CONTRACT DOCUMENTS & TECHNICAL SPECIFICATIONS

FOR

LOXAHATCHEE RIVER DISTRICT



Jupiter Inlet Lighthouse Septic to Sewer Conversion ITB # 21-006-00105

November 2021

Prepared by:



JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

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NOTICE TO CONTRACTORS

Bids will be received by the Loxahatchee River Environmental Control District (the "District,") via DemandStar until 2:00 p.m. local time on January 4, 2022. Any Bids received after 2:00 p.m. local time on January 4, 2022, will not be accepted under any circumstances. Any uncertainty regarding the time a Bid is received will be resolved against the Bidder. The Bids will be publicly opened and readaloud on January 6, 2022 at 2:00 p.m. local time in the Governing Board room of the District, at the above address. The Work to be performed is located in the Town of Jupiter, within Palm Beach County, and consists of furnishing all labor, tools, materials, and equipment necessary for the installation of a new gravity sewer system as shown on the Contract Plans and Specifications and as specified herein to include:

ITB #21-006-00105 : JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

Installation of approximately 1,290 linear feet of 8-inch gravity sewer and seven manholes to serve 8 structures on the Jupiter Inlet Lighthouse Park property. Project includes installation of a new commercial duplex lift station and connection of a new 2" discharge force main from the station to an existing 2" force main. The commercial duplex station will be furnished by the Owner. The project also includes installation of three low pressure residential grinder pump stations and associated 2" low pressure force main. The Project also includes replacement of the existing private potable water system with new 8" and 6" PVC water mains and services, fire hydrants, and connection of the new water system to the existing water meter. Work includes site modifications including grading and demolition of existing asphalt roadway and replacement with sod and compacted shell rock, as well as various stormwater improvements including construction of swales. The Work includes general conditions, bonds, indemnification, mobilization, demobilization, start-up, testing, record drawings, operation and maintenance manuals, training, and any all other necessary items to provide a complete and operating system.

The District reserves the right to determine material elements of the Bid and to award the Contract, if at all, to the lowest, qualified, responsive, and responsible Bidder. The District further reserves the right to reject any and all Bids; to not proceed with the Project; and/or to waive any irregularities contained in a Bid.

A pre-bid conference will be held at 2:00 p.m., local time on December 7, 2021 via Microsoft Teams. A meeting invite will be distributed to all plan holders prior to the scheduled date and time. If a bidder downloads Bid Documents from the District's website the bidder must send a request to be included in the pre-bid conference meeting invite to **purchasing@lrecd.org**. All contractors planning to submit Bids on this Project are encouraged to attend.

Bid Documents may be downloaded at the District's website, <u>https://loxahatcheeriver.org/governance/purchasing-bids/</u> or from DemandStar. Bid Documents will be available on November 22, 2021 after 8:00 a.m. local time. The Bid Documents are made available on the above terms solely for the purpose of obtaining Bids and do not confer a license or grant for any other use.

Character and amount of security to be furnished by each Bidder are stated in the Instruction to Bidders. The Bidder shall hold its Bid open for acceptance by the District for a period of not less than ninety (90) calendar days following the date of the Bid opening.

This solicitation has been issued as an Electronic Bid with the same title on DemandStar. To submit a response for this bid electronically follow the instructions on DemandStar. Electronic responses are the only method allowed for Bidders to respond to this solicitation. Bids shall be submitted on or before the date and time specified.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Gordon M. Boggie, Chairman

INSTRUCTIONS TO BIDDERS

ARTICLE 1

1. The following defined terms shall govern this Section and all other Contract Documents unless otherwise noted in the Contract Documents:

- a. "Bid" shall mean the documents that comprise the submission for the Work of this Project.
- b. "Bid Period" shall mean the time period from when the Bid Documents will become available to the deadline for submitting Bids.
- c. "Bidder" shall mean one who submits a Bid directly to the District, as distinct from a subbidder, who submits a Bid to the Bidder.
- d. "Bid Documents" include the Advertisement for Bids, Instructions to Bidders, Proposal, Questionnaire, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipts of Bids).
- e. "Change Order" shall mean a written change, addition, or deletion to the Contract Documents signed by both Contractor and the District.
- f. "Contract" shall mean the agreement between the Successful Bidder and the District for performance of the Work.
- g. "Contract Documents" shall mean all documents that comprise the agreement of the parties related to the Project. The Contract Documents include the Notice to Contractors, Instructions to Bidders, Proposal, Questionnaire, Bid Security, Contract, Public Construction Bond, Sworn Statement of Public Entity Crimes, Opinion of District's Attorney, Releases of Liens, Special Conditions, General Conditions, Technical Specifications, Standard Details and Plans, Plans and Specifications including all modifications, addenda, and Change Orders contained in any documents before or after execution of the Contract.
- h. "Contract Sum" shall mean the total amount due to Contractor as a result of the Work performed on the Project, including any amounts due as a result of Change Orders.
- i. "Contract Time" shall mean the time to complete the Project as set forth in the Contract Documents. Reference to "days" shall mean calendar days unless otherwise noted.
- j. "Contractor" shall mean the Successful Bidder with whom the District executes a contract for the Work or its duly authorized agents.
- k. "County" shall mean Palm Beach County, as may be applicable.
- 1. "Defective" shall mean the Work does not conform to the Contract Documents or does not meet the requirements of any applicable inspection, reference standard, test, or approval.

- m. "District" shall mean the Loxahatchee River Environmental Control District, acting through its properly authorized representatives.
- n. "Engineer" shall mean the engineer designated by the District as its engineering representative during the course of construction to make appropriate inspection and computation of payments, whether acting directly or through properly authorized agents, inspectors or representatives of the Engineer, acting within the scope of duties entrusted to them. The Engineer is not an employee of the District.
- o. "Final Completion" shall mean the time when Engineer determines that all of the Work and associated punch list items have been completed in accordance with the Contract Documents.
- p. "Notice of Award" shall mean the District's notification of award of the Contract to the Successful Bidder.
- q. "Plans" shall mean any and all drawings, plans, sketches, diagrams, designs, lists, or other graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work for the Project.
- r. "Project" shall mean the entire construction to be performed as provided in the Contract Documents.
- s. "Specifications" shall mean the written requirements for materials, equipment, systems, standards, and workmanship for the Work, and performance of related services.
- t. "Substantial Completion" shall mean the date as certified by Engineer when the construction of the Project is sufficiently completed, in accordance with the Contract Documents, so that the Project can be utilized for the purposes for which it was intended; or if there be no such certification, the date when final payment is due in accordance with the Contract.
- u. "Successful Bidder" shall mean the lowest, qualified, responsible, and responsive Bidder to whom the District, based on the District's evaluation hereinafter provided, makes an award.
- v. "Work" shall mean any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by Contractor under the Contract Documents, including all labor, materials, equipment, services, and other incidentals and the furnishing, installation, and delivery thereof and all Work reasonably inferable therefrom.

2. **Bids**: Bids will be received by the Loxahatchee River Environmental Control District (the "District,") via DemandStar until 2:00 p.m. local time on January 4, 2022. Any Bids received after 2:00 p.m. local time on January 4, 2022 will not be accepted under any circumstances. Any uncertainty regarding the time a Bid is received will be resolved against the Bidder. The Bids will be publicly opened and read aloud on January 6, 2022 at 2:00 p.m. local time in the Governing Board room of the

District, at the above address. The Bidder shall hold its Bid open for acceptance by the District for a period not less than ninety (90) calendar days following the date of the Bid opening.

Bid Documents may be downloaded at the District's website, <u>https://loxahatcheeriver.org/governance/purchasing-bids/</u> or via DemandStar. Bid Documents will be available on November 22, 2021 after 8:00 a.m. local time. The Bid Documents are made available on the above terms solely for the purpose of obtaining Bids and do not confer a license or grant for any other use.

A pre-bid conference will be held at 2:00 p.m., local time on December 7, 2021 via Microsoft Teams. A meeting invite will be distributed to all plan holders prior to the scheduled date and time. If a bidder downloads Bid Documents from the District's website the bidder must send a request to be included in the pre-bid conference meeting invite to purchasing@lrecd.org. All contractors planning to submit Bids on this Project are encouraged to attend.

All Bids shall be made on the blank form of proposal attached hereto. All blanks on the Bid Forms must be printed in blue or black ink or typed. Completed Bid Forms shall be scanned to PDF format and uploaded to DemandStar. The Bid shall contain an acknowledgment of receipt of all Addenda. A single Bid shall be submitted for all portions of the Work. Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. Bids by partnerships must be executed in the partnership name and signed by a general partner, whose title must appear under the signature. The official address of the partnership must also be shown below the signature. If requested, the person signing a Bid for a corporation or partnership must produce evidence satisfactory to the District of the person's authority to bind the corporation or partnership. All names must be typed or printed below the signature. The address and telephone number for communications regarding the Bid must be shown.

After commencement of the Bid Period, no Bidder, or its agents, representatives, or persons acting at the request of such Bidder shall contact, communicate with or discuss any matter relating to the Bid with any District officer, agent, Board member, or employee other than Engineer or their designee. This prohibition ends upon execution of the final contract for the Work or when the Bid has been cancelled. A Bidder who violates this provision will be to subject discipline, including at a minimum a written reprimand and up to and including rejection of its Bid and/or cancellation of the Contract.

3. **Bid Security**: Each Bid must be accompanied by bid security in the form of a certified check or Bidder's Guaranty Bond ("Bid Bond") issued by a surety meeting the requirements of this Instruction to Bidders Section 3 and payable to the District for ten percent (10%) of the total amount of the Bid ("Bid Security"). Bidders will send the ORIGINAL Bid Bond to the District immediately after the Bid Due Date. The District will hold all bids unopened for 48 hours from the Bid Due Date. The original Bid Bond is to be received within 48 hours of the Bid Due Date or the bid will be deemed non-responsive. The Bid Security of the Successful Bidder will be retained until the Bidder has executed the Contract and furnished the required payment and performance bonds in the form of a Public Construction Bond, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Bonds within fourteen (14) calendardays after the Notice of Award, the District may annul the Notice of Award and the Bid Security of

that Bidder will be forfeited to the District. The Bid Security of any Bidder whom the District believes to have a reasonable chance of receiving the award may be retained by the District for ninety (90) calendar days after the date of the opening of the Bid. The Bid Security of other Bidders will be returned seven (7) calendar days after the opening of the Bids. The Bid Bond shall be issued by a company having a registered agent in the State of Florida.

4. **Bonds and Qualification of Security Companies**: Upon award of the Contract, Contractor shall execute a Public Construction Bond, in the amount of the total Contract Sum with a qualified surety company, covering performance of the Project and payment of subcontractors, substantially similar in form to that provided in Article 5 of the Contract Documents and in compliance with the requirements of Section 255.05, Florida Statutes.

In order to be acceptable to the District, Bid Bonds, Public Construction Bonds, or Maintenance Bonds shall, at a minimum be written by a surety company that:

- a. is admitted/authorized to do business in the State of Florida and complies with the provisions of Section 255.05, Florida Statutes;
- b. has been in business and has a record of successful continuous operations for at least five (5) years;
- c. files a certified copy of a power of attorney with the signed Bid, Public Construction, or Maintenance bonds;
- d. lists the surety's agency name, address, and telephone number on all bonds; and
- e. has at least the following minimum ratings based on the following contract amounts:

BEST'S RATINGS
B+ Class V or better
A Class VI or better
A Class VII or better

The life of the Construction Bonds or Maintenance Bonds shall extend twelve (12) months beyond the date of Final Completion and shall contain a waiver of alteration to the terms of the Contract, extensions of time, and/or forbearance on the part of the District.

Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended).

5. **Subject of Bids**: All Work for the Project shall be constructed in accordance with the Plans and Specifications prepared by Holtz Consulting Engineers. Bids shall be submitted for furnishing, delivering, and installing all materials, equipment, incidentals and services, including labor for the Work as specified in the Contract Documents and all items reasonably inferable therefrom. Engineer will compute the quantities that will be the basis for payment applications, both progress and final.

All Work shall be done as set forth in the Contract Documents and substantially completed, tested, cleaned, and ready for operation within the periods stated in Article 4 of the Contract, Section 2.

6. **Modification and Withdrawal of Bids**: Bids may be withdrawn or modified by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted during the Bid Period. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to withdraw or modify the Bid. If signed by a deputy or subordinate, the principal's written authorization to such deputy or subordinate granting the power to act on the principal's behalf must accompany the request for withdrawal or modifications. Withdrawal of a Bid will not prejudice the rights of a Bidder to submit a new Bid within the Bid Period. After expiration of the Bid Period, no Bid may be withdrawn or modified, except as provided below.

If, within twenty-four (24) hours after Bids are opened, any Bidder files a duly signed, written notice with the District and within five (5) calendar days thereafter demonstrates to the reasonable satisfaction of the District that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid Security will be returned. Thereafter, the Bidder will be disqualified from further bidding on the Project.

7. Award, Waiver, and Rejection of Bids: The Contract will be awarded pursuant to the requirements of applicable federal, state, and local laws and regulations. The Contract award will be made to the lowest cost, qualified, responsive, and responsible Bidder whose proposal materially complies with all the requirements. The District reserves the option to award or rebid the Project at any time if deemed to be in the best interest of the District.

It is the intention of the District to award the Contract to a Bidder competent to perform and complete the Work in a timely and satisfactory manner. Additionally, the District may conduct such investigations as the District deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to the District's satisfaction and within the prescribed time.

To the extent permitted by applicable federal, state, and local laws and regulations, the District reserves the right to: determine materiality of Bid components; determine qualifications of the Bidder; determine responsibility of Bidder; determine responsiveness of Bidder; reject any and all Bids; waive any informality or irregularities in any Bid received; or accept the Bid deemed by the District to be in its best interest. Bids may be rejected at the option of the District if the District determines in its sole discretion the Bid is materially incomplete, unbalanced, conditional, or obscure; the Bid contains additions not called for, erasures, alterations, irregularities of any kind; the Bid does not comply materially with the Notice to Contractors and/or Instruction to Bidder; or the Bid is from a Bidder that does not meet pre-bid conference attendance requirements.

Documented poor performance of contractors on previous contracts with the District or other governmental entity will be considered during evaluation and may be sufficient cause not to award.

8. **Construction Schedule**: Prior to signing the Contract, the Successful Bidder shall submit on a form acceptable to the District and Engineer, the overall proposed construction schedule for the Project. The schedule shall conform to the requirements of Special Conditions Section 9.36. This construction schedule shall specify the Project completion date as set forth in the Contract.

9. **Execution of the Contract:** When the District gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Contract and all other written Contract Documents. Within fifteen (15) days thereafter, Contractor shall sign and deliver the counterparts of the Contract and other written Contract Documents to the District with the required bonds and insurance certificates. Within fifteen (15) days thereafter, the District shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the appropriately identified Plans and Specifications. Following execution of the Contract by the District, the construction schedule shall be modified to begin upon the execution of the Contract by both Parties of the Contract.

10. **Examination of Contract Documents and Site**: It is the responsibility of each Bidder, prior to submitting a Bid to (a) examine the Bid and Contract Documents thoroughly, (b) visit the site of the Work and become familiar with local conditions that may in any manner affect cost, progress, performance or furnishing of the Work, (c) consider federal, state, and local laws, ordinances, rules, and regulations that may affect cost, progress, performance or furnishing of the Work in any manner, (d) examine the Plans and Specifications, requirements of the Work, and the accuracy of the quantities of the Work to be completed, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents.

Bidder may rely upon the accuracy of the technical data contained in the reports of exploration and tests of subsurface conditions at the site of the Work which have been utilized by Engineer in preparation of the Contract Documents. Bidder may not rely upon the completeness of the documents, non-technical data, interpretations or opinions of the reports of exploration and tests of subsurface conditions, for the purposes of bidding and/or construction. Further, information and data reflected in the Contract Documents with respect to underground facilities at or contiguous to the site are based upon information and data furnished to the District and Engineer by the owners of such underground facilities or others. The District does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions. Elevations of the ground are shown on the Plans and Specifications and are believed to be reasonably correct. However, such elevations are not guaranteed and are presented only as an approximation. Bidders shall satisfy themselves as to the correctness of all elevations.

The lands upon which the Work is to be performed, right-of-ways and easements for access thereto, and other lands designated for use by Contractor in performing Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage materials and equipment shall be provided by Contractor.

Before submitting a Bid, each Bidder shall, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, studies and any additional information and/or data which pertain to the physical conditions (subsurface, surface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the

Work in accordance with the time, price, and other terms and conditions of the Contract Documents. In advance, the District will provide each Bidder access to the site of the Work at reasonable times to conduct such explorations and tests as each Bidder deems necessary for the submission of the Bid, provided Bidder provides two (2) business days written notice prior to the date access is requested.

The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with the requirements as set for in the Instructions to Bidders and all other Contract Documents; the Bid is premised upon performing and furnishing the Work required by the Bid and Contract Documents; the means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Bid and Contract Documents will be followed; and that the Bid and Contract Documents are sufficient in scope and detail to indicate and convey an understanding of all terms and conditions of performance and furnishing of the Work.

The Contract Documents contain the detailed provisions required for the construction of the Project. No information, verbal or written, obtained from any officer, agent or employee of the District on any such matter shall in any way affect the risk or obligation assumed by Contractor, or relieve Contractor from fulfilling any of the conditions of the Contract Documents.

11. **Interpretations and Addenda:** All questions about the meaning or intent of the Contract Documents are to be directed to Engineer. All questions must be submitted to Engineer in writing as early as possible during the Bid Period. No oral answers or interpretations will be provided. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by addenda mailed to all persons recorded by Engineer as having received the Bid Documents. Questions received less than ten (10) calendar days prior to the deadline to submit Bids will not be answered. Only questions answered by formal written addenda will be binding. Oral responses and other interpretations or clarifications will be without legal effect, and shall not be relied upon by a Bidder.

Addenda may also be issued to modify the Bid Documents as deemed necessary by the District and/or Engineer. Contractor agrees to use the products and methods designated or described in the Plans and Specifications and as amended by any addenda. Addenda shall control in the event of conflict with Contractor's Bid.

12. **Substitute Material and Equipment:** The Contract will be based on material and equipment described in the Plans and Specifications without consideration of possible "substitute" or "equal" items. Whenever it is indicated in the Plans and Specifications that a Contractor may furnish or use a "substitute" or "equal" item of material or equipment, written application for such acceptance will not be considered by Engineer until after the effective date of the Contract. The written application for acceptance of a substitute item of material or equipment will be handled in accordance with the field order procedure.

13. **Subcontractors:** Each Bid must identify the names and addresses of the subcontractors. If requested by the District or Engineer, the Successful Bidder, and any other Bidder so requested, shall, within seven (7) days after the date of the request, submit to the District an experience statement with pertinent information as to similar projects and other evidence of qualification for each such subcontractor, person, and organization. The amount of subcontract work shall not exceed sixty

percent (60%) of the Work. If the District or Engineer, after due investigation, has reasonable objection to any proposed subcontractor, supplier, other person, or organization, either party may, before issuing the Notice of Award, request the Successful Bidder to submit an acceptable substitute without an increase in Contract sum or Contract Time. If the apparent Successful Bidder declines to make any such substitution, the District may award the Contract to the next lowest qualified, responsive, and responsible Bidder that proposes to use acceptable subcontractors, suppliers, and other persons and organizations. Declining to make requested substitutions will not constitute grounds for sacrificing the Bid Security of any Bidder. Any subcontractor, supplier, other person or organization listed and not objected to in writing by the District or Engineer prior to giving of the Notice of Award, will be deemed acceptable to the District and Engineer, subject to revocation of such acceptance after the Effective Date of the Contract. The Successful Bidder shall be solely responsible for all payment to its subcontractors. No Contractor shall be required to employ any subcontractor, manufacturer, other person or organization against whom it has reasonable objection.

14. **Taxes:** Contractor shall pay all applicable sales, consumer, use, and other similar taxes required by law.

15. **Compliance with Laws:** Bidders must comply with all applicable federal, state, or local laws and regulations, including, but not limited to, the Department of Labor Safety and Health Regulations for construction promulgated under the Occupations Safety and Health Act of 1970 (PL 91-956) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54).

Any chemicals used in the performance of this Project by the Bidder must have prior approval of the Environmental Protection Agency (EPA) and/or United States Department of Agriculture (USDA).

Bidders shall comply with the requirements of Sections 553.60-553.64, Florida Statutes (the "Trench Safety Act") and 29 CFR Section 1926.650 Subpart P (the "Occupational Safety and Health Administration's Excavation Safety Standards"). If the Project provides for trench excavation in excess of five (5) feet deep, the Bidder shall include in its Bid a reference to the Trench Safety Act and the standards that will be in effect during the period of construction of the Project; written assurance by the Bidder, that if selected, the Bidder will comply with applicable trench safety standards; and a separate item identifying the cost of compliance with the Trench Safety Act, in accordance with Section 553.64, Florida Statutes.

16. Liquidated Damages and Additional Delay Damages: Bidder and the District recognize the Work is of a critical nature, that time is of the essence, and the difficulty associated with ascertaining the extent of delay damages the District will suffer as a result of delay in the Work. As a result, if awarded the Contract, Bidder agrees to pay the District as liquidated damages, and not as a penalty, the amount of Liquidated Damages and Additional Delay Damages as outlined in Article 4- Contract Section 2.

17. **Insurance:** Contractor shall provide and maintain throughout the terms of this Contract, liability insurance with all the subject features in accordance with the instruction given in the Special Conditions Section 9.08.

18. **Required Disclosures:** With its Bid submission, Bidder shall disclose all material facts pertaining to any felony conviction or any pending felony charges in the last three (3) years in this state, any other state, or the United States against (i) Bidder, (ii) any business entity related to or affiliated with Bidder, or (iii) any present or former executive employee, officer, director, stockholder, partner or owner of Bidder or of any such related or affiliated entity. This disclosure shall not apply to any person or entity which is only a stockholder, owning twenty percent (20%) or less of the outstanding shares of a Bidder and whose stock is publicly owned and traded.

At its sole discretion the District may reject the Bid of any Bidder whose present or former executive employees, officers, directors, stockholders, partners, or owners are currently accused of or have ever been convicted of bidding violations. The discretion of the District may be exercised based on the disclosure required herein. By submitting a Bid, Bidder recognizes and accepts that the District may reject the Bid based upon the exercise of its sole discretion, and Bidder waives any claim it might have for damages or other relief resulting from the rejection of its Bid based on these grounds.

19. **Public Entity Crime/ Convicted Vendor List:** 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, Category Two, for a period of thirty-six (36) months from the date of being placed on the convicted vendor list.

20. License and Permits: Contractor shall obtain and pay for all permits and licenses required for the Work as defined in Section 01000 of the Technical Specifications, including the cost of all Work performed in compliance with the terms and conditions of such permits, whether by itself or others.

No construction Work shall commence until all applicable licenses and permits have been obtained and copies delivered to Engineer.

21. **Protest:** The District is responsible for resolution of protests of contract awards, claims, disputes, alleged patent infringements, alleged license fee(s) and other related procurement matters in accordance with sound business judgment and good administrative practice. By submitting a Bid to the District, Bidders agree to the procedures outlined in the District's Procurement Policy which can be found on the District's website, <u>www.loxahatcheeriver.org/purchasing.php</u>, to resolve all protests.

22. The Contract Documents include various divisions, sections, and conditions which are essential parts of the Work to be provided by the Contractor. A requirement occurring in one is binding as though occurring in all. The Contract Documents are intended to be complementary and to describe and provide for complete Work. In case of discrepancy, the following precedence will govern the interpretation of the Contract Documents prior to award of the Contract:

- 1. Addenda
- 2. Bid Documents, including the Contract
- 3. Special Conditions
- 4. Technical Specifications / Plans and Specifications
- 5. General Conditions
- 6. Bidder's Response

After award, in the event of a conflict, Change Orders, supplemental agreements, and revisions to Plans and Specifications will take precedence over any of the above. Detailed plans shall have precedence over general plans. In the event that any conflicts cannot be resolved by reference to this governing order of Contract Documents provision, then the District shall resolve the conflict in any manner which is acceptable to the District and which comports with the overall intent of the Contract Documents.

23. To render a Bid responsive, the Bidder's Proposal must be accompanied by the Bid Form provided in Article 2 of the Contract Documents. Acceptable references and projects to be included shall be those related to installation of low pressure force main systems. References provided shall be from the "owner" of the Project, not the project engineer or Contractor. The District will not awarda Bid to any Bidder who cannot prove to the satisfaction of the District that the corporation/partnership/individual identified on the signature of Bidder form has satisfactory written references for similar work. References that are from a parent corporation or affiliated subsidiary will not be considered by the District.

24. **Notice to Proceed:** The Notice to Proceed for this project will be issued within 60 days of the Award of Contract at a time mutually agreed to by the Owner and lowest responsive bidder.

25. **Health, Safety and Environmental Performance:** The District shall evaluate Bidder's health, safety and environmental performance based on the following performance metrics and documentation reviews. The selected Bidder is solely responsible for all applicable health, safety, and environmental requirements, and the health, safety, and environmental evaluation conducted by the District is not an assumption of any responsibility for health, safety, and environmental requirements by the District. Bidders which fail to submit with their Bid information demonstrating compliance with the following criteria shall be considered non-responsive/non-responsible:

U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Incident Rates and Recordable Injuries:

Total Days Away, Restricted, Transferred (DART)Benchmark4.4(U.S. Bureau of Labor Statistics, Table 1). Incidence rates of nonfatal
occupational injuries and illnesses by industry and case types, 2018,

25th percentile or better for size 11-49, NAICS 237110, Water and sewer line and related structures construction). Bidder's DART must be less than or equal to benchmark.

Total Recordable Incident Rate (TRIR)Benchmark6.8(U.S. Bureau of Labor Statistics, Table 1. Incidence rates of nonfatal
occupational injuries and illnesses by industry and case types, 2018,
25th percentile or better for size 11-49, NAICS 237110, Water and
sewer line and related structures construction). Bidder's TRIR
must be less than or equal to benchmark.

Fatalities: **0** Work related fatalities resulting in OSHA citations within the last three years, OR if 1 or more work related fatalities resulting in an OSHA citation exist within the last three years, the contractor must have mitigated risk of recurrence by implementing adequate industry standard safety procedures and training as determined by OSHA by providing such OSHA determination to the District.

Bidder shall submit a health, safety and environmental plan for Construction and General Industry. The health, safety and environmental plan must address the following minimum requirements:

Lockout/Tagout Excavation Trenching and Shoring Permit Required Confined Space Injury Reporting/Investigation Operator Qualifications Hot Work Personal Protective Equipment Electrical Safety Near Miss, Behavioral Based Safety Qualified, Certified and Competent Employees

OSHA Inspection Detail review must show no Serious or Willful violations in the previous 36 months and no unresolved Failure to Abate Prior Violation in the previous 36 months and no active Failure to Abate Prior Violation.

Bidder shall submit with their Bid OSHA Form 300A completed for the previous year, an Experience Modification Rating letter from its insurance carrier for the current period and a copy of its written health, safety and environmental program with training records for the previous 36 months.

26. **Previous Performance on District Projects:** The District has implemented a Contractor Evaluation Report in an effort to document contractor performance on District projects. Bidders who have received Unsatisfactory ratings on previous District projects must submit with their Bid a mitigation plan detailing previous unsatisfactory ratings and measures implemented to address the

unsatisfactory performance. Bidders with unsatisfactory ratings not submitting a mitigation plan with their bid shall be deemed Non-Responsive/Non-Responsible.

27. **Experience:** The District shall evaluate the Bidder's experience relative to the work to be performed based on the following requirements:

Have successfully performed as Prime Contractor on a minimum of 5 similar projects in the past 5 years. Similar projects shall include gravity sewer installations with a minimum construction contract value of \$250,000. Qualifying projects shall be complete and shall not have been assessed Liquidated Damages, terminated, suspended or defaulted.

Bidder shall submit Project Resumes for all qualifying projects. Resumes shall include project name, description, construction cost, completion date, Owner's project manager contact information (name, phone number and email), Engineer of Record's contact information (name, phone number and email). See Proposal, Article 2A, Questionnaire.

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

By:

Gordon M. Boggie Chairman

I hereby acknowledge receipt of the Notice to Contractors and Instruction to Bidders and have familiarized myself with the contents therein and all other Contract Documents

By:____

Bidder

Date

PROPOSAL

ARTICLE 2

LOXAHATCHEE RIVER DISTRICT JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

To the LOXAHATCHEE RIVER DISTRICT of Jupiter, Florida, as the party of the first part:

Proposal made by:	
as Bidder,	
whose business address is:	
State whether Bidder is an individual.	
a partnership or a corporation:	
Accompanying this Proposal is a Bid Security for \$	(Numbers)
	()
	(Amount Written)
	``
From:	

(Name of Surety)

1. The undersigned Bidder hereby declares that the Bidder has carefully examined the Contract Documents relating to the above entitled matter and the Work, and has personally inspected the location of the Work. The undersigned Bidder has correlated the results of all observations, examinations, investigations, tests, reports, and studies with the terms and conditions of the Contract Documents.

2. The undersigned Bidder hereby declares that the Bidder is the only person or persons interested in its Bid; that it is made without any connection with any person submitting another bid for the same Contract; that the Bid is in all respects fair and without collusion, fraud, or mental reservations; that no official of the District or any person in the employ of the aforesaid is directly or indirectly interested in said Bid or in the supplies of Work to which it relates, or in any portion of the profits thereof.

3. The undersigned Bidder does hereby offer and agree to furnish all materials, to fully and faithfully construct, perform and execute all Work in the above entitled matter in accordance with the Plans and Specifications relating thereto, and to furnish all labor, tools, implements, machinery, forms transportation, and materials necessary and proper for the said purpose at the prices named below for the various items of Work.

4. The undersigned Bidder does hereby declare that the prices so stated cover all expenses of every kind incidental to the completion of said Work and the Contract, including all claims that may arise through damages or other cause whatsoever. The undersigned Bidder agrees to complete the Work for the price(s) indicated in the Bid Form.

5. The undersigned Bidder does hereby declare that the Bidder shall make no claim on an account of any variation of the approximate estimate in the quantities of Work to be done, nor on account of any misunderstanding or misconceptions of the nature of the Work to be done or the grounds or place where it is to be done.

6. The undersigned Bidder does hereby agree that it will execute the Contract which will contain the material terms, conditions, provisions, and covenants necessary to complete the Work according to the Plans and Specifications, within fifteen (15) calendar days after receipt of written Notice of Award of this proposal by the District; and if the Bidder fails to execute said Contract within said period of time, that the District shall have the power to rescind said award and also retain for the District the Bid Security accompanying Bidder's proposal which shall become forfeited as liquidated damages.

7. The undersigned Bidder also declares and agrees that the Bidder will commence the Work within ten (10) calendar days after receipt of written Notice to Proceed and will complete the Work fully and in every respect on or before the time specified in the Contract Documents, and so authorize the party of the District in case of failure to complete the Work within such specified time to employ such persons, equipment, and materials as may be necessary for the proper completion of said Work and to deduct the cost therefore from the amount due under the Contract.

8. The undersigned Bidder accepts all of the terms and conditions of the Bid Documents, including without limitation those dealing with the disposition of the Bid Security. The undersigned Bidder also makes all representations required by the Instructions to Bidders.

9. The undersigned Bidder agrees to provide Unit Prices of major construction elements of the Work in order to better determine the value of progress payment, in a format as provided in Article 6 Forms for Use During Construction.

10. The undersigned Bidder hereby agrees that the Bidder will, at Bidder's expense, insure all persons employed by it in prosecuting the Work hereunder against accident as provided by the Workers' Compensation Law of the State of Florida.

11. The price for the Work shall be stated in both words and figures in the appropriate place in the proposal form. Discrepancies in the multiplication of units of Work and unit prices will be resolved in the favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in the favor of the correct sum. In the event that there is a discrepancy between the price in written words and the price written in figures, the former shall govern.

12. The undersigned Bidder acknowledges receipt of the addenda, if any, as listed herein and agrees that Bidder will be bound by all addenda whether or not listed herein.

No	Date
No	Date
No	Date
No	Date

13. The following documents are attached to and made a condition of this Bid (initial each item in the space provided):

- a. Initial_____. Instructions to Bidders, Proposal, Questionnaire, Sworn Statement Under Section 287.133(3)(a), Florida Statues, on Public Entity Crimes, Schedule of Bid Prices
- b. Initial_____. Bid Security
- c. Initial_____. Power of Attorney (for Surety Bond only)
- d. Initial_____. Corporate Authority to execute Bid (any corporate employee other than president or vice president)
- e. Initial_____. Copies of current valid license(s) issued in accordance with Florida Statutes and/or appropriate local ordinances is hereby acknowledged.
- f. Initial_____. OSHA's Form 300A completed for the previous year
- g. Initial_____. Experience Modification Rating letter (issued by insurance carrier) for the current period.

Receipt of Addendum

- h. Initial_____. Written health, safety and environmental program with training records for the previous 36 months.
- i. Initial_____. Contractor's Unsatisfactory Rating Mitigation Plan (if required, see ITB 26)
- j. Initial_____. Project Resume's for qualifying experience (see ITB 27).

	Contractor:
	By:
	Title:
	Address:
(Corporation Seal)	
	Attest:
	Title:

Contractor's License No:

BID FORM — BASE BID LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION UNIT PRICES

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
Genera	nl/Permit	•			
1	MOBILIZATION, DEMOBILIZATION, BONDS & INSURANCE	1	LS		
2	MAINTENANCE OF TRAFFIC	1	LS		
3	AS-BUILT RECORD DRAWINGS	1	LS		
4	AUDIO VIDEO DOCUMENTATION	1	LS		
5	NPDES PERMIT/EROSION MEASURES	1	LS		
Gravit	y Sewer and Sanitary Services				
6	8" PVC SANITARY SEWER PIPE (0' - 6')	970	LF		
7	8" PVC SANITARY SEWER PIPE (6' - 8')	500	LF		
8	4' MANHOLE (0' - 6')	5	EA		
9	4' MANHOLE (6' - 8')	1	EA		
10	4" PVC LATERAL - SINGLE SERVICE W/ CLEAN-OUT	5	EA		
11	6" PVC LATERAL - DOUBLE SERVICE W/CLEANOUT	1	EA		
Low Pi	ressure Sewer and Pump Stations				
12	2" PVC FORCE MAIN AND FITTINGS	310	LF		
13	2" HDPE FORCE MAIN AND FITTINGS	670	LF		
14	1.5 SINGLE LOW-PRESSURE SERVICE	3	EA		
15	INSTALL COMMERCIAL (DUPLEX) GRINDER PUMP STATION AND FURNISH AND INSTALL CONCRETE PAD	1	LS		
16	INSTALL SIMPLEX GRINDER PUMP STATION	3	EA		
17	INSTALL 6' CHAIN LINK FENCE	50	LF		
18	CHAIN LINK GATE	1	EA		
19	CONNECT 2" PVC FORCE MAIN TO EXISTING 2" FORCE MAIN	1	EA		
20	TERMINAL FLUSHING PORT	1	EA		
21	INLINE FLUSHING PORT	1	EA		
22	AIR RELEASE VALVE	1	EA		

Water	Main				
23	8" PVC WATER MAIN	1,750	LF		
24	6" PVC WATER MAIN	1,000	LF		
25	DUCTILE IRON FITTINGS	1	TN		
26	8" GATE VALVE	4	EA		
27	6" GATE VALVE	4	EA		
28	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE	3	EA		
29	BLOWOFF ASSEMBLY	2	EA		
30	PRESSURE TESTING & CHLORINATING NEW WATER MAIN	2,750	LF		
31	SAMPLE POINTS	3	EA		
32	SINGLE WATER SERVICE	10	EA		
33	POTABLE IRRIGATION SERVICE	1	EA		
34	CUT, CAP AND GROUT EXISTING WATER MAIN	1	LS		
35	CONNECT TO EXISTING WATER	1	IS		
Sita Im	METER provements Deadway and Drainage	1	LS		
Site III	10% cm bu 1700 cub cp 4 DE 1 DD 40				
36	12" STABILIZED SUBGRADE, LBR 40 MIX BASE WITH EXISTING SAND	240	SY		
37	REWORK COMPACTED SHELLROCK ROADWAYS AND DRIVEWAYS	4,400	SY		
38	COMPACTED SHELLROCK PARKING AREAS	220	SY		
39	WHEEL STOPS FOR PARKING AREA	9	EA		
40	INSTALL CONCRETE SIDEWALK	55	SY		
41	CLEARING AND GRUBBING	2	AC		
42	ABANDON EXISTING STORMWATER STRUCTURE	1	LS		
43	EXCAVATION AND GRADING	650	CY		
44	TURFREINFORCEMENTMAT	150	SV		
45	18" RCP STORMWATER PIPING	40			
46	CATCH BASIN, DITCH BOTTOM INLET	2	EA		
47	PUMP OUT AND REMOVE GREY WATER TANK	10	EA		
48	PUMP OUT AND ABANDON SEPTIC	11	EA		
49	SODDING	1	LS		
50	TREE & SHRUBBERV RESTORATION	1	IS	<u> </u>	
51	MISCELLANEOUS DESTORATION	1			
JI	round Utility Installation	1	டல	<u> </u>	
50 nuer gr		1	IC		
52	LIFT STATION ELECTRICAL SERVICE	1	LS		

53	FPL UNDERGROUND INSTALLATION	1	LS		
54	COMCAST UNDERGROUND INSTALLATION	1	LS		
				TOTAL	

TOTAL BASE BID, ITEMS 1-54 (in words)

Dollars

Cents

THE CONTRACT AWARD SHALL BE EVALUATED BASED ON THE TOTAL BASE BID PRICE FOR ITEMS 1 THROUGH 54 AS SUBMITTED BY THE LOWEST, QUALIFIED, RESPONSIBLE, RESPONSIVE BIDDER.

(Name of Bidder)

Bidders Name:

By:

Print Name of Person signing:

Title:

Business Address:

Incorporated or formed under the laws of the State of _____.

PROPOSAL ARTICLE 2a

QUESTIONNAIRE

For

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

INSTRUCTIONS

- 1. The following information must be filled out by <u>all Bidders</u>.
- 2. Please print legibly, type, or word process. Sign in ink. When attaching sheets, please place the question number to which you are responding in the upper right hand corner of each sheet and number the sheets.
- 3. Note that the person signing this Application must swear that the information provided below is true, accurate, and complete.

1. Basic Information

	[Same as on Cover P	age of The Proposal]
Contact Person(s):		
Celephone No:	Fax No:	E-mail:
Address:		
ederal Tax ID No:		
CONTRACTOR'S lice	nse: Primary classification:	
State License Number		
Supplemental classifica	tions held, if any:	
Name of Licensee if d	ifferent from (1) above:	

1.7 Name of person and title who inspected site of proposed WORK for your firm:

Name:	Date of Inspection:
Гіtle:	_

2. Organizational Structure & History

2.1 The Contractor is duly organized under the laws of the State of ______.

2.2 The Contractor has the following organizational structure.

() individual () corporation () partnership

() limited liability company () joint venture () other:

2.3 Provide the year the Contractor (and not any Predecessor Entities or Related Entities) was first organized.

2.4 List all Predecessor Entities below (or on attached sheets if necessary).

2.5 Please list all Related Entities below (or on attached sheets if necessary).

2.6 If organized in any state other than Florida or in a foreign country, are you in compliance with all laws and regulations necessary to legally do business in the State of Florida?

YES____ NO____

3. Officers and Owners

3.1 Officers: List the name, title, and address of current Officers, Directors, Partners, Members, and any other persons with similar positions, in descending order of degree of control. Name Title Address [Attach additional sheets as necessary.] 3.2 Owners. Please list the name, address, and percentage of ownership of all persons or entities owning 10 percent or more of the Contractor, in descending order of percentage of ownership. Address Owner % [Attach additional sheets as necessary.] 3.3 Employees. Please list total quantity of employees, # of crews, and discipline of each crew. Crew Discipline Number of employees in crew % of total firm [Attach additional sheets as necessary.]

4. Experience

4.1 <u>Summary of Contractor Experience</u> With respect to this <u>specific project</u>, list the approximate number of years of experience that the Contractor has as a prime contractor or as a subcontractor with primary responsibility.

Project Type

Years

Utility Construction (primary) _____ Utility Construction (subcontractor) _____

4.2 <u>Most Recently Completed Contracts</u> Please provide the following information regarding the last ten contracts completed by the Contractor. Please list in reverse chronological order (most recently completed project first, next most recently completed project, etc.). [Please feel free to provide this information on attached sheets in another format as long as it contains all the information requested.]

Contract Amount	Project Type & Location	Month / Year Completed	Name, Address, Contact Person &
			Tel. # of Owner

4.3 What is the last project similar in nature that you have completed as Prime Contractor for a government entity in Florida? (This <u>must</u> be filled out below or Bid may be considered non-responsive.)

Project: _______
Project Cost: ______
Year Complete: ______
Government: ______

4.4 ATTACH TO THIS BID the experience resume of the person who will be designated chief construction superintendent or on site construction manager.

4.5 List 5 projects completed as <u>Prime Contractor</u> in last 5 years in Florida involving work of <u>similar type</u> and complexity that you have completed as Prime Contractor for a government entity in Florida? See Instructions to Bidders, Paragraph 27, Experience. If 5 projects have not been completed, Contractor must so state (this <u>must</u> be filled out below or Bid may be considered non-responsive).:

a.	Project Name:				
	-				
	Contract Price: \$				
	Detailed Description of Work:				
	Name, Address and Telephone Number of Government/Contact Person:				
b.	Project Name:				
	Contract Price: \$				
	Detailed Description of Work:				
	Name, Address and Telephone Number of Government/Contact Person:				
с	Project Name				
••					
	Contract Price: \$				
	Detailed Description of Work:				
	Name, Address and Telephone Number of Government/Contact Person:				
d.	Project Name:				
	5				
	Contract Price: \$				

Detailed Description of Work:

Name, Address and Telephone Number of Government/Contact Person:

e. Project Name:

Name, Address and Telephone Number of Government/Contact Person:

4.6 <u>Contracts In Progress</u> Please provide the following information regarding all contracts currently in progress, in descending order of contract amount. [Please feel free to provide this information on attached sheets in another format as long as it contains all the information requested.]

Contract Amount	Project Type &	% Completed	Name, Address,
	Location		ontact Person & Tel.
			# of Owner

4.7 Provide an alphabetical listing of all state or local government agencies, including telephone number and contact person, that have awarded the Contractor (or any Predecessor Entities and Related Entities) a contract during the last five years. Attach additional sheets as necessary.

2._____

 3._____
 4._____

 5._____
 6._____

1. _____

4.8 <u>Subcontractors</u>. This proposal is being submitted by the CONTRACTOR who proposes to perform the Work as required by the Contract Documents. If the CONTRACTOR will be utilizing a Subcontractor for a category of Work set forth below then the CONTRACTOR <u>must</u> identify the Subcontractor by name and provide the Subcontractor's address and telephone number. Only <u>one</u> Subcontractor may be identified for each category set forth below. If the CONTRACTOR does not identify a Subcontractor for a category of Work specified, this shall constitute a representation and warranty by the CONTRACTOR that the CONTRACTOR is not utilizing a Subcontractor for such Work and will perform such Work with CONTRACTOR's own employees. After submitting this bid the contractor may not add to, subtract from, modify or make substitutions regarding the Supplier/Subcontractor identification and listing without the express written request and consent of the District. Any substitutions must be for legitimate and proper reasons. All Subcontractors listed are subject to the approval of the District.

