Section 01300 Manufacturer's Certificates, certifying welders employed on the Work, verifying AWS qualifications within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC - Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Fabricator: Company specializing in performing the work of this Section with a minimum of five years documented experience.
- B. Erector: Company specializing in performing the work of this Section with a minimum of three years documented experience.

1.07 FIELD MEASUREMENTS

- A. Verify that field measurements are as shown on the Drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Structural Steel Channels: ASTM A36.
- B. Structural Steel W-shape: ASTM A992
- C. Bolts, Nuts, and Washers: ASTM A307, A325, and A490 galvanized to ASTM A153 for galvanized members.

- D. Anchor Bolts: ASTM A307, A325, and A490.
- E. Welding Materials: AWS D1.1; type required for materials being welded. Use Class E-70 series electrodes with a minimum stress capacity of 15,800 psi at the throat of throat area in accordance with ASTM A233.

2.02 FINISH

- A. Prepare structural component surfaces in accordance with SSPC SP-2.
- B. All structural steel members shall be hot dip galvanized.
- C. Areas not shop primed, areas that have been field welded, and all painted areas that have been damaged during erection shall be cleaned, primed, and touch-up painted. Erection marks shall be cleaned.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions acceptable and are ready to receive work.

3.02 ERECTION

- A. Field weld components indicated on Drawings.
- B. Do not field cut or alter structural members without approval of Engineer.
- C. The Contractor will not construct missing or out-of-position bolt holes by torch cut method. Bolt holes that are needed after fabrication will be constructed by punching or drilling only.
- D. Removal of welds will be by air arc methods only. Contractor shall practice standard of care to avoid damage to parent metal during weld removal.

3.03 ERECTION TOLERANCE

- A. Maximum offset from true alignment: 1/8 inch.
- B. Runway beam tolerances shall be in accordance with crane manufacturer's recommendations.

END OF SECTION

SECTION 05500**MISCELLANEOUS METALS****PART 1 - GENERAL****1.01 SCOPE**

- A. This Section includes the furnishing and installation of fabricated metal work which applies to all sections, unless otherwise noted.

1.02 REFERENCE SPECIFICATIONS AND STANDARDS ARE REFERRED TO BY ABBREVIATION AS FOLLOWS:

- | | | |
|----|--|----------|
| A. | The Aluminum Association | AA |
| B. | American Institute of Steel Construction | AISC |
| C. | American National Standards Institute | ANSI |
| D. | American Society for Testing and Materials | ASTM |
| E. | American Welding Society | AWS |
| F. | American Society of Civil Engineers/
Structural Engineering Institute | ASCE/SEI |
| G. | National Association of Architectural
Metal Manufacturers | NAAMM |
| H. | Steel Structures Painting Council | SSPC |
| I. | ASTM A276 – Specification for stainless and heat-resisting steel bars and shapes. | |
| J. | ASTM F293 – Stainless steel specification for bolts/hex cap screws/studs | |
| K. | ASTM F294 – Specification for Stainless steel nuts | |
| L. | ASCE/SEI 8-02 - Standard Specification for the Design of Cold-formed
Stainless Steel Structural Members | |

1.03 QUALITY ASSURANCE

- A. Portions of the design not shown shall be completed by the fabricator in accordance with the latest edition of Specifications for Design, Fabrication and Erection of Structural Steel for Buildings of the AISC.
- B. Shop fabricated connections may be bolted or welded. Field connections shall be bolted.
- C. Burning/torching for enlarging holes will not be acceptable except with written permission of the Engineer.
- D. Responsibility for all errors in fabrication and correct fitting of structures shown on the shop drawings is the Contractor's responsibility.

1.04 REGULATORY REQUIREMENTS

- A. Metal fabrication materials shall meet the requirements of the following ASTM Standards and Specifications but limited to.
 - 1. Aluminum Alloy, plate and sheet ASTM B209-3003-H14, structure shapes ASTM B308-6061-T5, structural pipe and tube ASTM B429, castings ASTM B214.
 - 2. Steel stud anchors for embedded plates, A-108, grade 1020, 60 ksi.
 - 3. Galvanizing, A123.
- B. Comply with the provisions of the following standards except as otherwise shown or specified.
 - 1. AA Specifications for aluminum structures.
 - 2. AISC Specifications for design, fabrication and erection of structural steel for buildings.
 - 3. AWS code for welding in building construction.

1.05 SUBMITTALS

- A. Submit shop drawings and manufacturer's descriptive literature as applicable for all metal fabrications in accordance with Section 01300. No items shall be fabricated prior to reviewing approval by Engineer. Minimum scale of drawings and elevations shall be 3/4 in. equals 1 ft., details enlarged to adequate size for clarity, show anchorage.
- B. Where certain equipment and the like require unique support, provide such members only after careful coordination of shop drawings for the

equipment.

- C. Welders Certificates: Submit under provisions of Section 01300, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.06 PRODUCT HANDLING

- A. Use all means necessary to protect the Products of this Section before, during, and after installation and to protect the installed work and materials of all other trades.
- B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.
- C. Coordinate delivery of metal fabrications with work of other Sections.

PART 2 - PRODUCTS

2.01 SHOP FABRICATED PRODUCTS

- A. Provide anchor bolts as shown as well as for fabricated and structural metal items. Do not paint bolts.
- B. Provide inserts and sleeves for concrete as shown and as required.
- C. Provide miscellaneous metal frames and supports fabricated of structural shapes and plates.
- D. Fit and shop assemble items in largest practical sections, for delivery to site.
- E. Fabricate items with joints tightly fitted and secured.
- F. Continuously seal joined members by continuous welds. Provide vent holes in hollow members before galvanizing.
- G. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- H. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

- I. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- J. Punch and shear to leave smooth surfaces. Weld permanent connections, grind exposed welds smooth. Avoid screws and bolts where possible unless otherwise noted. When used and where exposed, countersink heads and draw up tight. Provide holes and connections for work of other trades.
- K. Shop painting of ferrous items, except those galvanized, shall be as specified in Section 09900 - Painting.
- L. After shop fabrication, all stainless steel components shall be pickled and passivated in accordance with ASTM A380.