CONTRACTOR represents and warrants to the District that all of said Subcontractors and their authorized vendors have been made aware of all the appropriate portions of the Contract Documents and agree that their portion of the Work and materials furnished in connection therewith will meet all of the requirements of the Contract Documents and that deliveries will be scheduled so as not to impede the progress of the Work.

Subcontractors:

Electrical and Control Systems

Electrical and control systems	
	Name:
	Address & Telephone No.
Restoration	
	Name:
	Address & Telephone No.
Other	
Other	Name:

Address & Telephone No.

4.10 <u>Liquidated Damages</u> Within the last five years, has the Contractor (or any Predecessor Entities or Related Entities) had liquidated damages assessed against it?

YES____ NO ____

If YES, please provide full details on attached sheets including the per diem amount of liquidated damages, the original contract time, and the number of days for which liquidated damages were assessed. Please feel free to include a written summary of your position on the matter.

4.11 Terminations / Suspensions / Defaults

(a) Within the last five years, has a contract of the Contractor (or any Predecessor Entities or Related Entities) been terminated or suspended for cause?

YES____ NO ____

(b) Within the last five years, has another party (e.g. surety) completed Work which the Contractor (or any Predecessor Entities or Related Entities) was originally responsible to perform?

YES____ NO ____

(c) Within the last five years, has the Contractor (or any Predecessor Entities or Related Entities) been considered in default of a contract that was not cured within the time frame allowed by the contract? YES_____ NO ____

If the answer to any of questions 4.6(a) -(c) is YES, please provide full details on attached sheets. Please feel free to include a written summary of your position on the matter.

4.12 Denial of Qualification or Award

(a) Within the last 5 years, has any federal, state, or local government or procurement agency denied the Contractor (or any Predecessor Entities or Related Entities) qualification?

YES____ NO ____

(b) Within the last 5 years, has any federal, state, or local government or procurement agency, after the Contractor (or any Predecessor Entities or Related Entities) submitted the apparent low bid, refused to award a contract for reasons related to the Contractor's qualifications, experience, competence, or financial situation?

YES____ NO ____

If the answer to either of questions 4.7(a) or (b) is YES, please provide full details on attached sheets. Please feel free to include a written summary of your position on the matter.

4.13 <u>Debarments, Etc.</u>

(a) Within the last 5 years, has the Contractor (or any Predecessor Entities or Related Entities) been debarred for any reason by any federal, state, or local government or procurement agencies?

YES____ NO ____

(b) Within the last 5 years, has the Contractor (or any Predecessor Entities or Related Entities) refrained from bidding for any reason, such as suspension or agreement not to bid, or as part of the settlement of a Dispute of any type with any federal, state, or local government or procurement agencies?

YES____ NO ____

If the answer to either of questions 4.8(a) or (b) is YES, please provide full details on attached sheets. Please feel free to include a written summary of your position on the matter.

4.14 <u>Claims History</u> Within the last 5 years, has the Contractor (or any Predecessor Entities or Related Entities) been a party to a Claim with an originally claimed amount in excess of \$50,000?

YES____ NO ____

If YES, please provide full details for each Claim on attached sheets including (a) whether the Claim was brought by or against the Contractor (or any Predecessor Entities or Related Entities), (b) the nature of the Dispute underlying the Claim, (c) originally claimed amounts, (d) the resolution of such Claims (including the amount) or if unresolved, the current status of such Claims, and (e) the name, address and phone number of the primary adverse party who is to be contacted for additional information, and (f) a written summary of your position on the matter (if desired).

4.15 <u>Bid or Other Crimes</u> Within the last 10 years, has the Contractor (or any Predecessor Entities or Related Entities), or any officers, owners, or Key Personnel of the same ever been indicted on, convicted of, or plead or consented to a violation of a bid crime including bid collusion or any other crime involving fraud or knowing misrepresentation?

YES____ NO ____

If YES, please provide full details on attached sheets. Please feel free to include a written summary of your position on the matter.

4.16 <u>Quality Control</u> Does the Contractor have a written organizational-level quality control plan (as opposed to project-level plans)?

YES____ NO ____

If YES, please answer the following two questions.

- (a) What year was it first adopted?
- (b) In what year was its substance last revised?

4.17 <u>Contractor Evaluation Report</u> Has the Contractor performed work with the District where a Contractor Evaluation Report was completed as part of the work?

YES_____NO____

If YES, did the Contractor receive any UNSATISFACTORY ratings?

YES____ NO____

If YES, include with the Bid Contractor's UNSATISFACTORY RATING MITIGATION PLAN.

5. Key Personnel

5.1 Please provide the following information for all Key Personnel whose duties consist primarily of one or more the following functions: (a) project management, (b) quality control and (c) safety oversight. [Please feel free to provide this information on attached sheets in another format as long as it contains all the information requested.]

	Name	Job Duties (a-c above)	Relevant Licenses or Certifications	Experience (# of Yrs.)	Education (Degree or #
Yrs.) 1					
2					
3					
4					
5					
6					

[Attach additional sheets as necessary.]

6. Bonding

6.1 Is the Contractor capable of obtaining from a Qualifying Bonding Company a performance bond and a payment bond each in the amount of the bid prices that the Contractor will be submitting to the OWNER. A Qualifying Bonding Company is an insurance, bonding, and/or surety company rated in accordance with contract requirements.

YES____ NO____

If NO, please explain why you cannot meet the bonding standards set forth in question 6.1 above on attached sheets.

7. Environmental

7.1 <u>Environmental Record</u>. Within the last 5 years, has the Contractor (or any Predecessor Entities or Related Entities) been found to be in violation of any federal, state or local environmental law or regulation in an administrative, civil or criminal proceeding in which the fact finder found that the Contractor committed the violation and/or failed to comply after having been notified of the violation?

YES____ NO ____

If YES, please provide full details, including a summary of your position, on attached sheets.

8. Financial

8.1 ATTACH TO THIS BID an abbreviated financial statement on the attached form, references, and other information, sufficiently comprehensive to permit an evaluation of CONTRACTOR'S current financial condition.
Certifications Under Oath

By signing below, the person signing below hereby certifies and swears, <u>ON OATH</u>, as follows.

1. I have personal knowledge of all the information contained in this Questionnaire OR I am responsible for the accuracy of all such information.

2. The information contained in this Application is true and complete.

3. I hereby authorize the Loxahatchee River District to contact any person or entity necessary to verify or supplement any of the information requested by or provided in this Application without liability, and I hereby further authorize any person or entity contacted to provide any and all information requested without liability.

4. The Contractor has read, understands, and agrees to all terms of the Qualification Questionnaire.

5. I am duly authorized by law and by the Contractor to sign this Qualification on behalf of the Contractor.

Date	CONTRACTOR
Witness	[Signature]
	By: [Name and Title Printed]
State of	
County of	Date:
The foregoing instrument was a 20 by	acknowledged before me this day of, who is personally known to me or who ha se as identification and who did take an oath.

[Signature of Notary Public]

Name Printed:	
My Commission Expires:	

9.

SWORN STATEMENT UNDER SECTION 287.133(3)(a),

FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

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

1. This sworn statement is submitted with Bid, Proposal or Contract No. for [INSERT PROJECT NAME HERE].

2.	This	sworn	statement	is	submitted	by
	(name of entity	submitting swom statemer	nt)			
	whose bus	siness address is ble) its Federal En	n lover Identification	Number (FEI	N) is	and
	(If the ent	ity has no FEIN, i	nclude the Social Sec	curity Number	r of the individual si	 gning this
	sworn stat	tement:)
3.	My name	is ease print name of individ	tual signing)	a	nd my relationship to	o the entity

named (please pr

above is

- 4. I understand that a "public entity crime: as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United states and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
- 5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
- 6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes means:
 - 1. A predecessor or successor of a person convicted of a public entity crime: or

2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "Affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons

when not for fair market value under an arm's length agreement, shall be prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding thirtysix (36) months shall be considered an affiliate.

- 7. I understand that a "person" as defined in Paragraph 287.133(1)(e), <u>Florida Statutes</u> means any natural person or entity organized under the laws of any state or of the United states with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
- 8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [Indicate which statement applies.]

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

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

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

_____ There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. [Please attach a copy of the final order].

_____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. [Please attach a copy of the final order].

____ The person or affiliate has not been placed on the convicted vendor list. [Please describe any action taken by or pending with the Department of General Services].

(Signature)

(Date)

STATE OF _____

COUNTY OF

The foregoing instrument was acknowledged before me this ____ day of _____, 20__ by _____, who is personally known to me or who has produced a valid _____ Driver's License as identification and who did take an oath.

Notary Public

Printed/Typed Name

My Commission Expires:

Condensed current financial statement for (Name of Contractor)

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

Condition at close of business______, 20_____

ASSETS

1. Cash: (a) On Han Elsewhere	d \$, (b) In bank \$,(c)
\$			
2. Notes receivable \$	(a) Due within	90 days	
\$	(b) Due after 90 days		
\$	(c) Past Due		
3. Accounts receival	ble from completed contr	racts, exclusive of claims	not approved for payment
4. Sums earned on u	incompleted contracts as	shown by Engineer's or A	Architect's estimate
\$	(a) Amount receivable	after deducting retainage	
\$	(b) Retainage to date, o	lue upon completion of co	ontracts
5. Accounts receival	ble from sources other th	an construction contracts	
6. Deposits for bids §	or other guarantees		
\$	(a) Recoverable within	90 days	
\$	(b) Recoverable after 9	00 days	
7. Interest accrued o \$	n loans, securities, etc.		

8. Real Estate (a) Used for business purposes <u>\$____</u>

(b)Not used for b	usiness purposes
9. Stocks and Bonds (a) Listed – preser	t market value
\$	
(b) Unlisted – pre	sent value
10. Materials in stock not included in It	em 4:
(a) For uncomple \$	ted contracts (present value)
(b) Other materia	s (present value)
11. Equipment, book value	
12. Furniture and fixtures, book value	
13. Other assets	
\$	
\$	TOTAL ASSETS
Ll	ABILITIES
1. Notes payable (a) To bar \$	ks regular
(b) To banks for a \$	certified checks
(c) To others for	equipment obligations
\$	
(d) To others exc	usive of equipment obligation
2. Accounts Payable * (a) Not pa	st due
(b) Past due	
\$	
3. Real Estate encumbrances	
4. Other liabilities	
\$	
5. Reserves	
\$	

6. Capital stock paid up:

	(a) Common \$	
\$	(b) Common	
\$	(c) Preferred	-
\$	(d) Preferred	-
7. Surplus (net wo	orth) Earned	d \$Unearned \$
¢		TOTAL LIABILITIES
Ψ		
	CO	ONTINGENT LIABILITIES
1. Liability on not \$	tes receivable, dise	counted or sold
2. Liability on acc \$	counts receivable,	pledged, assigned or sold
3. Liability as bon \$	ıdsman	-
4. Liability as gua \$	rantor on contract	s or on accounts of others.
5. Other continger \$	nt liabilities	-
\$		TOTAL CONTINGENT LIABILITIES

*Include all amounts owing subcontractors for all work in place and accepted on completed and uncompleted contracts, including retainage

Certified and Signed By:

Certified Public Accountant

AUTHORITY TO EXECUTE BID AND CONTRACT

If the Bidder is a Corporation, attach to this page a certified copy of corporate resolutions of the Board of Directors of the Corporation authorizing an officer of the Corporation to execute the Contract contained within this document on behalf of the Corporation.

(End of Article.)

BID SECURITY

ARTICLE 3

1. The undersigned Bidder does hereby declare and stipulate that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same Work, and that it is made pursuant to and subject to all the terms and conditions of the Notice to Contractors, Instructions to Bidders, the Contract Documents, the Technical Specifications, and the Plans and Specifications pertaining to the Work, all of which have been examined by the undersigned.

Accompanying this proposal is a certified check or standard bid bond in the sum of _______.00, in accordance with the Notice to Contractors and Instruction to Bidders. Such amount shall be equal to ten percent (10%) of the Bid amount.

3. The undersigned Bidder agrees to execute the Contract, and the Public Construction Bond for the total amount of the Bid within fifteen (15) calendar days from the date when written Notice of Award of the Contract is delivered at the address given on this proposal. The name and address of the corporate surety with which the Bidder proposes to furnish the specified Public Construction Bond is as follows:

Bond Company's most recent "Best's Key Rating":

4. The undersigned Bidder agrees to begin the Work with an adequate work force and equipment within ten (10) calendar days from the date of receipt of official Notice to Proceed, and to complete all of the Work within the number of calendar days specified in the Special Conditions from the date of official Notice to Proceed.

5. The Bid Security will be returned to all, except the three (3) lowest qualified responsive, responsible Bidders, within seven (7) business days after the opening of the Bids and the remaining securities will be returned to the three (3) lowest Bidders within forty-eight (48) hours, after the District and Contractor have executed the Contract, or, if no Contract has been so executed, within one hundred twenty (120) calendar days after the date of the opening of Bids upon demand of the Bidder at any time thereafter so long as it had not been notified of the acceptance of the Bid.

6. All the phases of Work enumerated in the Contract Documents Technical Specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by Contractor under the applicable Bid item irrespective of whether it is named in said list.

7.	This Bid is also based on addenda:	No	Date	
		No	Date	
		No	Date	
		No	Date	
	Contractor:			
	_			
	By:			
	Address:			
(SFAI) Contractor's Lice	nse No		
(SL/H		<u> </u>		
	Attest:			
	Title:			

CONTRACT

ARTICLE 4

THIS CONTRACT, is made and entered into this	day of	, Two Thousand
and, by and between		(the "Contractor"), and
the LOXAHATCHEE RIVER ENVIRONMENTAL CO	NTROL DISTRICT, (the	e "District.")

WITNESSETH: That whereas the District has awarded to Contractor the Work of performing certain construction:

<u>SECTION 1.</u> Scope of Work: Contractor shall furnish, install and deliver all of the labor, including engineering design, materials (except District-furnished materials), tools, equipment, services, and everything necessary to perform the Work; and shall construct in accordance with the Contract Documents and the terms of this Contract, the Project known and identified as JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION and shall do everything required by or reasonably inferable from the Contract Documents. The Work is generally described as follows:

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

Installation of approximately 1,290 linear feet of 8-inch gravity sewer and seven manholes to serve 8 structures on the Jupiter Inlet Lighthouse Park property. Project includes installation of a new commercial duplex lift station and connection of a new 2" discharge force main from the station to an existing 2" force main. The commercial duplex station will be furnished by the Owner. The project also includes installation of three low pressure residential grinder pump stations and associated 2" low pressure force main. The Project also includes replacement of the existing private potable water system with new 2" HDPE water mains and services, including connection of the new water system to the existing water meter. Work includes site modifications including grading and demolition of existing asphalt roadway and replacement with sod and compacted shell rock, as well as various stormwater improvements including construction of swales. The Work includes general conditions, bonds, indemnification, mobilization, demobilization, startup, testing, record drawings, operation and maintenance manuals, training, and any all other necessary items to provide a complete and operating system.

Applicable reference drawings are entitled <u>JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER</u> <u>CONVERSION</u> as prepared by the District.

<u>SECTION 2</u>. Time of Completion: Construction of the Work must begin within ten (10) calendar days from the date of receipt of official Notice to Proceed. Substantial Completion shall be achieved within **150 days** consecutive calendar days from the date of Notice to Proceed. For projects with a value of less than ten million dollars (\$10,000,000.00), Final Completion shall be achieved within **sixty-five (65)** consecutive calendar days from the date of actual Substantial Completion. For projects with a value of more than ten million dollars (\$10,000,000.00), Final Completion shall be achieved within **ninety-five (95)** consecutive calendar days from the date of actual Substantial Completion. The rate of progress and the time of completion are essential conditions of this Contract.

Deduction for Not Completing on Time: The District and Contractor recognize that because the Work is of a critical nature, time is of the essence. Therefore, the District will suffer direct financial loss and damage if the Work is not completed within the times specified above. The District and Contractor also recognize that it is difficult to ascertain the extent of those damages in advance and it will be difficult and expensive to determine

those damages in a legal proceeding. Accordingly, Contractor shall pay to the District as liquidated damages, and not as a penalty, the amounts set out in (a) and (b) ("Liquidated Damages") below for each and every calendarday the above deadlines are delayed, as said date may be adjusted as provided in the Special Conditions. Delay shall not include delays caused by factors beyond Contractor's reasonable control, including but not limited to delays because of strikes, lockouts, work slowdowns or stoppages, accidents, acts of God, failure of any governmental or other regulatory authority to act in a timely manner, failure of the District to furnish timely information or to obtain the cooperation of the District's design professionals and/or Engineer, or delays caused by faulty performance by the District or by Engineer.

- a. **Substantial Completion Delay**. Contractor shall pay to the District as Liquidated Damages, and not as a penalty, <u>\$100</u> per day for each and every calendar day Substantial Completion is delayed.
- b. **Final Completion Delay**. If Final Completion is not reached within **65 days** of actual Substantial Completion, Contractor shall pay to the District as Liquidated Damages, and not as a penalty, <u>\$75</u> per day for each and every calendar day Final Completion is delayed.

In addition Contractor shall be responsible for the costs for engineering and other professional fees, delay damage settlements or awards owed by the District to others, fines or penalties imposed by regulatory agencies, and professional fees, including attorneys' fees, incurred in connection with such settlements, awards, penalties or fines (collectively "Additional Delay Damages"). Engineering and inspection fees shall include direct labor costs, indirect costs, and overhead and profit. The District and Contractor agree that the amounts set out in (2)(a) and (2)(b), above are to be paid by Contractor as Liquidated Damages and represent a reasonable estimate of the District's anticipated expenses for delays, inspection, and administrative costs associated with such delays. However, such amounts do not represent additional District costs for Additional Delay Damages incurred by the District caused by avoidable delays by Contractor.

Where Liquidated Damages and Additional Delay Damages in connection with the Work of this Contract are duly and properly imposed against Contractor in accordance with the terms of this Contract, Federal law, State law, and/or governing ordinances or regulations, the total amount that Contractor owes to the District may be withheld and reduced from any monies due or to become due Contractor under the Contract, and when deducted, shall be deemed and taken as payment for such Liquidated Damages and Additional Delay Damages. If monies due from the District are not sufficient to cover such Liquidated Damages, Contractor agrees to immediately payto the District any balance due.

SECTION 3. General: Contractor hereby certifies that it has read each and every clause of the Contract Documents and that it has made such examination of the location of the proposed Work as is necessary to understand fully the nature of the obligation herein made; and will complete the same in the time limits specified herein, in accordance with the Contract Documents. Contractor shall work with and report to Engineer to complete the Work set forth in the Contract Documents. Contractor has given Engineer written notice of all conflicts, errors, and discrepancies in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

All Work under this Contract shall be done to the satisfaction of Engineer, who shall, in all cases, determine the amount, quality, fitness, and acceptability of the Work and materials, which may arise, as to the fulfillment of the Contract on the part of Contractor, Engineer's decision thereon shall be final and conclusive, and such determination shall be a condition precedent to the right of Contractor to receive any payment hereunder.

At any time during the performance of the Contract, Contractor shall allow and provide the District access to all of the documents, papers, letters or other materials made or received by Contractor in conjunction with the

Contract and Work. Should Contractor fail to provide access to these documents in response to the District's request, the District may unilaterally cancel the Contract. At the conclusion of the Contract, Contractor shall provide the District all public records related to the Project or the Work.

Contractor agrees and represents to the District that it has registered with the E-Verify System and is now, and shall be for the duration of this Agreement, in full compliance with Sections 448.09 and 448.095, Florida Statutes. Contractor shall ensure that each of its subcontractors is also registered with the E-Verify System, is in compliance with Sections 448.09(1) and 448.095, Florida Statutes, and that each provides the affidavit required by Section 448.095, Florida Statutes.

Contractor agrees that if it violates Section 448.09(1), Florida Statutes or Section 448.095, Florida Statutes, the District must terminate this Agreement and that any such termination shall not be considered a breach by the District. Contractor further understands and agrees that it shall be responsible for any additional costs incurred by the District as a result of the termination of this Agreement, pursuant to Section 448.095, Florida Statutes.

Any clause or section of this Contract or the Contract Documents which may, for any reason, be declared invalid, may be eliminated therefrom; and the intent of this Contract or the Contract Documents and the remaining portion thereof will remain in full force and effect as completely as though such invalid clause or section has not been incorporated herein.

No assignment by a party hereto of any rights, responsibilities, or interests in the Contract Documents will be binding on another party hereto without the written consent of both parties. Unless specifically stated to the contrary in a written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents. Notwithstanding the foregoing, the District may assign this Contract to the State of Florida or any political subdivision, municipality, special district or authority thereof without Contractor's consent and without recourse.

The District and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

<u>SECTION 4.</u> Contract Sum: The District shall pay Contractor as just compensation for the performance of this Contract, subject to any additions or deductions as provided in the Contract Documents, based on unit prices, the amounts set forth in the Pricing Schedule attached hereto ("Contract Sum"). The District and Contractor agree that all payments will be processed in accordance with the Local Government Prompt Payment Act, Sections 218.70-218.80, Florida Statutes.

<u>SECTION 5.</u> Progress Payments: On or before the tenth (10th) day of every month, except as provided for in the Special Conditions, Contractor shall prepare and submit on a form approved by Engineer a detailed estimate and invoice to Engineer setting forth the schedule of values of the total amount of the Work which has been completed from the start of the job up to and including the last day of the preceding month and the value thereof, less any percentage retained in accordance with the Special Conditions, and the aggregate of any previous payment ("Progress Payment Application"). Contractor shall provide such supporting evidence as may be required by the District and/or Engineer.

As a strict condition precedent to payment, each Progress Payment Application must be accompanied by: a Contractor's Progress Payment Affidavit submitted by Contractor to Engineer indicating that all lienors under Contractor's direct contract have been paid in full; and a waiver and release of lien upon progress payment ("Partial Release of Lien") from all persons with a potential lien interest in the Project, including but not limited to subcontractors, sub-subcontractors, suppliers, and materialmen.

Upon receipt of the Progress Payment Application, Engineer shall either provide the District with its written approval of the Progress Payment Application, or notify the District in writing that it rejects the Progress Payment Application, the reason(s) for such rejection, and its recommendation as to the amount Contractor is owed, if any, within ten (10) days of receipt of the Progress Payment Application.

The District shall review Engineer's recommendation as set forth above. If the District agrees that the Progress Payment Application is complete and accurately reflects the amount Contractor is owed, the District shall pay Contractor the amount set forth on the Progress Payment Application within twenty-five (25) days of Engineer's receipt of the Progress Payment Application.

In the event the District finds the Progress Payment Application is incomplete or does not accurately reflect the amount Contractor is owed, the District shall reject the Progress Payment Application in writing within twenty (20) days of Engineer's receipt of the Progress Payment Application. The rejection shall state with specificity the reason for the rejection and any action necessary to make the Progress Payment Application acceptable to the District. If Contractor submits a corrected Progress Payment Application within ten (10) days of the rejection, acceptable to the District, the District shall pay the corrected Progress Payment Application within ten (10) business days after the corrected Progress Payment Application is received.

In the event the District disputes the corrected Progress Payment Application, the District shall notify Contractor in writing of such dispute and pay to Contractor the amount not in dispute, if any, within twenty-five (25) days of the District's receipt of the corrected Progress Payment Application. In exchange for such payment, Contractor shall submit to Engineer a Progress Payment Affidavit indicating that all lienors under Contractors direct contract have been paid in full for the Work related to the non-disputed amount.

Contractor and the District agree that prior to instituting any litigation for damages under this Section 5, the parties shall conduct a non-binding mediation to attempt to resolve their dispute. In the event the parties cannot agree upon a mediator, each party shall select a mediator and such mediators shall select a third mediator who shall serve as the mediator for the dispute. In the event such mediation does not occur within thirty (30) days of a written request of either party, the parties shall be free to pursue litigation without first conducting mediation.

Contractor shall promptly pay each subcontractor and supplier within ten (10) days of receipt of payment from the District. The amount shall be determined in accordance with the terms of the applicable subcontracts and purchase orders. The District shall not have responsibility for payments to a subcontractor.

Contractor warrants that title to all Work covered by the Progress Payment Application will pass to the District no later than the time payment. Contractor further warrants that upon submittal of a progress payment application, all Work previously paid for by the District shall, to the best of Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the District's interests.

A progress payment by the District shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

<u>SECTION 6</u>. Acceptance and Final Payment: When the Work has been fully completed, including all punch list items as provided for in the Special Conditions, in accordance with the terms of the Contract Documents, a Final Payment Application shall be prepared by Contractor and provided to Engineer within thirty (30) calendar days after the date of Final Completion stating the final Work performed to complete the Project plus or minus any Change Orders, and less the aggregate of any previous payment.

As a strict condition precedent to final payment, Contractor shall submit to Engineer with the Final Payment Application:

- 1. a Final Payment Affidavit stating that all subcontractors, suppliers, and other materialmen have been paid;
- 2. Waiver and Release of Lien upon Final Payment ("Final Release of Lien") from Contractor and all persons or entities that have, or potentially have, a lien on the Project, including but not limited to all subcontractors and vendors;

- 3. all close-out documents including, but not limited to the Maintenance Bond, warranties, guarantees, owner's manuals, and start-up certificates by the designer or manufacturer demonstrating that the equipment meets design intent;
- 4. data establishing payment or satisfaction of obligations, such as receipts, claims, security interests or encumbrances arising out of the Contract.

Upon receipt of the Final Payment Application, Engineer will inspect the Work, the Final Payment Application, and supporting documentation. If Engineer finds the Work acceptable, Engineer will issue a certificate of acceptance stating that the quality Work has been fully completed to Engineer's satisfaction in substantial compliance with the Contract Documents. The Certificate of Final Completion shall constitute Engineer's determination as to the quality of the Work only; it shall not include an opinion as to the timeliness of completion of the Work. If the Engineer finds the Contract fully and timely performed, and the Final Payment Application accurately reflects the final amount Contractor is owed, the Engineer shall issue its written approval to the District of the Final Payment Application within ten (10) calendar days of receipt the Final Payment Application.

If Engineer disputes the Final Payment Application, finds the Work unsatisfactory, or determines that amounts should be deducted as Liquidated Damages and Additional Delay Damages, Engineer shall notify the District in writing of its findings, the support for such findings, and its recommendation as to the amount Contractor is owed, if any, within ten (10) calendar days of receipt of the Final Payment Application.

The District shall review Engineer's recommendation as set forth above. If the District finds that the Work is acceptable, the Contract has been fully and timely performed, and the Final Payment Application is complete and accurately reflects the amount Contractor is owed, the District shall pay Contractor the amount of the Final Payment Application within twenty-five (25) calendar days of Engineer's receipt of the Final Payment Application.

In the event the District finds the Work is not acceptable, the Contract has not been fully and timely performed, or the Final Payment Application is incomplete or does not accurately reflect the amount Contractor is owed, the District shall reject the Final Payment Application in writing within twenty (20) days of Engineer's receipt of the Final Payment Application. The rejection shall state with specificity the reason for the rejection and any action necessary to make the Final Payment Application acceptable to the District. If Contractor submits a corrected Final Payment Application acceptable to the District shall pay the corrected Final Payment Application within ten (10) calendar days after the corrected Final Payment Application is received.

In the event the District disputes the corrected Final Payment Application, the District shall notify Contractor in writing of such dispute and pay to Contractor the amount not in dispute, if any, within twenty-five (25) calendar days of the District's receipt of the corrected Final Payment Application. This payment shall constitute a progress payment and shall not be deemed final payment. In exchange for such payment, Contractor shall submit to Engineer a Progress Payment Affidavit indicating that all lienors under Contractor's direct contract have been paid in full for the Work related to the non-disputed amount.

The District and Contractor agree that prior to instituting any litigation for damages under this Section, the parties shall conduct a non-binding mediation to attempt to resolve their dispute. In the event the parties cannot agree upon a mediator, each party shall select a mediator and such mediators shall select a third mediator who shall serve as the mediator for the dispute. Such mediation shall occur within forty-five (45) calendar days of the District's rejection of the corrected Final Payment Application. In the event such mediation does not occur within thirty (30) calendar days of a written request of either party, the parties shall be free to pursue litigation without first conducting mediation.

Acceptance of final payment by Contractor, a subcontractor, or material supplier shall constitute a waiver of claims by the payee.

In the event that a lien is filed or claimed against the Work by any subcontractor, supplier, or laborer, Contractor agrees to immediately (i) pay such subcontractor, supplier, or laborer for work which Contractor has been paid by the District and deliver to the District a Final Release of Lien signed by such subcontractor, supplier, or laborer; or (ii) cause the immediate removal of such lien by providing a bond in accordance with Florida law. If Contractor fails to do the above, the District may, at is option, and at the sole expense and liability of Contractor, bond such lien or cause the lien to be discharged and deduct the cost of said bond from the amount owed Contractor under any pending invoice or the next invoice. This Section shall survive the termination or expiration of this Contract.

SECTION 7. WARRANTY: Contractor warrants to the District and Engineer that (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents.

SECTION 8. CORRECTION OF THE WORK: In addition to the warranties provided for in Article 4 – Contract Section 7, Contractor shall promptly correct Work rejected by Engineer and/or District as failing to conform to the requirements of the Contract Documents. Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

In addition to Contractor's other obligations including warranties under the Contract, Contractor shall, for a period of one (1) year after Substantial Completion, correct Work not conforming to the requirements of the Contract Documents.

If Contractor fails to correct nonconforming Work within a reasonable time, the District may correct it in accordance with the Contract Documents.

This period of one (1) year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This Section 8 shall survive acceptance of the Work under the Contract Documents and termination of the Contract Documents.

(Remainder of this page left blank intentionally)

IN WITNESS WHEREOF, the parties hereto have executed this Contract this ______ day of ______, 20_. All portions of the Contract Documents have been signed or identified by the District and Contractor or by Engineer on their behalf.

ATTEST:	OWNER: LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
Witness	
Witness	Gordon M. Boggie Chairman Address for notice: 2500 Jupiter Park Dr. Jupiter, Florida 33458
	CONTRACTOR:
Witness	
Witness	As its:
	Address for notice:
	(Affix Corporate Seal)

STATE OF FLORIDA COUNTY OF PALM BEACH

I HEREBY CERTIFY that on this day, before me, personally appeared_____, as _____, to me well known and known to be the person described in or who produced as identification a______ (Form of ID) and who executed and acknowledged to and before on behalf of the District, the foregoing Contract, and that he acknowledged m the presence of two subscribing witnesses freely and voluntarily for the purposes therein expressed.

WITNESS my hand and official seal in the County and State last aforesaid this _____ day of _____, 20___.

Notary Public, State of Florida Print Name: Commission No.: My Commission Expires:

(Notary Ink Stamp)

STATE OF FLORIDA COUNTY OF

Ι HEREBY CERTIFY that this day, before me. personally appeared on (Title) of the as (Name of Company), to me well known and known to be the person described in or who produced as identification a (Form before of ID) and who executed and acknowledged to and behalf on of (Company Name), Contractor, the foregoing Contract, and that he acknowledged m the presence of two subscribing witnesses freely and voluntarily for the purposes therein expressed.

WITNESS my hand and official seal in _____County and State last aforesaid this ____day of _____, 20 __.

Notary Public, State of Florida Print Name: Commission No.: My Commission Expires:

(Notary Ink Stamp)

BID FORM — BASE BID LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION UNITPRICES

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
Genera	nl/Permit				
1	MOBILIZATION, DEMOBILIZATION, BONDS & INSURANCE	1	LS		
2	MAINTENANCE OF TRAFFIC	1	LS		
3	AS-BUILT RECORD DRAWINGS	1	LS		
4	AUDIO VIDEO DOCUMENTATION	1	LS		
5	NPDES PERMIT/EROSION MEASURES	1	LS		
Gravit	y Sewer and Sanitary Services				
6	8" PVC SANITARY SEWER PIPE (0' - 6')	970	LF		
7	8" PVC SANITARY SEWER PIPE (6' - 8')	500	LF		
8	4' MANHOLE (0' - 6')	5	EA		
9	4' MANHOLE (6' - 8')	1	EA		
10	4" PVC LATERAL - SINGLE SERVICE W/ CLEAN- OUT	5	EA		
11	6" PVC LATERAL - DOUBLE SERVICE W/CLEANOUT	1	EA		
Low Pr	essure Sewer and Pump Stations				
12	2" PVC FORCE MAIN AND FITTINGS	310	LF		
13	2" HDPE FORCE MAIN AND FITTINGS	670	LF		
14	1.5" SINGLE LOW PRESSURE SERVICE	3	EA		
15	INSTALL COMMERCIAL (DUPLEX) GRINDER PUMP STATION AND FURNISH AND INSTALL CONCRETE PAD	1	LS		
16	INSTALL SIMPLEX GRINDER PUMP STATION	3	EA		
17	INSTALL 6' CHAIN LINK FENCE	50	LF		
18	CHAIN LINK GATE	1	EA		
19	CONNECT 2" PVC FORCE MAIN TO EXISTING 2" FORCE MAIN	1	EA		
20	TERMINAL FLUSHING PORT	1	EA		
21	INLINE FLUSHING PORT	1	EA		
22	AIR RELEASE VALVE	1	EA		

Water	Main				
23	8" PVC WATER MAIN	1,750	LF		
24	6" PVC WATER MAIN	1,000	LF		
25	DUCTILE IRON FITTINGS	1	TN		
26	8" GATE VALVE	4	EA		
27	6" GATE VALVE	4	EA		
28	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE	3	EA		
29	BLOWOFF ASSEMBLY	2	EA		
30	PRESSURE TESTING & CHLORINATING NEW				
50	WATER MAIN	2,750	LF		
31	SAMPLE POINTS	3	EA		
32	SINGLE WATER SERVICE	10	EA		
33	POTABLE IRRIGATION SERVICE	1	EA		
34	CUT, CAP AND GROUT EXISTING WATER MAIN	1	LS		
35	CONNECT TO EXISTING WATER METER	1	LS		
Site Im	provements, Roadway, and Drainage	· · · · · ·			
36	12" STABILIZED SUBGRADE, LBR 40 MIX BASE	240			
50	WITH EXISTING SAND	240	SY		
27	REWORK COMPACTED SHELLROCK ROADWAYS	4 400			
37	AND DRIVEWAYS	4,400	SY		
38	COMPACTED SHELLROCK PARKING AREAS	220	SY		
39	WHEEL STOPS FOR PARKING AREA	9	EA		
40	INSTALL CONCRETE SIDEWALK	55	SY		
41	CLEARING AND GRUBBING	2	AC		
10	ABANDON EXISTING STORMWATER	4			
42	STRUCTURE	1	LS		
43	EXCAVATION AND GRADING	650	CY		
44	TURF REINFORCEMENT MAT	150	SV		
45	18" DCD STODMWA TED DIDING	40			
43	18 RCF STORNWATER FIFTING	40			
40	DUMPOUT AND DEMOVE CDEV WATED TANK	2 10			
4/	PUMP OUT AND ADANDON SEPTIC TANK	10			
48	PUMP OUT AND ABANDON SEPTIC TANK	11	EA		
49	SODDING	l	LS		
50	TREE & SHRUBBERY RESTORATION	1	LS		
51	MISCELLANEOUS RESTORATION	1	LS		
Undergr	ound Utility Installation				
52	LIFT STATION ELECTRICAL SERVICE	1	LS		
53	FPL UNDERGROUND INSTALLATION	1	LS		
54	COMCAST UNDERGROUND INSTALLATION	1	LS		
				TOTAL	

TOTAL BASE BID, ITEMS 1-54 (in words)

Dollars

Cents

THE CONTRACT AWARD SHALL BE EVALUATED BASED ON THE TOTAL BID PRICE FOR ITEMS 1 THROUGH 54 AS SUBMITTED BY THE LOWEST, QUALIFIED, RESPONSIBLE, RESPONSIVE BIDDER.

(Name of Bidder)
Bidders Name:
By:
Print Name of Person signing:
Title:
Business Address:

Incorporated or formed under the laws of the State of ______

PUBLIC CONSTRUCTION BOND

ARTICLE 5

Bond No.

WHEREAS, Principal has entered into a contract (the "Contract") with LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT dated ______, 2021, in the amount of \$_________) for the JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION which Contract, is by reference made a part hereof.

THE CONDITION of this Bond is that if Principal:

1. Performs the Contract with the District at the times and in the manner prescribed in the Contract; and

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

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

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

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

6. To a claimant who is not in privity with the Principal and who has not received payment for labor, materials, or supplies, that written notice must be delivered to the Principal. This Bond is furnished pursuant to the statutory requirements for bonds on public works projects, Section 255.05, Florida Statutes. A claimant, except a laborer, who is not in privity with the Principal and who has not received payment for labor, materials, or supplies, is hereby notified that Section 255.05(2), Florida Statutes specifically requires that written notice be given to Principal within forty-five (45) days after beginning to furnish labor, materials, or supplies for the prosecution of the Work that

claimant intends to look to the Bond for protection. Further notice is hereby given to a claimant who is not in privity with the Principal and who has not received payment for labor, materials, or supplies, that written notice must be delivered to the Principal and to the Surety, of the performance of the labor or delivery of the materials or supplies and of the non-payment, within ninety (90) days after performance of the labor, services, or materials, or supplies (but not before 45 days after the first furnishing of labor, services, or materials), or with respect to rental equipment, within ninety (90) days after the date that rental equipment was last on the job site available for use. No action for the labor, material, or supplies may be instituted against Principal of the Surety unless both notices have been given. Further notice is hereby given that no action for labor, materials, or supplies may be instituted against the Principal or the Surety on the Bond after one (1) year from the performance of the labor or completion of delivery of the materials or supplies.

7. Without modifying the foregoing, this Bond shall require no more and no less of the Principal and Surety than is specified in Section 255.05, Florida Statutes. The notice and time limitation provisions of Section 255.05, Florida Statutes are incorporated herein by reference.

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed above, do cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

The provisions and limitations of Section 255.05, Florida Statutes including but not limited to the notice and time limitations in Sections 255.05(2) and 255.05(10), Florida Statutes are incorporated in this bond by reference.

(Remainder of Page Intentionally Left Blank)

, 20_.

Name of Principal	Name of Surety		
By:	By:		
Signature of Principal	As Attorney-in-Fact (Attach Power of Attorney)		
STATE OF FLORIDA COUNTY OF			
Sworn to and acknowledged before	me this day of, 202, by to me who produced as identification a		
	Notary Public, State of Florida		
	Print Name:		
(Notary Ink Seal)	Commission Expires:		
	My Commission Expires:		
COUNTERSIGNATURE			
BY:			

ARTICLE 6

FORMS FOR USE DURING CONSTRUCTION

- 6-1 Notice of Award of Contract
- 6-2 Notice to Proceed
- **6-3 Progress Payment Affidavit**
- 6-4 Final Payment Affidavit
- 6-5 Certificate of Substantial Completion
- 6-6 Certificate of Final Completion
- 6-7 Partial Release of Lien
- 6-8 Final Release of Lien
- 6-9 Change Order

6-10 Application and Certificate of Payment – Contractor shall utilize American Institute of Architect Form G702 and G703

6-1

Loxahatchee River District



Water Reclamation | Environmental Education | River Restoration 2500 Jupiter Park Drive, Jupiter, Florida 33458-8964 Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org D. Albrey Arrington, Ph.D., Executive Director

[Date]

[Contractor Name] [Contractor Address]

SUBJECT: Loxahatchee River Environmental Control District JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION <u>Notice of Award of Contract</u>

Dear____:

I am pleased to advise you that the District Governing Board has elected to Award the Contract for the subject project to your firm. You are the apparent successful Bidder and have been awarded a contract for:

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

The Contract Price of your Contract is <u>\$</u>

In accordance with the contract specifications you will have 14 calendar days from the date of this Notice of Award, that is by (Day), (Date), to provide the following:

- a.) 4 executed sets of the attached Contract Documents, and
- b.) A Public Construction Bond with power of attorney in the amount of 100% of the contract (\$_____) and
- c.) An insurance certificate for this project in accordance with requirements set forth in Section 9.08, (please make sure coverages and additional insureds are as stated); and
- d.) A schedule of activities (received), and
- e.) Any other paperwork as required by the Contract.

Failure to comply with these conditions within the time specified will entitle Owner to consider your Bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within 20 calendar days after you comply with the above conditions, the District will return 1 fully executed contract after execution.

Should you have any questions in regard to this correspondence, please feel free to contact me or [ENGINEER]

Regards,

Kris Dean, P.E. Deputy Executive Director/Director of Engineering Services

Enclosures: 4 sets of Contract Documents

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Loxahatchee River District



Water Reclamation | Environmental Education | River Restoration 2500 Jupiter Park Drive, Jupiter, Florida 33458-8964 Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org

D. Albrey Arrington, Ph.D., Executive Director

[Date]

[Contractor Name] [Contractor Address]

SUBJECT: JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION Notice to Proceed

Dear____:

You have already received one (1) copy of the fully executed contract for the subject project. With the execution of this document completed by both parties and a Planning Meeting held [DATE], you are hereby provided with **NOTICE TO PROCEED as of [Day]**, [Date].

In accordance with the contract docu	uments, you will have	consecutive calendar days from
to Substantial Completic	on, andcalendar	days from actual Substantial
Completion to Final Contract Comp	letion, therefore:	

Substantial Completion Date is: Contract Completion Date is:

We look forward to working with you toward the successful completion of another project.

Should you have any questions in regard to this matter please feel free to contact me or [ENGINEER].

Kris Dean, P.E. Deputy Executive Director/Director of Engineering Services

[ENGINEER]

PROGRESS PAYMENT AFFIDAVIT

STATE OF FLORIDA
COUNTY OF

BEFORE ME, the undersigned authority, personally appeared who, after being by me first duly sworn, deposes and says of his personal knowledge that:

1. He/She is the ______ of _____, does business in the State of Florida, hereinafter referred to as "Contractor". which

2. Pursuant to a contract with Loxahatchee River District, Contractor has furnished and will furnish services for the purpose of improving real property, more particularly described as:

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

3. This affidavit is executed in accordance with Section 713.06(3)(c), Florida Statutes, for the purpose of obtaining a progress payment in the amount of ______ Dollars (\$______).

4. All lienors under Contractor's direct Contract have been paid in full, except for the following listed lienors:

NAME OF LIENOR (Use blank sheet if necessary)

AMOUNT DUE OR TO BECOME DUE FOR LABOR, SERVICES OR MATERIAL

SIGNED, SEALED, AND DELIVERED this ____ day of _____, 20___.

By_____ Contractor

SUBSCRIBED AND SWORN TO before me this _____ day _____ of 20_____, by , personally known to me or who produced as identification a

	NOTARY PUBLIC, State of
	Print Name:
	Commission No.:
(Notary Ink Stamp)	My Commission Expires:
* THIS FORM SHALL BE SUBMITTED	WITH EACH PAYMENT REQUEST.

FINAL PAYMENT AFFIDAVIT

STATE OF FLORIDA COUNTY OF

BEFORE ME, the undersigned authority, personally appeared _____ who, after being by me first duly sworn, deposes and says of his personal knowledge that:

1. He/She is the ______ of _____, does business in the State of Florida, hereinafter referred to as "Contractor". which

2. Pursuant to a contract with Loxahatchee River District, Contractor has furnished and will furnish services for the purpose of improving real property, more particularly described as:

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

3. This affidavit is executed in accordance with Section 713.06(3)(c), Florida Statutes, for the purpose of obtaining final payment in the amount of ______ Dollars (\$_____).