2.02 FASTENERS

- A. Provide fasteners for all items under this Section. All nuts, bolts, washers, back up rings, etc. shall be 316 SS unless otherwise called out on the drawings or specified elsewhere herein.

2.03 PIPE SUPPORTS

- A. Pipe support straps shall be 316 SS unless otherwise noted.
- B. Metal pipe support fabrication shall be 316 SS unless otherwise noted.

2.04 MISCELLANEOUS FABRICATIONS

- A. Unless noted otherwise on the drawings or specified differently in other sections, all miscellaneous metal fabrications shall be 316 stainless steel.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on shop drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain Engineer approval prior to site cutting or making adjustments not scheduled.
- F. Verify that supports and anchors are correctly positioned.
- G. Verify that opening sizes and dimensional variations are acceptable to suit grading, railing, and stairs tolerances.
- H. Verify critical dimensions of the work on the job. Form items to accurate sizes and shapes, with sharp lines and angles.
- I. Protect aluminum in contact with concrete and dissimilar material with 1/4" neoprene, or bitumastic coating.
- J. Perform cutting, drilling, flashing and fitting required for installation of metal fabrications. Set the work accurately; provide temporary bracing and anchors in formwork for items to be built into masonry and concrete. Field weld joints not shop welded because of size limitations.

3.04 TOLERANCES

- A. Conform to ANSI/NAAMM A202.1.
- B. Maximum space between sections: ¼ inch.
- C. Maximum variation from top surface plane of sections: ¼ inch.

END OF SECTION

SECTION 05540**ACCESS HATCHES****PART 1 – GENERAL****1.01 SCOPE OF WORK**

The Contractor shall furnish and install access hatches, frames and accessories, where shown on the Drawings, and as specified herein.

1.02 QUALITY ASSURANCE

- A. Codes: Access hatches shall conform with Florida Building Code and OSHA requirements.
- B. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

PART 2 - PRODUCTS**2.01 HATCHES**

- A. General:
 - 1. Hatches for valve vaults and meter vaults shall be aluminum. In all cases hatches shall be designed for AASHTO H-20 wheel loads unless otherwise shown for pedestrian (300 PSF) loading.
 - 2. The access hatches shall have T316 stainless steel hardware, EPDM gasket/cushion, SS and aluminum hold open arm with release handle, padlock lug, pressure locks, and extruded aluminum frame. Hatches shall be equipped with a flush drop handle which does not protrude above the cover. Hinges shall be all stainless steel with tamper proof stainless steel bolts and nuts, and shall be removable for maintenance after the access hatch is cast in place. Access hatches shall be furnished with a safety chain (double door leaf design).
 - 3. When mounted, door leaf shall be flush with the top surface of the frame, with the exception of the projecting lugs. Hatches shall be of skid proof design.
 - 4. Hatches shall be gas tight.
 - 5. Access hatches shall be provided with a lifetime guarantee.

B. Valve Vault/Meter Vault:

Valve vault hatch shall be Model F1R, gas tight, double door as manufactured by Halliday Products, or approved equal.

C. For Submersible Pump Type Pump Stations:

1. Access hatches shall be Model F1R, gas tight, single door as manufactured by Halliday Products, or approved equal.
2. Frame shall be furnished with upper guide holder, level sensors and cable. Frame shall be securely placed and mounted above the pumps.

D. For Wet Well/Dry Well Type Pump Stations:

1. Access hatches shall be Model F1R, gas tight, single door as manufactured by Halliday Products, or approved equal.
2. Frame shall be furnished with upper guide holder, level sensors and cable. Frame shall be securely placed and mounted above the pumps.
3. Frames shall be 1/4-inch thick minimum extruded aluminum with mitered and welded corners, and with strap anchors bolted or welded to the frame for embedment into the concrete slab. Frame depth shall be at least 2-1/2 inches below the horizontal top surface of the hatch doors. The exterior portion of the frames which will be in contact with the concrete, and the strap anchors, shall be painted with a factory applied bituminous coating. Run PVC pipe drain from frame to sump in dry-well.

PART 3 – EXECUTION

NOT USED.

END OF SECTION

SECTION 05700**ANCHORS, FASTENERS AND ADHESIVE****PART 1 - GENERAL****1.01 SUMMARY**

- A. This Section includes anchors, fasteners, and injection adhesive for general use in securing materials in place and doweling new reinforcement to existing structures. Fasteners and anchors indicated or specified in other sections have precedence over those specified in this Section. It includes the following types of fasteners and adhesives:
1. Screws.
 2. Bolts.
 3. Expansion anchors (stud anchors, sleeve anchors).
 4. Adhesive anchors (stud anchors, reinforcement dowels)
 5. Reinforcing bars.
- B. Related Work Specified Elsewhere:
1. Concrete: SECTION 03300.
 2. Miscellaneous Metals: SECTION 05500.

1.02 REFERENCES

- A. Applicable Standards:
1. American Society for Testing and Materials (ASTM):
 - (a) F436 - Hardened Steel Washers.
 - (b) F467 - Nonferrous Nuts for General Use.
 - (c) F468 - Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.
 2. Expansion Anchor Manufacturers Institute (EAMI).
 3. Federal Specifications (FS):

- (a) FF-B-561 - Bolts, (screw), Lag.
- (b) FF-B-575 - Bolts, Hexagon and Square.

1.03 SUBMITTALS

- A. Submit as specified in Section 01300.
- B. Includes, but not limited to, the following:
 - 1. Manufacturer's data indicating strength capabilities of anchors, fasteners, and adhesives to be used.
- C. Sample of type requested by Engineer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store anchors and fasteners in manufacturer's original packaging, with labels intact and legible.
- B. Store and handle to prevent corrosion or damage prior to installation.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Expansion Anchors:
 - 1. Red Head, Phillips Drill Company.
 - 2. Ramset.
 - 3. Rawl.
 - 4. (WEJ-IT).
 - 5. Hilti
- B. Self-Drilling Fasteners:
 - 1. Buildex, Division of Illinois Tool Work, Inc.
- C. Adhesive Anchors:

- 1. Hilti
- 2. Redhead

2.02 GENERAL REQUIREMENTS

- A. Anchors and fasteners indicated or specified are to establish a type, minimum size and spacing.
- B. Determine proper size and length considering the following factors:
 - 1. Weight to be supported.
 - 2. Shear strength of fastener.
 - 3. Material and thickness to which fastener will be inserted.
 - 4. Thickness of item to be fastened.
- C. Expansion anchors shall conform to FF-S-325.
 - 1. Stud Anchors: Group II, Type 4, Class 1, zinc plated.
 - 2. Sleeve Anchors: Group II, Type 3, Class 3.
- D. Self-drilling fasteners shall be one of the following materials:
 - 1. 410 stainless steel that is case hardened and cadmium or zinc plated.
 - 2. Plastic headed on a 410 stainless screw.
 - 3. 302 stainless steel Scots cap on a 410 stainless steel screw.
- E. Washers shall be as a minimum of material compatible with or same material as fastener.

2.03 ANCHORS AND FASTENERS

Based upon material to be fastened, select appropriate fasteners listed below.

- A. Framing and Miscellaneous Lumber: including nailers, blocking, sleepers, furring.
 - 1. To Concrete Masonry Units, Brick, Concrete:

- (a) Multi-set or wedge anchors for attachment to concrete.
 - (b) Sleeve anchors for attachment to masonry and tile.
 - (c) Cast-in-Place Bolts.
 - (d) Self-Drilling Fasteners. Hex head, No. 1/4 x 2-3/4 inches, spaced 16 inches o.c.
2. To Steel Angles, Plates:
- (a) Bolts: 3/8-inch diameter minimum, 2 per width, spaced 16 inches oc, countersink head, 2 washers per bolt.
 - (b) Self-Drilling Screws: Header Tekes/4, reamer wings, Phillips flat head No. 12-24 x 2-1/2 inches, spaced 12 inches oc.
3. To Steel:
- (a) Structural Steel - Plymetal Tekes/3 Self-Drilling Fasteners:
Reamers wings, pilot point, flat head No. 2 12-24 x 2-1/2 inches for steel to .250-inches, spaced 12 inches oc.
 - (b) Light Gauge Steel, Studs - Self-Drilling Fasteners: Pilot point, trumpet head.
 - (c) Bolts: 5/16-inch diameter minimum.
4. To Concrete Masonry Units:
- (a) Sleeve Expansion Anchors: Hex nut, 5/16-inch diameter minimum, spaced 16 inches oc.
 - (b) Cast-in-Place Bolts: As indicated.
 - (c) Tapcon Concrete Anchors: Hex head, No. 1/4 x 1-3/4-inch.
5. To Concrete:
- (a) Stud Expansion Anchors: Size and thickness as required by thickness and size of plywood, but not less than 3/8-inch diameter (see Drawings for size).

B. Steel Angles or Plate:

1. To Concrete Masonry Units, Brick, Concrete:
 - (a) Stud Expansion Anchors: Size and thickness as required by thickness and size of steel.
 - (b) Cast-in-Place Bolts: 3/8-inch diameter minimum, threaded one end, length as indicated.
 - (c) Tapcon Concrete Anchors: Hex head, No. 1/4- x 1-3/4-inch.
 2. To Steel:
 - (a) Bolts and Welding: Specified in SECTION 05120.
 - (b) Teks/5 Self-Drilling Fasteners: Hex head (1/2-inch steel drilling capability), No. 12-24 x 1-1/4-inch or 1-1/2-inch.
- C. Sheet Metal:
1. To Wood:
 - (a) Common or Box Nails: Length as required to penetrate substance 1 inch minimum.
 - (b) Self-Drilling Fasteners: Slotted, hex head.
 - (c) Wood Screws: Round Head.
 2. To Steel: Up to 0.175-inch steel.
 - (a) Teks/2 Self-Drilling Sheet Metal Screws: Hex head, 10 - 16 x 3/4-inch hex washer head, spaced 6 inches oc.
 3. To Steel: Up to 0.25-inch steel.
 - (a) Teks/4 Self-Drilling Sheet Metal Screws: Hex head, 12 - 24 x 7/8-inch hex washer head, spaced 6 inches oc.
 4. To Concrete Masonry Units, Brick, Concrete:
 - (a) Tapcon Concrete Anchors: Slotted hex head.
 5. To Sheet Metal:
 - (a) Teks/2 Self-Drilling Sheet Metal Screws: Hex head 10 - 16 x 1/2-inch, spaced 6 inches oc.