4. All lienors under Contractor's direct Contract have been paid in full, except for the following listed lienors:

NAME OF LIENOR (Use blank sheet if necessary)

AMOUNT DUE OR TO BECOME DUE FOR LABOR, SERVICES OR MATERIAL

SIGNED, SEALED, AND DELIVERED this ____ day of _____, 20____.

By_____ Contractor

SUBSCRIBED AND SWORN TO before me this _____ day _____ of 20_____, by , personally known to me or who produced as identification a

NOTARY PUBLIC, State of		
Print Name:		
Commission No.:		
My Commission Expires:		

(Notary Ink Stamp)

Certificate of Substantial Completion

[Date] [NAME] [ADDRESS]

Loxahatchee River Environmental Control District JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION Substantial Completion

Dear [Name]:

On______the District, [PARTY NAMES] conducted a Substantial Completion Inspection for the above referenced project. The Substantial Completion inspection resulted in the attached [#] page Punchlist, containing [#] items for completion or correction. Please note per Spec Section 01700, all punch list items are to be corrected prior to Final Payment and before Final Completion is granted.

Based on the above referenced inspection, [name] has <u>deemed the project Substantially Complete</u> <u>as of [date]</u>.

Once all of the attached punch list items have been completed or corrected, please contact our office in writing so that we can schedule a time for final inspection.

If you have any questions regarding these items, please call me at______.

Sincerely,

[Name] [Title]

Enclosure: Substantial Completion Punchlist

cc: Kris Dean, LRECD Lenny Giacovelli, LRECD

Certificate of Final Completion

[DATE] [NAME] [ADDRESS]

Loxahatchee River Environmental Control District JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION <u>Final Completion</u>

Dear [Name]:

On______the Loxahatchee River Environmental Control District, Palm Beach County, _______, and______conducted a Final Completion Inspection for the above referenced project. Per our inspection, the below listed items were determined to be incomplete:

We are currently preparing the Final Balancing Change Order to complete the processing of your Final Payment Application.

If you have any questions regarding these items, please call me at______.

Sincerely,

[Name] [Title]

Enclosure

cc: Kris Dean, LRECD Lenny Giacovelli, LRECD

WAIVER AND RELEASE OF LIEN UPON PROGRESS PAYMENT:

The undersigned lienor, in consideration of the sum of \$______, hereby waives and releases its lien and right to claim a lien for labor, services, or materials furnished through (insert date) to (insert the name of your customer) on the job of (insert the name of theowner) to the following property:

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

This waiver and release does not cover any retention or labor, services, or materials furnished after the date specified.

DATED on , (year) . (Lienor)
WITNESS:
By:
Contractor (SEAL)
Attest:
SWORN AND SUBSCRIBED TO BEFORE ME, THIS day of 20, by
, personally known to me or who produced as identification a

NOTARY PUBLIC, State of Florida

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WAIVER AND RELEASE OF LIEN UPON FINAL PAYMENT

The undersigned lienor, in consideration of the final payment in the amount of \$_______, receipt of which is hereby acknowledged, hereby waives and releases its lien and right to claim a lien for labor, services, or materials furnished to ________ on the job of the Loxahatchee River Environmental Control District hereinafter referred to as the "District," to the following property: JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION.

WITNESS:

By:_____

Contractor (SEAL)

Attest:

SWORN AND SUBSCRIBED TO BEFORE ME, THIS _____ day _____ of 20____, by _____, personally known to me or who produced as identification a

NOTARY PUBLIC, State of Florida Print Name: _____ Commission No.: _____ My Commission Expires: _____

(Notary Ink Stamp)

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458 (561) 747-5700 FAX (561) 747-9929

CHANGE ORDER #1

	<u>BIII B.</u>			
PROJECT NAME:	JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION			
<u>OWNER:</u>	Loxahatchee River Environmental Control District			
CONTRACTOR:				
THE FOLLOWING C	HANGES:			
<u>JUSTIFICATION:</u>				
<u>CHANGE TO CONTR</u>	ACT PRICE:			
Original CONTRACT	PRICE:	\$		
Current CONTRACT	PRICE	\$		
CONTRACT PRICE d will be <i>INCREASE</i>	ue to this Change Order D/DECREASED by:	\$		
The New CONTRAC this Change Orde	T PRICE including r will be:	\$		
CHANGE TO CONTR	ACT TIME:			
The DATE OF COMP	LETION of all work will be: UNCHANGED)		
APPROVED BY CON	TRACTOR:			
			DATE	
APPROVED BY ENG	INEER:		DATE	
APPROVED BY OWN	VER:		DATE	
LOAARA I CREE KIVEK EN VIKONMENTAL CONTROL DISTRICT			DATE	
ARTICLE 7

CERTIFICATE OF DISTRICT'S ATTORNEY

JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION

THIS IS TO CERTIFY that on this _____ day of ______, 20_, I have examined the attached Contract Documents, Surety Bonds, and the execution thereof by the parties thereto, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representative have full power and authority to execute said agreements on behalf of the respective parties named therein; and that the foregoing agreements as being legally sufficient in form constitute a binding agreement between the parties.

By:___

Patrick J. McNamara, Esq. de la Parte & Gilbert, P.A. Attorney for the LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

ARTICLE 8

RESERVED

SPECIAL CONDITIONS

ARTICLE 9

	TITLE
9.01	Governing Order of Contract Documents
9.02	Time of Completion and Amount of Liquidated Damages
9.03	Reimbursement of Additional Delay Damages
9.04	Percentage of Progress Payments to be Retained
9.05	Left Blank Intentionally
9.06	Surety Bonds
9.07	Subcontractors
9.08	Contractor's Insurance
9.09	Water Supply
9.10	Pipeline and Manhole Locations
9.11	Elevation Datum
9.12	Easements
9.13	Occupying Private Land
9.14	Work in State, County and Town Rights-of-Way
9.15	Interference with and Protection of Streets
9.16	Traffic Control
9.17	Work Adjacent to Telephone, Power, Cable TV and Gas Company Structures
9.18	Storage of Materials
9.19	Salvaged Materials and Excavated Materials
9.20	Planning Meeting
9.21	Alterations
9.22	Extra and Deleted Work
9.23	Extension of Time on Account of Extra Work
9.24	Changes Not to Affect Bonds
9.25	Non-Assignable
9.26	District Remedies
9.27	Contractor's Remedies

9.28	Discontinuance of Construction
9.29	Contractor's Responsibility
9:30	District's Right to Terminate
9.31	Venue, Disputes and Attorney's Fee
9.32	Coordination with District's Existing Facilities
9.33	Permits
9.34	Coordination of Construction
9.35	Field Layout of Work
9.36	Submittals
9.37	Inspection and Testing
9.38	Utilities and Services
9.39	Security
9.40	Special Controls
9.41	Field Offices, Storage and Construction Areas
9.42	Equipment and Materials
9.43	Project Closeout
9.44	Open Specifications
9.45	Spare Parts List
9.46	Applicable Standards and Codes
9.47	Copies of Plans and Specifications
9.48	Restoration – Special
9.49	Contractor Performance Reviews and Ratings

9.01 Governing Order of Contract Documents

In the event of discrepancy, the interpretation of Contract Documents shall follow the order of precedence as identified in Article 1 Instruction to Bidders Section 22.

9.02 Time of Completion and Amount of Liquidated Damages

Contractor agrees to commence Work on or before a date to be specified in a written Notice to Proceed. In the event Contractor does not reach Substantial Completion or Final Completion of the Work within the time specified in the Notice to Proceed, Contractor shall pay to the District as liquidated damages, and not as a penalty the amounts set forth in Article 4- Contract Section 2.

9.03 Reimbursement of Additional Delay Damages

In the event Substantial Completion and Final Completion of the Work set forth in the Contract Documents and any subsequent modifications, is delayed beyond the time set forth in Article 4-Contract Section 2, Contractor shall also be responsible for Additional Delay Damages as set forth in the Article 4 - Contract Section 2.

9.04 Percentage of Progress Payments to be Retained

The percentage of estimated value to be held by the Owner as retainage on entitled Progress Payments shall conform to the following schedule:

- a. For contracts of \$200,000.00 or less, retainage of 10% of payments claimed.
- b. For contracts over \$200,000.00, retainage of 5% of payments claimed.
- c. A cash bond or irrevocable letter of credit will be accepted if offered in lieu of cash retainage.

The above retainage reductions shall not require the District to release any amount that is the subject of a good faith dispute or a claim pursuant to Section 255.05, Florida Statutes.

The above retainage reductions shall not apply if the Project is funded, in whole or in part, with federal funds that are subject to federal grantor laws and regulations that are contrary to any provision of the Florida Local Government Prompt Payment Act.

9.05 Left Blank Intentionally

9.06 Surety Bonds

Contractor, at the time of execution of the Contract, must deposit with the District a Public Construction Bond providing for the satisfactory performance and completion of the Work and providing security for payment of all persons performing labor and/or providing materials or supplies

in connection with this Contract. The bond shall be furnished in an amount equal to the amount of the contract award. The form and conditions of the bond and the surety shall be in accordance with the statutory requirements of Section 255.05(2), Florida Statutes, and are subject to the District's approval.

A maintenance bond in the amount of 50% of the contract price guaranteeing the repair of all damages due to improper materials or workmanship for a period of one (1) year after Final Completion will also be required. The maintenance bond shall be submitted with the final payment request.

The bonds shall be written by a surety company that has the following ratings based upon amount of the Contract:

CONTRACTAMOUNT	BEST'S RATINGS
\$ 25,000.00 to \$100,000.00	B+ Class V or better
\$100,000.01 to \$500,000.00	A Class VI or better
\$500,000.01 and over	A Class VII or better

The surety must be licensed to do business in the State of Florida, and the bonds must be executed by an Attorney-in-Fact for the surety company with a certified copy of its Power of Attorney attached to the bonds.

The Maintenance Bond shall remain in effect for one (1) year beyond the date of Final Completion and acceptance of the entire Work to repair any Defective Work done under the Contract Documents. The Public Construction Bond shall remain in effect to pay valid claims for payment of labor, supplies, and/or materials submitted after completion of the Work and for items covered under the performance aspect of said bond.

9.07 Subcontractors

Prior to award of the Contract, Engineer shall notify Contractor of any objection to the subcontractors proposed for the Work, and Contractor shall not employ any subcontractor with whom Engineer or District has an objection.

Contractor shall be responsible to the District for the acts and omissions of any subcontractor and any person directly or indirectly employed by a subcontractor, to the extent Contractor is responsible for the acts and omissions of persons directly employed by Contractor. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the District.

9.08 Contractor's Insurance

Contractor shall maintain and pay for, as applicable, through an insurance company or insurance companies acceptable to the District at Contractor's sole expense: Fire, Extended Coverage, Vandalism and Malicious Mischief coverage on buildings and structures in the course of construction. Such coverage shall include foundations, additions, attachments, and all permanent fixtures belonging to and constituting a part of said buildings or structures. The policy or policies shall also cover machinery, if the cost of machinery is included in the Contract. The amount of insurance must at all times be at least equal to the actual cash value of the insured property.

Contractor shall provide the District, prior to the execution of the Contract, with a satisfactory Certificate of Insurance certifying that the required insurance is in force.

During the life of the Project, Contractor shall provide, pay for and maintain insurance of the types and in the amounts described herein. All such insurance shall be provided by responsible companies with A.M. Best ratings of at least A-, authorized to transact business in the State of Florida, and which are satisfactory to the District. Promptly after the District's issuance of the Notice of Award of this Contract, and prior to commencing the Work, Contractor shall provide evidence of insurance coverages of the types and in the amount required by submitting executed Certificates of Insurance, in the form preferred by the District. Each Certificate of Insurance shall set forth the original manual signature of the authorized representative of the insurance company/companies identified therein and shall have attached thereto proof that said representative is authorized to execute the same. In addition, certified true and exact copies of all required policies shall be provided to the District uponrequest.

Contractor shall obtain and maintain in full force and effect during the life of this Contract, Worker's Compensation Insurance covering all employees in performance of Work under this Contract. Contractor shall make this same requirement of any of its subcontractors. Contractor shall indemnify and save the District and Engineer harmless from any damages resulting from either Contractor or any subcontractor's failure to secure and/or maintain such insurance.

All policies of insurance required shall require that the insurer give the District thirty (30) days written notice of any cancellation, intent not to renew, or reduction in coverage; and ten (10) days written notice of any non-payment of premium. Such notice shall be delivered by U.S. Registered Mail to: Loxahatchee River District, 2500 Jupiter Park Drive, Jupiter, Florida 33458, Attn: Kris Dean, P.E. In the event of any reduction in the aggregate limit of any policy, Contractor shall immediately restore such limit to the amount required herein.

Receipt by the District of any Certificate of Insurance or copy of any policy evidencing the insurance coverages and limits required by the Contract Documents does not constitute approval or agreement by the District that the insurance requirements have been satisfied or that the insurance policies shown on the Certificates of Insurance are in compliance with the requirements of the Contract Documents.

The insurance coverages and limits required of Contractor under the Contract Documents are designed to meet the minimum requirements of the District. They are not designed as a recommended insurance program for Contractor. Contractor shall be responsible for the sufficiency of its own insurance program. Should Contractor have any questions concerning its exposures to loss under the Contract Documents or the insurance coverages needed therefore, it should seek professional assistance.

If the insurance coverage initially provided by Contractor is to expire prior to the completion of the Work, renewal Certificates of Insurance shall be furnished to the District thirty (30) days prior to the expiration of current coverages.

All liability insurance policies obtained by Contractor to meet the requirements of the Contract Documents, other than the Worker's Compensation and Employer's Liability Policy, shall provide that the District, its officers, employees, and agents, and Engineer and its shareholders, officers, and directors, and any other person or entity designated by the District, shall be named "additional insureds" under the Policy and shall also incorporate a Severability of Interest and Cross Liability provision. All insurance coverages provided under this Special Conditions Section 9.08 shall apply to all of Contractor's activities under the Contract Documents without regard for the location of such activity. The policy shall include a waiver of subrogation provision in favor of the additional insured. This policy shall include, but not be limited to, all of the following coverage in the following minimum amounts:

a.	Vehicle – Owner, Hired, Non-owner – Any Automobile Coverage		
	Injury or death of any one person: Injury or death of more than one person in any one occurrence:		,000,000
			,000,000
	Property Damage- any one occurrence:	\$	300,000
b.	Comprehensive General Liability, other than vehicle, including: Comprehensive Premises Operations Explosions and Collapse Hazard Underground Hazard Products/Completed Operations Hazard Broad Form Property Damage Independent Contractors Personal Injury	¢ 1	000.000
	Per Occurrence	21	,000,000
	Aggregate	\$1	,000,000
	Injury or death of any one person:	\$1	,000,000
	Injury of death of more than one person in any one occurrence:	\$1	,000,000
c.	Property Damage: Each occurrence:	\$	300,000
	Aggregate operations:	\$	500,000
	Aggregate protective:	\$	500,000
	Aggregate contractual:	\$	500,000

Neither Contractor nor any subcontractor shall commence Work under this Contract until they have obtained all insurance required under this Special Conditions Section 9.08, and have supplied the District with evidence of such coverage in the form of the Certificate of Insurance, and such Certificate has been approved by the District in writing. All such insurance policies shall provide for at least thirty (30) calendar days written notice to the District prior to cancellation. Contractor's and subcontractor's insurance shall be primary to any other insurance carried by the District, its

consultants, or Engineer. The District's, its consultants', or Engineer's coverage shall be excess insurance only, and Contractor's insurance policies shall so state.

Contractor shall be responsible for and shall obtain and file insurance certificates on behalf of all its subcontractors within ten (10) calendar day of the subcontractor's start of Work. All Certificates of insurance shall be filed with the District in the office designated in the Contract Documents.

Should Contractor fail to maintain the insurance coverages required by the Contract Documents, the District may, at its option, either terminate this Contract for default or procure and pay for such coverage, charge Contractor, and deduct the costs from payments due Contractor. A decision by the District to procure and pay for such insurance coverages shall not operate as a waiver of any of its rights under the Contract Documents.

Failure of Contractor to submit the required Certificates of Insurance within the times required by this Special Conditions Section 9.08 may result in a delay in issuing the Notice to Proceed. The parties specifically agree that such a delay is neither excusable nor compensable and will not entitle Contractor to a change in the Contract Sum or time.

9.09 Water Supply

Contractor shall, at its own expense, provide all water needed for construction purposes and for testing.

9.10 Pipeline and Manhole Locations

Pipelines and manholes will be located substantially as indicated on the Plans and Specifications, but Engineer may make such modifications in locations as may be found desirable to avoid interferences with existing structures or for other reasons.

9.11 Elevation Datum

The datum adopted by Engineer is based on National Geodetic Vertical Datum of 1929. All elevations on the Plans and Specifications refer to this datum.

9.12 Easements

The District has obtained, or will obtain, permanent easements and temporary construction easements through private property, where required. The temporary construction easements entitle Contractor to the occupancy and use of the designated area near or adjacent to the Work for purposes related to the Work.

Easements are shown on the Plans and Specifications.

Contractor will not encroach on any property unless it has been established that easements have been obtained or that the property owner has given the District permission in writing. On all other land, Contractor has no rights unless he obtains written consent from the proper parties.

9.13 Occupying Private Land

Contractor shall not (except after written consent from the proper parties) enter or occupy with persons, tools, equipment or materials, any land outside the rights-of-way or property of the District. A copy of the written consent shall be given to Engineer.

9.14 Work in State, County, and Town Rights-of-Way

Attention is directed to the fact that Work will be going on in County rights-of-way. The District has obtained written consent for Contractor to encroach on these rights-of-way for the Work. Any damage to the areas within these rights-of-way shall be repaired or restored in accordance with their respective standards, specifications, latest revisions and permit requirements.

9.15 Interference with and Protection of Streets

Contractor shall not close or obstruct any portion of the street, road, or private way without obtaining permits therefor from the proper authorities. During the course of the Work, if any street or private way shall be rendered unsafe by Contractor's operations, Contractor shall make such repairs or provide such temporary ways or guards as shall be acceptable to Engineer.

Streets, roads, private ways, and walks not closed, shall be maintained passable by Contractor at Contractor's expense, and Contractor shall assume full responsibility for the adequacy and safety of provisions made.

Contractor shall, at least forty-eight (48) hours in advance, notify the proper authorities including, but not limited to, the police, ambulance squad, fire departments, and school district, and any other public authority with jurisdiction in writing, with a copy to Engineer, if a closure of a street is necessary. Contractor shall cooperate with the proper authorities in the establishment of alternate routes. Contractor shall provide adequate detour signs, plainly marked and well lit, in order to minimize confusion. All expenses of street closure shall be the responsibility of Contractor.

Contractor shall, when required by Engineer, schedule its Work so as to interfere as little as possible with the operations of adjacent users and to minimize loss of access by public or private agencies to their place of business.

9.16 Traffic Control

For control of traffic, Contractor shall provide an adequate number of flagmen in accordance with the latest revisions of the Florida Department of Transportation specifications. Contractor shall bear the costs of employing such flagmen.

9.17 Work Adjacent to Telephone, Power, Cable TV and Gas Company Structures

In all cases where Work is to be performed near telephone, power, water, cable TV, or gas company facilities, Contractor shall provide written notification to the respective companies of the areas in which Work is to be performed, within a minimum of forty-eight (48) hours prior to any Work in these areas. Contractor shall comply with all applicable regulations of the State of Florida regarding

the location of underground facilities prior to excavating any area (Sunshine State-One Call of Florida).

9.18 Storage of Materials

Suitable storage facilities shall be furnished by Contractor. All materials, supplies and equipment intended for use in the Work shall be stored by Contractor to prevent damage from exposure, contamination by foreign substances, or vandalism. Engineer shall not accept, or sample for testing, materials, supplies or equipment that have been improperly stored. Materials found unfit for use shall not be incorporated in the Work and shall immediately be removed from the construction or storage site.

9.19 Salvaged Materials and Excavated Materials

In the absence of special provisions to the Contract, salvage materials, equipment or supplies excavated during the course of the Work are the property of the District and shall be cleaned and stored as directed by Engineer.

All excavated materials needed for backfilling operation shall be stored on site. Contractor shall take the appropriate steps to secure any necessary additional area for stockpiling. Contractor shall include in its bid price the removal of such material from site to an area designated by Engineer. The haul distance shall not exceed six (6) miles each way. All excess materials not wanted by the District shall be hauled and disposed of at an approved site, at Contractor's expense.

9.20 **Pre-Construction Meeting**

Within ten (10) calendar days after the execution of the Contract and prior to start of construction, a planning meeting will be scheduled by Engineer which must be attended by Contractor. This conference will include representatives of Contractor, Engineer, the District, local utilities, regulatory agencies, other contractors performing Work in the area for the District, and any other party that the District may deem as necessary for the orderly performance of the Contract. However, this does not relieve Contractor of the responsibility of contacting local utilities and any other necessary agencies as the circumstances may require. At this meeting the parties shall coordinate the sequence of construction.

9.21 Alterations

Engineer may make alterations in the line, grade, plan, form, dimensions, or materials of the Work or any part thereof, either before or after the commencement of construction of the Work. If such alterations increase or diminish the quantity of Work to be done, compensation for increased Work shall be made at the Contract Unit Prices or under the item for extra Work. For decreased Work, Contractor shall allow the District a credit based on the Contract Unit Prices or by such other means as determined by Engineer. If such alterations diminish the quantity of Work to be done, they shall not warrant any claim for damages or for anticipated profits on the Work that is eliminated.

9.22 Extra and Deleted Work

Contractor shall perform any unforeseen additional Work necessary to the proper completion of the Contract and not otherwise provided for herein, when and as ordered in writing by Engineer and approved by the District ("Extra Work"). For Extra Work, Contractor shall be compensated either:

- a. At the price agreed upon before the Extra Work is commenced and named in the order for the Work, or
- b. If Engineer so elects, for the reasonable cost of said Work, as determined by Contractor and approved by Engineer, plus a percentage of such cost, as set forth below, or
- c. At the unit price indicated in the Contract.

Contractor must submit written notification to Engineer within fifteen (15) days of any event Contractor claims to result in a change in the Scope of the Work or in Extra Work, and Contractor shall quantify such change within thirty (30) days of the event. The District shall provide a response to the Contractor within thirty (30) days from receipt of Contractor's quantification of the change. The cost of Extra Work performed shall include the cost to Contractor of materials used, equipment installed, common and skilled labor and foremen, and the fair rental price of all machinery used on the Extra Work for the period of such use.

At the request of Engineer, Contractor shall furnish itemized statements of the cost of the Work ordered and give Engineer access to all accounts, bills, and vouchers relating thereto.

Contractor may include in the cost for Extra Work the amounts of additional premiums paid to obtain and maintain the required insurance on account of such Extra Work, including but not limited to: Social Security or other direct assessments upon Contractor's payroll by Federal or other properly authorized public agencies; and other approved assessments made by Contractor directly to Contractor's employees, which are recognized to be part of the cost of doing Work.

Compensation for the rental of machinery used for Extra Work shall be based upon an appropriate fraction of the approved monthly rate schedule. The cost of transportation, not exceeding a distance of one hundred (100) miles, of such machinery to and from the Work shall be added to the compensation for rental property provided; however, compensation for rental property shall only apply to machinery or equipment used for Extra Work and not already required to be furnished under the terms of the Contract.

Contractor shall not include in the cost of Extra Work, any cost or rental of small tools, buildings, or any portion of the time of Contractor, its superintendent, or its office and engineering staff.

Contractor may add up to fifteen percent (15%) to the cost of Extra Work done by Contractor's own forces to cover its overhead allowance for use of capital the premium on the Bond as assessed upon the amount of this extra Work, and profit.

Where Extra Work done is performed by a subcontractor, the subcontractor shall compute the cost for the Extra Work, as stated above plus fifteen percent (15%). Contractor shall be allowed an additional five percent (5%) of the subcontractor's charge for the Extra Work to cover the cost of Contractor's overhead, use of capital, the premium on the Bonds as assessed upon the amount of this Extra Work, and profit.

If Extra Work is done, Contractor and/or subcontractor shall keep daily records of such Extra Work. The daily record shall include the names of persons employed, hours worked, materials and equipment incorporated, and machinery used, if any, in the execution of such Extra Work. This daily record shall be signed by Contractor's authorized representative and approved by Engineer, verifying that such Work has been done. A separate daily record shall be submitted for each Extra Work order.

Notwithstanding anything contained herein the markup to Contractor and/or subcontractor, for overhead, profit, use of capital, and the premium on the Bonds as the same relates to Extra Work within the scope of Section 01020 of the Technical Specifications, shall not exceed twenty percent (20%).

9.23 Extension of Time on Account of Extra Work

When Extra Work is ordered at any time during the progress of the Work which requires, in the opinion of Engineer, an unavoidable increase of time for the completion of the Contract, additional time shall be certified in writing by Engineer.

9.24 Changes Not To Affect Bonds

It is distinctly agreed and understood that any changes made in the Plans and Specifications for this Work (whether such changes increase or decrease the amount thereof) of any change in the manner of time of payments made by the District to Contractor shall in no way annul, release, or affect the liability and surety on the bonds given by Contractor.

9.25 Non-Assignable

Neither the Contract Documents, nor any monies due hereunder, or any part thereof, shall be assigned, transferred, or sublet by Contractor; nor shall the District be liable to any assignee or transferee, or sub-lessee, without the written consent of the District. Any assignment, transfer, or sublease, shall not release or discharge Contractor from any obligation hereunder.

9.26 District Remedies

If Contractor defaults or neglects to carry out any of its obligations under this Contract, or should liens be filed, bills of sale, conditional bills of sale, chattel mortgages, assignments of this Contract without the consent of Contractor, or orders for the payment of money for materials or labor or either, or should Contractor become insolvent or file Bankruptcy, the District shall have the right, in addition to any other rights and remedies provided by law, to (a) perform and furnish through itself or through others any such labor or materials for the Work and to deduct the cost thereof from any money due or to become due to Contractor for all or any portion of the Work; (b) enter upon the premises and take possession for the purpose of completing the Work of all equipment, scaffolds, tools, appliances, and any other items thereon; and (c) to employ any person or persons to complete the Work and provide all labor services, materials, equipment, and other items required therefor. In case of such termination of the employment of Contractor, Contractor shall not be entitled to receive any further payment under this Contract. However, if the unpaid balance of the amount to be paid under this Contract shall exceed the cost and expense incurred by the District in completing the Work, such excess shall be paid by the District to Contractor; but if such cost and expenses shall exceed the unpaid

balance, Contractor shall promptly pay the difference to the District on demand. Said cost and expense shall include not only the cost of completing the Work to the satisfaction of the District and of performing and furnishing all labor, services, materials, equipment, and other items required therefor, but all losses, damages, costs and expenses including attorney's fees sustained, incurred, orsuffered by reason of or resulting from Contractor default, or by reason for litigation over this Contract.

9.27 Contractor's Remedies

If the District fails to make a payment as provided for in the Contract Documents for a period of thirty (30) days after the date the payment is due, through no fault of Contractor, Contractor may, upon seven (7) additional days' written notice to the District terminate the Contract and recover from the District payment for Work executed including reasonable overhead and profit and costs incurred by reasons of such termination.

9.28 Discontinuance of Construction

Contractor agrees and guarantees to perform the above mentioned Work in accordance with the terms herein, irrespective of any strikes, lockouts, or stoppages and Contractor shall not employ persons, means, materials, or equipment which may cause strikes, Work stoppages, or any disturbances by workmen employed by Contractors.

In the event the District is prevented from proceeding with any or all of this Work as stated in this Contract, due to a declaration of war, or national emergency, by the United States government, whereas the construction of the type contracted for herein is specifically prohibited by statute or governmental edict, or due to the stoppages of construction caused by any governmental agency, State, City, Town, or County regulations, orders, restrictions, or due to circumstances beyond the District's control, or for any reasons whatsoever, then the District herein reserves the right to either suspend the Work to be done for an indefinite period of time or to cancel this Contract outright by giving notice by registered mail for such intention to Contractor herein. In the event of any conditions above mentioned occurring after the Work herein has already been commenced, then the District herein shall be liable only for the Work completed up to the cancellation or suspension without the addition of prospective profits or other charges whatsoever.

9.29 Contractor's Responsibility

It is specifically agreed, that all materials shall be supplied and Work shall be done in accordance with the rules, requirements, regulations and directives of various Building Departments, other State, County, or Town departments having jurisdiction over the same; mortgagees, if any; and the Federal Housing Administration or the Veteran's Administration, or their Bureaus, Agencies, Subdivisions, or Agencies or any other governmental bureau, agency, or department interested in this job directly or indirectly.

Contractor shall, at its own cost, obtain all necessary permits, licenses, inspections and certificates pertaining to the Work and shall comply with all Federal, State, Municipal and local laws, ordinances, rules, regulations, orders, notices and requirements, whether or not provided by the Plans, Specifications, General Conditions or other Contract Documents without additional expense to the District. Contractor shall also be responsible for and correct at its own cost and expense, any violations thereof resulting from and in connection with its performance of its Work. Engineer shallnot be responsible for the means, methods, techniques, sequences or procedures of construction

selected by Contractor or the safety precautions and programs incident to the Work of Contractor. Engineer's efforts will be directed toward providing assurance for the District that the completed Project will conform to the Contract Documents, but Engineer shall not be responsible for the failure of Contractor to perform the construction Work in accordance with the Contract Documents.

Engineer shall have the authority to reject Work which does not conform to the Contract Documents, and shall have authority, but not the obligation, to stop the Work in the event of any unsafe conditions or unsafe practices on the part of Contractor, any subcontractor or any of their employees. Engineer's ability to stop the Work shall not affect Contractor's liability for the existence of unsafe conditions or practice.

9.30 The District's Right to Terminate

The District may terminate this Contract and take possession of all or some of Contractor's materials, tools, equipment and appliances and complete the Work by any means the District deems fit if any of the following occur: if at any time there shall be filed by or against Contractor in any court a petition in bankruptcy, insolvency, for reorganization, or for the appointment of a receiver or trustee of all or a portion of Contractor's property, where Contractor fails to secure a discharge within thirty (30) days of any such petition; if Contractor makes an assignment for the benefit of creditors or petitions for or enters into an agreement or arrangement with its creditors; if Contractor fails to prosecute the Work properly, fails to complete the Work entirely on or before any date established for partial or final completion; fails to make prompt payment to subcontractors, for materials or labor; or without limitation, fails to perform any provisions of this Contract. The District may terminate this Contract by giving Contractor seven (7) calendar days prior written notice of any such default to Contractor. Such termination shall be without prejudice to any other remedy that the District may have. In case of termination, Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Sum shall exceed (1) the expense of completing the Work including compensation for additional managerial and administrative services, plus (2) the District's losses and damages because of Contractor's default, such excess shall be paid to Contractor. If such expense, plus the District's losses and damages shall exceed such unpaid balance, Contractor shall pay the difference to the District promptly on demand.

The District may terminate this Contract without cause by giving seven (7) calendar days prior written notice to Contractor, and in such event, the District will pay Contractor for that portion of the Contract Sum, less the aggregate of previous payments, allocable to the Work completed as of the date of termination. The District also will reimburse Contractor for all costs necessarily incurred for organizing and carrying out the stoppage of the Work and paid directly by Contractor, not including overhead, general expenses or profit. The District will not be responsible to reimburse Contractor for any continuing contractual commitments to subcontractors or materialmen or penalties or damages for canceling such contractual commitments inasmuch as Contractor shall make all subcontracts and other commitments subject to this provision.

In the event of termination by the District, the District may require Contractor promptly to assign to it all or some subcontracts, construction, plant, materials, tools, equipment, appliances, rental agreements, and any other commitments which the District may in its sole discretion, choose to take by assignment, and in such event Contractor shall promptly execute and deliver to the District written assignments of the same. The District may, at any time, terminate the Contract for the District's convenience and without cause. Contractor shall be entitled to receive payment for Work executed and costs incurred by reason of such termination

9.31 Venue, Disputes and Attorney's Fees

This Contract shall be governed by the laws of the State of Florida as now and hereafter in force. The venue for actions arising out of this Contract is fixed in Palm Beach County, Florida.

Contractor and the District agree that prior to instituting any litigation for damages under this Special Conditions Section 9.31, the parties shall conduct a non-binding mediation to attempt to resolve their dispute. In the event the parties cannot agree upon a mediator, each party shall select a mediator and such mediators shall select a third mediator who shall serve as the mediator for the dispute. In the event such mediation does not occur within thirty (30) days of a written request of either party, the parties shall be free to pursue litigation without first conducting mediation.

In any dispute arising out of the Contract Documents and/or relating to the Work, the Prevailing Party shall be entitled to recover all costs and expenses incurred, including, without limitation, attorneys' and paralegals' fees and costs whether before suit is filed, after suit is filed, on any appeal, and in any bankruptcy proceedings.

9.32 Coordination with District's Existing Facilities

Contractor shall cooperate and coordinate its activities with those of the District when connecting to the existing District facilities, while working on the District plant site, and as specified in the Contract Documents.

The District has adopted a Standard Operating Procedure (SOP) for System Shutdowns and Bypass included in the Appendix and made part of this Contract. The Contractor is responsible for compliance with the SOP including planning all work requiring system shutdowns and/or bypasses to be completed within the Low Risk Holding Time and the Contractors Wastewater Management/Spill Response Plan. Details required for this compliance are included in the Appendix including the allowable duration of the shutdown or bypass (low risk holding time), the location of the isolation facilities, required facility information to determine residual wastewater volume disposal requirements and disposal locations, anticipated continuous flow the Contractor may expect and other pertinent information.

The Contractor is also responsible for all costs associated with the Emergency Operation Measures should these be implemented due to negligence on the Contractor's part or failure of the Contractor to perform the work within the allowed time frame.

9.33 Permits

Unless otherwise identified in Section 01000 of the Technical Specifications, Contractor shall be responsible for obtaining any and all permits (i.e. building permits) necessary for the Work under this Contract and pay the costs thereof, said permits may be included as part of the Contract Documents. If differences between the specifications and conditions of the permits exist, the permits shall govern.

9.34 Coordination of Construction

A. General

Contractor shall be responsible for the maintenance of utility operations during construction as specified in the Section 01500 of the Technical Specifications.

B. Temporary Facilities

District personnel must have ready access at all times to all existing structures. Temporary facilities shall include any equipment, materials, controls, services and accessories temporarily needed for access to, and for protection of all existing structures and equipment, and to maintain an operating system, in accordance with the provisions of these Specifications.

The size or capacity of the temporary facility shall generally be equal to the size or capacity of the facility replaced, unless otherwise indicated on the Contract Plans and Specifications or otherwise directed and approved by the District. All temporary facilities shall be removed when they are no longer required unless otherwise agreed upon in writing. To substitute an unscheduled temporary facility for an existing or new facility, Contractor shall prepare and submit a plan and description of the proposed temporary facility to the District. Upon receipt of the written approval of the District, Contractor shall then submit the notification of intent to commence Work.

C. Coordination with District Personnel

Before commencing Work involving removing or placing in operation existing or new facilities, Contractor shall notify the District in writing at least thirty (30) calendar days in advance in writing. The District shall be responsible for removing facilities from operation. Only the District can authorize the shutdown of any portions of the sanitary system. Contractor shall, under no circumstances, interfere with any existing lift station or collection system.

9.35 Field Layout Work

All Work under this Contract shall be constructed in accordance with the lines and grades shown on the Contract Plans and Specifications or as directed by Engineer. Elevation of existing ground, structures and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the date shown or omissions of data required for accurately accomplishing the stake-out survey shall be referred immediately to Engineer for interpretation or correction.

All survey Work for construction control purposes shall be made by Contractor at its expense as set forth in General Conditions Section 10.11.

Contractor shall establish all base lines for the location of the principal component parts of the Work together with benchmarks and batter boards adjacent to the Work. Based upon the information provided by the Contract Plans and Specifications, Contractor shall have the responsibility to carefully preserve the benchmarks, reference points and stakes. In case of destruction thereof by

Contractor or resulting from its negligence, Contractor shall be held liable for any expense and damage resulting therefrom and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such marks, reference points, and stakes.

Existing or new control points, property markers, and monuments that will be established or are destroyed during the normal causes of construction shall be reestablished by Contractor; and all reference ties recorded therefore shall be furnished to Engineer. All computations necessary to establish the exact position of the Work shall be made and preserved by Contractor.

9.36 Submittals

A. Progress Schedule

Prior to executing the Contract, but after the award of the Contract to the Successful Bidder, the Successful Bidder shall prepare and submit the proposed progress schedule to Engineer for review and comments. The schedule shall be prepared using Oracle - Primavera P6. The contractor shall supply the electronic Primavera P6 schedule and a PDF copy of the Primavera P6 gantt chart.

The schedule shall be prepared using the Critical Path Method ("CPM") and shall depict in detail the proposed sequence of the Work and identifying construction activities for each structure, collection, transmission, or treatment facility. The schedule shall be time scaled, identifying the first day of each week, with the estimated date of starting and completion of each stage of the Work in order to complete the Project within the Contract time.

Contractor shall revise the progress schedule to reflect Engineer's comments prior to approval.

An updated schedule shall be submitted monthly with each Progress Payment Application depicting progress to the last day of the month. Subsequent changes to the schedule shall be accompanied by a letter of explanation with appropriate references and revision dates on the schedule.

- B. Operation and Maintenance Instruction for all Valves and Mechanical Devices
 - 1. Individual Instructions

When required by Engineer, Contractor, through manufacturer's representatives, shall provide instruction to the District's designated employees regarding the operation and care of all equipment furnished by Contractor and installed hereunder.

2. Written Instructions

When required by Engineer, Contractor shall furnish and deliver to Engineer, prior to final payment, six (6) complete sets of instructions, technical bulletins, and any other printed matter such as diagrams, prints or drawings, containing full information required for the proper operation, maintenance, and repair of all Contractor furnished equipment. Included in this submission shall be a spare parts diagram and complete spare parts list. The information provided shall include a source of replacement parts and names of service representatives,

including addresses and telephone numbers. Extensive pictorial cuts of equipment are required for operator reference in servicing. These requirements are a prerequisite to the operation and acceptance of equipment. Each set of instructions shall be bound together in appropriate threering binders. A detailed table of contents shall be provided for each set. Written operation and maintenance instructions shall be required for all equipment items supplied for this Project. The amount of detail required shall be commensurate with the complexity of the equipment item.

Information not applicable to the specific piece of equipment installed on this Project shall be removed from the submission.

When written instructions include shop drawings and other information previously reviewed by Engineer, only those editions thereof which were accepted by Engineer, and which accurately depict the equipment installed, shall be incorporated in the instructions.

C. Maintenance and Lubrication Schedules

When required by Engineer, Contractor shall furnish complete Equipment Maintenance and Lubrication Schedules for each piece of mechanical equipment such as valves, gates, etc. The complete forms (six copies), as provided in Section 01300 entitled "Submittals" of the Technical Specifications shall be submitted along with the shop drawings and included with the furnished O&M Manuals.

D. Schedule of Values

Contractor shall submit as a shop drawing a Schedule of Values for Engineer's review at the Pre-Construction Meeting. The Schedule of values shall contain the installed value of the component parts of the Work for the purpose of making progress payments during the construction period. The Schedule shall provide sufficient detail for the proper identification of Work accomplished. Each item shall include its proportional share of all costs, including Contractor's overhead contingencies and profit. The sum of all scheduled items shall equal the total value of the Contract. For payments on acceptable stored material items, Contractor shall also submit a separate list covering the cost of materials, delivered, and unloaded at the project site along with delivery invoices with taxes paid. Stored materials will be paid for items to be used within thirty (30) days of delivery. In addition, the listing shall also include the installed value of the item with coded reference to the Work items in the Schedule of Values.

Contractor shall expand or modify the above schedule and materials listing as required by Engineer's initial and subsequent reviews.

E. Schedule of Payments

Contractor shall submit a Schedule of Payments at the Pre-Construction meeting to be approved by the District. The Schedule of Payments shall contain Contractor's expected Progress Payment values throughout the construction period, for the purpose of assuring that the District will have sufficient monies available to make payments in the expected amounts for each payment period. Contractor shall provide an updated Schedule of Payments with each Progress Payment Application.

F. Contractor's Shop and Working Drawings

Contractor shall submit shop and Work drawings in accordance with General Conditions Section 10.07.

9.37 Inspection and Testing

The Contractor shall employ and pay for the services of an independent test laboratory for specified testing.

The Work or actions of the testing laboratory shall in no way relieve Contractor of its obligations under the Contract. The laboratory testing Work shall include such inspections and testing required by the Contract Document, existing laws, codes, ordinances, etc. The testing laboratory will have no authority to change the requirements of the Contract Documents, nor perform or approve any of Contractor's Work.

Contractor shall allow Engineer ample time and opportunity for testing materials and equipment to be used in the Work. Contractor shall advise Engineer promptly upon placing orders for materials and equipment so that arrangements may be made, if desired, for inspection before shipment from place of manufacture. Contractor shall at all times furnish Engineer and Engineer's representatives, facilities including labor, and allow proper time for inspecting and testing materials, equipment, and workmanship. Contractor must anticipate that possible delays may be caused in the execution of the Work due to the necessity of materials and equipment being inspected and accepted for use. Contractor shall furnish, at Contractor's own expense, all samples of materials required by Engineer for testing. Contractor shall make its own arrangements for providing water, electric power, or fuel for the various inspections and tests of structures and equipment.

Contractor shall furnish the services of representatives of the manufacturers of certain equipment, as prescribed in other sections of the Specifications. Contractor shall also place orders for such equipment on the basis that, after the equipment has been tested prior to Final Completion of the Work; the manufacturer will furnish the District with certified statements that the equipment has been installed properly and is ready to be placed in functional operation. Tests and analyses required of equipment shall be paid for by Contractor, unless otherwise specified in writing.

The Contractor will pay the cost of all tests, inspections, or investigations undertaken by the order of Engineer for the purpose of determining conformance with the Contract Documents if such tests, inspections, or investigations are not specifically required by the Contract Documents, and if conformance is ascertained thereby. Whenever nonconformance is determined by Engineer as a result of such tests, inspections, or investigations, Contractor shall bear the full cost thereof or shall reimburse the District for said cost. The cost of any additional tests and investigations, which are ordered by Engineer to ascertain subsequent conformance with the Contract Documents, shall be borne by Contractor.

9.38 Utilities and Services

A. General

Contractor shall provide for utilities and services for its own operations, as well as field offices. These shall include electrical power, water, ventilation, sanitary facilities and telephone service. Contractor shall furnish, install and maintain all temporary utilities during the Contract period including removal upon completion of the Work. Such facilities shall comply with regulations and requirements of the National Electrical Code, OSHA, Florida Power and Light, and applicable Federal, State, and local codes, etc.

B. Temporary Power

Contractor shall arrange with Florida Power and Light for construction period service and pay all costs for the work and power. In addition to providing for a safe construction period distribution system, Contractor shall provide a safe and adequate artificial lighting system for work areas which do not have sufficient natural light. Temporary lighting shall be maintained during non-working periods if the area is subject to access by the public or plant personnel. Contractor shall furnish all electrical or other power required for construction, testing and trial operation prior to final acceptance by the District or at the time of Beneficial Occupancy.

C. Permanent Power

Utility charges for power consumed by permanent electrical facilities used for normal operations and maintenance of the treatment plant will be paid by the District.

D. Temporary Water

Contractor shall pay for all water used for construction, flushing, testing and temporary sanitary facilities. Contractor shall provide and maintain all piping, fittings, adapters, and valves required.

E. Temporary Ventilation

Contractor shall provide and maintain adequate ventilation for a safe working environment. In addition, forced air ventilation shall be provided for the curing of installed materials, humidity control and the prevention of hazardous accumulations of dust, gases or vapors.