- D. Miscellaneous Equipment (including mounting clips for conduit and pipe; hanger straps; junction, control and switch boxes; metal furring channels, hanging tie wires):
1. To Concrete Masonry Units, Brick, Concrete:
 - (a) Tapcon Concrete Anchors: Slotted hex head.
 2. To Steel:
 - (a) Self-drilling fasteners with wings, pilot point, slotted hex head:
 - (1) 12-14 x 3/4-inch Teks/3 (drilling capacity up to 0.210-inch)
 - (2) 12-24 x 7/8-inch Teks/4 (drilling capacity up to 0.250-inch)
 - (3) 12-24 x 1-1/4-inch Teks/5 (drilling capacity up to 0.500-inch)
- E. Fasteners and anchors as specified on the Plans.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Inspect areas to receive anchors or fasteners for defects which would affect proper installation and strength capacities. Correct all the defects.

3.02 INSTALLATION

- A. Install fasteners conforming to manufacturer's recommended procedures.
- B. Space fasteners as indicated and specified. If not indicated, space as required to adequately support loads to be imposed. Space expansion anchors in accordance with EAMI Standards and manufacturer's installation instructions.
- C. Place washers under all bolt heads and nuts, and under lag bolt heads.
- D. Tighten fasteners to proper tension.

END OF SECTION

SECTION 07920**JOINT SEALANTS****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
- B. This Section includes sealants for the following applications:
 - 1. Exterior joints in the following vertical surfaces:
 - a. Joints between metal panels.
 - b. Joints between different materials.
 - c. Perimeter joints between materials listed above and frames of doors, louvers and windows.
 - d. Other joints as indicated.
 - 2. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and louvers.
 - d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - e. Other joints as indicated.

- f. Pipe and conduit wall penetrations.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.04 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- C. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- D. Warranties: Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
 - 2. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.08 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

PART 2 - PRODUCTS

2.01 PRODUCTS AND MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the sealant schedules at the end of Part 3.
- B. Products: Subject to compliance with requirements, provide one of the products indicated for each type in the sealant schedules at the end of Part 3.

2.02 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: Sealants in general shall be white and paintable.

2.03 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.04 SOLVENT-RELEASE JOINT SEALANTS

- A. Acrylic-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1311 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.
- B. Acrylic-Based Solvent-Release Joint-Sealant Standard: Comply with FS TT-S-00230 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.
- C. Butyl-Rubber-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1085 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.
- D. Pigmented Narrow Joint Sealant: For each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3 provide manufacturer's standard, solvent-release-curing, pigmented, synthetic-rubber sealant complying with AAMA 803.3 and formulated for sealing joints 3/16 inch (5 mm) or smaller in width.

2.05 LATEX JOINT SEALANTS

- A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule at the end of Part 3.

2.06 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1. Type C: Closed-cell material with a surface skin.

2.07 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to

remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.
5. Provide recessed joint configuration, per Figure 5C in ASTM C 1193, of recess depth and at locations indicated.
 - a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.04 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

3.06 ELASTOMERIC JOINT-SEALANT SCHEDULE

- A. Acid-Curing Silicone Sealant: Where joint sealants of this type are required, provide products complying with the following:
 1. Products: Available products include the following:
 - a. Chem-Calk 1200; Bostik Inc.
 - b. 999-A; Dow Corning.
 - c. Trademate Glazing; Dow Corning.
 - d. Construction 1200; GE Silicones.
 - e. Contractors SCS1000; GE Silicones.

- f. SCS1702F; GE Silicones.
 - g. HiFlex 392; NUCO Industries, Inc.
 - h. NuFlex 302; NUCO Industries, Inc.
 - i. HM 270; Ohio Sealants, Inc.
 - j. 860; Pecora Corporation.
 - k. 863; Pecora Corporation.
 - l. PSI-601; Polymeric Systems, Inc.
 - m. OmniPlus; Sonneborn Building Products Div., ChemRex Inc.
 - n. Proglaze; Tremco.
 - o. Tremsil 300; Tremco.
 - p. Other approved equivalent
2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.
 - a. Use O Joint Substrates: Coated glass, color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, and ceramic tile.
 6. Applications: General glazing & sealing (not for use on masonry).
- B. Mildew-Resistant Silicone Sealant: Where joint sealants of this type are required, provide products formulated with fungicide that are intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes, and that comply with the following:
1. Products: Available products include the following:
 - a. 786 Mildew Resistant; Dow Corning.
 - b. Sanitary 1700; GE Silicones.
 - c. NuFlex 302; NUCO Industries, Inc.
 - d. 898 Silicone Sanitary Sealant; Pecora Corporation.
 - e. PSI-611; Polymeric Systems, Inc.
 - f. Tremsil 600 White; Tremco.
 - g. Other approved equivalent.
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.

4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.
 - a. Use O Joint Substrates: Coated glass, color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, and ceramic tile.
 6. Applications: Use in joints between plumbing fixtures and adjoining walls, floors and counters.
- C. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are required, provide products complying with the following:
1. Products: Available products include the following:
 - a. Vulkem 116; Mameco International.
 - b. Vulkem 230; Mameco International.
 - c. Sikaflex - 1a; Sika Corporation.
 - d. NP 1; Sonneborn Building Products Div., ChemRex Inc.
 - e. Other approved equivalent.
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Use[s] Related to Exposure: NT (nontraffic).
 5. Applications: General exterior sealant for use in active joints and where sealant may be exposed to physical abuse.
- D. Multicomponent Nonsag Urethane Sealant : Where joint sealants of this type are required, provide products complying with the following:
1. Products: Provide one of the following:
 - a. Chem-Calk 2641; Bostik Inc.
 - b. Vulkem 227; Mameco International.
 - c. Vulkem 922; Mameco International.
 - d. Elasto-Thane 920 Gun Grade; Pacific Polymers, Inc.
 - e. Dynatred; Pecora Corporation.
 - f. PSI-270; Polymeric Systems, Inc.
 - g. NP 2; Sonneborn Building Products Div., ChemRex Inc.
 - h. Other approved equivalent.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Use[s] Related to Exposure: NT (nontraffic).
5. Applications: Concrete tilt wall panel joints

3.07 LATEX JOINT-SEALANT SCHEDULE

- A. Latex Sealant: Where joint sealants of this type are required, provide products complying with the following:
 1. Products: Available products include the following:
 - a. Chem-Calk 600; Bostik Inc.
 - b. NuFlex 330; NUCO Industries, Inc.
 - c. LC 160 All Purpose Acrylic Caulk; Ohio Sealants, Inc.
 - d. AC-20; Pecora Corporation.
 - e. PSI-701; Polymeric Systems, Inc.
 - f. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
 - g. Tremflex 834; Tremco.
 2. Applications: General purpose interior caulking.

END OF SECTION

SECTION 09200**LATH AND PLASTER****PART I - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Types of work include:
 - 1. Metal furring and lathing.
 - 2. Portland cement plastering.
 - 3. Portland cement plaster scratch and leveling coats.
 - 4. Vinyl control joints - See Detail, Architectural Elevations and Finish Schedule.

1.03 QUALITY ASSURANCE

- A. Applicator: Company specializing in application of stuccowork with minimum five (5) years documented experience, with knowledge of ASTM C-926 and ASTM C-1063.
- B. Apply cement plaster under provisions of the latest edition of the PCA Plaster (stucco) manual and ASTM C-926-11a, except as modified herein.
- C. Single Source Responsibility: Obtain materials and employ materials from a single source for each type of material required for Portland cement plaster to ensure consistency in quality performance and appearance.
- D. Standard of Comparison: Materials specified are for clarity of description and as a standard of comparison.
- E. Substitutions for specified products: Submit substitution request under provisions of Section related to "Product Substitution Procedure".

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data for cementations materials, lath, metal support components, and accessories.
- B. Material Certificates: Submit producer's certificate for each kind of plaster aggregate indicated evidencing that materials comply with requirements.

1.05 PRE-INSTALLATION MEETING

- A. Schedule a pre-installation meeting to review the requirements of this

specification and existing conditions with Project Consultant and Owner at least seven (7) days prior to commence work. Attending this meeting will be the Contractors Superintendent, the plastering Sub-Contractor's Superintendent and/or their lead man who will be present during this work, the Project Consultant and the Owner.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.
- B. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes. Neatly stack lath flat to prevent deformation.
- C. Handle lath to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.
- D. Place sand under cover and in a manner to keep it lightly damp and prevent intrusion of foreign materials.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.
- B. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.
- C. Protect contiguous work from soiling, spattering moisture deterioration and other harmful effects which might result from plastering.

1.08 MOCK-UP

- A. Before installation of plaster Work, fabricate mock-up panels for each type of finish and application required using materials, including lath and support system, indicated for final Work.
- B. Install sample panels 4 feet x 4 feet (minimum) x full thickness in location indicated, or if not otherwise indicated, as directed by Project Consultant. Panels may form a part of the finished work if installed under provisions of the design parameters.
- C. Demonstrate proposed range of color, texture and installation to be expected in completed Work.
- D. Obtain Project Consultant and Owner's acceptance of panel's visual quality before start of Work.
- E. Retain panel during construction as standard for judging completed Work.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply stucco when substrate or ambient air temperature is less than 45 degrees Fahrenheit nor no more than 90 degrees Fahrenheit, with a humidity index of less 75, or up to 95 degrees with a humidity index is in excess of 75.
- B. Maintain minimum ambient temperature of 45 degrees Fahrenheit during and after installation of plaster for not less than 48 hours.
- C. Protect stucco against uneven and excessive evaporation and from blasts of dry air. Apply and cure stucco as required by climatic and job conditions to prevent rapid dryout. Provide suitable coverings, moist curing, and barriers to deflect direct sunlight and wind, or combination thereof.

1.10 WARRANTY

- A. Contractor, Sub-Contractor, each Material Supplier: provide a five (5) year unconditional written Guarantee or Warranty covering all workmanship and materials. Said Guarantee: under provisions of all stipulations and requirements stated in the General Conditions. All such Guarantees: commence at the date of Substantial Completion and/or date of acceptance of project by Owner and must include labor and materials to provide repair or replacement of stucco and all finishes including painting, sealants, signage and other components.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
 - 1. Manufacturers of Metal Supports:
 - a. ClarkDietrich Metal Framing (basis of design)
 - b. SCAFCO Corporation.
 - c. United Metal Products, Inc.
 - d. Or Approved Equal
 - 2. Manufacturers of Expanded Metal Lath:
 - a. Alabama Metal Industries Corporation (AMICO)
 - b. Or Approved Equal
 - 3. Manufacturers of Accessories: Reglets - See Architectural Drawings for ALL information. Details are specific on size, location. See Elevations, etc.
 - a. VinylTech (Plastic Components Co.).
 - b. Or Approved Equal

2.02 STEEL STUDS AND RUNNERS/TRACKS

- A. Non-Load (Axial) Bearing Studs and Runners: ASTM C 645 and complying with following requirements for minimum thickness of base metal (uncoated) and other characteristics:
1. Stud Thickness: As indicated on wall type schedule.
 2. Stud Depth: As indicated on wall type schedule.

2.03 VERTICAL METAL FURRING

- A. Z-Furring Members: Manufacturer's standard screw-type zee-shaped furring members formed from zinc-coated (galvanized) steel sheet, 0.0179" min. base (uncoated) metal thickness; complying with ASTM A 525, Coating Designation G 60; designed for mechanical attachment of insulation boards or blankets to monolithic concrete and masonry walls.