F. Temporary Sanitary Facilities

Contractor shall provide and maintain adequate and clean sanitary facilities for the construction work force and visitors. The facilities shall comply with local codes and regulations and be situated at approved locations.

9.39 Security

Contractor shall employ watchmen and security guards in its sole discretion, as it deems necessary to

protect the job site against vandalism, burglary, theft, trespassing, etc. Contractor shall care for and protect against loss or damage all material to be incorporated in the construction, including but not limited to, the existing plant structures, equipment and materials for the duration of the Contract, shall repair or replace damaged or lost materials and damaged structures at no additional cost to the District.

Contractor shall be responsible for providing, maintaining and securing gates used for construction purposes for the duration of the Project.

9.40 Special Controls

A. Chemicals

All chemicals used during Project construction or furnished for testing or Project operation, whether herbicide, pesticide, disinfectant, polymer, reactant of other classification, must be approved by either EPA or HUD. The handling, use, storage and disposal of such materials, containers or residues shall be in strict conformance to the manufacturer and/or supplier's instructions. Unless otherwise authorized, such materials shall be kept in secured storage. Copies of antidote literature shall be kept at the storage site and at Contractor's job site office. A supply of antidotes shall be kept at Contractor's office.

B. Dust

During construction Contractor shall, by the application of water and/or calcium chloride or other means, approved by Engineer, eliminate dust annoyance to adjacent property owners, business establishments, and all vehicular traffic. Contractor shall take all protective measures, to the satisfaction of Engineer, necessary to ensure that dust and debris do not enter any adjacent property or roadway. Contractor shall be responsible for the cleanup of existing property and roadways which have become soiled due to lack of proper dust control as determined by Engineer.

C. Noise

Noise resulting from Contractor's Work shall not exceed the noise levels and other requirements stated in local ordinances. Contractor shall be responsible for curtailing noise resulting from its operation. Contractor, upon written notification from Engineer or the noise control officers, shall make any repairs, replacements, adjustments, additions to and/or furnish mufflers when necessary to fulfill noise level requirements.

D. Erosion Abatement and Water Pollution

It is imperative that any Contractor dewatering operation does not contaminate or disturb the environment of the properties adjacent to the plant. Contractor shall, therefore, schedule and control its operations to confine all runoff water from disturbed surfaces, and water from dewatering operations that becomes contaminated with lime, silt, muck, and other deleterious matter, fuels, oils, bitumens, calcium chloride, chemicals and other polluting materials.

Contractor shall construct temporary stilling basin(s) of adequate size and provide all

necessary temporary materials, operations, and controls including, but not limited to, filters, coagulants, screens, and other means necessary to attain the required discharge water quality.

Contractor shall be responsible for providing, operating, and maintaining materials and equipment used for conveying clear water to the point of discharge. All pollution prevention procedures, materials, equipment and related items shall be operated and maintained until such time as the dewatering operation is discontinued. Upon the removal of the materials, equipment and related items, Contractor shall restore the area to the existing condition prior to commencing the Work.

E. Pests and Rodents

Contractor shall be responsible for maintaining the job site free from litter, rubbish and garbage. Contractor shall provide containers for the disposal of garbage and other materials that attract and are breeding places for pests and rodents. Contractor shall, at its expense, provide the services of an exterminator on a periodic basis to inspect the job site and to provide services as required to control pests and rodents.

F. Periodic Clean-Up; Basic Site Restoration

During construction, Contractor shall regularly remove from the site all accumulated debris and surplus materials of any kind which result from the construction. Unused equipment and tools shall be stored at Contractor's yard or base of operations for the Project.

Contractor shall perform the clean-up Work on a regular basis and/or as frequently as ordered by Engineer. Basic site restoration in a particular area shall be accomplished immediately following the installation or completion of the required facilities in that area. Furthermore, such site restoration shall also be accomplished, when ordered by Engineer, if partially completed facilities must remain incomplete for some time period due to unforeseen circumstances.

Upon failure of Contractor to perform periodic clean-up and basic restoration of the site to Engineer's satisfaction, Engineer may, upon five (5) calendar days prior written notice to Contractor, employ such labor and equipment as he deems necessary for the purpose, and all costs resulting therefrom shall be charged to Contractor and deducted from any amounts of money that may be due it.

9.41 Storage and Construction Areas

A. Storage and Construction Areas

Contractor shall confine its construction operations within the Contract limits shown on the Plans and Specifications and/or property lines and/or fence lines. All on-site Contractor Staging Areas shall be confined to designated areas as shown on the Plans and Specifications. Any additional staging and storage areas required by Contractor shall be provided by Contractor.

Contractor shall be solely responsible for the protection and safekeeping of equipment and

materials at or near the sites. No claim shall be made against the District for any act of an employee or trespasser. Should an occasion arise necessitating access to an area occupied by stored equipment and/or materials, Contractor shall immediately move such equipment or materials. No equipment or materials shall be placed upon the District's property until written approval has been received from the District.

Upon completion of the Contract, Contractor shall remove from the staging areas all equipment, fencing, surplus materials, rubbish, etc., from the construction, storage, and staging areas, and restore the areas to their original condition.

9.42 Equipment and Materials

A. General

All equipment, materials, instruments or devices incorporated in this Project shall be new and unused, unless indicated otherwise in the Contract Documents or in writing signed by the District and Contractor. All equipment, materials, instruments or devices shall be the products of reliable manufacturers who, unless otherwise specified, have been regularly engaged in the manufacture of such material and equipment for the use as identified for this Project for, at least five (5) years.

Equipment and materials to be incorporated in the Work shall be delivered sufficiently in advance of their installation and use to prevent delay in the execution of the Work, and they shall be delivered as nearly as feasible in the order required for executing the Work.

Contractor shall protect all equipment and materials from deterioration and damage. The equipment and materials shall be handled and stored by the manufacturer, fabricator supplier and Contractor before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, damage or theft of any kind whatsoever. Any equipment exhibiting any of the above, shall be removed and replaced at Contractor's expense; such expense shall include both labor and materials.

B. Storage

Contractor shall store its equipment and materials in accordance with Special Conditions Section 9.18, Storage of Materials, at the job site in accordance with the manufacturer's recommendations and as directed by Engineer. Contractor shall not store unnecessary materials or equipment on the job site and shall prevent any structure from being overloaded or kept in a condition that would endanger the safety of others. Contractor shall enforce the instructions of the District and Engineer regarding the posting of regulatory signs for loading structures, fire safety, and smoking areas.

C. Handling and Maintenance

The manufacturer's storage instructions shall be carefully followed and any deviations shall be approved by the manufacturer in writing with a copy to Engineer. Equipment with moving parts, such as gears, electric motors, etc., and/or instruments, control panels, and switch gears, shall be stored in a temperature and humidity controlled building until the equipment is to be

installed, and such equipment shall be rotated per the manufacturer's recommendations while in storage and during the period between installation and acceptance of the Work.

The equipment shall be stored fully lubricated unless otherwise instructed by the manufacturer. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance of the Work. New lubricants shall be put into the equipment at the time of acceptance of the Work.

Equipment with electric motors having space heaters shall have the space heaters energized unless stored in a temperature and humidity controlled building. Space heaters shall be energized at the time of installation and maintained until acceptance of the equipment.

9.43 **Project Closeout**

A. General

As construction of the Project enters the final stages of completion, Contractor shall, in accordance with the requirements set forth in the Contract Documents, attend to or have already completed the following items:

- 1. Schedule equipment manufacturer's visits to site.
- 2. Calibrate instruments and controls.
- 3. Required testing of Project components.
- 4. Schedule facilities start-up and initial operation.
- 5. Schedule and furnish skilled personnel during initial facilities operation.
- 6. Correct and/or replace Defective Work, including completion of items previously overlooked or Work which remains incomplete, all as evidenced by Engineer's "Punch List".
- 7. Attend to any other items listed herein or brought to Contractor's attention by Engineer.
- A. Substantial Completion

Items to be completed and provided prior to issuance of Substantial Completion shall include but not be limited to the following:

- 1. All equipment mfg. visits to the site
- 2. Startup tests completed and documentation provided to the Engineer
- 3. All instruments and controls calibrated and tested
- 4. All components of the Project successfully tested
- 5. Instruction provided to personnel on operation of equipment as required by the Technical Specification.
- 6. Project and its constituent pieces must be fully operational in accordance with Contract requirements and permits.
- 7. Restore areas disturbed by construction activities.

B. Cleaning and Restoration

Before the Final Completion of the Project, Contractor shall accomplish the cleaning and final adjustments of the various facility components as specified in the Specifications, including:

- 1. Clean and lubricate all finish hardware after adjustment for proper operation.
- 2. Touch up marks or defects in painted surfaces and touch up any similar defects in factory finished surfaces.
- 3. Remove all stains, marks, fingerprints, soil, spots, and blemishes from all finish surfaces.
- 4. Restore all areas disturbed by construction operations to conditions equal to or better than that which existed prior to the Work.
- D. Project Record Drawings and Documents

Contractor shall keep a set of drawings at the jobsite. As-built plans shall be submitted for Work completed at the end of each pay period. The payment application will not be processed until the as-built plans are approved by Engineer. Contractor shall be held responsible for the accuracy of such data, and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by Contractor.

Before the Final Completion of the Project, Contractor shall submit to Engineer (or to the District if indicated) certain records, certifications, etc., which are specified elsewhere in the Contract Documents. Missing, incomplete, or unacceptable items, as determined by Engineer or the District, shall constitute grounds for withholding Final Payment to Contractor. A partial list of such items appears below, but it shall be Contractor's responsibility to submit any other items which are required in the Contract Documents:

- 1. Test results of Project components.
- 2. Performance affidavits for equipment.
- 3. Operation and maintenance instructions or manuals for equipment.
- 4. Month-to-month records containing all deviations from the Plans and Specifications, Addenda, and Modifications of Shop drawings. Such records shall be prepared from record drawings showing correct and accurate changes and deviations from the Work made during construction so as to reflect the Work as it was actually constructed. These drawings shall conform to recognized standards of drafting, be neat, legible and be on Mylar or other approved reproducible material. Contractor shall secure and pay for the services of a registered land surveyor for a final survey at every 100 feet of the location of the pipeline upon completion of construction. Signed and sealed "As Built" record drawings showing pipe location, slopes, depths of cover, offsets, and location of all fittings, valves, manholes, and all related appurtenances shall be submitted to Engineer. Missing, incomplete or inaccurate drawings as specified herein and as determined by Engineer, shall constitute grounds for withholding final payment to Contractor.
- 5. In addition to items specified under Article 4 Section 6 of the Contract, all technical documentation as specified elsewhere in the Contract Documents and particularly in the Technical Specifications.

E. Grease, Oil and Fuel

All grease, oil, and fuel required for testing of equipment shall be furnished by Contractor. Contractor shall also furnish a one (1) year's supply of lubricants including grease and oil in the type recommended by the manufacturer for each item of equipment supplied.

F. Touch-Up and Repair

Contractor shall touch-up and repair damage to all field painted and factory finished equipment. Touch-up of equipment, panels, etc. shall match as nearly as possible to the original finish. If in the opinion of Engineer the touch-up Work is not satisfactory, Contractor shall repaint the item.

G. Chemicals

All chemicals required for testing of equipment or the process shall be furnished by Contractor. Contractor shall also furnish chemicals for the District's use where specified.

H. Closeout and Punch Lists

Contractor shall notify Engineer and the District in writing when the Work has reached Substantial Completion. Engineer will make an inspection of the Project for the purposes of determining the Work has reached Substantial Completion and for discovering and developing a list of Work not found acceptable and requiring cleaning, repair or replacement ("Punch List"). If Engineer determines the Project to be substantially complete, Engineer shall issue the Certificate of Substantial Completion. If the Project has an estimated cost of less than \$10 million, the Punch List shall be developed within thirty (30) days following actual Substantial Completion of the Project. If the Project has an estimated cost of more than \$10 million, the Punch List shall be developed within sixty (60) days following actual Substantial Completion of the Project. The Punch list shall be delivered to Contractor within five (5) days of the development of the Punch List. The Final Completion date shall not be less than thirty (30) days following delivery of the Punch List.

Upon receipt of the Punch List, Contractor shall perform all work necessary to complete the Punch List. Work that has been inspected and accepted by Engineer shall be maintained by Contractor, until Final Completion of the entire Project. Upon completion of the items on the Punch List, Contractor shall notify Engineer in writing that the Project is ready for inspection. This procedure will continue until the entire Project is accepted by Engineer. "Final Payment" will not be processed until the entire Project has been accepted by Engineer in writing by issuance of the Certificate of Final Completion and all of the requirements in Special Conditions Section 9.43 D. - Project Record Drawings and Documents have been satisfied. Contractor's acceptance of final payment from the District shall constitute a full waiver and release by Contractor of all claims against the District arising out of or relating to the Project or Work.

Final cleaning and repairing shall be scheduled upon completion of the Project.

I. Partial Utilization

Prior to the completion of the Project, it may be necessary to place into service various facilities, structures, equipment and processes in accordance with the Sequence of Operation and Construction. Whenever a structure, equipment, or process has been completed and tested, Contractor shall notify Engineer that it is ready for inspection. Any Work not found acceptable will be noted on the "Punch List." Whenever Contractor has completed the Work and it has been accepted by Engineer, the District shall take possession, operate and maintain the facility, and equipment warranties begin ("Partial Utilization"). Partial Utilization shall not constitute Substantial Completion.

J. Tools and Spare Parts

1. Tools

Any special tools (including grease guns or other lubricating devices) which may be necessary for the adjustment, operation, and maintenance of any equipment shall be furnished with the respective equipment. Contractor shall furnish a complete list of tools and instructions for their use, recommended by the manufacturer or supplier with the Shop Drawing Submittal.

2. Spare Parts

Spare parts for equipment shall be furnished where indicated in the equipment specifications and/or as recommended by the equipment manufacturer. Spare parts shall be identical and interchangeable with original parts. Parts shall be supplied, prepared for storage, in clearly identified containers, except large or bulky items which may be wrapped in polyethylene.

The parts shall be stored separately in a locked area, maintained by Contractor, and shall be delivered to the District at a location designated by the District. Contractor shall furnish an inventory listing all spare parts in the form included herein for each piece of equipment.

K. Start-Up and Field Instructions

The bid prices for the equipment furnished by Contractor shall include the cost of competent manufacture representatives of all equipment to supervise the installation, adjustment and testing of the equipment and to instruct the District's operating personnel in their operation and maintenance of all equipment. The supervision may be divided into two or more time periods as required by the installation program or as directed by Engineer.

The manufacturer's representatives shall certify in writing that the installation and testing of the equipment has satisfactorily been completed and that the equipment is ready for operation and the District's operating personnel have been instructed in the operation, maintenance, and lubrication of the equipment.

Contractor shall provide the services of the manufacturer's representative(s) for additional time as required should difficulties arise in the operation of the equipment due to the manufacturer's design or fabrication of the equipment or faulty installation by Contractor.

This additional service shall be provided at no cost to the District for the duration of the Contract and one (1) year maintenance period.

L. Final Clean-Up and Site Restoration

Before finally leaving the site, Contractor shall wash and clean all exposed surfaces which have become soiled or marked. Contractor shall remove from the site of the Work all accumulated debris and surplus materials of any kind which result from its operation, including construction equipment, tools, sheds, sanitary enclosures, etc. Contractor shall leave all equipment, fixtures, and Work, which he had installed, in a clean condition. The completed Project shall be turned over to the District in a neat and orderly condition.

All damage, as a result of Work under this Contract, to existing structures, pavement, driveways, curb and gutters, sidewalks, utility poles, utility pipelines, conduits, drains, catch basins, fences, and other obstructions not specifically mentioned herein shall be repaired.

9.44 **Open Specifications**

Where materials or equipment are specified by a trade or brand name, it shall not be the intention of the District to discriminate against an equal product of another manufacturer but rather to set a definite standard of quality or performance and to establish an equal basis for the evaluation of bids. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases, fully equal to approved samples. Where a trade or brand name is specified with the words "or equal" or "equivalent," this is understood to mean that other trade or brand names may be substituted that are, in the opinion and judgment of Engineer, equal in quality and performance. Even though the words "or equal" or "equivalent" are used in the Specifications, unless a substitute is approved in writing by Engineer, Engineer shall have the right to require the use of the material or equipment specified by trade or brand name.

9.45 Spare Parts List

The equipment supplier shall prepare a recommended spare parts list. Six (6) copies of the recommended spare parts list shall be submitted with the shop drawings.

9.46 Applicable Standards and Codes

Whenever reference is made to any published standards, codes, or standard specifications, such reference shall mean the latest issue of that standard, code, specifications, or tentative specification of the technical society, organization, or body referred to which is in effect at the date of invitation for bids.

9.47 Copies of Plans and Specifications

Contractor shall be provided with three (3) complete sets of Plans and Specifications for its use at no charge. Signed and sealed drawings which are necessary to obtain Building Permits will also be provided to Contractor by Engineer at no charge.

9.48 Restoration – Special

Existing areas of special landscaping materials, irrigation systems, ground cover and any other improvements that are damaged shall be restored with new materials to equal or better than existing conditions. Technical Specifications may contain additional requirements.

9.49 Contractor Performance Reviews and Ratings

The District shall develop a Contractor performance evaluation report. This report shall be used to periodically review and rate the Contractor's performance under the contract with performance rating as follows:

Satisfactory	Performance meets contractual requirements. The contractual
	performance of the element being assessed may contain some minor problems for which corrective actions taken by the Contractor were satisfactory
Unsatisfactory	Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance contains a serious problem(s) for which the contractor's corrective actions appear or were ineffective.

The report shall also list discrepancies found during the review period. The Contractor shall be provided with a copy of the report and may respond in writing if he takes exception to the report or wishes to comment on the report. Contractor performance reviews and subsequent reports will be used in determining the Contractor's satisfactory performance record on future Contracts.

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GENERAL CONDITIONS

ARTICLE 10

TITLE

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10.01 General

Contractor shall furnish all labor, materials, tools and equipment necessary to do all Work required for the completion of each item of this Contract as specified herein. The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described, but shall include all incidental Work necessary or customarily done for the completion of that item.

10.02 Definitions

Wherever the words or terms defined in this Section or pronouns used in their stead occur in the Specifications or other Contract Documents, they shall have the meanings herein given.

- a. "AASHTO" shall mean the American Association of State Highway and Transportation Officials.
- b. "ACI" shall mean the American Concrete Institute.
- c. "Addendum" shall mean modification of the Contract Documents issued in writing by Engineer prior to opening the bids.
- d. "ANS" shall mean American National Standard, as approved by the American National Standards Institute, Inc.
- e. "ASTM" shall mean the American Society for Testing and Materials.
- f. "AWWA" shall mean the American Water Works Association.
- g. "Bid" shall mean the documents that comprise the submission for the Work of this Project.
- h. "Bid Period" shall mean the time period from when the Bid Documents will be available to the deadline for submitting Bids.
- i. "Bidder" shall mean one who submits a Bid directly to District, as distinct from a sub-bidder, who submits a Bid to the Bidder.
- j. "Bid Documents" include the Advertisement for Bids, Instructions to Bidders, Proposal, Questionnaire, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipts of Bids).
- k. "Change Order" shall mean a written change, addition, or deletion to the Contract Documents signed by both Contractor and the District.
- 1. "Contract" shall mean the agreement between the Successful Bidder and the District for performance of the Work.
- m. "Contract Documents" shall mean all documents that comprise the agreement of the parties related to this Project. The Contract Documents include the Notice to Contractors, Instructions to Bidders, Proposal, Questionnaire, Bid Security, Contract, Public Construction

Bond, Sworn Statement of Public Entity Crimes, Opinion of District's Attorney, Final Release of Lien, Special Conditions, General Conditions, Technical Specifications, Standard Details and Plans, including all modifications, addenda, and Change Orders contained in any documents before or after execution of the Contract

- n. "Contract Sum" shall mean the total amount due to Contractor as a result of Work on the Project, including any amounts as a result of Change Orders.
- o. "Contract Time" shall mean the time to the complete the Project as set forth in the Contract Documents. Reference to "days" shall mean calendar days unless otherwise noted.
- p. "Contractor" shall mean the Successful Bidder with whom the District signs the Contract for the Work or its duly authorized agents.
- q. "County" shall mean Palm Beach County, as may be applicable.
- r. "Defective" shall mean the Work does not conform to the Contract Documents or does not meet the requirements of any applicable inspection, reference standard, test, or approval.
- s. "District" shall mean the Loxahatchee River Environmental Control District, acting through its properly authorized representatives.
- t. "Engineer" shall mean the engineer designated by the District as its engineering representative during the course of construction to make appropriate inspection and computation of payments, whether acting directly or through properly authorized agents, inspectors or representatives of Engineer, acting within the scope of duties entrusted to them.
- u. "Final Completion" shall mean the time when Engineer determines that all Contract Document requirements have been completed.
- v. "IEEE" shall mean the Institute of Electrical and Electronic Engineers, Inc.
- w. "Notice of Award" shall mean the District's notification of the Contract to the Successful Bidder.
- x. "Notice to Proceed" shall mean the written notice from the District to the Contractor to proceed with the Work.
- y. "Plans" shall mean any and all drawings, plans, sketches, diagrams, designs, lists, exhibits, or other graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work for the Project.
- z. "Pricing Schedule" shall be based upon the Bid item(s) and shall establish the value of the Contract Award. .
- aa. "Project" shall mean the entire construction to be performed as provided in the Contract Documents.

- bb. "Schedule of Values" is established between Contractor and Engineer to determine the appropriate cost of component items that were used to establish the "Pricing Schedule," and the value to be paid as Work is completed. The Schedule of Values shall be determined during the Pre-Construction Meeting.
- cc. "Specifications" shall mean the written requirements for materials, equipment, systems, standards, and workmanship for the Work, and performance of related services.
- dd. "Substantial Completion" shall mean the date as certified by Engineer when the construction of the Project or a specified part thereof is completed, in accordance with the Contract Documents and applicable permits, so that the Project or specified part can be utilized for the purposes for which it was intended; or if there be no such certification, the date when final payment is due in accordance with the Contract.
- ee. "Successful Bidder" shall mean the lowest cost, qualified, responsive, responsible Bidder to whom the District, based on the District's evaluation hereinafter provided, makes an award.
- ff. "Work" shall mean any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by Contractor under the Contract Documents, including all labor, materials, equipment, services, and other incidentals and the furnishing, installation, and delivery thereof and all Work reasonably inferable therefrom.

10.03 Plans and Specifications are Supplementary

The Plans and Specifications are intended to supplement each other, and together constitute one complete set of Contract Documents, so that any Work exhibited in the one and not the other shall be executed just as if it has been set forth in both, in order that the Work shall be completed in every respect according to the complete design or designs as decided and determined by Engineer. In the event of a conflict in the Plans and Specifications, the Specifications shall be considered prevailing. Should Contractor find that anything is omitted from the Plans and Specifications which is necessary for a clear understanding of the Work, or that there is an error in either Plans or Specifications, Contractor shall promptly notify Engineer. From time to time during the progress of the Work, Engineer may furnish supplementary or working drawings necessary to show changes or define the Work in more detail, and these also shall be part of the Contract Documents.

10.04 Handling and Distribution

Contractor shall, at its own expense, handle, haul, deliver, and distribute all materials and all surplus materials on the different portions of the Work, as necessary. Contractor shall provide suitable and adequate storage room for materials and equipment, until the Final Completion of the Work.

Storage charges and demurrage charges by transportation companies and vendors, which result from delays in handling, shall be borne by Contractor.
10.05 Materials, Samples, Inspection, Approval

Unless otherwise indicated on the Plans and Specifications or specified, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by Contractor to be incorporated in the Work shall be subject to the inspection and approval of Engineer.

No material shall be processed for, fabricated for, or delivered to the Work without prior approval of Engineer.

Within thirty (30) calendar days after the award of the Contract, Contractor shall submit to Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment proposed to be incorporated into the Work. When shop and working drawings are required as specified below, such information shall be submitted prior to the submission of the drawings so that Engineer may consider and approve or disapprove the manufacturer and/or the supplier as to the its ability to furnish a product meeting the Specifications, subject to final approval of the particular material or equipment. As requested, Contractor shall also submit data relating to the material and equipment proposed to be incorporated into the Work, in sufficient detail to enable Engineer to identify the particular product in question and to form an opinion as to its conformity to the Contract requirements.

Such data shall be submitted in a manner similar to that specified for shop and working drawings.

Facilities and labor for the handling and inspection of all materials and equipment shall be furnished by Contractor. Defective materials and equipment shall be removed immediately from the site of the Work. The Contractor will make arrangements for, and pay for soil density tests wherever and whenever the District desires, but at no less than every 1 foot lift and 400 LF of trench backfill, 1 foot lift and 100 SF of roadway subgrade and base and 1 foot lift and 100SF of fill beneath concrete on grade. If the results of a soil density test indicate that compaction is less than that specified, Contractor shall recompact and retest soil density with no additional cost to the District.

If Engineer so requires, either prior to beginning or during the progress of the Work, Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed and shipped as directed, at the expense of Contractor. Contractor shall, at its expense, furnish approved molds for making concrete test cylinders. Except as otherwise specified, the District shall make arrangements for, and pay for, the tests. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or Work and location of which the material is intended, and the name of Contractor submitting the sample. To ensure consideration of samples, Contractor shall notify Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. In no case shall the letter of notification be enclosed with the samples.

Contractor shall submit data and samples to Engineer, or place its orders, sufficiently early to permit Engineer to consider, inspect, test, and approve the materials and equipment before they are incorporated in the Work. Delay resulting from Contractor's failure to do so shall not be used as a basis of a claim against the District or Engineer. When required, Contractor shall furnish to Engineer three (3) sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, concrete and equipment data.

After Engineer approval of the samples, data, etc., the materials and equipment used in the course of the Work shall correspond therewith.

10.06 Inspection of Work Away from the Site

If Work done off the construction site is to be inspected on behalf of the District during its fabrication, manufacture, or testing, or before shipment, Contractor shall give notice to Engineer of the place and time where such fabrication, manufacture, testing or shipping is to be done. Such notice shall be in writing and delivered to Engineer in ample time so that the necessary arrangements for the inspection can be made.

10.07 Contractor's Shop and Working Drawings

Contractor shall submit for approval six (6) copies (unless otherwise specified in writing) of shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for this Contract, and materials and equipment for which such drawings are specifically requested. All shop and working drawing submittals shall be prepared and submitted in accordance with Section 01300 of the Technical Specifications.

10.08 Health, Safety and Environmental Program

The Contractor shall adhere to all applicable federal and state occupational safety and health laws as they apply to this Contract.

The Contractor will enforce the Loxahatchee River Environmental Control District's safety rules and practices as they apply to the Contractor's employee's, in addition to the Contractor's own safety rules and procedures.

The Contractor shall provide all of its subcontractors with copies of all safe working procedures and shall ensure their enforcement.

10.09 Insufficiency of Safety Precautions

Failure of Contractor to provide these required conditions shall be a material breach of this Contract and the District shall be entitled to stop the Work until such time as Contractor corrects these conditions, without payment to Contractor of extension of time to complete the Work.

10.10 Sanitary Regulations

Contractor shall provide adequate sanitary conveniences for the use of those employed on the worksite. Such conveniences shall be made available when the first employees arrive on the worksite, shall be properly secluded from public observation, and shall be constructed and maintained in suitable numbers and at such points and in such manner as may be required or approved.

Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. Contractor shall rigorously prohibit the committing of nuisances on the worksite, on the lands of the District, or any adjacent property. Contractor is solely responsible for the use and maintenance of the sanitary facilities.

The District and Engineer shall have the right to inspect any building or other facility erected, maintained, or used by Contractor, to determine whether or not the sanitary regulations have been complied with.

10.11 Lines, Grades and Measurements

Contractor shall employ, at its own expense, a land surveyor who shall be registered in the State of Florida and who shall be thoroughly experienced in field layout work. Said surveyor shall establish all lines, elevations, reference marks, etc., needed by Contractor during the progress of the Work, and from time to time Contractor shall verify such marks by instrument or by other appropriate means.

Alignment and grade of all pipe, tunnels and borings shall be controlled by use of lasers, levels or other equipment as required to assure proper alignment and grade. Contractor shall furnish all lasers and accessories as required and approved by Engineer. Contractor's engineer will set and check each laser each day that Work is in progress or more often as required to assure continuous accurate control. Contractor's engineer responsible for lines and grades shall certify to the District in writing that the Work has been constructed to lines and grades as shown on the Plans and Specifications. This certification shall accompany each request for payment.

Engineer shall be permitted at any time to review the lines, elevations, reference marks, lasers, etc., set by Engineer employed by Contractor, and Contractor shall correct any errors in lines, elevations, reference marks, lasers, etc., disclosed by engineer. Such a review shall not be construed to be an approval of Contractor's Work and shall not relieve Contractor of the responsibility for the accurate construction of the entire Work.

Contractor shall make all measurements and review all dimensions necessary for the proper construction of the Work called for by the Plans and Specifications. During the prosecution of the Work, Contractor shall make all necessary measurements to prevent misfitting in said Work, for the accurate construction of the entire Work.

10.12 Dimensions of Existing Structures

Where the dimensions and locations of existing structures are of critical importance in the installation or connection of new Work, Contractor shall verify such dimensions and locations in the field before the fabrication of any materials or equipment which is dependent on the correctness of such information.

10.13 Work to Conform

During its progress and on its completion, all Work shall conform to the lines, levels, and grades indicated on the Plans and Specifications or given by Engineer and shall be built in a thoroughly substantial and workmanlike manner, in accordance with the Plans and Specifications and the directions given from time to time by Engineer. In no case shall any Work in excess of the requirements of the Plans and Specifications be paid for unless ordered in writing by Engineer.

All Work done without instructions having been given therefore by Engineer, done without proper lines or levels, or done during the absence of Engineer, or its agent, will not be estimated or paid for except when such Work is authorized by Engineer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at Contractor's expense.

10.14 Pipe Location

Pipelines will be located substantially as indicated on the Plans and Specifications, but the right is reserved by the District, acting through Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Plans and Specifications, such notation is for Contractor's convenience and doesnot relieve Contractor from laying and joining different or additional items where required without additional compensation.

10.15 Planning and Progress Schedules

Contractor shall prepare and submit all schedule submittals in accordance with Section 01300 of the Technical Specifications.

10.16 Precautions During Adverse Weather

In the event of, or the possibility thereof, adverse weather, including high tides, and against the possibility thereof, Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood, building paper shelters, and other approved means. Contractor shall be responsible for all changes caused by adverse weather, including tidal fluctuations and Contractor shall take such precautions and procure insurance as Contractor deems prudent.

Engineer may suspend construction operations at any time when, in its sole discretion, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather or tidal conditions may be, in any season.

Contractor shall provide a written tropical storm/hurricane plan consistent with District requirements to Engineer prior to commencement of construction.

10.17 Electrical Energy

Contractor shall make all necessary applications and arrangements and pay all fees and charges for power and light and other electrical energy as necessary for the proper completion of this Contract during its entire progress. Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

There shall be sufficient electrical lighting so that all Work may be done in a workmanlike manner when there is not sufficient daylight.

10.18 Bolts, Anchor Bolts and Nuts

All necessary bolts, anchor bolts, nuts, washers, plates and bolt sleeves shall be furnished by Contractor in accordance herewith.

10.19 Concrete Inserts

Concrete inserts shall be designed to safely support, in the concrete that is used, the maximum load that can be imposed by the bolts used in the inserts. Inserts shall be of a type which will permit locking of the bolt head or nut. All inserts shall be 316 stainless steel.

10.20 Operating Instructions and Parts Lists

Operations and Maintenance (O&M) Manuals for each item of equipment shall be submitted in accordance with Section 01300 of the Technical Specifications entitled "Submittals."

10.21 Lubricants

During testing and prior to acceptance, Contractor shall furnish all lubricants necessary for the proper lubrication of all equipment furnished under this Contract and as specified in the Contract Documents.

10.22 Special Tools

For each type of equipment furnished by Contractor, Contractor shall provide a complete set of all special tools (including calibration and test equipment) which may be necessary for the adjustment, operation, maintenance, and disassembly of such equipment.

Special tools are considered to be those which, because of their limited use, are not normally available, but which are necessary for the particular equipment.

Special tools shall be delivered at the same time as the equipment to which they pertain. Contractor shall properly store and safeguard such special tools to ensure they are in a proper functioning condition, as determined by Engineer. At the completion of the Work the special tools shall be delivered to the District.

10.23 Protection Against Electrolysis

Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other materials approved by Engineer.

10.24 Indemnification and Confidentiality

For specific consideration received by Contractor, included in the Contract sum beyond the cost of the Work, Contractor shall indemnify and hold harmless the District, its officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of the Contract. The monetary limitation on the extent of the indemnification that bears a reasonable commercial relationship to the

Contract and is part of the Project specifications or Bid Documents, is up to three (3) times the monetary value of the Contract. Notwithstanding the foregoing, the monetary limitation on the extent of the indemnification provided shall not be less than one million dollars (\$1,000,000.00) per occurrence. The District and the insurance carrier shall have the right to "mutually approve" the choice of attorney(s) to provide the defense, with such approval not to be unreasonably withheld. If no agreement on the choice of attorney(s) can be reached in a reasonable length of time, the final authority to choose an attorney will rest with the claims manager in the office where the claim originated.

In any and all claims against the District or any of their officers or employees by an employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone else for whose acts any of them may be liable, the indemnification obligation under this General Conditions Section 10.24 shall not be limited in any way on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts. The intention of these two clauses above is to provide for the legal indemnification allowed for under Section 725.06, Florida Statutes, no more and no less, so as to be completely legal and not void as against public policy. If any provision of this indemnification is determined by a court of law to be void, it shall be severed from this provision and the remainder of this provision shall be given full force and effect under Section 725.06, Florida Statutes.

In the performance of the Work, Contractor may be exposed to the confidential information of the District and other. Contractor shall not disclose to anyone not employed by the District nor use, except on behalf of the District, any such confidential information acquired in the performance of the Work except as authorized by the District in writing and, regardless of the term of this Contract, Contractor shall be bound by this obligation until such time as said confidential information shall become part of the public domain. Information regarding all aspects of the District's business and information concerning the Work (either directly or indirectly disclosed to it or developed by it in the performance of the Work) shall be presumed to be confidential except to the extent that same shall have been published or otherwise made freely available to the general public without restriction. Contractor also agrees that it will not disclose to the District any information it holds subject to any obligation or confidence to any third persons.

10.25 Work by Others

The District may perform additional Work related to the Project itself, or the District may engage others to perform Work on the Project which such engagement shall be governed by similar General Conditions. Contractor shall afford the other contractors who are parties to such direct contracts (or the District, if it is performing the additional Work), reasonable opportunity for the introduction and storage of materials and equipment and the execution of the Work, and shall properly connect and coordinate Contractor's Work with the Work of others. If any part of Contractor's Work depends for proper execution or results upon the Work of any such other contractor (or the District), Contractor shall inspect and promptly report to Engineer, in writing, any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. Contractor's failure so to report shall constitute an acceptance of the other Work as fit and proper for the relationship of its Work except as to defects and deficiencies which may appear in the other Work after the execution of Contractor's Work.

Contractor shall do all cutting, fitting and patching of its Work that may be required to make its several parts come together properly and fit it to receive or be received by such other Work. Contractorshall not endanger any Work of others by cutting, excavating or otherwise altering their Work and will only cut or alter their Work with the written consent of Engineer and of the other contractors whose Work will be affected.

If the performance of additional Work by other contractors or the District is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to Contractor prior to the state of any such additional Work.

10.26 Record Drawings

Contractor shall keep and maintain one record copy of all Specifications, Plans and Specifications, Addenda, Change Orders, Modifications and Shop drawings at the site in good order and annotated to show all changes made during the construction process as specified in the Contract Documents. All record drawings shall be kept maintained and updated by Contractor in accordance with Section 01720 of the Technical Specifications entitled "Project Record Drawings."

10.27 Non-Waiver

Progress or final payments shall not be acceptance of improper, faulty, or defective work or material, and shall not release Contractor of any of its obligations under the Contract Documents, and shall not constitute a waiver of any rights or provisions of the Contract Documents by the District.

10.28 Mutuality of Provisions

If any provision of the Contract Documents shall for any reason be held to be invalid, illegal, or unenforceable in any respect under the laws of the State of Florida, any such invalidity, illegality or unenforceability shall not affect any other provision of the Contract Documents and the Contract Documents shall be construed as if such invalid, illegal, or unenforceable provision had never been incorporated herein and the rights of the parties hereto shall be construed and enforced accordingly.

10.29 Restoration of Property

Existing structures and facilities, including but not limited to buildings, utilities, topography, streets, curbs, walks landscape materials and other improvements that are damaged or removed due to the Work, shall be patched, repaired, or replaced by Contractor to the satisfaction of the owner of such structure and facility, and authorities having jurisdiction. In the event that authorities having jurisdiction require that such repairing and patching be done with their own labor and materials, Contractor shall abide by such regulations and pay for such work.

10.30 Notice

Any notice or writing given hereunder shall be delivered by depositing the notice contained in a sealed envelope, postage prepaid in the United States Postal System as registered or certified mail, with return receipt requested, or by overnight express carrier. Any such notice so deposited shall be conclusively deemed delivered to and received by the addressee forty-eight (48) hours after the deposit if all of the foregoing conditions of notice have been satisfied and addressed as follows:

DISTRICT:

CONTRACTOR:

10.31 Legally Binding

Contractor agrees that the Contract Documents are legally binding documents and has had the opportunity to permit its attorney to review them. The Contract Documents are the joint work product of the Parties hereto and, accordingly, no term or provision shall be more strictly construed against any party.

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TECHNICAL

SPECIFICATIONS

SECTION 30

MISCELLANEOUS REQUIREMENTS

30.01 Lines, Grades and Measurements

Alignment and grade of all pipe, tunnels and borings shall be continuously controlled by use of lasers or other acceptable method. Laser alignment and grade through the pipeline is the preferred method. The District Engineer shall be permitted at any time to check the lines, elevations, reference marks, laser, etc., set by the Contractor or the Design Engineer.

30.02 <u>Work to Conform</u>

The maximum allowed vertical deviation of any single gravity pipe, tunnel or boring from plan grade shall be three percent (3%) of inside diameter. No single gravity pipe shall vary in horizontal alignment right or left, from the pipe centerline by more than five percent (5%) of inside diameter. Force main joint deflections shall be limited by AWWA Standards and manufacturer's recommendation.

30.03 <u>Pipeline location</u>

Pipelines shall not be located closer to an existing or proposed structure than the horizontal distance obtained when drawing a 45-degree angle from the proposed invert of the pipeline to bottom outside face of the footing. In no case shall this distance be less than ten (10) feet. Pipelines shall be located as indicated on the drawings, but the Design Engineer is responsible to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons, which are not material to the interest of the District and which do not otherwise conflict with any other statement or criteria set forth in this manual. The District should be notified of such changes in a timely fashion and such changes shall be recorded on Record Drawings.

30.04 <u>Pipe Adapters</u>

When joining pipes of different types, District approved transition sleeves, adapters, and couplings shall be used.

30.05 <u>Fittings and Stoppers</u>

Branches, stub-outs and fittings shall be laid as indicated in the Standard Details and shown on the approved drawings. Open ends of pipe and branches shall be closed with nonmetallic "wing nut" expansion stoppers secured in place in an acceptable manner. Stoppers shall be designed to remain in place and watertight during infiltration tests.

30.06 Service Lines

a. General

Service lines shall be as shown on the Standard Details. Service lines for a single lot shall be a minimum of 4 inches in diameter; for two lots, a minimum of 6-inches in diameter. Where three or more lotsare connected to a single service line, the service line shall be considered a gravity sewer, shall be a minimum of 8-inches in diameter, and shall be in accordance with the criteria covering District maintained gravity sewers. Exceptions to these requirements may be made in specific instances where constructability, environmental impacts or excessive costs require an alternate to these criteria. These exceptions shall be considered non-conforming connections and subject to correction to District Standards if and when criteria used in determining constructability, environmental impacts or excessive costs are no longer valid.

b. Easements, Implied Grant of Way of Necessity and Statutory Way of Necessity

If a residential property requires an easement across another residential property to gain access to District sewers the easement shall be conveyed to the District using the District's Standard Easement Agreement. Easements shall only be allowed when no District maintained sanitary sewer is available for connection in public right of way or existing easements adjacent to the property <u>and</u> constructability, environmental impacts or excessive costs render construction of new sewer facilities in public right of way or existing easements adjacent to the property non-viable.

The District recognizes Florida Statutes 704.01, (1) Implied grant of way of necessity, and (2) Statutory way of necessity, may be applicable in providing sanitary sewer service to a property.

In the case of Implied Grant of Way of Necessity there may be instances where a sanitary sewer service existed to a property and that property was then divided into multiple properties each using the existing sanitary sewer service. In these instances the District recognizes the Implied Grant of Way of Necessity for each property's use of the sanitary sewer service under a "grandfather" clause but considers the connection/s non-conforming in that properties may be served by facilities not owned and maintained by the District and/or properties may be served by facilities that may be inadequately sized and/or one property may be served by facilities that cross another property and are not in a District Standard Easement. In these instances, the District shall require the sanitary sewer connections using anImplied Grant of Way of Necessity for sewer service be corrected to current District Standards when renovation or redevelopment of any of the affected properties occurs.

In the case of Statutory Way of Necessity there may be instances where a property is shut off or hemmed in from access to sanitary sewer service by lands, fencing or other improvements. In these instances the District, with agreement from the shut off or hemmed in property, may act on behalf of the shut off or hemmed in property and use and maintain an easement over, under, through and upon the lands which lie between the said shut-off or hemmed -in lands and public right of way or existing easements to supply sanitary sewer service to the shut-off or hemmed-in land granted the shut-off or hemmed-in land is using the lands that lie between for personal ingress and egress. The District considers sanitary sewer connections using Statutory Way of Necessity to be non-conforming in that properties are served by facilities that cross another property and are not in a District Standard Easement. In these instances the District shall require the sanitary sewer connections using a Statutory Way of Necessity for sewer service be corrected to current District Standards when renovation or redevelopment of the property over which a Statutory Way of Necessity is used occurs, or when a public right of way or utility easement becomes accessible to the shut-off or hemmed in property.

c. Maintenance Responsibility

The service line (lateral) cleanout will usually delineate the point of responsibility between the District and the property owner; however, the following variations do exist:

- 1. Multi-family Units Public right-of-way Owner's responsibility to the right-of-way line.
- 2. Multi-family Units Non-Public right-of-way Owner's responsibility to the main line connection.
- 3. Commercial Buildings Owner's responsibility to the main line.
- 4. Condominium with Common Areas Non-Public right-of-way Owner's responsibility to the main line connection.
- 5. Condominium with Common Areas Adjacent to Public right-of-way -District assumes responsibility within the public right-of-way.

30.07 <u>Service Line Markers</u>

A service line marker shall be installed 12-inches {minimum} above the service wye adjacent to the cleanout of each service line. The service line markers shall be Electronic System, Sanitary Marker 1258, as manufactured by 3M.

30.08 Bolts, Anchor Bolts, and Nuts

Anchor bolts shall have suitable washers and, where so required, their nuts shall be hexagonal. All anchor bolts, nuts, washers, plates, and bolt sleeves shall be galvanized unless otherwise indicated or specified.

Expansion bolts shall have malleable iron and lead composition elements or the required number of units and sizes.