2.04 LATH

- A. Expanded Metal Lath: Fabricate expanded metal lath from uncoated or zinc-coated (galvanized) steel sheet to produce lath complying with ASTM C 847 for type, configuration and other characteristics indicated below, with uncoated steel sheet painted after fabrication into lath.
1. Diamond Mesh Lath: Comply with the following requirements:
 - a. For Overhead Installation: 3/8-inch rib lath, 3.4 pounds per square yard.
 - b. For Vertical Stucco Installation: Diamond Mesh, 3.4 pounds per square yard.
 - c. For application with plywood backing: Paper-backed Wire Fabric Lath: FS-UU-B-690a, Type I, Grade D, Style 2, Asphalt Impregnated Paper Factory-bonded to back.
- B. Lath Attachment Devices: Devices of material and type required by referenced standards and recommended by lath manufacturer for secure attachment of lath to framing members and of lath to lath.

2.05 PLASTER ACCESSORIES FOR PORTLAND CEMENT PLASTER

- A. General: Comply with material provisions of ANSI A42.3; coordinate depth of accessories with thicknesses and number of coats required.
- B. Metal Corner Reinforcement: Expanded large mesh diamond mesh lath fabricated from zinc-coated (galvanized) wire, and specially formed to reinforce external corners of portland cement plaster on exterior exposures while allowing full plaster encasement.
- C. Casing Beads: Square-edged style, fabricated of high impact PVC with perforated flanges No. 10 casing bead by VinylTech (Plastic Components Co.).

- D. Slip Joints: Square edge style fabricated of PVC, No. 20 slip joint by VinylTech (Plastic Components Co.).
- E. Corner Joints: No. 511 free moving corner joint fabricated of PVC by VinylTech (Plastic Components Co.).
- F. Corner Beads: No. 1 corner bead with perforated flanges fabricated of PVC by VinylTech (Plastic Components Co.).
- G. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

2.06 PORTLAND CEMENT PLASTER MATERIALS

- A. Base Coat Cements: Type as indicated below:
 - 1. Portland cement, ASTM C 150, Type I or III.
- B. Finish Coat Cement: Type as indicated below:
 - 1. Portland cement, ASTM C 150, Type I, white.
- C. Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S, or special hydrated lime for masonry purposes, ASTM C 207, type S.
- D. Sand Aggregate for Base Coats: ASTM C 897.
- E. Aggregate for Finish Coats: ASTM C 897 and as indicated below:
- F. Manufactured or natural sand, white in color.
- G. Fiber for Base Coat: Alkaline-resistant glass fibers, ½" long, free of contaminants, manufactured for use in portland cement plaster.
- H. Product: Subject to compliance with requirements, provide Dur-O-Fiber AR Glass manufactured by Dur-O-Wal, Inc.

2.07 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Drinkable, free of substances capable of affecting plaster set or of damaging plaster, lath or accessories.
- B. Bonding Agent for Portland Cement Plaster: ASTM C 932.
- C. Acoustical Sealant: ASTM C 919, non-oxidizing, skinning paintable types for exposed applications; non-drying, non-hardening, non-skinning type for concealed applications.
- D. Sound Attenuation Blankets: FS HH-I-521, Type I; semi-rigid mineral fiber blanket without membrane, Class 25 flame spread, thickness as indicated.
- E. Lath Fasteners: Galvanized or Stainless Steel pan or wafer head, #10 x 1 1/4" at 6" o.c. max.

2.08 PORTLAND CEMENT PLASTER MIXES AND COMPOSITIONS

- A. General: Comply with ASTM C 926 for portland cement plaster base and finish coat mixes as applicable to plaster bases, materials and other requirements indicated.
- B. Portland Cement Plaster Base Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume for cementitious

materials and in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.

1. Three-Coat Work Over Metal Lath: Base coats as indicated below:
 - a. Scratch Coat: 1 part portland cement, 0-3/4 parts lime, 2-1/2 - 4 parts sand.
 - b. Brown Coat: 1 part portland cement, 0-3/4 parts lime, 3-5 parts sand.
 2. Two-Coat Work Over Concrete Unit Masonry: Base coats as indicated below:
 - a. Base Coats: 1 part portland cement, 3/4 - 1-1/2 parts lime, 3 - 4 parts sand.
 3. Fiber Content: Add fiber to mixes above to comply with fiber manufacturer's directions but not to exceed 2 lbs. Per cu. Ft. of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.
- C. Job-Mixed Portland Cement Plaster Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials for aggregates to comply with the following requirements:
1. part portland cement, 3/4 - 1-1/2 parts lime, 3 parts sand.

2.09 MIXING

- A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION OF LATHING AND FURRING, GENERAL

- A. Interior Lathing and Furring Installation Standard: Install lathing and furring materials indicated for gypsum plaster to comply with ASTM C 841.
- B. Portland Cement Plaster Lathing and Furring Installation Standard: Install lathing and furring materials indicated for portland cement plaster to comply with ANSI A42.3.
- C. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum plaster manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co.
- D. Isolation: Where lathing and metal support system abuts building

structure horizontally, and where partition/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip or cushion type joints to absorb deflections but maintain lateral support.

1. Frame both sides of control and expansion joints independently, and do not bridge joints with furring and lathing or accessories.

3.02 METAL LATHING

- A. Install expanded metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration and weight of metal lath selected from materials indicated which comply with referenced lathing installation standards.
- B. Suspended Ceilings: In exterior conditions; minimum weight of diamond mesh lath, 3.4 lbs. Per sq. yd.
- C. Ceramic Tile Setting Beds: Use diamond mesh lath, 3.4 lbs. Per sq. yd.
- D. Exterior Sheathed Wall Surfaces: Minimum weight of self-furring diamond mesh lath, 3.4 lbs. Per sq. yd.

3.03 INSTALLATION OF PLASTERING ACCESSORIES

- A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and alignment during plastering.
- B. Accessories for Portland Cement Plaster:
 1. Corner Reinforcement: Install at external corners.
 2. Control Joints: Install control joints at locations indicated, or if not indicated, at locations complying with the following criteria and approved by Architect.
 - a. Where an expansion or control joint occurs in surface of construction directly behind plaster membrane.
 - b. Where portland cement plaster panel sizes or dimensions change. Extend joints full width or height of plaster membrane.
- C. Plaster Moldings (Stucco Reglets):
 1. Place asphalt impregnated building paper behind all moldings, vertical, diagonal and horizontal, extending minimum 6" beyond edge of flange in each direction. Install an additional layer of asphalt impregnated building paper over nailing flange, on top side of all horizontal reglets - including any reglets within 30 degree of horizontal.
 2. Install Reglet connector clips at all seams/joints. Apply sealant at all seams/joints at installation. Install according to manufacturer's

- directions to provide a watertight condition.
3. Use vinyl or cloth tape specifically manufactured for masking vinyl trim prior to plastering.

3.04 STRESS RELIEF

- A. Masonry and concrete surfaces:
 1. Provide control joints thru brown and finish coat immediately after the initial set of application on masonry and concrete.
 2. Install control joints in locations indicated on drawings and at spacing not exceeding more than 24 feet in any direction.
- B. Over Wire Lath:
 1. Provide control and expansion joints spaced the following:
 - a. In any direction not to exceed 12 feet on center.
 - b. Limit area to 130 square feet.
 - c. The short length to the long length ratio: not to exceed 1 to 2-1/2.
 - d. Provide an expansion joint where stucco support on wire lath abuts dissimilar material. Wire lath and supports: do not extend through an expansion and control joints.
 - e. Metal lath shall be discontinuous behind control and expansion joint accessories.

3.05 PLASTER APPLICATION, GENERAL

- A. Prepare monolithic surfaces for bonded base coats and use bonding compound or agent to comply with requirements of referenced plaster application standards for conditioning of monolithic surfaces.
- B. Tolerances: Do not deviate more than 1/8" in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straight edge placed at any location on surface.
- C. Grout hollow metal frames, bases and similar work occurring in gypsum plastered areas, with base coat plaster material, and prior to lathing where necessary. Except where full grouting is indicated or required for fire-resistance rating, grout 6" lengths at each anchorage.
- D. Sequence plaster application with the installation and protection of other work, so that neither will be damaged by the installation of the other.
- E. Plaster flush with metal frames and other built-in metal items or accessories which act as a plaster ground, unless otherwise indicated. Where plaster is not terminated at metal by casing beads, cut base coat free from metal before plaster sets and groove finish coat at the junctures with metal.
- F. Apply thickness and number of coats of plaster as indicated; or as required by referenced standards.
- G. Concealed Plaster: Where plaster application will be concealed above suspended ceilings and similar locations, finish-coat may be omitted;

where concealed behind cabinets and similar furnishings and equipment, apply finish-coat; where used as a base for adhesive application of tile and similar finishes, omit finish-coat and coordinate thickness with overall dimension as shown, and comply with tolerances specified.

3.06 PORTLAND CEMENT PLASTER APPLICATION

- A. Apply cement plaster under provisions of PCA Plaster (stucco) Manual and ASTM C-926-11a and as herein modified. The desired time of the complete installation of the three (3)-coat stucco is within 48 hours or less.
- B. Sequence the work to allow for the continuous application of plaster over all surfaces, and including window and door returns, louvers and other features to provide uniform thickness and finishes.
- C. Plaster:
 1. Provide Portland cement plaster (stucco), of the composition indicated, to comply with the following requirements:
 - a. Dampen masonry and concrete surfaces by fog spraying prior to installation of tight coat and scratch coat. Surface: free of visible water before applying tight or scratch coats. As far as possible, apply each coat in a continuous operation so as to avoid unsightly jointing.
 - b. Apply tight coat over concrete surfaces followed immediately with a scratch coat before tight coat becomes dry. Apply the tight coat in a thin coat approximately 1/16 inch thick, with a strong pressure.
 - c. Apply tight, scratch, brown, and skim coat by hand trowelling.
 - d. Back trowel each coat, applying with heavy pressure to fill voids, eliminate air bubbles, and promote mechanical bond.
 - e. When the scratch coat becomes firm, score the entire surface with scarifier tool, by Harrington or Goldlatt before initial set. On vertical surfaces score horizontally. The tool's purpose is to create a score of sufficient width to permit intrusion of the brown coat.
Note: The use of wire combs or brushes for scoring the scratch coat is not allowed.
 - f. Strip all exterior corners.
 - g. Finish coat consists of the following:
A skim coat 1/8 inch thick. Apply skim coat by hand troweling.
 - h. Over skim coat apply a troweled or sponge textured finish, or a machine sprayed finish where indicated or specified.
 - i. Required minimum thickness: With a tolerance of zero to plus 1/8 inch per coat.
 - j. Three-coat work on masonry poured concrete and metal lath:

	Vertical Surfaces	Horizontal Surfaces
Scratch coat	3/8 inch	1/4 inch
Brown coat	1/4 inch	1/4 inch
Finish coat	1/8 inch *	1/8 inch *
Total	3/4 inch	5/8 inch

* Plus any raised texture finishes.

Note: On wire lath, the scratch coat shall extend 1/4 inch beyond the lath.

Two-coat work on masonry: (Interior occupied spaces)

	Vertical Surfaces	Horizontal Surfaces
Scratch coat	1/4 inch	1/4 inch
Finish coat	1/8 inch *	1/8 inch *
Total	3/8 inch	3/8 inch

* Plus any raised texture finishes.