Bolts, anchor bolts, nuts and washers specified to be stainless steel shall be type 316 stainless steel.

Anchor bolts and expansion bolts shall be set accurately. If anchor bolts are set before the concrete has been placed, they shall be carefully held in suitable templates of approved design. If anchor or expansion bolts are set after the concrete has been placed, all necessary drilling and grouting or caulking shall be done, and care shall be taken not to damage the structure or finish by cracking, chipping, spalling, or otherwise during the drilling and caulking.

30.09 <u>Concrete Inserts</u>

Concrete inserts shall be designed to safely support the maximum load that can be imposed by the bolts used in the inserts. Inserts shall be of a type which will permit locking of the bolt head or nut. All inserts shall be galvanized.

3.10 <u>Protection against Electrolysis</u>

Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact with any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials.

END OF SECTION 30

SECTION 100

EXCAVATION, PIPE EMBEDMENT, FILL AND GRADING

100.01 Description

All excavations shall be made in such manner and to such widths as will provide suitable room for building the structures or laying and jointing the piping. All sheeting, bracing, supports, coffer dams, pumping and draining shall be performed to render the bottom of the excavations firm, dry and acceptable in all respects.

100.02 Sheeting and Bracing

Sheeting and bracing shall be furnished as may be necessary to support the sides of the excavation and to prevent any movement of earth which could in any way diminish the width of the excavation to less than that necessary for proper construction, or could otherwise injure or delay the work, or endanger adjacent structures.

All timber sheeting and bracing shall be left in place unless otherwise directed by the Design Engineer to remove same or cut off at a specified elevation.

All sheeting and bracing, including trench boxes not to be left in place, shall be carefully removed in such manner as not to endanger the construction or other structures. All voids left or caused by the withdrawal of sheeting shall be backfilled immediately with approved material and compacted by ramming with tools especially adapted to that purpose, by watering, or by other means as may be directed by the Design Engineer.

- 100.03 Drainage
- 100.03.01 <u>General</u>

To ensure proper conditions at all times during construction, all means shall be used to intercept and/or remove promptly and dispose properly of all water entering trenches and other excavations. Such excavations shall be kept dry until the structures, pipes and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work. All requirements of all regulatory agencies regarding dewatering and the discharge of water from the project shall be complied with.

All labor, materials, tools, and equipment shall be provided, as necessary, to properly control the quality of the discharge from the dewatering operations as described herein. All applicable laws, rules and regulations governing the discharge of water from dewatering operations shall be

complied with. All dewatering shall be accomplished by the use of sanded well points and other techniques deemed necessary by the Contractor to properly dewater the trench excavations.

The water discharged from the Contractor's dewatering operation shall not exceed the turbidity limits promulgated by the State of Florida Department of Environmental Protection discharge standards for the Loxahatchee River or its tributaries.

Unless otherwise directed by the Design Engineer, an approved siltation tank shall be installed ahead of dewatering discharge points. In addition, silt screens and other devices and techniques may be required to maintain the discharge quality at turbidity levels below the required limits.

Any and all methods approved by the Design Engineer to control the bacteriological quality of well point discharge into existing drainage ditches and/or canals shall be utilized. Levels for fecal coliform in a discharge which ultimately leads to the Loxahatchee River, shall not exceed those promulgated by the State of Florida Department of Environmental Protection discharge standards.

100.03.02 Drainage Well-point System

If it is necessary to drain the soil and prevent saturated soil from flowing into the excavation, an efficient drain well-point system will be utilized. The well points shall be designed especially for this service. The pumping unit shall be designed for use with the well-points and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

100.04 <u>Trench Excavation</u>

Where pipe is to be laid in rock bedding or concrete cradle, the trench may be excavated by machinery to, or to just below, the designated subgrade, provided that the material remaining at the bottom of the trench is not disturbed.

If the trench is excavated below the designated subgrade, the undercut shall be backfilled with compacted bedding rock, uniformly graded from ¹/₄-inch size.

100.05 <u>Depth of Trench</u>

Trenches shall be excavated to such points as will permit the pipe to be laid at the elevations, slopes, or depths of cover indicated and at uniform slopes between indicated elevations.

100.06 <u>Width of Trench</u>

Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides, Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed and consolidated.

Trenches shall be excavated with approximately vertical sides between the elevation of the center of the pipe and an elevation one (1) foot above the top of the pipe.

100.07 <u>Trench Excavation in Fill</u>

If pipe is to be laid in embankments or other recently filled material, the material shall first be placed to the top of the fill or to go to a height of at least three (3) feet above the top of the pipe, whichever is the lesser, Particular care shall be taken to ensure maximum consolidation of material under the pipe location, The pipe trench shall be excavated as though in undisturbed material.

100.08 <u>Unauthorized Excavation</u>

If bottom of any excavation is taken out or disturbed beyond the limits indicated or prescribed, the resulting void shall be backfilled with embedment material compacted to a minimum of 90% of AASHO T-180 or to the standards of the applicable agency having jurisdiction.

100.09Elimination of Unsuitable Material

Pipe bedding shall extend a minimum of 4 inches below the pipe. The pipe shall be supported on suitable material ascertained by the Design Engineer following good engineering practices.

100.10 <u>Backfilling</u>

As soon as practicable after the pipes have been laid, or the structures have been built and are structurally adequate to support the loads, including construction loads to which they will be subjected, the backfilling shall be started and thereafter it shall proceed until its completion.

100.10.1 Backfill Materials

The nature of the materials will govern both their acceptability for backfill and the methods best suited for their placement and compaction in the backfill. The materials and the methods shall both be subject to the approval and direction of the Design Engineer. No stone or rock fragment larger than 3 inches in greatest dimension shall be placed in the backfill nor shall large masses of backfill material be dropped into the trench in such a manner as to endanger the pipeline. If necessary, a timber grillage shall be used to break the fall of material dropped from a height of more than 5 feet. Pieces of bituminous pavement shall be excluded from the backfill unless their use is expressly permitted, in which case they shall be broken up as directed.

100.10.2 <u>Embedment Materials</u>

Three broad classes of material shall be used for bedding, haunching, and pipe side support.

CLASS 1 - Angular, ¹/₄-inch to ³/₄-inch graded stone, of which 100% passes a 1-inch sieve such as coral, slag, cinders, crushed stone, crushed shells, or

bedding rock.

CLASS 2 - Coarse sands and gravels with maximum particle size 3/4 inch including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW. and SP are included in this class.

CLASS 3 - Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil Types GM, GC, SM, and SC are included in this class. Included in Class 3 are existing soil types classified as select backfill.

Class 1, Class 2, or Class 3 material shall be used for bedding material to the top of the pipe. Special care must be taken to insure Class 1. 2, or 3 material is worked under the pipe haunch. Class 2 or 3 material shall be compacted to a minimum of 98% density per AASHO T -180. The District has the option, at any time, to take density tests to confirm the 98% compaction. Precautions shall be taken to prevent movement of the pipe when placing and compacting material under the pipe haunches.

If Class 2 or 3 material is used for bedding and haunching, a dry trench shall be maintained.

Under certain conditions, the Engineer may be faced with an unusual amount of water running in the trench which he may find necessary to remove in order to properly install and compact the embedment material. The Engineer may elect to remove the water with trench side pumps through the use of Class 1 material for bedding. The depth of Class 1 material will depend upon the amount of water but take care to ensure that the trench wall soil material is such that it will not be removed from the area adjacent to the bedding as a result of the running water. The Engineer may also elect to utilize well points or under drain to control excessive ground water. If Class 1 material is used as bedding and under drain, it must be utilized at least up to the top of the pipe.

100.10.3 Zone Around Pipe

The zone around the pipe shall be backfilled with the materials and to the densities and limits indicated on the details.

100.10.4 <u>Compaction</u>

Compaction shall be accomplished by tamping, or under appropriate construction techniques to achieve the required densities.

100.10.5 <u>Maximum Density</u>

Unless specified otherwise, the percent of maximum density referred to in these specifications refers to the maximum density obtained when the material is laboratory tested in accordance with the procedures outlined in Designation AASHTO T-180, Latest Revision or as otherwise required by the governmental agency having jurisdiction over the finished roadway. Field densities shall be determined by a testing laboratory using accepted methods.

100.10.6 <u>Miscellaneous Requirements</u>

Whatever method of compacting backfill is used, care shall be taken that stones and lumps shall not become nested and that all voids between stones shall be completely filled with fine materials. Only approved quantities of stones and rock fragments shall be used in the backfill.

All voids left by the removal of sheeting shall be completely backfilled with suitable material, thoroughly compacted.

END OF SECTION 100

SECTION 107

HORIZONTAL DIRECTIONAL DRILL

107.01 <u>General</u>

This specification covers installation of 4" and larger diameter HDPE pipe using horizontal directional drill methods. Installations shall comply with FDOT Standard Specification (Latest Edition) Section 555, ASTM F1962 and this specification.

107.02 <u>Material and Equipment</u>

The drilling fluid shall be a bentonite drilling fluid with or without polymer additives. All materials shall be NSF/ANSI 60 certified.

Pipe and fittings shall comply with Section 110.

Tracking/Steering equipment shall require a walk-over tracking system. The tracking/steering equipment shall place the pilot bore with a maximum horizontal tolerance of +/-5% of directional bore pipe depth below grade.

After placement the contractor shall utilize a magnetic locating system utilizing a DC or AC current and a surveyed surface loop coil to as-built the final directional bore installation location in place. The surface loop shall be surveyed in by a Florida Licensed Professional Land Surveyor and georeferenced to State Plane Coordinates in NAD83, Florida East Zone and vertical datum NGVD29.

All directional drills shall be installed with a minimum 2" HDPE conduit and two minimum 10 gauge tracer wires installed for the full length of the bore. The conduit shall be terminated in a CDR box installed at each end of the bore. The 10-gauge tracer wires shall be terminated in the valve box for the isolation valves on each end. The conduit diameter and wall thickness shall be sized to withstand anticipated pull back forces of the installation. Tracer wire shall be high strength copper clad steel, Copperhead Soloshot EHS or approved equal.

107.03 <u>Submittals</u>

Submit technical data, cut sheets and shop drawings for equipment and materials including but not limited to drilling fluid (including MSDS Sheet), additives, pipe, fittings, adapters, pipe stiffeners, bore plan, locating and tracking equipment, locating tracking equipment calibration, locating and tracking equipment certification, heat fusion technician certification and proposed sequence of construction for approval by the Engineer.

Horizontal and vertical alignment of the pilot bore based on location information from the locating/tracking/steering equipment outlined in paragraph 107.02 and surveyed points on the DC surface looped coil. The horizontal and vertical alignment shall be referenced to horizontal and

vertical datum requirements as specified in the Record Drawing Submittal Guide, Standard Detail SD-29. The horizontal and vertical alignment shall be as-built and certified by the steering contractor as complying with the locating/tracking/steering equipment manufacturers recommended procedures.

A log of directional drilling machine pressures during pulling operations converted to tensile stress seen in the pipe. Hydraulic pressure produced by the machine alone is not acceptable.

Experience and project resumes.

107.04 Experience

The directional drill contractor and locating/tracking/steering/contractor shall demonstrate experience in similar horizontal directional drills. Experience shall be a minimum of 5 successful installations of same or larger diameter of same or longer length in the previous 5 years. The directional drill contractor shall submit a list of references.

107.05 Placement and Testing

Perform all locates and pothole all potential conflicts prior to submitting the bore plan. The bore plan shall not be approved until all known conflicts have been resolved.

HDPE pipe shall be handled with care to include only the use of nylon slings for lifting and the use of appropriate sized pipeline rollers for supporting and maneuvering the pipe during fusion and pull back operations.

All HDPE pipe shall be pressure tested per Section 140.

All pipe installed below the water table shall be flooded with water prior to pulling operations.

Installations shall not exceed the pipe manufacturer's recommended radius of curvature.

The reamed hole shall not exceed 1.5 times the nominal diameter of the installed pipe.

All directional bores shall include one isolation valve on each end.

Upon completion bore pits shall be cleaned of excess drilling fluid and backfilled with clean fill.

END OF SECTION 107

SECTION 110

PIPE, FITTINGS AND ACCESSORIES

110.01 <u>General</u>

This section provides standards for all pipe and fittings used in the construction of District wastewater facilities. Approved piping systems include SCH40 and SCH 80 PVC, High Density Polyethylene (HDPE), SDR26 PVC, C900 PVC, C905 PVC and Ductile Iron.

110.02 <u>Schedule 40 and 80 PVC Pipe (1/2" - 3")</u>

Small diameter PVC (3" diameter or less) pipe and fittings shall be pressure rated ASTM D1784/D1785 schedule 40 for buried applications and schedule 80 for non-buried applications. Small diameter PVC pipe shall be marked with schedule, diameter, pressure rating at 140 F and applicable ASTM standards for dimensions and materials and be white or gray in color.

Small diameter PVC joints shall be solvent weld socket type.

110.03 AWWA C901 High Density Polyethylene (1/2" - 3")

Small diameter HDPE (3" diameter or less) pipe shall manufactured from PE4710 resin and comply with AWWA C901 and ASTM F714. Small diameter HDPE pipe shall be iron pipe size (IPS) with a standard dimension ratio (SDR) 11. Small diameter HDPE pipe shall be marked with diameter, SDR, AWWA C901, ASTM F714 and PE4710 and shall be black in color with extruded stripes in applicable color; sewer = green, IQ = purple.

Small diameter HDPE pipe shall come in reels sufficient for continuous lay lengths from service latera to service lateral.

Small diameter HDPE pipe shall use brass pack joint style couplings and stainless steel pipe stiffeners.

110.04 <u>AWWA C906 High Density Polyethylene (4" – 63")</u>

Large diameter HDPE (4" – 63") pipe shall manufactured from PE4710 resin and comply with AWWA C906, ASTM F714 and be listed with the Plastic Pipe Institute's (PPI) TR4. Large diameter pipe shall be ductile iron pipe size (DIPS) with a standard dimension ratio (SDR) 11. Large diameter HDPE pipe shall be marked with diameter, SDR, AWWA C906, ASTM F714 and PE4710 and be black in color with extruded stripes in applicable color; sewer = green, IQ = purple, potable = blue.

Single joints of pipe shall be a minimum of 40 feet in length. Damaged pipe may have the damaged area cut out and the remaining portion reused as long as the remaining portion is a minimum of 20 feet in length.

Large diameter HDPE pipe shall utilize HDPE butt fused fittings of the same SDR.

110.05 SDR 26 PVC Gravity Mains

Gravity main installations whose invert is greater than 4'-0" and less than 14'-0" shall be integral bell and spigot gasketed pipe and comply with ASTM D3034 for SDR 26 up to 15" in diameter. SDR 26 gravity main pipe shall meet the following ASTM Standards: D3212 (Joint), F477 (Gasket), D1784 (PVC Compound), D2412 (Stiffness) and D2321 (installation). SDR 26 gravity main pipe shall be green in color and marked with diameter, SDR and applicable ASTM standards.

Joints of SDR 26 gravity main pipe shall be either 14'-0" or 20'-0" in length

110.06 <u>AWWA C900 Force Mains</u>

Force main installations 4" – 48" shall be integral bell and spigot gasketed pipe and comply with AWWA C900 DR18, Pressure Class 235. C900 Force main pipe shall comply with ASTM Standards D1784 (PVC Compound), D3139 (Joint), and F477 (Gasket). C900 force main pipe shall be marked with diameter, DR and AWWA C900. C900 force main pipe shall be green for sewer and purple for IQ.

Joints of C900 force main pipe shall be either 14'-0" or 20'-0" in length.

C900 force main pipe shall use ductile iron fittings with restrained mechanical joints

110.07 <u>Ductile Iron Pipe</u>

All ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C151/A21.51. Ductile iron pipe shall be pressure class 350 up to 20" and pressure class 250 for larger diameters. Ductile iron pipe shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

Joints shall be conform to ANSI/AWWA C111/A21.11. Restrained push on joints shall use Field Lok 350 Gaskets by US Pipe and Foundry Co., or approved equal.

Ductile Iron Pipe shall be minimum Pressure Class 350 up to 20-inches in diameter and Pressure Class 250 for larger diameters.

Where ductile iron pipe is used, fittings shall be ductile iron and conform to the requirements of ANSI/AWWA C153/A21.53 and shall be of a pressure classification at least equal to that of the pipe with which they are used. Fittings may be flanged or mechanical as applicable.

110.08 SDR 26 PVC Fittings

PVC Gravity main fittings shall conform to the requirements of ASTM D2241 SDR26. Gaskets shall confirm to ASTM F477. Fittings in sizes not available in injection molded form shall be fabricated from SDR26 pipe in accordance with ASTM D2241.

110.09 <u>Schedule 40 and 80 PVC Fittings</u>

Fittings used in small diameter PVC piping systems shall match the schedule of the piping system, either Schedule 40 or 80. Fittings shall be socket weld and conform ASTM D1785 for physical dimensions and ASTM D1784 for materials.

110.10 <u>HDPE Butt Fused Fittings</u>

Molded butt fusion fittings and adapters shall conform to ASTM D 3261, utilize HDPE conforming to the pipe to which it will be fused and have the same dimension ratio as the pipe to which it will be fused. All fittings shall be pressure rated to provide a working pressure rating no less than that of the pipe.

110.11 Large Diameter HDPE to PVC/DI Adapters

Transition from HDPE to other piping systems shall require MJ or flanged HDPE adapters. Instances where these adapters are not practical will require pipe stiffeners in conjunction with ductile iron fittings. The pipe stiffeners shall be stainless steel as manufactured by JCM Industries or pre-approved equal. Pipe stiffeners in conjunction with ductile iron fittings shall only be used with the written approval of the District Engineer for HDPE pipe 12" diameter and smaller. When approved, MEGALUG Series 2000PV mechanical joint restraints or approved equal shall be used.

110.12 <u>Small Diameter HDPE Fittings and Adapters</u>

Small diameter HDPE pipe (1/2" - 3") HDPE to HDPE and HDPE to PVC connections shall use pack joint style fittings as manufactured by Ford Meter Box Co. Stainless steel pipe stiffeners shall also be required.

110.13 <u>Ductile Iron Fittings</u>

Ductile iron fittings shall conform to ANSI/AWWA C153/A21.53 (compact fittings) with a minimum pressure rating of 350 psi. Fittings shall be mechanical joint or flanged as required.

Flanged fittings shall comply with ANSI B16.5, Class 150.

All mechanical joints shall be restrained. Restrained mechanical joints shall use 1100 Series Megalug by EBAA Iron Sales, Inc. or approved equal.

Ductile iron fittings shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

110.14 <u>Ductile Iron Pipe and Fittings Linings and Coatings</u>

Ductile iron pipe fittings shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

Buried ductile iron pipe and fittings shall receive an external bituminous coating in accordance with ANSI 21.10. and be striped with green for sewer and purple for IQ water.

Above grade ductile iron pipe and fittings shall receive a three coat system; Prime Coat: TNEMEC-Aluminum Mastic #135 (3 to 5 mils DFT), Intermediate Coat Series 66 Epoxoline Hi-Build Epoxy (4 to 6 mils DFT) and Finish Coat Series 73 Endura-Shield III Urethane (2 to 3 mils DFT). Coatings shall be green for sewer and purple for reclaimed water.

110.15 <u>Marking Tape</u>

All buried piping shall include marking tape. Marking tape shall be minimum 2" wide, magnetic and detectable. Marking tape shall be green and marked "SEWER".

110.16 <u>Buried Markers</u>

Buried markers shall be installed at all fittings, valves, service connections, change of direction and every 300' of pipe lay length. Buried markers are not required on gravity main piping but are required on service lateral piping and cleanouts. Buried markers shall be EMS Mini-Markers for Wastewater Model 1258 as by 3M.

110.17 <u>Tracer Wire</u>

When specifically required pressure rated piping shall be installed with tracer wire. Tracer wire shall be attached to the pipe using a half-hitch every 10' for direct bury applications and shall be pulled with the pipe (without attaching) in directional drill installations. Tracer wire in directional drill applications shall be minimum 10 gauge, Copperhead Soloshot EHS or approved equal. Tracer wire in direct bury applications shall be minimum 14 gauge, PVC coated, solid copper wire.

110.18 Handling and Cutting Pipe

The pipe manufacturer's recommendation for handling, storing, unloading and cutting pipe shall be followed. Individual pipes shall not be allowed to drop from the truck when unloading. Pipe units shall not be handled with chains or single cables. Pipe shall not be stored more than two units high. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe or scratching or marring machined or finished surfaces.

Any fitting showing a crack shall be marked as rejected and removed at once from the work.

In any pipe showing a distinct crack and in which it is believed there is not incipient fracture beyond the limits of the visible crack, the cracked portions, if so approved by the Design Engineer, may be cut off before the pipe is laid so that the pipe used is perfectly sound. The cut shall be made in the sound barrel at a point at least 12-inches from the visible limits of the crack.

Except as otherwise approved, all cutting shall be done with knives or saws adapted to the purpose. All cut ends shall be examined for possible cracks caused by cutting.

Cut ends to be used with push on joints shall be carefully chamfered and the reference mark located in accordance with the manufacturer's recommendation to prevent cutting the gasket when the pipe is laid or installed.

110.19 Installing Pipe and Fittings

No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.

Each pipe and fitting shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the complete work. Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings or required. Care shall be taken to ensure a good alignment both horizontally and vertically.

Each length of pipe shall have a firm bearing along its entire length. Embedment requirements are shown on the Standard Details and in this specification.

The bell of the pipe shall be cleaned of dirt or other obstruction and wiped out before the cleaned and prepared spigot of the next pipe is inserted into it. Only lubricants made by the pipe manufacturer may be used on the spigot. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed.

110.20 <u>Temporary Plugs</u>

At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed by temporary watertight plugs. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

110.21Preparation of Trench Bottom

The trench bottom shall be constructed to provide a firm, stable and uniform support for the full length of the pipe. Unsuitable foundation material shall be removed as required by the Engineer and refilled with Class 1, 2, or 3 material. Class 2 or 3 material shall be compacted to a minimum of 90% standard proctor density.

110.22 <u>Manhole Connections</u>

Where PVC gravity or force main pipe enters the manhole, approved sealing adapters as manufactured by Harco, Fernco or equal, shall be used. Any coupling used shall be coated with an epoxy coated sand finish approved by the District.

110.23Bell Holes for Elastomeric Seal Joints

When the pipe being installed is provided with elastomeric seal joints, bell holes shall be excavated in the bedding material to allow for unobstructed assembly of the joint. Care should be taken that the bell hole is not larger than necessary to accomplish proper joint assembly. When the joint has been made, the bell hole should be carefully filled with bedding or haunching material to provide for adequate support of the pipe throughout the entire length.

SECTION 120

CAST IN PLACE CONCRETE

120.01 <u>Materials</u>

120.01.1 <u>Concrete</u>

Ready-mixed concrete shall be used. It shall comply with the Standard Specifications for Ready-Mixed Concrete, ASTM Designation C94 for the strengths specified herein. Alternate No.2, under Paragraph 4 - Quality of Concrete ASTM C94 shall govern for the design of the concrete mixture.

120.01.2 <u>Cement</u>

Type I cement shall be used in concrete for general purposes. Type II cement shall be used for sewer manholes, wet wells, and all other applications where the concrete may be exposed to a wastewater atmosphere.

120.02 <u>Concrete</u>

120.02.1 <u>Mix</u>

Concrete shall be composed of Portland cement, coarse aggregate, fine aggregate and water. The concrete mix shall be designed to produce the quality specified, proportioned and mixed in accordance with the requirements set forth herein and shall in all cases meet the following requirements:

<u>Class</u>	Location	28 Day Compressive <u>Strength</u>
A.	Specifically Required on Plans	4,000 psi
B.	General Structural Concrete	3,000 psi
C.	Non-structural Applications	2,500 psi
120.02.2	Slump	

The concrete, when placed, shall show slumps within the following limits when tested in accordance with the Method of Test for Slump of Portland Cement Concrete, ASTM Standard Specification C-143.

Min. Max.

Type of Concrete	<u>Slump</u>	<u>Slump</u>
Mass Concrete	1 Inch	3 Inches
Reinforced Concrete:		
Thin vertical sections and thin columns, 7 inches or less in		
thickness	3 Inches	6 Inches
Heavy vertical sections more		
than 7 inches in thickness	3 Inches	5 Inches
Structural Slabs	1 Inch	4 Inches
120.02.3 Air Entraining		

Air entrained concrete shall conform with the following requirements:

	Maximum Aggregate Size(Inches):						
		<u>3/8</u> :	<u>1-2</u> :	<u>3/4</u> :	<u>1:</u>	1-1/2:	
Average total air content,							
percent (Plus or minus 1%):		5	5	4	4	3	
120.03 Placing Concrete							

Concrete shall be placed within 1 hour of the load ticket time stamp and before the initial set has occurred.

The concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner to prevent segregation of the coarse aggregate.

All concrete shall be placed with an aid of mechanical vibrating equipment supplemented by hand forking or spading. Vibration shall be transmitted directly to the concrete and not through the forms. The duration of vibration at any location in the forms shall be held to a minimum necessary to produce thorough compaction. The concrete shall be placed by suitable equipment as nearly as possible to its final location and without any segregation of the aggregate. Any free vertical drop shall not exceed 4-1/2 feet.

Expansion joints shall be placed as indicated on the plans. Joint material shall be installed as indicated and as approved by the Design Engineer. Construction joints shall be made only at locations indicated on the plans or approved by the Design Engineer, and in such manner as not to impair the strength, water-tightness or appearance of the structure.

120.04 <u>Finishing</u>

All top surfaces which are not covered by forms and which are not to be covered by additional concrete or backfill, shall be carried slightly above grade and struck off by board finish. All edges shall be provided with a 3/4 inch chamfer. All exposed surfaces which show board marks, joint marks or other irregularities after the forms are removed shall, at the discretion of the Design Engineer, be rubbed with carborundum brick, filled or otherwise dressed to produce a smooth true surface.

No special concrete or cement mortar topping course shall be used for slab finish unless shown on the drawings. The slab shall be brought to a true and even finish by power or hand floating. Unless otherwise specified, the surface shall be steel troweled to a smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface.

120.05 <u>Curing</u>

All concrete shall be kept wet by covering with water and approved water saturated covering, or other approved method which will keep all surfaces continuously wet for a period of seven (7) days, unless otherwise specified by the Design Engineer. All concrete shall be adequately protected from injurious action by the sun. Fresh concrete shall be protected from heavy rains, flowing water and mechanical injury. All concrete shall be kept damp for at least seven (7) days by covering with an approved saturated covering, by a system of perforated pipes of mechanical sprinklers, or by any other approved method which will keep all surfaces continuously damp.

Where wood forms are left in place during curing, they shall be kept wet at all times to prevent opening at the joints and drying out of the concrete. Water for curing shall be clean and entirely free from any elements which might cause staining or discoloration of the concrete.

120.06 <u>Forms</u>

Forms shall be of wood, metal, or other approved material shall be built true to line and grade, mortar tight, adequately braced and supported, and sufficiently rigid to prevent displacement or sagging.

Forms, except those lined with absorptive form lining, shall be coated with a non-staining mineral oil applied shortly before placing the concrete. In lieu of oiling, forms for unexposed surfaces may be thoroughly wetted immediately before placing the concrete.

Forms ties shall be of a design such that when forms are removed no metal shall be within 1 inch of the finished surface. Holes remaining from withdrawn tie rods or bolts shall be filled solid with cement mortar.

Under normal conditions, the minimum waiting period after placing concrete for stripping forms shall be as follows:

Where Used		Time	
1.	Bottom forms of girders and beams, floor slabs, and other concrete.	5 Days	
2.	Walls, piers, columns, sides of beams, and other vertical surfaces.	24-48 hours	

The use of this schedule shall not operate to relieve the Contractor or the Design Engineer of responsibility for the safety of the structure.

120.07 <u>Embedded Items</u>

In addition to steel reinforcement, pipes, and other metal objects, as shown on the plans or ordered to be built into, or set in, or attached to the concrete, all necessary precautions shall be taken to prevent these objects being displaced, broken, or deformed. Before concrete is placed, care shall be taken to determine that any embedded or wood parts are firmly and securely fastened in place as indicated. They shall be thoroughly cleaned and free of paint or other coating, rust, scale, oil, or any foreign matter. The concrete shall be packed tightly around the pipes and other metal work to prevent leakage and to secure perfect adhesion. Drains shall be adequately protected from intrusion of concrete.

Concrete placing operations shall not begin until the reinforcing steel, utilities, anchor bolts, etc., to be embedded in concrete have been inspected and approved by the Design Engineer.

120.08 <u>Reinforcing Steel</u>

Reinforcing bars and mesh shall be sizes and shapes as indicated on the drawings. Bars shall be deformed bars of intermediate grade, new billet steel conforming with ASTM Designation A-615, Grade 60. Wire mesh shall conform with ASTM Designation A-185.

120.09 <u>Water Stops</u>

Water stops shall be molded PVC, hollow center bulb, multiple ribbed as manufactured by W.R. Meadows, Inc., Electrovert, Inc. or Serviced Products Corporation, or approved equal.

120.10 <u>Testing Services</u>

Testing shall be performed by an independent commercial testing laboratory approved by the District. The Design Engineer shall furnish the District with copies of compression and slump test reports for every thirty (30) cubic yards or portion thereof of concrete placed. It shall be the responsibility of the Design Engineer to produce concrete of the strength, durability, workability and finish specified, furnish representative material for specimens in quantities required by the testing laboratory, and cooperate and assist in taking samples of materials for testing. The District reserves the right to take and test additional concrete samples.

END OF SECTION 120

SECTION 121

PRECAST MANHOLES AND STRUCTURES

121.01 <u>General</u>

Manholes and structures shall conform in shape, size, dimensions, materials and other respects to the Standard Details or as directed by the District's Engineer.

All manholes and structures shall be precast concrete with monolithic base sections. Invert channels may be formed in the concrete of the base or may be formed of brick and mortar upon the base.

All manholes which will receive direct force main discharges, or are at least 14-feet deep (rim to lowest invert) and the last collection manhole just upstream of any lift station shall receive a minimum 0.5-inch thick calcium aluminate corrosion barrier such as Sewper Coat, Strong Seal, Refratta HAC 100 or approved equal, and installed per the manufacturers recommendations.

The inverts shall conform accurately to the size of the adjoining pipes. Sides inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longestpossible radius which is tangent to the centerlines of adjoining sewers.

Connections to existing structures shall be made only by mechanically coring a hole through the structure. Jackhammer and other methods of cutting a hole through an existing structure are not acceptable.

Rubber "boots" subject to District approval, will be allowed for making pipe connections to structures provided that a layer of non-shrink grout be applied to seal the annular space on the inside of the manhole for the full wall thickness. The boots shall be cast in the precast structure and shall utilize stainless steel bands and screws.

121.02 Precast Concrete Sections

Precast concrete sectionsshall conform to the ASTM Specifications for Precast Reinforced Concrete Manhole Risers and Tops, Designation C-478 or ASTM C858 Standard Specification for Underground Precast Concrete Utility Structures with the following exceptions and additional requirements:

Type II cement shall be used in structures directly exposed to wastewater (i.e. manholes and wetwells.

Sections shall be steam cured and shall not be shipped until at least five (5) days after having been cast.

Acceptance of the sections will be on the basis of material tests, finished quality, and inspection of the completed product.

Cones shall be 30" - concentric type

Joint material in riser sections shall be of the bitumastic type as manufactured by RAM-NEK or equal.

No more than two (2) lift holes may be cast or drilled in each section.

121.03 Shallow Manhole

When the depth from the deepest invert to the top of the cone section is 4'-0" or less, an approved shallow cone section with a 30" opening shall be used. In no case shall a flat slab top section be used.

121.04 <u>Setting Precast Sections</u>

Precast reinforced concrete sections shall be set so as to be vertical with sections in true alignment.

All holes in sections, used for their handling, shall be thoroughly plugged with mortar. The mortar shall be one part cement and 1-1/2 parts sand; mixed slightly damp to the touch (just short of "balling"); hammered into the holes until it is dense and an excess of paste appears on the surface; and then finished smooth and flush with the adjoining surfaces.

Anti-hydro grout shall be used to fill all voids around sanitary sewer pipe and manhole sections.

121.05 Mortar for Brick and Concrete Block Work

The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three (3) times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard burnedbrick to 1:3/4 for softer brick. In general, mortar for Grade SA brick shall be mixed in the proportions of 1:1/2:4-1/2.

Cement shall be Type II Portland cement as specified for under Concrete Masonry.

Hydrated lime shall be Type "S" conforming to the ASTM Standard Specification for Hydrated Lime for Masonry Purposes, Designation C207 - Latest Revision.

The sand shall be well graded clean, durable particles all of which shall pass a No. 8 sieve.

121.06 Laying Brick

Only clean, red, fire cured brick shall be used. The brick or block shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar, nor so wet as to be slippery when laid.

Each brick or block shall be laid in a full bed and joint of mortar without repairing subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed.

Brick shall only be used in chimney construction for final adjustment of frame and covers to required grade. Brick chimneys shall not exceed 18 inches in height for manholes 4-6 feet deep and 24 inches for manholes greater than 6 feet deep.

121.07 <u>Plastering and Curing Brick</u>

Outside faces of brick shall be plastered with mortar from 1/4 inch to 3/8 inch thick. If required, the brick shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled so that all cracks are thoroughly worked out. After hardening, the plaster shall be carefully checked by being tapped for bond and soundness. Unbonded or unsound plaster shall be removed and replaced.

Brick and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other approved means and shall be protected from the weather, all as required.

121.08 Frames and Covers

The castings for the frames and covers shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sandholes and defects of every nature which render them unfit for the service for which they are intended.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Casting shall be at least Class 30 conforming to the ASTM Standard Specification for Gray Iron Castings, Designation A48- Latest Revision, and conform to the standard details.

The contact surface of the frame and cover seat shall be a machine fit and the cover surface shall be "knobbed".

Frame and covers shall be US Foundry Model 230 AB-M

121.09 <u>Setting Frames and Covers</u>

Frames shall be set with the tops conforming accurately to the grade of the pavement or finished

roadway surface, in unsurfaced areas the frames and covers shall be set 3 inches higher than the surrounding ground. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed around the bottom flange. The mortar shall be smoothly finished to be flush with the top of the flange and have a slight slope to shed water away from the frame.

Cover shall be left in place in the frames on completion of other work at the manholes.

121.10 Adjustment of Existing Manhole Frames

When it is necessary to raise existing manhole frames due to repaying of roads or other reasons, the frames shall be shimmed with masonry, brick and Type II cement mortar to the new finished grade, or in the case of sodded areas, 2" above finished grade. In cases where raising the existing frame and cover result in chimneys greater than 12" in height the District may require the conical section be raised installation of additional barrel section below the conical section.

When new paving operations cause the manhole frame to be adjusted upwards, manholes will be raised using conventional shimming methods under the frame. The use of adapter rings in the existing frame will not be permitted unless specifically authorized by the District.

END OF SECTION 121

SECTION 130

VALVES AND APPURTENANCES

130.01 <u>General</u>

All buried valves and appurtenances including exposed nuts, bolts, and retainer glands shall be given an exterior approved bitumastic or epoxy coating. All valves shall open counterclockwise. All valves shall have extension stems pinned to the operating nut with a stainless steel pin extension. Stems will not be required where the valve operation nut is less than 30" from finished grade.

Contractors must supply LRD with shop drawings clearly indicating that the criterion for each type of valve or appurtenance listed in this section is satisfied.

130.02 <u>Plug Valves</u>

All mechanical joint and flanged plug valves shall be of the nonlubricated eccentric type. Valves shall be rated for not less than 125 psi pressure differential acting in either direction (bidirectional). At this differential, the valve shall provide drip tight shutoff. All components shall be of corrosion resistant construction. Valve flanges shall be ANSI B16.1, class 125 pound with afull round or other acceptable type port to assure minimum turbulence and minimum pressure drop. Valve bodies shall be of ductile iron and seats shall be of nickel-alloy. Valves are to have a balance plug, coated with a resilient material solidly bonded to a cast iron or semi-steel core, as required, to assure low torque and bubble-tight shutoff. The valve plug shall touch on the seat when in the closed position.

Plug valve port areas shall be at least 100% through 24 inches in diameter. For plug valves 30" and larger, a port area of at least 75% is required.

Buried plug valves shall be installed vertically with non-rising stems and shall open by turning a two inch square operating nut counterclockwise. An arrow shall be cast into the nut skirt to indicate the open direction.

Plug valves shall be as manufactured by DeZurik Corporation, Milliken, Keystone Valve Manufacturing Company (Ballcentric Type), or approved equal.

130.03Resilient Seat Gate Valves

Gate valves shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C509 or C515, Latest Revision, and in accordance with the following specifications. Valves shall have an unobstructed waterway canal equal to or greater than the full nominal diameter of the valve.
The valves are to be non-rising stem with the stem made of cast, forged, or rolled bronze as shown in AWWA C509. Two stem seals shall be provided and shall be of the O-ring type, one above and one below the thrust collar. A 2-inch square operating nut shall be provided for operating the valve. The stem nut, also made of bronze, may be independent of the gate or cast integrally with the gate. If the stem nut is cast integrally, the threads shall be straight and true with the axis of thestem to avoid binding during the opening or closing cycle.

The valve body, bonnet, and bonnet cover shall be ductile iron. All ferrous surfaces inside the valve body shall have a fusion bonded epoxy coating applied at the valve manufacturer's facilities. The coating shall meet or exceed all requirements of AWWA C550. All bolts, nuts and washers shall be stainless steel to limit exterior corrosion and maintain fastener strength.

The sealing mechanism shall consist of a cast iron or ductile iron gate having a vulcanized Buna-N or SBR synthetic rubber coating or a Buna-N rubber seat mechanically retained on the gate. The resilient sealing mechanism shall provide zero leakage at 250-psi working pressure. All valves shall have pressure tests performed to the requirements of AWWA C509 or C515 specifications, as applicable, prior to shipment from the manufacturer. Valve shall seat and be drip-tight at the working pressure when installed with the line flow in either direction.

All valves are to be tested in strict accordance with AWWA C509. Resilient seat gate valves shall be as manufactured by Mueller, Metro-Series, American Darling or approved equal.

Valves shall be covered by a Manufacturer's 10 year limited warranty from date of purchase by end user and delivered within 30 days from receipt of purchase order. The supplier will also provide laminated maintenance manuals.

130.04 <u>Swing Check Valves</u>

Swing check valves for sewage, sludge, and general service shall be in accordance with AWWA C 508, unless otherwise specified below, full-opening; designed for a working pressure of 150 psi unless otherwise shown, and shall have a flanged cover piece to provide access to the disc. Corrosive ferrous surface of valves, 4-inch and larger, which will be in contact with water, shall receive a fusion-bonded epoxy coating conforming to AWWA C550. The valve body and cover shall be of cast iron to ASTM A126, with flanged ends to ANSI B16.1, or mechanical joint ends, as shown.

The valve disc shall be of cast iron, ductile iron, or bronze to ASTM B 62. The valve seat and rings shall be of bronze to ASTM B 92 or B 148, or stainless steel. The hinge pin shall be of bronze or stainless steel.

Suppliers or Equal:

American-Darling Valve Co.

APCO (Valve and Primer Corp.)

Crane Company Mueller Co.

The valves shall have a lever and counterweight and shall be suitable for horizontal or vertical mounting.

130.05 Air Release, Air Vacuum Valves, and Combination Type Valves

The air release and air vacuum valves shall be of the type especially designed for forced sewer systems. The valve shall be of the short body type and capable of releasing air, gas, or vapor under pressure during system operation or allow air to enter the system when the system is draining, as applicable. The valve shall be as shown on the Standard Details with a two inch inlet. The venting orifice shall be sized by the Design Engineer based on a working pressure of 75 psi.

It shall be the responsibility of the design engineer to determine which valve is necessary for the pipeline conditions encountered.

Air release and air vacuum valves shall be ARI D-025 (See Standard Details).

130.06 <u>Ball Valves</u>

Ball valves shall be limited to $\frac{3}{4}$ " through 2-1/2" in size and shall have cast brass, bronze or stainless steel body, bronze tee head, stem with check, full round way opening and provision for locking in a closed position.

Ball valves can be used for force main and low pressure sewer applications up to 2-1/2" in diameter. The primary use in force main applications is for ARV isolation valve use (See Standard Details).

Valves shall be designed to be fully opened with a 90-degree turn of the operating handle and shall be full port design with bi-directional sealing rated for a minimum 150 psi working pressure.

Brass ball valves in the low pressure systemalve shall be as manufactured by Ford, with NPT or pack joint endsas needed.

Where these valves are direct buried, a 2" square gate valve operating nut shall be included with a valve box.

130.07 Brass Check Valves

Brass check valves shall be Proflo PFX31 size 1-1/2" to 2".

130.08 <u>Valve Boxes and Vaults</u>

All buried valves shall be equipped with a valve box. Valve boxes shall be heavy duty construction for traffic loading type, cast iron, three piece, slide type, or screw type with drop covers. The valve boxes shall be adjustable to six inches up or down from the nominal required cover of the pipe.

A number six base section shall be provided. Minimum shaft diameter shall be 5-1/4 inches and minimum metal thickness shall be 3/16 inch. Boxes shall be coated with an approved bitumastic or epoxy coating. Valve box covers shall have the word "SEWER" or "REUSE" cast thereon depending on the application. Swing check valves shall be installed in an approved suitable vault for easy access by the District maintenance staff.

Valve boxes shall be installed on firmly compacted material at a level approximately equal to the elevation of the valve packing plate. No contact between the valve and the box shall be permitted. On plug valves, the positioner on the operating mechanism shall be kept free of rocks, debris, etc.

Where valves are installed with over six feet of cover, or where the ground water table is within three feet of the ground level, an extension stem shall be provided to bring an operating nut within two feet of the finished grade. This extension, stem shall be satisfactorily pinned to the valve operation nut to prevent dislodging during operation of the valve.

END OF SECTION 130

SECTION 140

PIPELINE INTEGRITY TESTS

140.01 <u>General</u>

The District shall inspect all sewer facilities prior to acceptance and again just prior to the expiration of the 1-year guarantee.

When a section of pipe of a length deemed adequate by the Design Engineer is ready for testing, the pipe shall be flushed and then tested in accordance with the applicable testing method as described herein. Suitable temporary testing plugs or caps shall be installed. All necessary pressure pumps, pipe connections, meters, gauges, water, weirs, bulkheads, and other necessary equipment and all labor required for carrying out these tests shall be furnished. The Design Engineer shall notify the District at least 48 hours prior to any testing so that it may, at its option, have a representative present during the testing.

Gravity sewers shall be tested in accordance with the Hydraulic Infiltration/Exfiltration Test as described herein. Additionally, PVC Gravity sewers shall be tested for deflection as described herein. Force mains shall be tested in accordance with the Pressure and Leakage Test for Force Mains as described herein.

If the District Engineer so desires, the first section of any line between two manholes shall be tested as soon as possible after backfilling has been completed. If such tests appear to be satisfactory and acceptable, progressive testing of completed sections of the lines may be deferred at the option of the District's Engineer, and at the request of the Contractor, until all pipe has been laid and before final acceptance. However, if permitted, this will not constitute a waiver of any of the tests or the leakage requirements.

Sections of pipe tested for infiltration and exfiltration prior to completion of the project shall be subject to a final inspection at completion of the project, and also subject to additional leakage tests, if warranted in the opinion of the District Engineer.