- k. Provide 1/4 inch skim coat on masonry. (Interior of Mechanical and Electrical spaces).
 - l. Stucco finishes: As indicated on drawings.
 - m. Stucco surfaces to be straight-edged, with jambs and angles straight and true.
2. Miscellaneous:
- a. Ensure all surfaces are clean and free of harmful materials before application of stucco.
 - b. Apply coating continuously without allowing mix to dry at edges.
 - c. Fully stucco all exterior exposed or projecting concrete unless otherwise indicated.

3.07 CURING

- A. Provide sufficient moisture to all coats to permit continuous hydration of the cementitious materials.
- B. Moisture curing of plaster:
 - 1. Lightly mist the stucco using a nursery-fogging nozzle or with pressure tank nursery sprayer to maintain lightly damp condition. Do not over wet.
 - 2. The stucco surfaces: Never saturate or directly spray with jetted water.
 - 3. Ensure there is no visible water on the surface when plaster is applied.
- C. After applying the scratch coat the second coat (brown coat) can be applied after the scratch coat has become firm to the touch. No dampening of scratch coat is required if brown coat is applied within 12

hours. If the second coat is not applied within 12 hours, moist cure the scratch coat for a minimum of 48 hours or until the second coat is applied. Do not saturate the stucco.

- D. Apply the finish coat within 4 hours of the application of the brown coat without moisture curing the brown coat or moist cure the brown coat for a minimum of 48 hours, or until the finish coat is applied.
- E. Moist cure a minimum of three (3) times a day for three (3) days after applying finish coat. Maintain finished work in a continuously moist condition indicated by surface having uniform "dark gray" color.

3.08 REPAIRING

- A. Sounding Surfaces:
 - 1. Sound out all stucco on masonry and poured concrete by tapping the surface.
 - 2. Mark all hollow sounding surfaces that indicate a non-bonding of substrate.
- B. Cutting and patching:
 - 1. Cut, patch, point-up, and repair removed plaster as necessary to accommodate other Work and to restore cracks, dents, and imperfections.
 - 2. Remove plaster to eliminate blisters, buckles, excessive crazing, check cracking, dry out, efflorescence, sweat-out and similar defects, and where bond to substrate has failed, Replace plaster matching adjacent surfaces.
- C. Sand smooth-troweled finished lightly to remove trowel marks and arrisses.

3.09 PAINTING

- A. Prior to painting plaster, ensure the moisture content of the plaster is less than that recommended by the paint manufacturer and the ph of the plaster is less than 10. Verify the moisture content using an electronic moisture meter and the ph using a ph pencil. Test every 1,000 square feet.

3.10 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other Work.
- B. Promptly remove plaster from doorframes, windows, and other surfaces, which are not to be plastered.
- C. Repair floors, walls and other surfaces, which have been stained, marred, or otherwise damaged during plastering Work.
- D. When plastering Work is completed, remove unused materials, containers and equipment, and clean floors of plaster debris.
- E. Provide final protection and maintain conditions, in a manner suitable to

Installer, which ensures plaster work being without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 09900**PAINTING****PART 1 - GENERAL****1.01 SCOPE**

- A. Furnish all labor, surface preparation and coating material, tools, rigging, lighting, ventilation, and other related items of equipment and materials necessary to clean, prepare, coat, cure and cleanup a complete coating system on all interior and exterior exposed items and surfaces throughout the project, except as otherwise specified or shown on the drawings.
 - 1. Surface preparation, priming, and coats of paint specified are in addition to shop priming and surface treatment specified under other sections of the work.
 - 2. The scope of work shall include the coating of existing walls, existing wetwell, existing drywell, new piping, floors, and ceilings, and new surfaces which are constructed by this project.
- B. The work includes field painting of exposed bare and covered pipes and ducts, hangers, exposed steel and iron work, and primed metal surfaces of equipment installed, except as otherwise indicated.
- C. Paint all exposed surfaces normally painted in the execution of a pump station rehabilitation project. Where items or surfaces are not specifically mentioned, or are not specifically excluded from the painting work, paint these the same as adjacent similar materials or areas.
- D. Clean, prepare, coat, and cure all surfaces in strict accordance with the manufacturer's published recommendations and specifications.
- E. Perform all work by the use of skilled workpersons in a safe and productive manner using equipment and procedures consistent with good coating practices.
- F. Colors are indicated on the Painting Schedule in this section or shown on the drawings. If color or finish is not designated, the Owner will select these from standard colors available for the materials system specified.

1.02 PAINTING NOT INCLUDED

- A. The following categories of work are not included as part of the field-applied finish work or are included in other sections of these specifications.
1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, metal fabrications, hollow metal work, and similar items. Also, for fabricated components such as shop-fabricated or factory-built mechanical and electrical equipment or accessories.
 2. Pre-Finished Items: Unless unit is part of an assembly to be painted to match, i.e. - motor, or otherwise shown or specified, do not include painting when factory-finishing or installer finishing is specified.
 3. Concealed Surfaces: Unless otherwise shown or specified, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts. Painting of galvanized work that will be concealed in the completed work is not required. Do not paint structural steel to be encased in concrete, nor structural steel specified not to be painted elsewhere. Except for touch-up as specified in Part 3, painting of shop primed structural steel and ferrous metals that will be concealed in the completed work is not required.
 4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, unless otherwise specified.
 5. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting unless otherwise specified.
 - a. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.
 6. Other Surfaces: Do not paint sprinkler heads, fire detection heads, integrally colored stucco, brick masonry, cast stone, stone masonry, or architectural precast concrete, unless otherwise specified.