If the section fails to pass the applicable tests, the Contractor shall locate, uncover and repair or replace the defective pipe, fitting or joint, at his own expense. Additional testing will be required after the deficiency is corrected.

140.02 <u>Hydraulic Infiltration/Exfiltration Tests</u>

Upon completion of a section of the sewer, the pipe shall be dewatered and tested to measure the infiltration for at least three (3) consecutive days. Test section shall be from manhole to manhole. Longer test sections may be used with the approval of the District Engineer.

For making the infiltration tests, underdrains, if used, shall be plugged, well points and other groundwater drainage shall be stopped to permit the groundwater to return to its normal level. Infiltration shall be measured by the use of weirs designed specifically for this purpose or other acceptable means approved by the District Engineer.

As required, suitable bulkheads shall be installed to permit the test of the sewer.

Where the crown of the pipe is below the natural groundwater table at the time and place of testing, the pipe shall be tested for infiltration. Suitable watertight plugs shall be installed and section of pipe to be tested shall be pumped dry before start of test. Where the crown of the pipe is above the natural water table, the pipe shall be tested for exfiltration by installing necessary plugs and filling pipes and manholes with water and maintaining a static head of water of a minimum of twofeet above the crown of the pipe during the test. Exfiltration tests shall be conducted on main lines and lateral lines, unless waived by the District Engineer. The water level of internal pressure to be used for exfiltration test shall be determined by the Design Engineer.

The sewers shall pass the applicable test before any connections are made to buildings or to active sewers.

The maximum allowed infiltration/exfiltration shall not exceed 25 gallons per inch of diameter per mile per 24 hours for pipe lines and 4 gallons per 24 hours for manholes. Once systems are stabilized a 2 hour test shall be performed and the appropriate fraction of maximum allowed infiltration/exfiltration applied.

140.03 Pressure and Leakage Test for Force Mains (HDPE)

After fusing, prior to placement, the HDPE piping shall be filled with potable water and pressure tested at 100 psi or 1.5 times design operating pressure for 2 hours, whichever is greater. Each joint shall be visibly inspected for leakage at the end of 2 hours. Any sections showing visible leakage shall be cut out and the remaining pipe fused together and retested. After placement the HDPE pipe shall be pressurized to a minimum 1.65 times pipeline design pressure for 4 hours, with make up water added as necessary to maintain 1.65 times pipeline design pressure. At the end of 4 hours, pressure is reduced to 1.5 times design pressure and pressure monitored for 1 hour. Deviation in pressure > 5% during the 1 hour test indicate a failed test. All testing shall be in compliance with ASTM F2164.

140.04 Pressure and Leakage Test for Force Mains (PVC and DI)

Except as otherwise directed by the District, all pipelines shall be given combined pressure and leakage tests in sections of length approved by the District's Engineer. The Contractor shall furnish and install suitable temporary plugs or caps; all necessary pressure pumps, pipe connections, meters, gauges, and other necessary equipment; and all labor required. The Design Engineer shall witness all tests.

Subject to approval of the Design Engineer and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when he desires.

The section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe.

The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.

Two pressure and leakage tests shall be conducted for each pipeline segment. The first test shall be conducted at the average working pressure of the pipeline segment. The second test shall be conducted at a test pressure of 100 pounds per square inch or 1.5 times the pipeline design operating pressure, whichever is greater.

The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge location) to the specified pressure. If the Contractor cannot achieve the specified pressure and maintain it for a period of one hour with no loss of pressure and no additional pumping, the section shall be considered as having failed to pass the pressure test. The District may require that the pressure and leakage test be run in accordance with AWWA C-600 Standards, latest revision (Four Hour Test).

Allowable leakage shall not exceed the following where L = allowable leakage (gallons), N = number of joints, D = nominal diameter of pipe (inches), P = average test pressure (psi).

$$L = \frac{ND\sqrt{PP}}{7400}$$

140.05 Pressure and Leakage Test for Low Pressure Force Mains

Low pressure force mains shall be filled with potable water, bled of air and pressurized to 70 psi. Pressure shall be maintained constant for 1 hour without adding water. Any loss of pressure indicates a failed test.

140.06 <u>Deflection Testing</u>

Pipe deflection shall not exceed 5% measured by a go/no-go gauge or mandrel. The District may confirm the pipe deflection at the end of the job prior to acceptance. Additionally, the District may confirm the pipe deflection just prior to end of the one year guarantee period. Pipe sections exceeding 5% long term deflection will be relaid by the Contractor or the Developer at his own cost and expense and retested until the District's *go/no-go* gauge passes through the pipe section.

The District's mandrel will be considered the "official" gauge used for deflection testing. The standard District gauge is manufactured by "HURCO" Technologies, Inc., Harrisburg, S.D. The outside diameter of the District's mandrel is as follows:

Mandrel Diameter
(Inches)
7.28
9.08
10.79

END OF SECTION 140

SECTION 150

SUBMERSIBLE LIFT STATIONS

150.01 <u>Scope</u>

It is the intent of this standard is to provide component requirements and general design guidelines for submersible wastewater lift stations. This standard shall be used in conjunction with Standard Details SD-31 through 35 and referenced standards for complete submersible wastewater lift station requirements.

This specification typically defines requirements for 20HP and smaller lift stations. Lift stations greater than 20 HP, serving critical infrastructure or performing as a repump station may require alternate design criteria including variable speed, tri-plex configuration, permanent standby emergency power and PLC control. These additional design criteria will be defined by Engineering Services during the design.

150.02 <u>Site</u>

Lift station sites shall be provided with a minimum 40' x 40 lift station easement. Variations on the easement shall be considered on a case by case basis where access, maintenance and bypass operations can be accommodated with alternate configurations acceptable to the District and approved by Engineering Services.

The lift station site and access shall be set at proper elevations and configurations such that access and maintenance to the station will not be impaired by flooding, excessive road grades, swales, walls or landscaping. A lift station site plan indicating all topographical features, rights-of-way, easements and adjoining contiguous areas shall be submitted to the District for approval.

All above or at grade facilities shall be above the 1% Annual Chance Flood (100-year flood)zone, as shown on Flood Insurance Rate Maps (FIRMs). Site and lift station plans shall include the 100-year flood elevation.

150.03 <u>Power</u>

The Contractor shall coordinate with and pay all fees, deposits, and service costs to Florida Power and Light Corp. to provide a three phase, 480V or 240V underground power service to the new lift station site. The transformer for the station shall be located not further than 25 feet from the nearest station easement line.

The power meter for the lift station shall be located on the lift station site, installed on the District's standard control panel rack.

150.04 Lift Station Standard Equipment

A list of standard lift station equipment is given below. This list is not all inclusive and the Contractor shall supply all other equipment necessary for complete working installations. The lift station shall include:

Two (2) explosion proof submersible type sewage pumps with 316 stainless steel guide rails, base plates and all accessories.

Two (2) discharge lines with swing check valves and plug valves and emergency tap connection

Instrumentation/control system, (requirements vary on station size)..

One (1) electrical control panel, NEMA 4X, to house electrical equipment, pump controls, alarms and protection.

One (1) wet well.

One (1) valve vault.

Concrete covers with aluminum access hatches and safety grates

Influent drop assemblies

Permanent standby generator and ATS, (requirements vary on station size).

Radio or Cellular Telemetry System

Coatings

Concrete pads

Landscaping/site screening

The wet well structure shall receive a minimum 1.0-inch thick calcium aluminate corrosion barrier such as Sewper Coat, Strong Seal, Refratta HAC 100 or approved equal, and installed per the manufacturers recommendations.

One (1) influent (collection) manhole structure with piping connecting to the wet well structure. The distance between the collection manhole and the wet well shall be no more than 50 feet.

150.05 <u>Pumps and Motors</u>

The pumps shall be capable of handling grit and raw unscreened sewage. The design shall be such that the pump unit will be automatically and firmly connected to the discharge piping when lowered into place on its mating discharge connection, permanently installed in the wet well. The pump shall be easily removable for inspection or service requiring no bolts, nuts, or other fastenings to be disconnected.

All major parts, such as the stator casing, oil casing, sliding bracket, volute, and impeller shall be of gray iron. All surfaces coming into contact with sewage shall be protected by a coating resistant to sewage. All exposed bolts and nuts shall be of stainless steel.

Pump faces shall be machined to accept a sacrificial plate between the pump face and seat. The sacrificial plate shall be manufactured from ¹/₄" brass plate, bolted to the pump face and removable/replaceable.

A wear ring system shall be installed to provide efficient sealing between the volute and impeller.

The impeller shall be hard alloy gray cast iron of non-clogging design capable of handling solids, fibrous material, heavy sludge, and other matter found in normal sewage applications. The impeller shall be constructed with a long throughout without acute turns. The impeller shall be dynamically balanced. The impeller shall be a slip fit to the shaft and key driven. Non-corroding fasteners shall be used.

Each pump shall be provided with a mechanical rotating shaft seal system running in an oil reservoir having separate, constantly hydro-dynamically lubricated and lapped seal faces.

The lower seal unit between the pump and oil chamber shall contain one stationary and one positively driven rotating tungsten-carbide ring.

The upper seal unit between the oil pump and motor housing shall contain one stationary tungstencarbide ring and one positively driven rotating carbon ring. Each interface shall be held in contact by its own spring system supplemented by external liquid pressures. The seals shall be easily inspected and replaceable.

The shaft sealing system shall be capable of operating submerged to depths of, or pressure equivalent to, 65 feet. No seal damage shall result from operating the pumping unit out of its liquid environment. The seal system shall not rely upon the pumped media for lubrication.

A sliding guide bracket shall be an integral part of the pump unit. The volute casing shall have a machined discharge flange to automatically and firmly connect with the cast iron discharge connection, which when bolted to the floor of the sump and discharge line, will receive the pump discharge connection flange without the need of adjustment, fasteners, clamps or similar devices.

Installation of the pump unit to the discharge connection shall be the result of a simple linear downward motion of the pump unit guided by no less than two guide bars. No other motion of the pump unit, such as tilting or rotating, shall be acceptable. Sealing of the discharge interface by means of a diaphragm, O-ring, or other device will not be considered acceptable or equal to a metal to metal contact of the pump discharge flange and mating discharge connection specified and required. No portion of the pump unit shall bear directly on the floor of the wet well. There shall be no more than a 90-degree bend allowed between the volute discharge flanges and station piping.

The pump motor shall be housed in an air or oil filled watertight casing and shall have moisture resistant Class "F" 155-degree C insulation. Oil filled casing shall be filled with transformer oil, quality BP Energol JSO, or Shell Diala D or DX. The motor shall be a minimum of 5 BHP, rated for operation at 1700 or 1750 rpm, on a 230V, 3-phase, 60 hertz power supply. The cable entry water seal design shall be such that precludes specific torque requirements to insure a watertight and submersible seal. Epoxies, silicones or other secondary sealing systems shall not be required or used. The cable entry junction box and motor shall be separated by a stator lead sealing gland or terminal board which shall isolate the motor interior from foreign materials gaining access through the pump top.

Pump motor cable installed shall be suitable for submersible pump applications and this shall be indicated by a code or legend permanently marked on the cable. Cable sizing shall conform to NEC specifications for pump motors and shall be of adequate size for the motor rating. Pump motor cable shall be ample length to reach the rack mounted panel. Cable length to be determined by the site plans.

The pump cable shall have 90 degree C rated insulated material based on 40 degree ambient and shall have anti-roping and anti-wicking design. All mating surfaces of major parts shall be machined and fitted with nitrile O-rings where watertight sealing is required. Machining and fittings shall be such that sealing is accomplished by automatic compression in two planes and 0-ring contact made on four surfaces, without the requirement of specific torque to affect this. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered adequate.

Tolerances of all parts shall be such that allows replacement of any parts without additional machining required to insure sealing a described above. No secondary sealing compounds, greases, or other devices shall be used.

Each unit shall be provided with an adequately designed cooling system. Thermal radiators integral to the stator housing, cast in on unit, are acceptable. Where water jackets along or in conjunction with radiators are used, separate circulation shall be provided. Cooling media channels and ports shall be no-clogging by virtue of their dimensions. Provisions for external cooling and flushing shall be provided.

Pump and motor assemblies shall meet NEC and NFPA requirements for explosion proof installations in Class 1, Division1, Group D environments.

The pumps and motors shall be manufactured by FLYGT Corporation.

150.06 <u>Control Panel</u>

This section is specific to single speed, duplex lift stations with float control, for variable speed, PLC controlled stations see Section 161.

The Contractor shall furnish and install a heavy duty type District Standard control panel as shown on the plans and specified here, as manufactured by Sta-Con Incorporated, QCI, or approved equal, and in accordance with the detail sheets SD-31 through 35.

The control panel shall contain all the remote electrical equipment necessary to provide for the operation of the pumps. The panel shall start and stop the pumps in the wet well.

The control panel shall start the "lead" pump when the liquid level rises to a preselected elevation "D". If the influent rate exceeds the capacity of the "lead" pump, the lag pump shall be started when the liquid level rises to a preselected elevation "C" (higher than "D"). If the liquid level rises to a preselected elevation "C"), the high level alarm shall be activated. When the liquid level falls to a persecuted elevation "E" (lower than "D"), both pumps shall be stopped.

The control panel shall be contained in a single enclosure, fabricated of not less than 14-gauge 316 stainless steel, NEMA 4X construction. The door shall be formed with minimum lip of 3/4" and full height hinged. Closure mechanisms shall be No. 3 S.S. fasteners with No. 3 keepers as manufactured by Simmons Fasteners, or approved equal.

The interior door shall be constructed of .080-inch thick 6061-T6 aluminum. The interior and exterior doors shall be provided with a stop mechanism to hold the doors open which working in the panel. A rain shield shall be provided.

The control panel shall include the following items plus any other items shown on the plans or required for a complete, operational installation.

Circuit breakers with combination full voltage motor Starters for each pump.

"Hand-Off-Auto" selector switch for each pump, heavy duty oil tight type (toggle switches will not be acceptable).

Automatic pump alternator with test switch.

Duplex receptacle with 15-amp circuit breaker 115V GFI.

Control power circuit breaker.

Main circuit breaker.

Emergency power minimum 100-amp circuit breaker and 100-amp, 4 wire, 3 pole, reverse service generator receptacle. Emergency power to match main breaker size.

Lightning arrestor, 3-phase.

Surge capacitor.

Phase monitor, to prevent energization of pump motors in the event of phase failure or reversal or low voltage.

Indicating light for each level regulator (float switch).

"Running" indicating light for each pump.

Elapsed time meter for each pump, 2-1/2", 6-digit non-reset.

Emergency/High level alarm light and horn, 12 VDC with battery back-up.

The panel shall include back-up circuitry to permit one pump to operate with a normal drawdown in the event of failure (open circuit) of the "stop" level regulator.

Spare parts to be furnished with the panel include:

2 - 120V Relays
1 - Alternator
1 - Phase Monitor
12 - Lamps
12 - Fuse Links
1 - Intrinsically Safe Barrier
1 - Alarm Controller

A copy of the panel wiring diagram shall be attached to the inside of the outer panel door. An extra copy shall be given to the District.

The basic components and layout of the control panel are shown on Standard Details 31, 32, 33 and 34.

Substitutions of these components will be permitted for approved equal, interchangeable products upon obtaining specific written approval from the District.

150.07 <u>Telemetry</u>

See Section 190

150.08 Access Hatches & Fall Through Safety Prevention Systems

The wetwell and valve vault access hatch shall be single leaf design with a minimum clear opening at 36" x 48", but must also meet the minimum clear opening as required by the pump manufacturer. The frame shall be a minimum: 3" x 3" x 1/4" aluminum angles and the cover shall be 1/4" aluminum diamond pattern. The hatch shall be completed with anchor straps, automatic hold open arm and cover release, forged brass or stainless steel hinges with stainless steel pins, hasp and staple lock, flush type handles, upper guide holders and sensor cable holder. The cover shall be reinforced to withstand a live load of 300 lbs./sq. ft. unless in areas that may experience traffic. Hatches in traffic areas shall meet H-20 design loading criteria, at a minimum. Hinges shall be of the interior type.

All stations 6' in diameter or larger, shall be provided with fall through safety prevention systems. All systems will be of the grate type as manufactured by U.S.F. Fabrication, Inc., or approved equal able to withstand a pedestrian load of 300 lbs/sq. ft.. The safety grate shall be constructed of aluminum. All hardware must be of 316 stainless steel.

The configuration of the hatch and safety grate shall be such that opposing sides of the wetwell opening are protected when the safety grate is in the upright position. Safety chains shall be provided from the safety grate to the hatch to protect adjacent sides.

10' diameter and larger wetwells and tri-plex stations will require custom hatch and safety grate designs to be determined in coordination with the District's Engineering Services.

150.09 <u>Floats</u>

Float switches with internal single pole mercury switch shall be installed in the wet well to control the operation of the pumps with variations of liquid level in the wet well. The float switches shall be sealed in a polypropylene casing with a firmly bonded electrical cable protruding. Floats shall be Roto-Float type S as manufactured by Anchor Scientific Inc..

150.10 <u>Wetwell Level Sensor</u>

See Section 180

150.11 <u>Valves</u>

See Section 130

150.12 Pipe and Fittings

See Section 110

150.13 Wetwell and Valve Vault

See Section 121 and standard details SD-31

150.14 <u>Wet Well via Caisson Construction</u>

Wet wells installed via the caisson method are allowed only with prior approval by the Loxahatchee River District. Final acceptance of the wet well by caisson method will only occur when it is determined that:

- Wet well has no structural damage, deep gouges and and/or cracks.
- Wet well has been installed at the design depths indicated.
- Wet well is plumb. The maximum deviation shall be 1/8" per foot of each precast section.
- Wet well tremie seal is leak free and there are no continually damp areas prior to the installation of the secondary pour.
- Wet well sections show no evidence of separation and that the structure has not settled.
- Wet well walls, specifically at the joints, are flush and without overhang.
- Wet well was installed in proper sequence.

If any of the above items are not met to the satisfaction of the District, the wet well will be rejected and it will be the contractor's responsibility to remedy the problem at his own expense. The contractor shall also provide a warrantee that the wet well will meet the above requirements for a 1-year period from the date of District acceptance.

150.15 <u>Submittals</u>

The following submittals are required for approval prior to construction of the project.

- 1. Lift Station Calculations to include
 - a. Average Daily Flow
 - b. Peak Hour Flow
 - c. System Head Curves
 - d. Wetwell Cycle Time
 - e. Anti-Flotation
- 2. Lift Station Site Plan
- 3. Pump and Motor
- 4. Pipe and Fittings
- 5. Valves
- 6. Concrete Structures
- 7. Control Panel complete detailed design including electrical schematic, panel layout, bill of materials

- Panel Rack
 Base Plates
 Rails, Brackets and Adapters
 Conduit and Cable
- 12. Aluminum Hatches and Safety Grates

Detailed wiring diagrams of the entire installation including main power supply, pump motors, control circuits, alarm circuits, and metering circuits shall be submitted. The diagrams shall include schematic and connection wiring diagrams.

Four (4) copies of detailed installation drawings including wiring diagrams, pump curves and maintenance and operating manuals shall be submitted to the District at the time of initial start-up.

150.16 Services to be Furnished by Manufacturer of Equipment

The services of a factory-trained representative shall be furnished for the lift station start-up. The representative shall check all electrical components, wiring, and pump operations.

150.17 Operation and Maintenance

Upon completion and successful startup of the lift station the District will be provided with two copies of the lift station operation and maintenance manual. The manual shall include operation and maintenance detail including service intervals for all equipment provided with the lift station. Operation and maintenance manuals shall also include AS-BUILT drawings for the lift station, control panel, wiring schematics and appurtenances.

150.18 <u>Warranty</u>

The pump manufacturer shall warrant the pumps for a period of five (5) years from the date of pump manufacturer's start-up. The warranty shall include a minimum 100% coverage of the manufacturer's shop labor and parts for the first eighteen months, then 50% coverage through the third year, and then 25% coverage through the fifth year.

END OF SECTION 150

SECTION 151

LOW PRESSURE SEWER SYSTEMS

151.01 <u>General Intent</u>

It is the intent of the District to provide sanitary sewer service to the citizens, businesses, and industry of the area in a manner which maximizes use of existing facilities, minimizes environmental damage, and provides solutions to existing problems.

Gravity collection systems with central lift stations are the preferred methods of collecting and transporting sewage to the regional facilities. All property owners should anticipate connection via these conventional facilities unless otherwise directed by the District.

The District recognizes that the construction of gravity sanitary sewer lines is not conducive to all areas, and that utilization of an alternative system may be necessary to provide access to regional facilities.

The District may at its sole discretion allow or direct the utilization of LPSS where it is determined to be in the best interest of the District. The District may direct the use of LPSS to minimize the impacts of gravity sewer construction upon existing neighborhoods or upon environmentally sensitive areas.

The use and implementation of LPSS shall be at the sole discretion of the District and no installation shall be considered as a precedent for justifying the acceptance of LPSS in a similar or like situation.

151.02 <u>Administration</u>

The administrative procedures for construction are set forth in the latest revision of the District Construction Standards and Technical Specifications and shall be adhered to unless specifically modified in writing by the District.

151.03 <u>Utilization</u>

151.03.1 LPSS for Existing Developments

For the purpose of this section, the term "existing developments" shall be considered as those areas which have previously developed on septic tanks to the extent that a substantial portion of the subdivision is now built out; or, under less prevalent circumstances, an area which has received site plan approval and is plated/subdivided based upon use of septic tanks.

The criteria for the District's determination of whether the use of LPSS is warranted includes, but is not limited to: existing developments of less than 40 homes, or in areas of high water tables, or in areas where work space for construction activities is unreasonably restricted or in areas where

available gravity collection lines have not been provided by prior construction.

Existing gravity sewer systems will be utilized to the maximum extent possible; however, LPSS may be considered in existing neighborhoods where gravity construction would be unreasonably restricted in the opinion of the District Engineer.

151.03.2 <u>Community Grinder Systems</u>

The use of a community grinder system is a merge of a LPSS system and a traditional gravity collection system, in that there are instances where the District would allow "grinder systems" in conjunction with small gravity system to serve a community. In accordance with Section 151.01 above, the utilization of smaller "grinder systems" with limited gravity collection systems will be encouraged in new developments where environmental concerns would be adversely impacted by the construction of a traditional non-clog lift station and/or deep gravity lines, at the sole determination of the District.

Grinder systems could be considered for:

- New Development areas of less than 15 homes, with a suitable site for a grinder station.
- Existing Development areas of less than 20 homes, both sides of street participating, and cost is not greater than 200% of LPSS, unless specifically requested by property owners.
- 151.04 <u>Responsibility</u>
- 151.04.1 <u>District</u>

A low pressure sewer system may consist of one or more pump stations. A pump station shall be considered as the individual pumping unit which serves a single residence, or a commercial or industrial customer. In the latter cases, the unit may contain two pumps (duplex).

All plans for the construction of any portion of an LPSS shall be submitted to the District Engineer for review and approval.

All LPSS facilities which are located within public rights-of-way shall be conveyed to the District for operation and maintenance.

Any facility, associated with an LPSS, which is located outside of the private property being served, must be within a dedicated easement or right of way. The easement shall be conveyed to the District.

The District shall be responsible for the operation and maintenance of all facilities (force mains, valves, etc.) within rights-of-way, or dedicated platted utility easements which serve more than one unit.

Property owners must execute a License Agreement for District maintenance of residential and low flow nonresidential pump stations.

151.04.2 Residential or Non-residential User Responsibilities

Each individual residential or low flow non-residential user of the LPSS system shall provide his own pump station, electrical service, force main and connection to the District owned collection/transmission lines. The District shall be responsible for the operation and maintenance of all residential and 3-phase non-residential low flow equipment serving his individual property, whether located on his property or in easements off of his property. The residential or nonresidential user shall be responsible for the installation of the pump station, control panel, force main valves, and all appurtenances which are a part of the system solely serving the individual user. Maintenance will be provided in accordance with the License Agreement provisions.

Low Pressure Systems for commercial and single phase low flow non-residential use shall: 1) require a duplex grinder pump system, and 2) be operated and maintained by the property owner in accordance with P.B.C. Health Dept./Florida DEP requirements

The user shall provide electrical power from his meter to the control panel, and all operating costs shall be users responsibility.

151.05 <u>Submissions and Approvals</u>

All installations of individual units shall be reviewed and approved by the District Engineer prior to construction. The District Engineering Department shall be notified at time of installation of the pumping unit and prior to connection to the District line. Connection excavations shall remain open and protected until such time as an inspection has been performed and a satisfactory connection is made.

All installations shall be made in accordance with District Technical Specifications, and local plumbing and electrical codes, and the regulations of the Florida Department of Environmental Protections.

Submittals for area lines which will be taken over by the District for operation and maintenance shall be made by a Professional Engineer, registered in the State of Florida. The District may require a hydraulic analysis from the Professional Engineer to determine if the existing District infrastructure has the capacity to accept new connections. Once hydraulic capacity has been determined available, six (6) sets of signed and sealed construction plans shall be submitted for approval. The construction shall also be inspected and certified by a Florida registered professional engineer upon completion.

Submittals for individual installations shall include a shop drawing of the pump station and control panel, and an as-built drawing showing tie-in dimensions of the force main, valves, and any electrical conduits.

The use of pumping units is restricted to specific makes and models for which the District will maintain a limited spare parts inventory for emergency situations <u>only</u>.

151.06 <u>Definition</u>

A low pressure sewer system is defined as a means of conveying sewage by individual pumping units through a small pressurized force main to a discharge point which can be part of an existing force main or gravity system.

151.07 <u>General System Design Considerations</u>

The following particulars should be considered in the design of any proposed low pressure system:

- 1. Geographical location.
- 2. Type of development number of residences.
- 3. Topography of service area (where applicable).
- 4. Layout of existing or proposed service area.
- 5. Projected sewage flows.
- 6. Location of nearest existing sewer facility.
- 7. Soil and water table information.
- 8. Availability of electric power.

151.07.1 System Layout and Alignment

The pressure sewer system should be designed so that all contributory lines are branched into a main collector. "Looping" and "dead-endings" of macerated sewage in remote areas of the system shall be avoided.

Pressure lines should be laid out to provide runs as short as possible with a minimum of major change in direction.

In order to facilitate maintenance and repair, force mains should be laid outside the limits of pavement or heavy traffic areas.

All system lines shall be kept full, under a positive pressure head at all times. This can be maintained by locating the system terminus at the highest elevation, or by employment of a positive pressure control devise at the terminus.

To minimize the number of potential air pockets, pressure lines should be installed on a continuously rising grade as much as possible to predetermined points where air release devices and cleanout ports can be installed in accordance with the Standard Details.

151.07.2 Design Flow

As in any collection system, a pressure sewer system must be designed to effectively handle all sewage flow generated in the service area especially during times of peak flows.

Peak flow shall be determined by accepted sanitary sewer engineering principals and standards established by regulatory agencies. Proper design should assure that each contributing pump unit in the service area, no matter what its location or what other units are operating at the same time, will be able to deliver into the system during these peak flow system conditions at a rate sufficient to insure that there will be no sewage removal problem at any individual building or unit. A pumping rate in the range of 8-10 gal./min. is normally considered sufficient.

151.07.3 Line Sizing and Velocities

Line sizing must be designed to insure that scouring velocities will occur in the system pressure lines at some regular interval. At the same time they must avoid excessive system pressures which can jeopardize the delivery capacity of any unit on the system.

To insure that scouring will occur during design flows, it is recommended that the velocities in the pressure lines be maintained in the 2-5 ft./sec. range at regular intervals.

Minimum service line and tap diameters for commercial connections shall be 2-inches. In the case of tying into an existing 2 or 2.5-inch main, a tee with a 2-inch outlet shall be cut in.

151.07.4 Operation of Contributing Pumping Units

A most important design consideration is that the proper operation of any and each pumping unit on the system be assured during any flow conditions which could exist. This includes the most demanding maximum peak design flow which may be seldom, if ever, encountered (such as immediately following an extended power outage).

151.07.5 System Flushing

Design shall provide for the ability to mechanically purge sewage from the system at regular intervals. Flushing connections to the force main system are shown in the Standard Details.

151.07.6 <u>Air Release</u>

Design shall provide for relief of air at high points along the system. Valves and piping configuration is shown in the Standard Details.

151.08 <u>Pumping Units</u>

The pumping units shall combine a centrifugal submersible pumping unit(s) with a patented grinding assembly which is capable of reducing sewage and its normal constituents (together with sticks, rubber, bones, rags, plastics, etc.) to a particulate slurry which can easily be transported through small diameter pipes.

The units shall be furnished complete with unit tank, electrical control panel, level controls, alarms, check and ball valves, and other necessary appurtenances as shown on the Standard Details.

Pumps shall be manufactured by Barnes and have a 1-1/4" vertical discharge outlet. Reference the District's low pressure sewer standard details (LP details) for information regarding pump models and configurations.

151.09 <u>Piping and Appurtenances</u>

151.09.1 <u>Pipe</u>

Schedule 40 PVC: Pipe shall be Type I, PVC 1120 with a hydrostatic design stress of 2000 psi for liquid at 73.4 F. Pipe shall conform to ASTM D 1785, ASTM F 480 and ASSTM D 2665.

HDPE: Pipe shall be PE 4710 with a minimum hydrostatic design stress of 800 psi for liquid at 73.4 F utilizing a 0.5 design factor. Pipe shall conform to ASTM 3035 and ANSI/AWWA C901.

151.09.2 <u>Valves and Cleanouts</u>

Isolation valves shall be strategically placed along the pressure main at services, junction points, changes of direction, and recommended intervals along extensive straight runs (see LP Details). Isolation valves shall be ball type made of brass and be capable of operation with a 2" operating nut and be placed within a District approved valve box. Refer to the District's LP details for specifics on which isolation valves are not required to have a valve box.

Each pumping unit shall be isolated from the low pressure force main system by a PVC ball valve (service valve) and check valve, positioned at the street right-of-way line, inside of a service box (see LP details).

This service line will typically be 1.5 inches in diameter, set in a District approved meter box, at no more than 18" depths at the right of way line (see LP Details).

151.09.3 System Wiring and Control

Each individual contributing pumping unit shall be connected by underground conduit to the individual home electrical power supply. This conduit may be laid in the same trench as the gravity service pipe to the unit tank. Wiring and conduits shall be installed in accordance with all applicable local codes and regulations.

Liquid level controls shall be a sealed mercury switch in an approved float ball. The switch shall be sealed for life with a heavy neoprene jacketed control cord permanently attached.

A high water activated alarm shall be supplied. An alarm light shall be mounted on the building or control panel in such a manner so that it will be visible to building occupants and from the contiguous street areas.

The electrical control panel shall consist of the following:

Corrosion Proof Enclosure NEMA 3R rating Hinged Access Panel Lockable Latch 120V AC Control Voltage - single phase GFI Receptacle on dead front Audible Alarm Rated Disconnect Switch The electrical control panel enclosure and its components shall be UL listed.

Typical wiring diagram is shown on the District's LP Details.

151.09.4 <u>Tanks and Covers</u>

Tanks shall be constructed of polymer or reinforced fiberglass polyester resin and the minimum size shall be 30" x 60" for a simplex configuration. Interior surface to be 10-20 mil. thick gel coated to provide a smooth sealed surface. Lockable gasketed water tight covers shall be flat aluminum and capable of supporting a 300 lb. wheel load. The fiberglass tank shall have an integral anti-flotation flange which will anchor into a concrete collar designed to counteract upliftforces.

The wall thickness of the fiberglass tank shall be sufficient to withstand a water saturated sand load of 120 pcf with a safety factor of two (2) for all depths.

Inlet hubs shall be as shown on the District's LP details. All hardware shall be stainless steel and be leak proof sealed.

The cover (lid) shall be 2/3^{rds} hinged single leaf, rated at 300 lbs/sq. ft and be lockable. The lid shall be set at a minimum, six (6") inches above final grade.

Conduit opening shall be sealed with an approved duct seal. Float

and wire hanger bracket shall be stainless steel (Type 304).

All interior piping shall be Schedule 80 PVC. A PVC union on the horizontal discharge pipe shall allow for the quick removal of the grinder pump assembly. The discharge line inside the tank shall also have a 1.25 inch PVC ball type check valve located inside the tank.

END OF SECTION 151

SECTION 180

INSTRUMENTATION

180.01 <u>General</u>

Instrumentation as described in this specification and shown in the drawings shall be provided.

Instrumentation shall be incorporated into the design requirements of the Contractor utilizing the equipment and materials included in this specification.

All electrical components of the system shall operate on 120 volt, single-phase, 60 hertz or 24 VDC power, except as otherwise noted in the specifications.

All electrical components located within the wetwell and the wetwell side of any sealed conduit fitting shall be Intrinsically Safe.

All necessary fuses or switches required by the instrumentation manufacturer for his equipment shall be provided with the equipment.

180.02 <u>Submittals</u>

Detailed design drawings including product specification sheets, mounting hardware, location, conduit, cable and tag numbers shall be provided.

180.03 <u>Cable</u>

All electronic (4-20MADC) signal wire shall be two conductors, copper, twisted pair with tape foil shield and drain wire. The shield is to be grounded at the PLC I/O panel only for single point grounding, in accordance with manufacturer's instructions. Single triad shielded cables for potentiometer signal cables shall be three conductors, copper, twisted triad with tape foil shield and drain wire. The cables must be UL listed for wet locations as defined by the NEC.

180.04 <u>Instrument Mounts</u>

All instruments shall be mounted in readily accessible positions that do not require entry into the wetwell for removal or maintenance. Brackets shall be fabricated to hold instruments. All brackets shall be 304 or 316 stainless steel. All mounting hardware, screws, machine bolts with washers and nuts shall be 316 stainless steel.

180.05 <u>Conduits</u>

All low voltage signals shall be isolated from high level control or power signals in separate conduits. All instrumentation signal conduits below grade shall be SCH80 PVC or 304 stainless steel. All underground conduits shall have grounding bushings and a No. 8 AWG copper minimum cable run to a ground lug at the termination points.

180.06 <u>Lightning/Surge Protection</u>

All transmitters with 4-20 MADC outputs shall have a transmitter mounted surge protection unit. The surge protection unit shall be a EDCO SS65 or approved equal.

180.07 Intrinsically Safe Pressure Transducer/Wetwell Level Sensor

Pressure transducers/wetwell level sensors shall be intrinsically safe and encased in a 316 stainless steel housing.

- 1. Range: 0 15 PSI
- 2. Cable: Minimum 50'
- 3. Output: 4 20 mA
- 4. Accuracy: +/-5%

Probes shall be Wika Instruments, LP Model LS10 with LevelGuard Anti-clog attachment or equal.

Level sensing submersible probes shall be installed in a stilling well. The stilling well shall be minimum 6" SCH 40 PVC secured to the wetwell every 7 feet with stainless steel brackets and hardware. The stilling well and probe shall be accessible from the wetwell hatch, not requiring an entry into the wetwell for maintenance or replacement of the probe.

180.08 Intrinsically Safe Pressure Transmitter

Pressure transmitters shall be intrinsically safe, backlit and mounted in the power and control panel dead-front.

- 1. Display: 5 Digit
- 2. Input: 24 VDC
- 3. Output: 4 20 mA
- 4. Accuracy: +/- 0.03%

Pressure transmitters shall be Precision Digital model 688 or approved equal.

180.09 <u>Power Supplies</u>

All instruments shall be looped powered with an appropriately rated power supply. Eachinstrument shall have a dedicated power supply.

180.10 Field Calibration and Testing

All instruments shall be set up, calibrated and tested in the field. The Contractor shall provide calibration sheets and testing equipment for each instrument. When installation is complete all components shall be tested to confirm operation and compliance with the contract.

180.11 <u>Installation</u>

All equipment shall be installed per the manufacturers requirements.

END OF SECTION 180

SECTION 181

PROGRAMMABLE LOGIC CONTROLLERS

181.01 <u>General</u>

This section describes the hardware and software requirements for a new Programmable Logic Controller (PLC) for a duplex or tri-plex lift submersible wastewater lift station with adjustable frequency drives, level control, emergency standby power, DFS radio telemetry unit (or) Cellular telemetry unit and appurtenances.

This section provides all labor and material required for the PLC system including the panels, equipment, software, screen development, programming, conduit, cable, tie-ins, checkout and start-up of the complete integrated system. This section shall be used in conjunction with the approved drawings and Section 161, Variable Speed/PLC Control Panels.

The latest version available at the time of installation of all PLC development software and communication driver software shall be provided.

All software and programming shall be required to perform the following functions in addition to the interlocking, monitoring and control functions indicated on the loop diagram drawings and developed in the PLC logic and OWS screen development meetings.

All enclosures shall be UL listed and NEMA rated to house the PLC, remote I/O, power supplies, and terminal blocks as shown in the drawings.

All panels shall be UL listed and labeled as a completed assembly. The panel fabricator shall furnish and install all items not specifically detailed in the drawings required to have the panels UL listed and labeled. All inspections, approvals and modifications required to have the completed panel labeled and listed by UL shall be furnished by, and the responsibility of the panel fabricator.

181.02 Applicable Standards

NEC NEMA UL IEC

Temperature	IEC60068:
Relative Humidity	IEC60068:
Vibration	IEC 60068
Shock	IEC 60068
Emissions	IEC61000
ESD Immunity	IEC 61000
Radiated RF Immunity	IEC61000

EFT/B Immunity	IEC61000
Surge Immunity	IEC61000
Conducted RF Immunity	IEC61000

181.03 Operation and Maintenance Manuals

All products shall be provided with operation and maintenance manuals complete with installation, troubleshooting and technical information on the equipment provided under this contract. Manuals shall be published by the equipment manufacturer.

181.04 <u>Training</u>

Training and instruction shall be given by the manufacturer or representative. Training shall be 4-hours for personnel selected by the Owner in the operation and general maintenance of the PLC. This training is independent of operator training for lift station observation and operation associated with automated controls.

181.05 <u>Submittals</u>

Submittals shall include installation drawings and manufacturer cutsheets clearly defining the products to be provided, their accessories/options and interconnectivity with all systems. Drawings shall also include single line system diagrams and detailed line diagrams for power, input/output and tag numbers.

181.06 Spare Parts

- A. One CPU
- B. One of each Network Module
- C. One of each type of input/output and data link module
- D. One of each type of power supply

181.07 <u>Programmable Logic Controller</u>

1. <u>Approved Manufacturer</u>

The PLC system shall be a Rockwell Automation 1756 ControlLogix L7***.

2. <u>General</u>

The PLC system (memory, communications, input/output modules, processor, power supplies, software) shall be a modular chassis mounted system and come complete from one manufacturer to provide a complete functioning control system as depicted in the Control Block Diagram and described in the operating protocol and of sufficient capacity for future expansion as allowed for in this specification.

Products shall be provided with conformal coatings, factory applied, to extend product life in harsh, corrosive environments.

The PLC shall be programmable and configurable from a Windows 7 and Windows 10

3. Communication

The PLC system shall be Ethernet compatible or have an Ethernet module accessible by a laptop computer. Programming functions associated with the PLC system shall be accessible through the Ethernet connection.

The PLC shall have a compatible communication modules or ports for communicating with the emergency standby generator controller exclusive of input/output modules and dry contacts. This communication port shall allow for sharing of all monitoring and alarm data associated with the emergency generator controller.

4. Input/Output Modules

The PLC shall have analog and discrete input/output modules sufficient for all proposed and future nodes identified in the control block diagram associated with the DFS Radio Telemetry System.

The PLC shall have analog an discrete input/output modules sufficient for all proposed generator status and generator fail signals.

The PLC shall have analog and discrete input/output modules sufficient for all proposed ATS, commercial, generator power signals.

The PLC shall have analog and discrete input/output modules sufficient for variable speed pump control based on level. PLC control and monitoring of variable speed drives shall be through analog and discrete input/output modules. The use of proprietary communication protocols for variable speed drive control shall be allowed.

The PLC shall have the ability to accommodate 50% additional I/O modules.

5. Central Processing Unit

The PLC configuration shall be maintained through a power loss. The PLC shall continue with operations when power is reinstated without additional programming, uploads or resets.

The PLC system shall utilize a Secure Digital (SD) card for non-volatile memory to store a user program and tag data on the PLC. The PLC system shall be

configurable to trigger the controller to save to or load from the SD card and to load to the controller from the SD card on power up.

The minimum size CPU shall be an A-B Rockwell Automation ControlLogix Series 1756-L71 with 128 MBs of optional nonvolatile memory storage.

6. Power Supplies

Power supplies shall be surge and transient protected, and shall accept input voltages of 90 to 130 VAC. The power supplies shall be fused.

All PLC systems power supplies shall be modular, allowing the power supply to be removed for replacement without affecting input/output modules or wiring.

The PLC systems shall come with redundant power supply.

7. Wire and Cabling

All PLC specific cables shall be furnished by the PLC system manufacturer and be designed for the intended use.

All other wire shall be stranded copper type TFF or MTW, 18 GA for I/O and minimum 14 GA for power.

8. Programming

The CPU shall be capable of being programmed by an external IBM compatible host device via either a serial communication port or Ethernet port on the CPU, or a parallel communication port on an input/output chassis. Serial programming shall be possible without the use of a workstation interface board.

Software shall be Rockwell Automation RSLogix 5000 Professional Edition.

All software shall be registered to the Owner.

9. Terminal Blocks

Input/output modules shall utilize removable terminal blocks to connect all field side wiring.

10. Signal Isolators, Converters and Conditioners

Instrument signals shall be 4 - 20 mA DC. Signal isolators and converters shall be provided as necessary to comply with this requirement. The devices shall be mounted in the panel and such that field wiring may be changed/maintained without affecting the devices.

All communication circuitry shall include protection against lightning, spikes and other transient surges.

11. Grounding

The grounding system of the PLC system shall be tied into the main ground system. The tie-in shall be made from the panel frames to the main ground system.

181.08 Execution

Start-up and testing services for the PLC system shall be provided. The PLC system shall be fully tested against the requirements outlined in this section and Section 161 and the operating protocol and equipment manufacturer requirements. Test procedures and checklists for approval shall be submitted prior to testing. Completed test checklists shall submitted as part of the project record documentation.

END OF SECTION 181

SECTION 190

REMOTE TERMINAL UNIT (RTU) – LIFT STATION

190.01 General

The District has an existing Radio Telemetry System as manufactured by Data Flow Systems, Melbourne, Florida (321) 259-5009. For compatibility purposes, new remote terminal units will be required as specified herein from Data Flow Systems (DFS) 321-259-5009. The remote terminal unit shall include all materials, labor, tools, equipment, and appurtenances necessary forthe proper completion of the work. The work covered by these specifications consists of providingall design, labor, tools, materials, and testing necessary for the supply of the RTU as described herein.

Physical location information shall be provided to DFS for radio communication study purposes. Information shall be provided in the form of GPS readings or street map with actual site location(s) clearly marked.

The RTU shall be housed in its own enclosure. The RTU enclosure shall be mounted on the antenna tower. The RTU shall be powered by 120 VAC commercial power, monitor local statuses and transmit those statuses to the existing central site when polled by the master radio. An Uninterruptible Power Source (UPS) shall be included with the RTU.

190.02 Equipment Specification

190.02.1Remote Terminal Unit (RTU204)

The remote terminal unit shall be DFS Model RTU204. The RTU shall communicate with the central site via a two-way radio link and designed to accommodate the required plug-in function modules. Function module card connectors shall be gold-over-nickel plated to inhibit corrosion. The RTU shall be housed in a white color NEMA 4X 316 SS enclosure. All mounting hardware utilized shall be stainless steel. The enclosure shall be capable of being locked. The latches utilized to secure the door of each enclosure shall not require the use of a screwdriver to open or close.

190.02.2 Power Supply Module (PSM003)

The RTU shall include a Power Supply Module (PSM003). All function modules in the RTU shall run off DC voltage from +7.5 volts to +13 volts. The PSM shall supply +12 volts. A battery backup shall be provided in event of power failure. The power supply shall be surge protected. The power supply shall be short circuit protected by current limiting. Normal operation shall automatically resume when the short circuit overload is removed. The power supply shall be sized to operate the system with the battery removed. The power supply module shall provide a battery backed, isolated bias voltage source. The circuit breaker for the power supply module shall be part of the power supply module. Neither the use of tools nor the disconnection of any wires shall be required to replace the power supply module.

190.02.3Backup Battery/Uninterruptable Power Supply (UPS)

The RTU shall have the uninterruptible power supply (UPS) function built in. The RTU's internal Power Supply Module shall keep the battery at a float charge. The battery shall not be damaged by deep discharges.

190.02.4Telemetry Interface Module (TIM007)

- a) The Telemetry Interface Module (TIM) shall incorporate a synthesized programmable radio.
- b) A data buffer on the TIM shall enable it to query and store the I/O function module(s) status between radio polling loops until data is requested by the central site.
- c) The TIM shall feature a wake up/report/sleep mode to aid in battery conservation for solar-powered applications.
- d) The TIM shall support four levels of digipeating (store and forward), enabling radio messages from a different RTU to be routed to the central site.
- e) The TIM shall monitor AC power on the Power Supply Module and DC Bias to the RTU I/O function modules.
- f) The TIM shall incorporate a 2x8 character LCD display and 3-button user interface for field diagnostics and support data without the use of a portable computer.
- g) The TIM shall incorporate a test mode switch that places the radio into a service mode.
- h) The TIM shall incorporate LEDs for TX, RX, Power, CPU Fault.

190.02.5 Digital Monitor Module (DMM002)

The RTU shall include a Digital Monitor Module (DMM002). The DMM002 shall accept 12 on/off inputs of 12 to 30 volts AC or DC. Voltages from 100 to 300 volts AC or DC shall be accommodated with the use of an inline voltage converter device. Status reporting of these inputs shall have an accuracy of +- 2 seconds, the accuracy being defined as time of an occurrence to actual time recorded by the central site computer. The DMM002 shall not require interfacing relays to monitor 24 VDC, 115 VAC, 220 VAC or 480 VAC. The DMM002 shall have LEDs to indicate: the status of each input point; receive communications; transmit communications; CPU fault; and power status. The configuration of the monitor points as alarm points or monitor points (pump run time monitors) shall be operator changeable. The configuration shall not require any softwareor firmware changes in the system.

190.02.6 <u>Antenna Subsystem</u>

DFS shall determine the antenna type and height required for reliable communications. A high gain directional or omni antenna shall be used to transmit and receive data. The antenna mast/pole shall be hot dipped galvanized for corrosion protection. All mounting hardware shall be made of stainless steel. The coax cable shall be the type that utilizes an inert semi-liquid compound to flood the copper braid. The coax cable shall be of the RG-8 construction type and have the RF- loss characteristic of foam flex. The coax cable shall be RTC 400 as supplied by DFS. Type N connectors shall be utilized at both ends of the coax and sealed with 3-inch sections of Alpha

FIT321-1-0 sealant shrink tubing. The coax cable shall be secured to the mast/pole with AE112 Bandit coated 316 stainless steel cable ties. The RTU shall be protected from electrical surge or transients entering through the coaxial cable by use of a IS-B50LN-C2 Polyphaser coaxial cable surge protector.

190.03 RTU Monitor Points

The RTU shall accommodate the following I/O points.

RTU HARDWIRED I/O LIST:

DIGITALINPUT (DI)	DIGITALOUTPUT (DO)	ANALOG INPUT (AI)	ANALOG OUTPUT (AO)
COMMERCIAL POWER	NONE	WET WELL LEVEL	NONE
AUXILIARYPOWER		(3) AI SPARE	
HIGH WET WELL LEVEL			
PUMP 1 RUN STATUS			
PUMP 2 RUN STATUS			
*PUMP 3 RUN STATUS			
PUMP 1 FAULT			
PUMP 2 FAULT			
* PUMP 3 FAULT			
GENERATOR GENERAL ALARM			
GENERATOR LOW COLLANT			
GENERATOR LOW FUEL			
GENERATOR FAIL TO START			
(7) DI SPARE			
* If applicable			

190.04 Installation

In order to insure total system integration with the existing system, secure and provide the services of Data Flow Systems, Inc. for RTU hardware.

190.05 Programming

Antenna alignment fine-tuning procedure, configuration of RTU into the system, RTU point-by point verification at the central computer, and RTU screen generation services shall be covered by the District.

190.06 Warranty

DFS shall warrant all hardware provided under this contract against all defects in material and workmanship for a period of one year. The RTU plug-in modules shall carry an additional 2-year return-to-manufacturer warranty and shall be covered against damage due to lightning and surge the entire 3-year period.

190.07 Spare Parts

Provide the following spare parts with the RTU:

- a. (1) Telemetry Interface Module (TIM007)
- b. (1) Power Supply Module (PSM003)
- c. (1) Digital Control Module (DCM003)
- d. (1) Digital Control Module (DCM004)
- e. (1) Analog Monitor Module (AMM ---)
- f. (1) Backup Battery
- g. (1) RTU Antenna

END OF SECTION 190

DIVISION 1

GENERAL REQUIREMENTS
SECTION 01000

SUMMARY OF WORK

PART I - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. Furnish all equipment, materials, labor, and supervision necessary to install a new sewer system for the Jupiter Inlet Lighthouse Park area managed by the U.S. Department of the Interior Bureau of Land Management (BLM). The work includes installation of 8" gravity sewer, gravity services, manholes, a commercial duplex lift station, discharge force main, residential grinder stations, low pressure force main, and connection to an existing force main. The work also includes abandonment of existing septic tanks in accordance with Florida Department of Health (FDOH) and removal of existing grey water tanks.
- B. Project also includes replacement of the existing private domestic potable water system on the property with new 2" polyethylene water mains and services. Work will include connection of the new potable water system to the existing Town of Jupiter water meter.
- C. Project involves site improvements including, but not limited to, removal of asphalt roadway, replacement of primary roadway with compacted shell rock, replacement of secondary roadway with sod, construction of stormwater swales and retention areas, grading, demolition of existing stormwater catchment structures, and construction of new parking areas.
- D. Project includes work within an area that may contain archaeological/cultural materials. Monitoring for archaeological resources will need to occur during the course of construction. Additional details are outlined in **Section 01400** Quality Control.
- E. This Project includes, but is not limited to, all pipe, fittings, valves, pipe supports, manholes, precast concrete structures, concrete, control panels, temporary sheeting, shoring, dewatering, support for existing structures and infrastructure, demolition work, site work, maintenance of traffic, restoration, and other work as shown on the drawings and specified. The Work includes general conditions, bonds, indemnification, mobilization, demobilization, start-up, testing, record drawings, operation and maintenance manuals, OWNER training, and any all other necessary items to provide a complete and operating system.
- C. All Work shall be in accordance with the General Conditions.

1.02 WORK BY OTHERS

- A. The CONTRACTOR will diligently perform the scope of work independently of all others who may perform concurrent tasks during execution of the scope of work.
- B. The OWNER reserves the right to add to the work in accordance with the General Conditions.
- C. The ENGINEER or OWNER's representative reserves the right, throughout the construction process, to perform onsite inspections of the CONTRACTOR and construction process. Documentation of work may include, but not be limited to, detailed documentation of daily work performed by the CONTRACTOR, and photographs and/or videos of critical phases of construction.

1.03 WORK SEQUENCE

- A. The CONTRACTOR shall submit the sequence of work for review and approval by the OWNER and ENGINEER prior to commencement of work.
- B. CONTRACTOR must apply for and obtain all required permits for construction, including but not limited to building permits and dewatering permits, prior to commencement of construction activities.
- C. The CONTRACTOR is responsible to complete the work in the time as set forth by the General Conditions, which is 150 calendar days for substantial completion and 215 calendar days for final completion.

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

PART 1 – GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Coordination.
 - 2. Field engineering.
 - 3. Cutting and patching.
 - 4. Preconstruction conference.
 - 5. Progress meetings.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and work to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items to be installed later.
- B. Coordinate completion and clean up of Work of separate sections in preparation for Substantial and Final Completions.
- C. Coordinate any tie-ins to existing piping with Loxahatchee River District (LRD). Obtain written authorization prior to disconnecting or shutting down any pumps, equipment, meters, water mains, reclaimed mains, force mains, opening or closing valves, or performing tie-ins.
- D. Procure approval from LRD prior to operating any existing valve.

1.03 FIELD ENGINEERING

A. Employ a Land Surveyor registered in the State of Florida and acceptable to the ENGINEER and OWNER to perform all field surveys.

- B. CONTRACTOR shall locate and protect survey control and reference points.
- C. Control datum for survey is Vertical Control NAVD 1988.
- D. Provide field engineering services. Utilize land surveyor to establish elevations, lines, and levels, utilizing recognized survey practices.
- E. Submit signed and sealed certification prepared by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

1.04 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affects:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of OWNER or separate CONTRACTOR.
- C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
 - 1. Fit the several parts of the Work together, to integrate with other Work.
 - 2. Uncover Work for exploration and identification of existing utilities or for installation of subsequent Work.
 - 3. Remove and replace defective and non-conforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations by mechanical and electrical Work.

- D. Execute Work by methods, which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill, as required.
- F. Restore Work with new Products in accordance with requirements of the Task Order.
- G. Construct a tight fit between the Work and pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- I. Identify any hazardous substance or condition exposed during the Work to the ENGINEER.

1.05 PRECONSTRUCTION CONFERENCE

- A. ENGINEER will schedule a conference after Notice to Proceed.
- B. Attendance Required: OWNER, ENGINEER, and GENERAL CONTRACTOR
- C. Agenda:
 - 1. Designation of personnel representing the parties as defined in the General and Supplemental Conditions, and the ENGINEER.
 - 2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 - 3. Scheduling.

1.06 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work as required.
- B. Attendance Required: Job superintendent, major Subcontractors and suppliers, OWNER, ENGINEER, as appropriate to agenda topics for each meeting.
- C. Agenda:

- 1. Review minutes of previous meetings.
- 2. Review of Work progress and updated schedule.
- 3. Field observations, problems, and decisions.
- 4. Identification of problems, which impede planned progress.

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

SECTION 01200

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Unit prices stated in the Contract shall be considered payment in full for the completion of all work. Payment shall be made under each item only for work as it is not specifically included under other items.
- B. The CONTRACTOR shall furnish all labor, equipment and material required to complete the construction that will provide a new sewer system and replacement of the potable water system at the Jupiter Inlet Lighthouse property. The sewer system includes gravity sewer piping, manholes, duplex grinder pump station, sewer services, and low-pressure force main. The potable water system will include 2" HDPE water main piping and services. The project also includes replacement of the existing asphalt roadway with a new shell rock roadway and parking areas.

1.02 PERFORMANCE

- A. Section generally defines unless otherwise indicated, the following:
 - 1. Payment item descriptions.
 - 2. Payment application descriptions.
- B. The cost of temporary facilities, bonds, insurance, attending project meetings, administration, record drawings, policing, and other general duties shall be considered incidental to all items.
- C. The OWNER may direct the CONTRACTOR to install certain portions of the work in advance of other portions without extra payment to the CONTRACTOR.

1.03 RELATED SECTIONS

- A. Notice to Contractors
- B. Article 1 Instructions to Bidders.
- C. Article 2 Bid Form.
- D. Article 4 Contract.

E. Article 10 - General Conditions.

1.04 LUMP SUM ITEMS

A. The lump sum price shall be full compensation for all labor, materials and equipment to satisfactorily complete the installation of the items as shown on the plans and indicated in the details for lump sum bid items.

1.05 UNIT PRICE ITEMS

A. The ENGINEER or his representative shall determine the number of units of each work item installed.

1.06 SATISFACTORY COMPLETION

A. Satisfactory completion shall include dewatering, if any, and repair or replacement of damaged landscaping, irrigation systems, pavement or other existing improvements.

1.07 PAYMENT ITEMS

- A. Unit Price Bid
 - 1. Payment shall constitute summation of measured quantities multiplied by the respective unit price for items constructed as specified herein and shown on the engineering drawings; including installation and removal of all temporary facilities, piping; and supply of all incidental materials, equipment and labor necessary to complete the contemplated Work whether specifically identified herein or not.
 - 2. Partial progress payments will be made at monthly intervals and will be based upon the value of the Work completed on the date that a partial payment application is submitted less deductions for retainage as defined elsewhere. Signed and Sealed Record Drawings shall be submitted and approved with each partial and final pay request.

1.08 PAYMENT APPLICATION DESCRIPTION

- A. Preparation of Applications:
 - 1. Present required information in type written form, or equivalent.
 - 2. Execute certification by signature of authorized officer.
 - 3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.

- 4. List each authorized Change Order as an extension on the Application for Payment, listing Change Order number and dollar amount as for an original item of Work.
- B. Submittal Procedures
 - 1. Submit three (3) copies of each Application for Payment.

Payment Period: Submit monthly as directed by the OWNER.

Submit signed and sealed record drawings covering work for which payment is being requested.

Submit revised progress schedule accurately reflecting the work completed and the schedule of future work items.

- C. Substantiating Data
 - 1. When OWNER requires substantiating information, submit data justifying dollar amounts in question.
 - 2. Provide one (1) copy of data with cover letter of each copy of application. Show Application number and date, and line item by number and description on each piece of data.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 BID ITEM DESCRIPTIONS

A. **PAY ITEM NO. 1 – MOBILIZATION/DEMOBILIZATION**

The Contract Lump Sum for this item shall constitute full compensation for mobilization, demobilization, general conditions, insurances, monthly photos, shop drawings, permits, temporary facilities, and bonding in accordance with the contract documents. The first payment shall not include mobilization / demobilization if the CONTRACTOR has not started work at the project site. Payment for this item shall be by Lump Sum (LS). Total cost of this item shall not exceed 10% of the total contract value.

B. **PAY ITEM NO. 2 – MAINTENANCE OF TRAFFIC**

The Contract Lump Sum for this item shall constitute full compensation for providing all necessary permits and traffic devices to maintain traffic during construction and restoration. Traffic devices may be in the form of barricades, personnel, lights, signs, temporary rock roadways, etc. All work shall be in accordance with all applicable Florida Department of Transportation specifications, and in accordance with the governing municipalities and other governing agencies. Payment for this item shall be by Lump Sum (LS).

C. PAY ITEM NO. 3 – AS-BUILT RECORD DRAWINGS

The Contract Lump Sum for this item shall constitute full compensation for providing a Professional Surveyor licensed in the State of Florida to perform as-built surveying including: signed and sealed record drawings; AUTOCAD record drawings and other items described in **Section 01720 - Record Documents**. Payment for record drawing information will be made upon completion of all required items in accordance with the requirements of the Contract Documents. Payment for record drawings will be processed after drawings are approved. No partial payments shall be made for record drawings. Payment for this item shall be by Lump Sum (LS).

D. PAY ITEM NO. 4 – AUDIO VIDEO DOCUMENTATION

The Contract Unit Price for this item shall constitute full compensation for providing, prior to start of construction, a video of the project by a professional video-taping service acceptable to the OWNER. The video may include all driveways, landscaping area, etc. for each side of the streets. The video should extend from right-of-way to right-of-way and 10' beyond. A copy of the video shall be turned over to the OWNER and ENGINEER for their use. Payment for this item shall be by Lump Sum (LS).

E. **PAY ITEM NO. 5 – NPDES PERMIT/EROSION MEASURES**

The Contract Lump Sum for this item shall constitute full compensation for establishing, constructing and maintaining erosion and sediment control measures. The erosion control programs shall be maintained during the entire period of construction, including any extensions in Contract time. Temporary erosion and pollution control shall include construction work off-site where such work is necessary as a result of borrow pit operations, haul roads or equipment storage sites, etc. This work shall also include the preparation of any required Stormwater Pollution Prevention Plan (SWPPP), including modifications and updates. The CONTRACTOR shall obtain and comply with all provisions of the State of Florida, Department of Environmental Protection, Permit for Stormwater Discharge from Large and Small Construction Activities (NPDES Construction Site Permit Program). Payment for this item shall be by Lump Sum (LS).

F. PAY ITEM NO. 6 – 8" PVC SANITARY SEWER PIPE (0' - 6')

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to furnish and install the 8-inch SDR-26 PVC sanitary sewer pipe (0' - 6' deep) as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the pipe trench, together with the disposal of all excess materials, bracing, and sheeting, the installation of the PVC pipe, pipe restraints, and tracer wire, the backfilling and compaction of the pipe trenches, density testing, hydrostatic testing, maintaining uninterrupted flow of existing utilities, providing access to driveways and roadways at all time, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the sanitary sewer main. Item includes any dewatering necessary for installation of the piping. This work also includes repairs to irrigation systems damaged or removed during the construction activities and shall include piping, valves, heads, controls, conduit, boxes, wires, panels, etc. All irrigation systems shall be restored to the pre-existing condition or better. This item shall also include removal and proper restoration of miscellaneous items such decorative landscaping, drainage culverts, irrigation piping, etc. Payment of this item shall be per Linear Foot (LF) installed.

G. PAY ITEM NO. 7 – 8" PVC SANITARY SEWER PIPE (6' - 8')

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to furnish and install the 8-inch SDR-26 PVC sanitary sewer pipe (6' - 8' deep) as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the pipe trench, together with the disposal of all excess materials, bracing, and sheeting, the installation of the PVC pipe, pipe restraints, and tracer wire, the backfilling and compaction of the pipe trenches, density testing, hydrostatic testing, maintaining uninterrupted flow of existing utilities, providing access to driveways and roadways at all time, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the sanitary sewer main. Item includes any dewatering necessary for installation of the piping. This work also includes repairs to irrigation systems damaged or removed during the construction activities and shall include piping, valves, heads, controls, conduit, boxes, wires, panels, etc. All irrigation systems shall be restored to the pre-existing condition or better. This item shall also include removal and proper restoration of miscellaneous items such as decorative landscaping, drainage culverts, irrigation piping, etc. Payment of this item shall be per Linear Foot (LF) installed.

H. **PAY ITEM NO. 8 – 4' MANHOLE (0' - 6')**

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install 4' manholes (0' - 6')

deep) as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the manhole, disposal of all excess materials, bracing and sheeting, the installation of the coated manhole with frame and cover, the connection of the proposed sanitary sewer main to the proposed manhole, forming of the base including invert channel, mudding the manhole water-tight, rock base, backfill and compaction, testing, supports, maintaining uninterrupted flow of existing utilities, providing access to driveways and roadways at all times, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the manhole. Item includes any dewatering necessary for installation of the manhole. Payment for this item shall be the actual number of Each (EA) manholes (0' - 6' deep) installed.

I. **PAY ITEM NO. 9 – 4' MANHOLE (6' - 8')**

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install 4' manholes (6' - 8' deep) as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the manhole, disposal of all excess materials, bracing and sheeting, the installation of the coated manhole with frame and cover, the connection of the proposed sanitary sewer main to the proposed manhole, forming of the base including invert channel, mudding the manhole water-tight, rock base, backfill and compaction, testing, supports, maintaining uninterrupted flow of existing utilities, providing access to driveways and roadways at all times, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the manhole. Item includes any dewatering necessary for installation of the manhole. Payment for this item shall be the actual number of Each (EA) manholes (6' – 8' deep) installed.

J. PAY ITEM NO. 10 – 4" PVC LATERAL - SINGLE SERVICE W/ CLEAN-OUT

The Contract Unit Price for this item shall constitute full compensation for providing all labor, materials, equipment, and incidentals necessary to furnish and install PVC service piping, fittings, adapters, EMS markers, cleanouts, and any other appurtenances necessary to connect the single service to the sanitary sewer shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation and backfill thereof, together with the disposal of all excess materials, bracing and sheeting, the furnishing and compaction, hydrostatic testing, maintaining uninterrupted flow of existing utilities, providing access to driveways at all times, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of sewer service lines, cleanout, and appurtenances. This item shall include all labor, materials, equipment, and incidentals necessary to connect the lateral to the existing structure as shown on the drawings, including any necessary

plumbing permits. Item includes any dewatering necessary for installation of the manhole. Payment for this item shall be the actual number of Each (EA) single short service installed.

K. PAY ITEM NO. 11 – 6" PVC LATERAL - DOUBLE SERVICE W/CLEANOUT

The Contract Unit Price for this item shall constitute full compensation for providing all labor, materials, equipment, and incidentals necessary to furnish and install PVC service piping, fittings, adapters, EMS markers, cleanouts, and any other appurtenances necessary to connect the single or double service to the 6-inch or 8inch sanitary sewer service pipe shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation and backfill thereof, together with the disposal of all excess materials, bracing and sheeting, the furnishing and compaction, hydrostatic testing, maintaining uninterrupted flow of existing utilities, providing access to driveways at all times, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of sewer service lines, cleanout, and appurtenances. This item shall include all labor, materials, equipment, and incidentals necessary to connect the lateral to the existing structure as shown on the drawings, including any necessary plumbing permits. Payment for this item shall be the actual number of Each (EA) double service installed.

L. PAY ITEM NO. 12 – 2" PVC FORCE MAIN AND FITTINGS

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to furnish and install PVC force main as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the pipe trench, together with the disposal of all excess materials, bracing, sheeting, and dewatering, the installation of the PVC pipe, fittings, pipe restraints, and trace wire, the backfilling and compaction of the pipe trenches, density testing, hydrostatic testing, maintaining uninterrupted flow of existing utilities, providing access to driveways and roadways at all time, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the water main. This work also includes repairs to irrigation systems damaged or removed during the construction activities and shall include piping, valves, heads, controls, conduit, boxes, wires, panels, etc. All irrigation systems shall be restored to the pre-existing condition or better. This item shall also include removal and proper restoration of miscellaneous items such as decorative landscaping, drainage culverts, irrigation piping, etc. Payment of this item shall be per Linear Foot (LF) installed.

M. PAY ITEM NO. 13 – 2" HDPE FORCE MAIN AND FITTINGS

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete construction of a 2-inch HDPE water main installed via horizontal directional drill methods as shown on the construction Drawings, specified herein and as directed by the ENGINEER. This item includes, but is not limited to, surveying, erosion control, excavation, backfill, and compaction for entry and exit pits, maintenance of traffic, supporting and protecting existing utilities, dewatering, all pipe, fusing, drilling, reaming, slurry, pulling of pipe through the borehole, disposal of excess materials, frac-out control, pipe marking tape, tracer wire, tracer wire termination boxes, adapters, restoration of irrigation systems (irrigation piping, sprinkler heads, etc.), providing temporary restoration of roads, temporary restoration of structures, etc., and removal and disposal of sidewalks, driveways, asphaltic concrete, rock base and subgrade (including necessary sawcutting). Payment for this item is per linear foot (LF) of piping installed. Payment for this item will be from the end of the 2-inch pipe with the pulling head connected to it to the end of the last section of 2-inch pipe pulled as part of the HDD.

N. PAY ITEM NO. 14 – 1.5 SINGLE LOW PRESSURE SERVICE

The Contract Unit Price for this item shall constitute full compensation for providing all labor, materials, equipment, and incidentals necessary to furnish and install PVC service piping (up to 30 feet), fittings, adapters, EMS markers, curb stops, ball valves, swing check valves, service boxes, and any other appurtenances necessary to connect the single service to the force main shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation and backfill thereof, together with the disposal of all excess materials, bracing, sheeting and dewatering, the furnishing and compaction, hydrostatic testing, disinfection, maintaining uninterrupted flow of existing utilities, providing access to driveways at all times, constructing and maintaining all bridges required for traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs, and sod and all other work required for the complete installation of sewer service lines, service boxes, valves, and appurtenances. Payment for this item shall be the actual number of Each (EA) single service installed.

O. PAY ITEM NO. 15-INSTALL COMMERCIAL (DUPLEX) GRINDER PUMP STATION AND CONCRETE PAD

The Contract Unit Price for this item shall constitute full compensation for installation of a new a commercial duplex grinder pump station with concrete pad as shown on the drawings and detailed in Appendix J. The unit bid price shall include, but is not limited to, installation of the Wetwell, valve vault, hatches, discharge piping, pumps, pump bases, rails, brackets, control panel and other appurtenances necessary to provide afunctioning and complete pump system. Wetwell, valve vault, hatches, discharge piping, pumps, pumps, pumps, pump bases, rails, brackets, and control

panel shall be furnished by the Owner for installation by the Contractor. Contractor shall be responsible for miscellaneous hardware and labor required for complete and successful installation of the pumps and pump accessories and furnishing and installing the concrete pad.Measurement and Payment shall be a lump sum (LS) for installation of the grinderpump station and concrete pad.

P. PAY ITEM NO. 16 – INSTALL SIMPLEX GRINDER PUMP STATION

The Contract Unit Price for this item shall constitute full compensation for installation of a new simplex grinder pump station as shown on the drawings. The unit bid price shall include, but is not limited to, installation of the Wetwell, valve vault, hatches, discharge piping, pumps, pump bases, rails, brackets, control panel and other appurtenances necessary to provide a functioning and complete pump system. Wetwell, valve vault, hatches, discharge piping, pumps, pumps, pumps, pump bases, rails, brackets, and control panel shall be furnished by the Owner for installation by the Contractor. Contractor shall be responsible for miscellaneous hardware and labor required for complete and successful installation of the pumps and pump accessories. Measurement and Payment shall be each (EA) for installation of the grinder pump station.

Q. PAY ITEM NO. 17 – BLACK VINYL-COATED CHAIN-LINK FENCE

Measurement and payment shall be per linear foot (LF) of 6-foot high black vinylcoated chain-link fence. The unity price shall include, but is not limited to, chain-link fence, black vinyl coating as required for all fence fabric, all posts, concrete footing, braces, rails and accessories. All posts shall be capped with galvanized steel tops. Line post tops shall provide for passage of top rail. All welded joints shall be coated with a two-part epoxy.

R. PAY ITEM NO. 18-BLACK VINYL-COATED CHAIN-LINK SWING GATE

Measurement and payment shall be per each (EA) chain-link fence gate furnished and installed. Fence gate shall be 6-foot high double swing type with a clearance of 14 feet from fence post to fence post. The unit price shall include, but is not limited to, black vinyl coating as required, all posts, concrete footing, braces, rails, hinges, turnbuckles, lockable latch with industrial drop rod, and other accessories. All posts shall be capped with galvanized steel tops. Line posts shall provide for passage of top rail. All welded joints shall be coated with a two-part epoxy.

S. PAY ITEM NO. 19 – CONNECT 2" PVC FORCE MAIN TO EXISTING 2" FORCE MAIN

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to connect to the proposed 2- inch PVC force main to the existing 2-inch PVC force main where shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not

limited to: removing existing pipe and fittings, excavation and backfill thereof, sheeting and bracing, dewatering, protection and support of existing utilities, proper handling and disposal of pipe at an approved facility, installing adapters for new the new pipe and fittings, providing access to roadway, driveways, and sidewalks at all times, backfilling and compaction, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs, and lawns, and all other work required for connecting to the existing force main. Payment for this item shall be the actual number of Each (EA) connection installed.

T. PAY ITEM NO. 20 – TERMINAL FLUSHING PORT

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install terminal flushing ports, as shown on the drawings, as specified herein and as directed by the ENGINEER, including but not limited to: excavation, disposal of excess materials, bracing, sheeting and dewatering, the installation of the materials of the terminal flushing port assembly, box, cover, PVC piping, ball valves, plugs, fittings, gaskets, flanges, and restraints, backfill and compaction, rock bedding, hydrostatic testing, concrete thrust blocks, maintaining uninterrupted service in existing utilities, location and protection of utilities, maintenance of traffic, and all other work required for the complete installation of the terminal flushing port. Payment for this item shall be the actual number of Each (EA) terminal flushing port installed.

U. PAY ITEM NO. 21 – INLINE FLUSHING PORT

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install in-line flushing ports, as shown on the drawings, as specified herein and as directed by the ENGINEER, including but not limited to: excavation, disposal of excess materials, bracing, sheeting and dewatering, the installation of the materials of the in-line flushing port assembly, box, cover, PVC piping, ball valves, plugs, fittings, gaskets, flanges, and restraints, backfill and compaction, rock bedding, hydrostatic testing, concrete thrust blocks, maintaining uninterrupted service in existing utilities, location and protection of utilities, maintenance of traffic, and all other work required for the complete installation of the in-line flushing port. Payment for this item shall be the actual number of Each (EA) in-line flushing port installed.

V. PAY ITEM NO. 22 – AIR RELEASE VALVE

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install air release valves as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the valves, together with the disposal of all excess materials, bracing, sheeting and dewatering, the installation of the air release valve, valve boxes, bolts, nuts, and gaskets, backfilling, hydrostatic testing, concrete thrust block and restraints and concrete supports, maintaining

uninterrupted flow of existing utilities, providing access to driveways and roadways at all times, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the air release valves. Payment for this item shall be the actual number of Each (EA) air release valve installed.

W. PAY ITEMS NO. 23 and 24 – 8" AND 6" PVC WATER MAIN

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete construction of C-900 PVC water main as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but not limited to, all surveying, erosion control, trenching, rock removal, disposal of excess materials, bracing, sheeting, dewatering, supporting existing utilities, restraint gaskets or glands, bedding, pipe, pipe marking, tape, blocking, backfilling, compaction, and removal and disposal of sidewalks, driveways, asphaltic concrete, rock base and subgrade (including necessary sawcutting). Payment for this item is per Linear Foot (LF) installed.

X. PAY ITEM NO. 25 -DUCTILE IRON FITTINGS

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete installation of cement lined compact ductile iron fittings, including plugs, as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but is not limited to, all excavation, disposal of excess materials, bracing, sheeting, rock removal, dewatering, the furnishing and installation of the ductile iron fittings, bolts, nuts, gaskets, flanges, restraints, glands, markers, backfilling, compaction, concrete thrust blocks, location and protection of utilities. Payment for this item shall be the actual weight of the compact fittings installed per pound. The weight of glands, restraints, gaskets, nuts, washers, bolts, and other accessories will not be measured for payment.

Y. PAY ITEMS NO. 26 AND 27 – 8" AND 6" GATE VALVE WITH VALVE BOX

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete installation of ductile iron gate valves as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but is not limited to, all excavation, disposal of excess materials, bracing, sheeting, rock removal, dewatering, the furnishing and installation of the gate valves, valve boxes, valve key extensions, bolts, nuts, gaskets, restraints, glands, backfilling, compaction, concrete thrust blocks concrete collars, Operation and Maintenance Manuals, and protection of utilities, structures, trees, and shrubs. Payment for this item shall be the actual number of Each (EA) valve installed.

Z. PAY ITEM NO. 28 – FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE AND VALVE BOX

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete installation of a fire hydrant assembly, a 6-inch ductile iron gate valve, and valve box as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but is not limited to, all excavation, disposal of excess materials, bracing, sheeting, rock removal, dewatering, the furnishing and installation of the fire hydrant assembly, 90-degree bend, gate valve, 6-inch PVC pipe from the tee to the hydrant, valve boxes, valve key extensions, bolts, nuts, gaskets, restraints, glands, backfilling, compaction, concrete thrust blocks concrete collars, Operation and Maintenance Manuals, and protection of utilities, structures, trees, and shrubs. Payment for this item shall be the actual number of Each (EA) fire hydrant installed.

AA. PAY ITEM NO. 29 – BLOWOFF ASSEMBLY

Under this item, the Contractor shall provide all labor, materials and equipment, and incidentals necessary to furnish and install Blowoff Assembly as shown on the drawings, as specified herein and as directed by the Engineer, including but not limited to: excavation, disposal of excess materials, bracing, sheeting and dewatering, the furnishing and installation of the fill and flushing assembly, fittings, bolts, nuts, gaskets, flanges, restraints, backfill and compaction, testing, supports, maintaining existing utilities, protection of utilities, protection of structures, trees and shrubs and all other work required for the complete installation of the Blowoff Assembly. Payment of this item shall be per Each (EA) Blowoff Assembly installed.

BB. PAY ITEM NO. 30 – PRESSURE TESTING & CHLORINATING NEW WATER MAIN

The Contractor's bid unit price per linear foot (LF) of water main shall include all labor, materials, equipment, and incidentals necessary to flush and disinfect, as necessary for satisfactory bacteriological sampling and clearance, the new water mains, as shown on the Drawings and specified herein, and as directed by the Engineer. This item shall include coordination and planning for disposal of flushing water and disinfecting solutions, and coordination of bacteriological sampling with the Owner. All work shall be in accordance with the Owner specifications, applicable AWWA standards, and the Florida Department of Environmental Protection. Payment for chlorination and testing shall be contingent on acceptance and clearance to place the water main in service being granted by the Florida Department of Environmental Protection. Note that expenses for re-flushing, disinfection, and sampling required due to previously failed bacteriological samples shall be borne by the Contractor, and will not be paid by the Owner.

Failing bacteriological tests must be retested on both the failing test site and the adjacent test sites. The expenses for re-sampling the failing test site and the adjacent

test sites shall be borne by the Contractor and will not be paid by the Owner.

CC. PAY ITEM NO. 31 – SAMPLE POINT

Under this item, the Contractor shall provide all labor, materials and equipment, and incidentals necessary to furnish and install sample points as shown on the drawings, as specified herein and as directed by the Engineer, including but not limited to: excavation, disposal of excess materials, bracing, sheeting and dewatering, the furnishing and installation of the sample points, fittings, bolts, nuts, gaskets, flanges, restraints, backfill and compaction, testing, supports, removal of sample points after testing is complete, maintaining existing utilities, protection of utilities, protection of structures, trees and shrubs and all other work required for the complete installation of the sample points. Payment of this item shall be per Each (EA) sample point installed.

DD. PAY ITEM NO. 32 & 33 – SINGLE WATER SERVICE & POTABLE WATER IRRIGATION SERVICE

The Contractor's bid unit price per each (EA) shall include all labor, materials, equipment, and incidentals necessary to furnish and install a water service from the new water main to the new valve box including furnishing and installing polyethylene (PE) tubing, location wire, service saddles, corporation stops, curb stops, poly tubing and poly adapters, nipples, tees, elbows, fittings and all other materials required for the complete connection as shown on the Drawings and specified herein, and as directed by the Engineer, including but not limited to: excavation, disposal of all excess materials, bracing, sheeting, and dewatering, bedding, backfilling and compaction of trenches.

This item also includes density testing, flushing, hydrostatic testing, disinfection, maintaining uninterrupted services of existing utilities, providing access to driveways and roadways at all times, cleaning the site of the work location, protection of existing utilities, structures, trees, shrubs, and lawns, and all other work required for the complete installation of the service connection.

The unit price bid per water service (EA) shall also include all labor, materials, equipment and incidentals necessary to make the water service connection from the new valve box to the house connection; furnish and install polyethylene (PE) tubing, corporation stops, or any other materials required for the connection, making connection to the valve box and the connection going into the house as shown on the contract drawings, as specified herein and as directed by the Engineer, including but not limited to: the excavation and backfill thereof, together with the disposal of all excess materials, bracing, sheeting and dewatering, the furnishing, installation, and compaction, hydrostatic testing, disinfection, cutting and capping the existing service line, maintaining uninterrupted flow of existing utilities, providing access to driveways at all times, constructing and maintaining all traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and

lawns, and all other work required for the complete connection of water service lines. All work shall be in accordance with Town of Jupiter requirement.

EE. PAY ITEM NO. 34 – CUT, CAP, AND GROUT EXISTING WATER MAIN

The Contractor's bid unit price per lump sum (LS) shall include all labor, materials, equipment, and incidentals necessary to cut, cap, and grout fill the existing water main where shown on the Drawings and specified herein, and as directed by the Engineer, including but not limited to: excavation, legal disposal of removed piping and all excess materials, bracing, sheeting, and dewatering, furnishing and installing caps, grouting, backfilling and compaction, density testing, maintaining uninterrupted services of existing utilities, providing access to driveways and roadways at all times, cleaning the site of the work location, protection of existing utilities, structures, trees, shrubs, and lawns, restoration of both sod and sidewalks, and all other work required for the complete installation. Cutting, capping, grouting and abandonment of water main shall be made at locations shown on the Drawings and as directed by the Engineer.

FF. PAY ITEM NO. 35- CONNECT TO EXISTING WATER METER

The Contractor's bid unit price per lump sum (LS) shall include all labor, materials, equipment, tools, and incidentals necessary to cut existing water main and connect proposed water main to the existing Town of Jupiter meter. Item includes gaskets, spool pieces, installation of the connection fittings, restraints, excavation for the trench, disposal of all excess materials, bracing, sheeting, and dewatering, backfilling and compaction of trenches, density testing, disinfection, maintaining uninterrupted services of existing utilities, providing access to driveways and roadways at all times, cleaning the site of the work location, protection of existing utilities, structures, trees, shrubs, irrigation systems, , and all other materials for a complete installation as shown on the Drawings and as specified herein.

GG. PAY ITEM NO. 36 – 12" STABILIZED SUBGRADE, LBR 40 MIX BASE WITH EXISTING SAND

Under this Item, Contractor shall provide all labor, material, and equipment required for furnishing, spreading and mixing of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value. Payment for this item shall be by Square Yard (SY) of stabilized subgrade installed.

HH. PAY ITEM NO. 37 – REWORK COMPACTED SHELLROCK ROADWAY AND DRIVEWAYS

Under this Item, Contractor shall provide all labor, material, and equipment required for the reworking of shellrock roadways and driveways. The bid price shall include but not be limited to installation, compaction, preparation and fine grading of subgrade and base, erosion control, furnishing and installing shellrock, and finishing. Payment for this item shall be by Square Yard (SY) of shellrock roadway or 01200-14 driveway.

X. PAY ITEM NO. 38 – INSTALL COMPACTED SHELLROCK PARKING AREAS

Under this Item, Contractor shall provide all labor, material, and equipment required for the installation of new shellrock (FDOT optional base group 6, 8" Coquina) parking areas. The bid price shall include but not be limited to installation, compaction, preparation and fine grading of subgrade and base, erosion control, furnishing and installing shellrock, and finishing. Payment for this item shall be by Square Yard (SY) of shellrock parking area installed.

JJ. PAY ITEM NO. 39 – WHEEL STOPS FOR PARKING AREA

Contractor to provide all labor, material, and equipment required install concrete wheel stops in the parking spaces as noted on the plans. Payment for this item shall be by Each (EA).

KK. PAY ITEM NO. 40 – INSTALL CONCRETE SIDEWALK

The Contractor's bid unit price per square yard (SY) shall include all labor, materials, equipment, and incidentals necessary for the complete installation of concrete sidewalks at the thickness indicated on the Drawings. This item includes, but is not limited to: removal and disposal of existing material, performance of all necessary survey work, earthwork, grading, compacting subgrade to 98% of max density per A.A.S.T.H.O. T-180, furnish and constructing concrete sidewalk base material, sand, furnishing and setting for expansion joint material, disposal of excess material, densities passed, all cleanup of the area disturbed by this construction, providing access to driveways and roadways at all times, protection of existing utilities, structures, trees, shrubs, protection and/or restoration of existing sodding and irrigation, and all other work required for the complete installation.

LL. PAY ITEM NO. 41 – CLEARING AND GRUBBING

Contractor shall provide all labor, material, and equipment required for all clearing and grubbing required for where excavation is to be done, lateral swales to be constructed, asphalt and flexible pavement to be removed, and any other clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc. Payment for this item shall be by Acre (AC).

MM. PAY ITEM NO. 42 – ABANDON EXISTING STORMWATER STRUCTURE

Contractor to provide all labor, material, and equipment required to plug existing pipes and backfill existing drainage structures as noted on the plans. Payment for this

item shall be by lump sum (LS).

NN. PAY ITEM NO. 43 – EXCAVATION AND GRADING

Payment will be based on the plan quantity for excavation to lines and grades shown on the Drawings. Contractor shall make his own estimate or verification of the excavation quantities based on the lines and grades shown on the Drawings and reflect that estimate in the unit price bid at the quantity included on the bid form. The earthwork quantities included in the bid form were calculated based on the total cut volume between the existing and proposed ground surface. Volumes included in topsoil stripping are included in the excavation volume. Excavated material shall remain on-site and be used for fill in areas of roadway and base removal, berms around retention, and spread out-side of the project limits in areas approved by the owner. The disposal of excavation on-site and grading of this fill will not be paid separately from this item. Excavation of trenches and excavation required for installation of pavement is not included. Work includes all materials, labor, and equipment, including, excavation and removal of unsuitable material from the site. Payment for this item is per Cubic Yard (CY) of excavated material.

OO. PAY ITEM NO. 44 - TURF REINFORCEMENT MAT

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete construction of turf reinforcement mat as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but not limited to, all surveying, erosion control, trenching, disposal of excess materials, bracing, sheeting, dewatering, supporting existing utilities, bedding, backfilling and compaction, and installation of the turf reinforcement mat as shown on the engineering plans. Payment for this item is per square yard (SY) installed.

PP. PAY ITEM NO. 45 – 18" RCP STORMWATER PIPING

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete construction of a 18" RCP culvert as shown on the construction drawings, specified herein and as directed by the Engineer. This item includes, but not limited to, all surveying, erosion control, trenching, rock removal, disposal of excess materials, bracing, sheeting, dewatering, supporting existing utilities, bedding, pipe, pipe marking, tape, blocking, backfilling, compaction, and removal and disposal of sidewalks, asphaltic concrete, rock base and subgrade (including necessary saw cutting). Payment for this item is per horizontal Linear Foot (LF) installed

QQ. PAY ITEM NO. 46 – CATCH BASIN, DITCH BOTTOM INLET TYPE-C

The Contract Unit Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools necessary to install FDOT Type C Ditch

Bottom Inlet(s) as shown on the contract drawings, as specified herein and as directed by the ENGINEER, including but not limited to: the excavation for the inlet, disposal of all excess materials, bracing and sheeting, the installation of the inlet and great, the connection of the proposed storm sewer to the inlet, mudding the manhole water-tight, rock base, backfill and compaction, testing, supports, providing access to driveways and roadways at all times, maintaining traffic control, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the inlet. Item includes any dewatering necessary for installation of the manhole. Payment for this item shall be the actual number of Each (EA) inlets installed.

RR. PAY ITEM NO. 47 – PUMP OUT AND REMOVE GREY WATER TANK

Under this Item, Contractor shall provide all labor, material, and equipment required for the complete removal of existing grey water tanks as indicated on the Drawings. This item includes pump out of any materials in the tank, excavation, complete removal and legal disposal, and backfill and compaction of the excavated areas. Payment of this item shall be by Each grey water tank removed (EA).

SS. PAY ITEM NO. 48 – PUMP OUT AND ABANDON SEPTIC TANK

Under this Item, Contractor shall provide all labor, material, and equipment required for the complete abandonment of existing septic tanks as indicated on the Drawings. This item includes pump out of any materials in the tank, crushing and collapsing of tank to prevent water holding, backfill and compaction of the tank with clean fill, and all other requirements for legal septic tank abandonment as outlined by the Florida Department of Health. Item includes any permit fees required for abandonment. Payment of this item shall be by Each septic tank abandoned (EA).

TT. **PAY ITEM NO. 49 – SODDING**

The Contract Unit Price for this item shall constitute full compensation for furnishing all labor, materials, equipment and incidentals necessary to restore all sod, as specified herein and as directed by the ENGINEER including those areas disturbed by the CONTRACTOR for pipe installations, equipment and material laydown, storage, access areas and areas disturbed outside the limits of the work. This item shall include but not be limited to: furnishing and installing sod, fertilizer, topsoil, water, grading, cutting, and preparation of subgrade, cleaning the site of the work location and protection of utilities, structures, trees, shrubs and lawns, and all other work required for the complete installation of the sod. The CONTRACTOR shall be responsible for the proper protection and maintenance of the sodded areas until a satisfactory uniform stand of grass has been established (minimum of two cuttings). Where sod fails to grow properly, the CONTRACTOR shall re-sod at his/her own expense, until satisfactory to the ENGINEER. No additional payment for sod will be made for this project. Payment of this item shall be lump sum (LS).

UU. PAY ITEM NO. 50 - TREE & SHRUBBERY RESTORATION

The Contract Unit Price for this item shall constitute full compensation for furnishing all labor, materials, equipment and incidentals necessary to restore and replace shrubbery and trees that are disturbed by the construction, as specified herein and as directed by the ENGINEER, including but not limited to: furnishing and installing, replacing or relocating shrubbery and trees, fertilizer, topsoil, water, grading, cutting, mulching and preparation of subgrade, cleaning the site of the work location and protection of utilities, structures, and lawns, and all other work required for the complete restoration of the existing shrubbery and trees. All trees and shrubbery damaged beyond the limits of the work (20' each way from the center of the proposed pipe or outside of the right-of-way) as a result of the CONTRACTOR's operations shall be removed and replaced at CONTRACTOR's expense in accordance with the specifications and to the approval of the OWNER. Payment of this item shall be by Lump Sum (LS).

VV. PAY ITEM NO. 51 – MISCELLANEOUS RESTORATION

The Contract Unit Price for this item shall constitute full compensation for furnishing all labor, materials, equipment and incidentals. The unit price shall include, but is not limited to, furnishing and installing any necessary utility repairs, landscaping replacement, concrete sidewalk repairs, and any other restoration required to bring the site to pre-construction condition or better. Measurement and Payment shall be a lump sum (LS) for miscellaneous restoration required at the lift station site, not covered in other bid items.

WW. PAY ITEM NO. 52 - LIFT STATION ELECTRICAL SERVICE

The Contract Unit Price for this item shall constitute full compensation for furnishing all labor, materials, equipment and incidentals necessary to install a customer owned secondary electrical service from the proposed transformer (3 PH 6-7940-7531-0-0) shown 150KVA (120/208),on FPL Plans in Appendix E, Drawing No. B16R380 in Appendix E to the proposed lift station site as shown on drawing E2. The contract unit price shall include the conduit, wire and FPL cost for the meter. All terminations at the transformer and all equipment owned by FPL shall be completed by FPL. Installation shall comply with NEC and FPL standards.

XX. PAY ITEM NO. 53 – FPL UNDERGROUND INSTALLATION

The Contract Unit Price for this item shall constitute full compensation for all labor, materials, equipment and incidentals necessary to transport all materials from the FPL storage site to the project and install transformer pads, conduit, pull boxes and incidentals for conversion of FPL power from overhead to underground as shown on FPL plans in Appendix E. This pay item shall include all costs for a complete underground power conversion at the site up to the individual meters at each building. This pay item does not include the direct purchase material cost from FPL. The Owner will direct purchase the materials.

YY. PAY ITEM NO. 54 – COMCAST UNDERGROUND INSTALLATION

The Contract Unit Price for this item shall constitute full compensation for all labor, materials, equipment and incidentals necessary to transport all materials from the Comcast storage site to the project and install pads, conduit, pull boxes and incidentals for conversion of Comcast from overhead to underground as shown on Comcast plans in Appendix F. This pay item shall include all costs for a complete underground conversion at the site up to the individual buildings. This pay item does not include the direct purchase material cost from Comcast. The Owner will direct purchase the materials.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Submittal procedures.
 - 2. Construction progress schedules.
 - 3. Dewatering plans.
 - 4. Temporary Trenching, Sheeting, and Shoring Plan.
 - 5. Proposed products list.
 - 6. Shop drawings.
 - 7. Product data.
 - 8. Manufacturers' instructions.
 - 9. Manufacturers' certificates.
 - 10. Standard Operating Procedure: System Shutdowns and Bypass.

1.02 RELATED SECTIONS

A. Section 01400 - Quality Control: Manufacturers' field services and reports.

B. Section 01780 - Contract Closeout: Contract warranty and manufacturer's certificates, closeout submittals.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with ENGINEER accepted form. All submittals shall be submitted electronically. Responses to submittals will also be performed electronically.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, CONTRACTOR, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply CONTRACTOR's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to ENGINEER at their business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for CONTRACTOR and ENGINEER review stamps on each submittal.
- H. Only complete submittals will be reviewed. Partial or incomplete submittals for a product will be returned to the CONTRACTOR without review.
- I. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- J. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule as required in the "Special & General Conditions".
- B. Revise and resubmit as required in the "Special & General Conditions".
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each major section of Work or operation, identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at submission of each Application for Payment.
- G. At the end of each week, CONTRACTOR shall submit a written 2-week look ahead describing the construction activities that will take place to allow for coordination with Engineer, OWNER, and other parties.

1.05 DEWATERING PLANS

- A. Submit dewatering plans to ENGINEER for review.
- B. After ENGINEER's review of dewatering plans, CONTRACTOR shall submit plans to proper governing authority and receive permits for dewatering prior to construction.
- C. CONTRACTOR is responsible for paying any dewatering permit fees.

1.06 PROPOSED PRODUCTS LIST AND INFORMATION

- A. Submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number or each product. These products should include as a minimum the following:
 - 1. SDR-26 PVC Pipe.
 - 2. Precast Structures.
 - 3. Manhole Ring and Cover.
 - 4. EMS Markers.
 - 5. Schedule 40 PVC Pipe.
 - 6. HDPE Pipe.
 - 7. Valves and Valve Boxes.
 - 8. Fittings and Pipe Restraints.
 - 9. Terminal Flushing Ports.
 - 10. Air Release Valves.
 - 11. CDR Boxes.
 - 12. EMS Markers.
 - 13. Tapping Saddles.

- 14. Transition Couplings.
- 15. Limerock Base Rock
- 16. Stormwater Catch Basin Structures
- 17. RCP Piping
- 18. Others as required (Additional submittal requirements are provided in the individual specification sections).
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.07 SHOP DRAWINGS

A. After review, distribute in accordance with Article on Procedures above and for Record Documents described in **Section 01780** - Contract Closeout.

1.08 PRODUCT DATA

- A. Submit the number of copies which the CONTRACTOR requires, plus one (1) electronic (pdf) copy, which will be retained by the ENGINEER.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in **Section 01780** Contract Closeout.

1.09 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.10 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to ENGINEER for review, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- B. Certificates may be recent or previous test results on material or Product, but must be acceptable to ENGINEER.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01360

PRE-CONSTRUCTION AUDIO-VIDEO DOCUMENTATION

PART 1 - GENERAL

1.01 **PERFORMANCE**

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise rated, for the following:
 - 1. Audio-Video Documentation.
 - 2. Equipment.
 - 3. Submittals.
 - 4. Technique.
 - 5. Quality Assurance.

1.02 QUALITY ASSURANCE

- A. Documentation shall be performed by a responsible commercial firm known to be skilled and regularly engaged in the preparation of pre-construction color audio-video documentation. <u>Any Preconstruction video produced by the CONTRACTOR will be</u> <u>immediately rejected.</u> All preconstruction videos are to be completed by a firm with extensive amount of previous experience in producing preconstruction documentation.
- B. Completed documentation shall reproduce bright, sharp pictures with accurate colors and shall be free from distortion, tearing, rolling, or any other significant picture imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity, and be free of distortion.
- C. Construction shall not proceed until the OWNER and ENGINEER have reviewed the documentation and notified the CONTRACTOR of its acceptability.

1.03 MEASUREMENT AND PAYMENT

A. No separate payment item is provided for this work. The cost of performing this work shall be incorporated into the bid items or lump sum amount identified on the bid form.

PART 2 - PRODUCTS

2.01 RECORDING EQUIPMENT

- A. Utilize color video camera having:
 - 1. Horizontal Resolution of 350 lines at center.
 - 2. 8:1 Zoom, minimum.
- B. Utilize digital format recorder having:
 - 1. Minimum horizontal resolution of 540 lines, 60 fields.

2.02 RECORDING MEDIA

- A. Utilize new, Digital Video Disc (DVD) having:
 - 1. DVD shall be DVD-R. DVD-RAM shall not be accepted.
 - 2. $4^{3/4}$ -inch diameter discs.
 - 2. High resolution.
 - 3. 4.7 gigabyte storage per layer with two (2) layers (minimum).

PART 3 - EXECUTION

3.01 COVERAGE

- A. Record coverage of all surface features located in the construction's zone of influence (including the proposed storage area(s)) including, but not limited to:
 - 1. Roadways, driveways, sidewalks.
 - 2. Treatment facilities, surrounding structures, sanitary facilities.
 - 3. Drainage structures, abovegrade utilities, drainage swales, canals.
 - 4. Landscaping, trees, shrubbery, fences, irrigation heads, meters.
- B. Record the individual features of each item with particular attention being focused upon the existence of any faults, fractures, or defects.
- C. Control pan rate, rate of travel, camera height and zoom rate to maintain a steady clear view at all times.

- D. Limit recorded coverage to one side of any street at any one time.
- E. Create a single, continuous, unedited recording that begins and ends within each portion of a particular construction area. The recording shall proceed in the direction of ascending baseline stationing.

3.02 AUDIO CONTENT

- A. Simultaneously record audio content during videotaping.
- B. Audio recording shall assist in viewer orientation and in any needed identification, clarification, or description of features being recorded.
- C. Audio recording will only consist of camera operator commentary.

3.03 INDEXING

- A. Permanently label each tape with a sequential tape number and the project name.
- B. Index each DVD with a digital record of the time and date of the recording that is continuously displayed as the DVD is played.
- C. Prepare a written log which describes the contents of each DVD including:
 - 1. Structure/location names.
 - 2. Coverage begin/end, station and location.
 - 3. Recording date.

3.04 CONDITIONS

- A. Record coverage during dry, clear weather and during daylight hours only.
- B. Record coverage when the area to be covered is free of debris or obstructions.
- C. Record coverage no more than 15 days prior to the start of construction.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Quality assurance and control of installation.
 - 2. References.
 - 3. Archaeological/Cultural Resource Monitoring
 - 4. Inspection and testing laboratory services.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
- G. Provide devices or utilize methods necessary for compliance with the "Trench Safety Act".

1.03 REFERENCES

- A. Conform to reference standard as identified in each individual technical specification section.
- B. Should specified reference standards conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by any reference standard or document.

1.04 ARCHAEOLOGICAL/CULTURAL RESOURCE MONITORING

- A. No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.
- B. A professional archeologist who meets the "Archeology and Historic Preservation: Secretary of Interior's Standards and Guidelines" shall be onsite during the initial ground-disturbing activities. The professional archeologist shall be responsible for monitoring the soil and ground disturbance for significant archaeological deposits. Should potential significant archaeological deposits (which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), recovery be encountered, all work and ground disturbing activities must cease within a 100- meter diameter of the discovery to allow for proper assessment, recording, and recovery of the cultural deposits in a professional manner. The archeologist on site shall notify the CONTRACTOR, BLM site manager and BLM's State Archaeologist/Tribal Liaison the same business day (8-hours) to assess the significance of the discovery and devise appropriate actions, including salvage operations. Upon completion of the monitoring activities, an archaeological letter must be submitted to Florida's Division of Historical Resources, along with an updated Florida Master Site File form. The archeologist shall submit notification of such action, in the form of a Cultural Resource Certification and RD- Archeologist for inclusion in the administrative record.
- C. If during the ground disturbing activities and construction work within the project area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the CONTRACTOR
shall immediately stop all work and ground-disturbing activities within a 100meter diameter of the discovery and notify the BLM site manager and their State Archaeologist. The BLM State Archaeologist/Tribal Liaison with the assistance from the monitoring Archaeologist will notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

- D. Additional cultural resources assessments may be required of the work area in the case of unanticipated discoveries; and if deemed necessary by the SHPO or THPO(s), in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction.
- E. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the CONTRACTOR shall immediately notify the medical examiner, and the BLM Site Manager and BLM's State Archaeologist, who will notify the Florida State Archeologist within the same business day (8-hours). Such activity shall not resume without writtenauthorization from the State Archeologist.
- F. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The CONTRACTOR shall contact the BLM site manager and BLM's State Archeologist/Tribal Liaison and with the assistance of the BLM will contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850)-245-6333. Project activities shallnot resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately, and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

G.

1.05 INSPECTION AND TESTING LABORATORY SERVICES

- A. CONTRACTOR will appoint, employ, and pay for services of an independent firm to perform inspection and testing.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the ENGINEER.

- C. Reports will be submitted by the independent firm to the ENGINEER, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify ENGINEER and independent firm 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for CONTRACTOR's use.
- E. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. The cost for retesting shall be the CONTRACTOR's responsibility.
- F. Testing to be provided by the CONTRACTOR shall include, at a minimum:
 - 1. Density testing.
 - 2. Testing of the new force main and discharge piping.
 - 3. Testing of new pumps.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1-GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Temporary Utilities: Electricity, water, and sanitary facilities.
 - 2. Temporary Controls: Barriers, enclosures and fencing, protection of the Work.
 - 3. Construction Facilities: Parking, progress cleaning, and project signage.

1.02 RELATED SECTIONS

A. Section 01700 – Contract Closeout.

1.03 TEMPORARY WATER SERVICE

A. CONTRACTOR shall be responsible for obtaining construction water and construction meter and for all hauling or conveyance of water to the site.

1.04 TEMPORARY SANITARY FACILITIES

A. CONTRACTOR shall provide and maintain required facilities.

1.05 BARRIERS AND TRAFFIC CONTROL

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage due to construction operations and demolition.
- B. Provide protection for natural vegetation designated to remain. Replace protected vegetation, if damaged.
- C. Protect all landscaping and decorative vegetation. Restore damaged landscaping and vegetation to its original condition.
- D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

- E. Provide signs, signals, cones, barricades and trained flagmen to direct traffic in and around the construction site in accordance with Florida Department of Transportation Work Zone Traffic Control Standards.
 - 1. Prepare a WORK ZONE TRAFFIC CONTROL PLAN and submit that plan to the appropriate officials in all municipalities and jurisdictionswhere the Work will impact the flow of traffic.
 - 2. Obtain written approval of that plan from all municipalities and jurisdictions, and then provide copies of the plan and all approvals to the OWNER and ENGINEER prior to the start of construction. All approvals must be obtained prior to construction.
 - 3. Keep specified areas open and accessible at all times.

1.06 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for existing and installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings as needed.
- D. Protect finished floors, stairs, roadways, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.07 SECURITY

A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.

1.08 ACCESS ROADS

- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
- B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow. Coordinate interruptions in normal public vehiculartraffic flow with those governmental agencies having authority over each roadway.

1.09 PARKING

A. Provide temporary parking areas to accommodate construction personnel.

- B. Temporary parking areas must not interfere with normal traffic flow or designated parking for others.
- C. Temporary parking areas must be approved by the ENGINEER and OWNER.

1.10 PROGRESS CLEANING

- A. Maintain all construction areas free of waste materials, debris, and rubbish. Maintain all sites in a clean and orderly condition.
- B. Broom and vacuum clean areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- C. Remove waste materials, debris, and rubbish from site daily and dispose of at approved location.
- D. Always keep roadways, sidewalks and bicycle paths clear of construction debris and trash.
- E. Provide positive methods and apply dust control materials to minimize raising dust form construction operations, and provide positive means to prevent air- borne dust from dispersing into the atmosphere. CONTRACTOR shall immediately mitigate dust upon complaint.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.
- B. Remove underground installations to a minimum depth of three (3) feet. Existing dry can shall be removed to a minimum doepth of six (6) feet.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Products.
 - 2. Transportation and handling.
 - 3. Storage and protection.
 - 4. Product options.
 - 5. Substitutions.

1.02 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01400 Quality Control.

1.03 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

1.04 TRANSPORTATION AND HANDLING

A. Transport and handle Products in accordance with manufacturer's instructions.

- B. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods which prevent soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated Products, place on secure supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection. On-site storage of products must be approved by the OWNER and ENGINEER prior to delivery.
- D. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.

1.06 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.07 SUBSTITUTIONS

- A. Substitutions may be considered when a Product becomes unavailable through no fault of the CONTRACTOR.
- B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- C. A request constitutes a representation that the Bidder:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to OWNER.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse OWNER for review or redesign services associated with re-approval by the ENGINEER or governing authorities.
- 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 revision to the Contract Documents.
- E. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one (1) proposed Substitution.
 - 2. Submit shop drawings, Product data, and certified test results attesting to the proposed Product equivalence.
- F. The ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject request.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Closeout Procedures.
 - 2. Final Cleaning.
 - 3. Adjusting.
 - 4. Warranties.

1.02 RELATED SECTIONS

- A. Section 01500 Construction Facilities and Temporary Controls.
- B. Section 01720 Record Documents.
- C. Section 01780 Closeout Submittals.
- D. Section 01810 Equipment Testing and Facility Startup.

1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that the Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with the Contract Documents and ready for ENGINEER's inspection.
- B. Provide submittals to ENGINEER that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Purchase Order Sum, previous payments, and sum remaining due. Submit final releases of liens

from all suppliers and subcontractors as required in **Section 01780** – Closeout Submittals.

E. Submit final record drawings in accordance with Section 01720 – Record Documents and LRD requirements. In addition, the CONTRACTOR is to provide the required number of sets of signed and sealed Record Drawings in order to assist the ENGINEER in closing out all necessary permits.

1.04 FINAL CLEANING

- A. At completion of the Work or of a part thereof and immediately prior to CONTRACTOR's request for certificate of Substantial Completion or immediately prior to CONTRACTOR's notice of completion, clean entire site or parts thereof, as applicable.
 - 1. Leave the Work and adjacent areas affected in a cleaned condition satisfactory to OWNER.
 - 2. Remove grease, dirt, dust, paint or plaster splatter, stains, labels, fingerprints, and other foreign materials from exposed surfaces.
 - 3. Repair, patch, and touch up marred surfaces to specified finish and match adjacent surfaces.
 - 4. Broom clean exterior paved driveways and parking areas.
 - 5. Hose clean sidewalks, loading areas, and other areas contiguous with principal structures.
 - 6. Rake clean all other surfaces.
 - 7. Leave water courses, gutters, and ditches open and clean.
- B. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.

1.05 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 WARRANTIES

- A. Provide duplicate copies.
- B. Execute and assemble documents from Subcontractors, suppliers, and Manufacturers.
- C. Provide Table of Contents and assemble in binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.
- F. Provide operation and maintenance documentation.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS

- A. The CONTRACTOR shall keep and maintain, at the job site, one record copy of all Drawings, Technical Specifications, addenda, change orders, and other modifications to the Contract, approved shop drawings, and field test records.
- B. The CONTRACTOR shall provide record drawings to indicate all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented in the Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the work as actually constructed. These master record drawings of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by addenda and change orders shall be maintained up-to-date during the progress of the work.
- C. Record drawings shall be accessible to the ENGINEER at all times during the construction period.
- D. Periodic payments must be accompanied by an updated copy of the record drawings. Pay Applications submitted without record drawings will not be processed by the ENGINEER until the drawings are received. The CONTRACTOR shall provide the following:
 - 1. One (1) set of hard copy record drawings (11"x17" drawings, to scale) and an electronic CAD file on CD.
 - 2. The record drawings for the lift stations shall show accurate locations of fence and gate(s), access driveway(s), wet well, valve vault, terminal manhole, valve/pipe fittings, emergency pump out, RPZ backflowpreventer and water service back to existing water main, electrical panel, discharge force main length to furthest isolation valve or to fence orconnection point to existing main, and gravity pipes connecting to existingwet well.

- 3. Record drawings for the gravity collection system shall show the pipe material type, size, length of pipe and slope between pipe manholes, and invert and rim elevations.
- 4. Record drawings for the force main shall show the pipe material type, size, and top of pipe elevation.
- 5. Provide GPS coordinates of the corners of pump station fences and center of wet well, the locations of manholes, valves, clean-outs, fire hydrants, meters, etc.
- E. Final payment will not be processed until the CONTRACTOR has prepared and delivered record as-built drawings, signed and sealed by a licensed surveyor, to the ENGINEER.
- F. Upon substantial completion of the work and prior to final acceptance, the CONTRACTOR shall finalize and deliver a complete set of signed and sealed record drawings to the ENGINEER for transmittal to the OWNER, conforming to the construction records of the CONTRACTOR. This set of drawings shallconsist of corrected drawings showing the reported location of the work. The information submitted by the CONTRACTOR and incorporated by the ENGINEER into the Record Drawings will be assumed to be correct, and the CONTRACTOR shall be responsible for the accuracy of such information, and shall bear the costs resulting from the correction of incorrect data furnished to the ENGINEER and the OWNER.

1.2 RELATED REQUIREMENTS

- A. Section 01300: Submittals.
- B. Section 01700: Project Close Out.

1.3 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with the progress of construction.
- C. Legibly mark drawings to record actual construction.
 - 1. For pipelines, provide horizontal location of pipes any time the pipe passes a permanent surface reference point. Permanent reference points are as defined herein. Any deviations from the alignment shown on the Drawings must be noted.

- 2. For pressure pipelines, provide vertical locations at 100-foot intervals. Vertical location will be depth of cover or pipe elevation, whichever is called for on the Drawings.
- 3. All fittings, including sleeves, valves, and services are to be located by two measurements to permanent surface reference points and by GPS.
- 4. Permanent surface reference points are manholes, catch basins, powerpoles, concrete sidewalk, or concrete curbs. Edge of pavement and road intersections may not be used without the ENGINEER's approval. GPS coordinates shall also be provided.
- 5. Field changes of dimension and detail.
- 6. Changes made by Field Order, Change Order, or Construction Change Directive.
- 7. Details not shown on the original Drawings (i.e. fire hydrants, water meters, water main, etc.).
- D. Legibly mark each Section of the Technical Specifications and Addenda to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each item actually installed.
 - 2. Changes made by Field Order, Change Order, or Work Directive.

1.4 SUBMITTAL

- A. Prior to Substantial Completion, submit Record Documents to the ENGINEER for delivery to the OWNER.
- B. Accompany submittal with a transmittal letter in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. CONTRACTOR's name and address.
 - 4. Title and number of each record document.
 - 5. Signature of CONTRACTOR or its authorized representative.

- C. Computer generated as-built drawings shall be submitted. Data in tabular form will not be accepted. Following review by the ENGINEER and OWNER, any comments are to be addressed. On final submission, the following items shall be provided.
 - 1. Two (2) signed and sealed sets of prints (24" x 36").
 - 2. The electronic drawing files must be AutoCAD and PDF format or compatible (DWG file or DXF file) submitted on compact disc (CD or DVD). All fonts and line types shall be from the standard AutoCAD library or be AutoCAD compatible. Reference files and blocks are to be bound to drawings prior to submittal. Layers and drawings created by turning on and off layers are to be documented and submitted in MSWord. As a minimum requirement, electronic files must include all features that were shown on the Drawings.
- D. Record drawings for pump stations provided by the CONTRACTOR shall address the following information:
 - 1. Manufacturer, model number, serial numbers for each piece of equipment.
 - 2. For each new pump: pump type, design capacity and TDH, shutoff head, impeller size, manufacturer's pump curve reference number, horsepower, efficiency, motor speed, discharge pipe size, and discharge flange pressure rating.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

OPERATION & MAINTENANCE MANUALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Detailed information for the preparation, submission, and ENGINEER's review of Operation and Maintenance (O&M) Data, as required by individual specification sections. The O&M information shall be prepared specifically for this project, and shall include all sections and organization as specified herein.

1.02 DEFINITIONS

- A. Preliminary Data: Initial and subsequent submissions for ENGINEER's review.
- B. Final Data: ENGINEER-accepted data, submitted as specified herein.
- C. Maintenance Operation: As used on Maintenance Summary Form is defined to mean any routine operation required to ensure satisfactoryperformance and longevity of equipment. Examples of typical maintenance operations are lubrication, belt tensioning, adjustment of pump packing glands, and routine adjustments.

1.03 SEQUENCING AND SCHEDULING

- A. Equipment and System Data.
 - 1. Preliminary Data:
 - a. Do not submit until Shop Drawing for equipment or system has been reviewed and approved by ENGINEER and OWNER.
 - b. Submit prior to shipment date.
 - 2. Materials and Finished Data
 - a. Preliminary Data: Submit at least fifteen (15) days prior to request for start-up.

b. Final Data: Submit within ten (10) days after final inspection.

1.04 DATA FORMAT

- A. Prepare preliminary data in the form of an instructional manual. Prepare final data in data compilation format in electronic media.
- B. Instructional Manual Format:
 - 1. Binder: Commercial quality, permanent, three-ring or three-post binders with durable plastic cover.
 - 2. Size: $8\frac{1}{2}$ inches by 11 inches, minimum.
 - 3. Cover: Identify manual with typed or printed title "OPERATION AND MAINTENANCE MANUAL" and list:
 - a. Project title.
 - b. Designate Applicable system, equipment, material, orfinish.
 - c. Identity of separate structure as applicable.
 - d. Identity of general subject matter covered in the manual.
 - 4. Title Page
 - a. CONTRACTOR name, address, and telephone number.
 - b. Subcontractor, supplier, installer, or maintenance CONTRACTOR's name address, and telephone number, as appropriate.
 - i. Identify area of responsibility of each.
 - ii. Provide name and telephone number of local source of supply for parts and replacement.
 - 5. Table of Contents:
 - a. Neatly typewritten and arranged in systematic order with consecutive page numbers.
 - b. Identify each product by product name and other identifying numbers or symbols set forth in the Contract Documents.

- 6. Paper: 20 pound minimum, white for typed pages.
- 7. Text: manufacturer's printed data, or neatly typewritten.
- 8. Three-hole punch data for binding and composition; arrange printing so that punched holes do not obliterate data.
- 9. Material shall be suitable for reproduction, with quality equal to original. Photocopying of materials will be acceptable, except for material containing photographs.
- C. Data Compilation Format:
 - 1. Compile all ENGINEER-accepted preliminary O&M data into a hard-copy, hard-bound set.
 - 2. Each set shall consist of the following:
 - a. Binder: Commercial quality, permanent, three-ring or threepost binders with durable plastic cover.
 - b. Cover: Identify each volume with typed or printed title "OPERATION AND MAINTENANCE MANUAL, VOLUME NO. OF_", and list:
 - i. Project title
 - ii. CONTRACTOR's name, address, and telephone number.
 - iii. If entire volume covers equipment or system provided by one supplier include the following:
 - a) Identity of general subject matter covered in the manual.
 - b) Identity of equipment number and specification section.
 - c. Provide each volume with title page and typed table of contents with consecutive page numbers. Place content of entire set, identified by volume number in each binder.
 - d. Table of contents neatly typewritten, arranged in systematic order:
 - i. Include list of each product, indexed to content of each volume.
 - ii. Designate system or equipment for which it is intended.

- iii. Identify each product by product name and other identifying numbers or symbols set forth in the Contract Documents.
- e. Section Dividers:
 - i. Heavy, 80 pound cover weight, tabbed with numbered plastic index tabs.
 - ii. Fly-leaf:
 - a) For each separate product, or each piece of operating equipment, with typed description of product and major component parts of equipment.
 - b) List with each product:
 - 1) Name address, and telephone of subcontractor, suppliers, installer and maintenance CONTRACTOR as applicable.
 - 2) Identity area of responsibility of each.
 - 3) Provide local source of supply for parts and replacement.
 - iii. Identity of separate structure as applicable.
- f. Assemble and bind material, as much as possible, in the same order as specified in the Contract Documents.
- g. Include a data sheet listing specific information for each piece of equipment including:
 - i. Capacity and/or rating (flow and head ratings, speed, etc.)
 - ii. Serial number and/or model number(s)
- D. Electronic Media Format:
 - 1. Portable Document Format (PDF):
 - a. After all preliminary data has been found to be acceptable to the ENGINEER, submit O&M data in PDF format on CD or DVD.
 - b. Files to be exact duplicates of ENGINEER-accepted preliminary data. Arrange by specification number and name.

c. Files to be fully functional and viewable in the most recent version of Adobe Acrobat.

1.05 SUBMITTALS

- A. Informational
 - 1. Data outline: submit two (2) copies of a detailed outline if the proposed organization and content of the Final Manuals prior to preparation of the preliminary manuals.
 - 2. Preliminary Data:
 - a. Submit two (2) copies for ENGINEER's review.
 - b. If data meets conditions of the Contract:
 - i. One (1) copy will be returned to the CONTRACTOR.
 - ii. One (1) copy will be forwarded to the project representative.
 - c. If data does not meet conditions of the Contract:
 - i. All copies will be returned to the CONTRACTOR with the ENGINEER's comments for revision.
 - ii. ENGINEER's comments will be retained in ENGINEER's file.
 - iii. Resubmit two (2) copies revised in accordance with the ENGINEER's comments.
 - 3. Final Data: Submit two (2) copies in format specified herein.

1.06 DATA FOR EQUIPMENT AND SYSTEMS

- A. Content for each unit (or common Units) and system:
 - 1. Product Data:
 - a. Include only those sheets that are pertinent to specific product.
 - b. Clearly annotate each sheet to:
 - i. Identify specific product or part installed.
 - ii. Identify data applicable to installation.
 - iii. Delete references to inapplicable information.

- iv. For data listed in tables, highlight the appropriate data with pointer marking "USE -->".
- c. Function, normal operating characteristics, and limiting conditions.
- d. Performance curves, engineering data, nameplate data, and tests.
- e. Complete nomenclature and commercial number of replaceable parts.
- f. Original manufacturer's part list, illustrations, detailed assembly drawings showing each part with part numbers and sequentially numbered part list, and diagrams required for maintenance.
- g. Spare parts ordering instructions.
- h. Where applicable, identify installed spares and other provisions for future work (e.g. reserved panel space, unused components, wiring, terminals)
- 2. As-installed, color coded piping diagrams.
- 3. Charts of valve tag numbers, with the location and function of each valve.
- 4. Drawings: Supplement product data with Drawings as necessary to clearly illustrate:

a. Format:

- i. Provide reinforced, punched, binder tab: bind in with text.
- ii. Reduced to $8\frac{1}{2}$ inches by 11 inches, or 11 inches by 17 inches folded to $8\frac{1}{2}$ inches by 11 inches.
- iii. Where reduction is impractical, fold and place in $8\frac{1}{2}$ inches by 11 inches envelopes bound in text.
- iv. Identify specification section and product on drawings and envelopes.
- b. Relations of component parts of equipment and systems.
- c. Control and flow diagrams.

- d. Coordinate drawings with Project record documents to assure correct illustration of completed installation.
- 5. Instructions and procedures: Within text, as required to supplement product data.
 - a. Format:
 - i. Organize in consistent format under separate heading for each different procedure.
 - ii. Provide logical sequence of instructions for each procedure.
 - iii. Provide information sheet for OWNER's personnel, including:
 - a) Proper procedures in the event of failure.
 - b) Instances that might affect validity of guarantee or bond.
 - b. Installation instructions: Including alignment, adjusting, calibrating, and checking.

c. Operating procedures:

- i. Startup, break-in, routine, and normal operating instructions.
- ii. Test procedures and results of factory tests where required.
- iii. Regulation, control, stopping, and emergency instructions.
- iv. Description of operating sequence by control manufacturer.
- v. Shutdown instructions for both short and extended duration.
- vi. Summer and winter operating instructions, as applicable.
- vii. Safety precautions.
- viii. Special operating instructions.

d. Maintenance and Overhaul procedures:

- i. Routine maintenance.
 - ii. Guide to troubleshooting.
- iii. Disassembly, removal, repair, reinstallation, and reassembly.
- 6. Start-up information and test reports.
- 7. Guarantee, bond, and service agreement: in accordance with Section 01780 Closeout Submittals.

- B. Content for each electronic item or system:
 - 1. Description of unit and component parts:
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, nameplate data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 - d. Interconnection wiring diagrams, including control and lighting systems.
 - 2. Circuit directories of panelboard:
 - a. Electrical service.
 - b. Controls.
 - c. Communication.
 - 3. List of electrical relay settings, and control and alarm contact settings.
 - 4. Electrical interconnection wiring diagram, including control and lighting systems.
 - 5. As-installed control diagrams by control manufacturer.
 - 6. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Safety precautions.
 - d. Special operating instructions.
 - 7. Maintenance procedures:
 - a. Routine maintenance.

- b. Guide to troubleshooting.
- c. Adjustment and checking.
- d. List of relay settings, control, and alarm contact settings.
- 8. Manufacturer's printed operating and maintenance instructions
- 9. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- 10. Start-up information and test reports.
- C. Maintenance summary
 - 1. Compile individual maintenance summary for each applicable equipment item, respective unit or system, and for components of subunits.
 - 2. Format:
 - a. Use maintenance summary form bound with this section.
 - b. Each maintenance summary may take as many pages as needed.
 - c. Use only $8\frac{1}{2}$ inch by 11 inch paper.
 - d. Complete using typewriter or electronic printing.
 - 3. Include detailed lubrication instructions and diagrams showing points to be greased or oiled; recommended type, grade, and temperature range of lubricants and frequency of lubrication.
 - 4. Recommended spare parts:
 - a. Data to be consistent with manufacturer's bill of materials / parts list furnished in the O&M Manuals.
 - b. "Unit" is the unit of measure for ordering the part
 - c. "Quantity" is the number of units recommended.
 - d. "Unit Cost" is the current purchase price.

1.07 DATA FOR MATERIALS AND FINISHES

- A. Content for architectural products, applied materials and finishes:
 - 1. Manufacturer's data, giving full information on products:
 - a. Catalog number, size, and composition.
 - b. Color and texture designations.
 - c. Information required for reordering special manufactured products
 - 2. Instructions for care and maintenance
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods that are detrimental to product.
 - c. Recommended schedule for cleaning and maintenance.
- B. Content for moisture protection and weather exposed products.
 - 1. Manufacturer's data, giving full information on products:
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Details of installation.
 - 2. Instructions for inspection, maintenance and repair.

1.08 SUPPLEMENTS

- A. The supplement listed below, following "END OF SECTION," are part of this specification.
 - 1. Form: Maintenance Summary Form.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

MAINTENANCE SUMMARY FORM

PROJECT:	CONTRACT NO.:	
1. EQUIPMENTITEM_		
2. MANUFACTURER		
3. EQUIPMENT/TAG NUMBER		
4. WEIGHT OF INDIVIDUAL COMPONE	ENTS (OVER 100 POUNDS)	
5. NAMEPLATE DATA (hp, voltage, speed, etc.)		
6. MANUFACTURER'S LOCAL REPRES	SENTATIVE	
a. Name	_Telephone No	

b. Address_____

7. MAINTENANCE REQUIREMENTS

Maintenance Operation Comments	Frequency	Lubricant (If Applicable)
List briefly each maintenance operation required and refer to specific information in manufacturer's standard maintenance manual, if applicable. (Reference to manufacturer's catalog or sales literature is not acceptable.	List required frequency of each maintenance operation.	Refer by symbol to lubricant required.

8. LUBRICANTLIST

Reference Symbol	Shell	Exxon Mobil	Chevron Texaco	BP Amoco	Or Equal	
List Symbols used in No. 7 above	List equivalent lubricants as distributed by each manufacture for the specific use recommended.					

9. RECOMMENDED SPARE PARTS FOR OWNER'S INVENTORY

Part No.	Description	Unit	Quantity	Unit Cost
Note: Identify parts provided by this Contract with two asterisks.				

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated, for the following:
 - 1. Preservation of Property.
 - 2. Siltation and Bank Erosion.
 - 3. Utility Construction and Adjustment.
 - 4. CONTRACTOR's Responsibility.
 - 5. Use of Chemicals.
 - 6. Progress of Work.
 - 7. OSHA.
 - 8. Utilities and Structures Shown on the Plans.
 - 9. Drainage.
 - 10. Restoration of Surface Improvements.
 - 11. Hours of Operation.

1.02 PRESERVATION OF PROPERTY

- A. Preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way affected by the work, the removal or destruction of which is not called for by the plans.
- B. Wherever such property is damaged due to the activities of the CONTRACTOR, it shall be immediately restored to its original condition by the CONTRACTOR at no cost to the OWNER.

C. In case of failure on the part of the CONTRACTOR to restore such property, or make good such damage or injury, the OWNER may, after 48 hours notice to the CONTRACTOR, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the CONTRACTOR under this contract.

1.03 SILTATION AND BANK EROSION

- A. Take adequate precautions to minimize siltation and bank erosion in the vicinity of canals or ditches, in discharging well point systems or during other construction activities.
- B. If well pointing, the CONTRACTOR shall notify the South Florida Water Management District and procure and necessary permits.

1.04 UTILITY CONSTRUCTION AND ADJUSTMENT

- A. Bid items for pipe, pump stations, drainage structures, electrical, instrumentation, and appurtenances are for new work only.
- B. Bids for these items shall include all work incidental thereto, such as pavement repair, existing pond lining repair, sodding, landscape and irrigation repair, sidewalk, and all other required restoration work unless otherwise called for.
- C. Where it is necessary to relocate, lower or otherwise adjust existing mains and appurtenances as may be required to accomplish the new pipeline construction, the cost of work shall be included in the unit prices or lump sum price for such new pipeline.

1.05 CONTRACTOR'S RESPONSIBILITY

- A. The CONTRACTOR shall be held strictly responsible for all parts of the work.
- B. If failures in the Work develop within one (1) year from the date of final acceptance, the CONTRACTOR shall be required to replace all faulty material at his full expense. A one (1) year warranty walkthrough shall be attended by the CONTRACTOR with the ENGINEER and South Martin Regional Utility.
- C. The CONTRACTOR is advised to purchase material under a guarantee from the Manufacturer, guaranteeing proper service under conditions that are established by the drawings, specifications and local conditions.

- D. The CONTRACTOR shall also be responsible for the following:
 - 1. Charges by others for assistance to the CONTRACTOR for such work as supporting, replacing, moving or providing protection for their facilities as necessitated by the CONTRACTOR's operation.
 - 2. All costs of restoration of the work site to condition equal or better than prior to construction, including landscaping and irrigation systems.
 - 3. All costs of restoration of pavements and structures damaged by the CONTRACTOR's operation. Likewise the CONTRACTOR shall pay all costs of restoring all work areas and all areas where construction materials are stored, whether new materials to be installed or materials removed from the work area incidental to the work <u>solely to the satisfaction of the OWNER</u>.
 - 4. All public liability, property damage and contractual liability insurance required by others to permit the CONTRACTOR's operation.

1.06 USE OF CHEMICALS

A. Any chemical used by the CONTRACTOR during the course of construction shall meet the regulatory requirements of either the Environmental Protection Agency (EPA) or the United States Department of Agriculture (USDA), and shall be approved by the ENGINEER prior to use.

1.07 **PROGRESS OF WORK**

- A. If at any time, the materials and appliances to be used appear to the ENGINEER as insufficient or improper for securing the quality of work or rate of progress required for the project, he may order the CONTRACTOR to increase his efficiency or improve the character of work.
- B. The failure of the ENGINEER to demand any increase of such efficiency or improvement shall not release the CONTRACTOR from his obligation to secure the quality of work or the rate of progress necessary to complete the work within the limits imposed by the Contract.

1.08 OSHA

A. CONTRACTOR must comply with the Department of Labor, Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-956) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54).

1.09 UTILITIES AND STRUCTURES SHOWN ON THE PLANS

- A. Existing utilities and facilities are shown on the contract drawings only for the convenience of all parties concerned and were established without guarantee as to their accuracy or completeness of location.
- B. Because of conflicting and sometimes erroneous information, certain facilities may not be located precisely as shown, or may be omitted entirely.
- C. Prior to performing any work, the CONTRACTOR shall determine, by site inspection including soft digs by hand excavation or vacuum-assisted excavation, or otherwise, all pertinent data concerning the existing utilities, structures, and facilities, including the request of each utility agency to advise him of the location of their facilities in the work vicinity.
- D. The CONTRACTOR shall be completely responsible for the relocation, as required, of existing utilities and structures with such work accomplished at no additional cost to the OWNER.
- E. The OWNER and ENGINEER will assume no liability for damages sustained or costs incurred because of the CONTRACTOR's operations in the vicinity of the existing utilities or structures.
- F. The CONTRACTOR shall schedule his work in such a manner that he is not delayed by the utility companies relocating or supporting their utilities. No compensation shall be made for such loss of time.
- G. The position of certain structures and utilities directly affects the proposed construction. Therefore, in order to insure that the proposed work can actually be positioned as planned, the CONTRACTOR shall make any excavation necessary for location of structures and utilities prior to construction of that particular portion of the job.
- H. All overhead, surface or underground structures encountered in trenching, whether shown on the Plans or not shown on the Plans, are to be carefully protected from injury or displacement, and all damage to such structures is to be completely repaired within a reasonable time; otherwise, the ENGINEER may give twenty-four (24) hour notice to the CONTRACTOR, then repair the damage at the CONTRACTOR's expense.

 All such repairs made by the CONTRACTOR are to be made to the satisfaction of the ENGINEER; all damaged pipes must be replaced or prevented from leaking. Also, all such repairs are to be inspected by the ENGINEER prior to backfilling. The CONTRACTOR must carefully protect from disturbance or injury, all monuments, stakes and bench marks, and shall not excavate nearer than five feet (5') to any of them until they have been removed, witnessed or otherwise disposed of by the ENGINEER.

1.10 DRAINAGE

- A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas.
- B. Any water that accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the ENGINEER in such a manner as to not create a nuisance to adjacent property or public thoroughfare.
- C. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary.
- D. Pumps and engines for well point systems shall be operated with mufflers, at a minimum noise level suitable to a residential area.
- E. The CONTRACTOR will not be allowed to discharge water into any storm drainage system without the written approval of the OWNER of that system.
- F. Approval will be subject to the conditions that the storm sewer be returned to its original conditions.
- G. The CONTRACTOR is responsible for carrying the water to the OWNER's onsite storm water management system or nearby body of water and for obtaining the necessary permission to use same.
- H. The CONTRACTOR shall be financially responsible for any nuisance or damage created due to carrying off water from his drainage system.

1.11 RESTORATION OF SURFACE IMPROVEMENTS

A. Roadways, including shoulders, alleys and driveways of shell, limerock, asphalt, concrete, stabilized soil or gravel, grade plots, sod, shrubbery, ornamental trees, signs, mailboxes, fences, irrigation systems, or other surface improvements on public or private property which have been damaged or removed in excavating or

other construction operations, shall be restored to conditions equal to or better than conditions existing prior to beginning work.

- B. Turf restoration shall consist of sodding and not seed and mulching.
- C. CONTRACTOR is urged to investigate existing irrigation systems in order to minimize repair work necessary. No extra costs will be paid as a result of damage to existing irrigation systems.
- D. The cost of doing this work shall be included in the cost of the various applicable items or the lump sum priced proposal items unless a separate payment item has been established for specific restoration Work.
- E. Pre-Construction Audio Video DVDs as specified will be used as an aid in determining conditions prior to construction.

1.12 HOURS OF OPERATION

- A. The CONTRACTOR is hereby informed and understands that certain noise between the hours of 6:00 PM and 8:00 AM is restricted. Therefore, the work is restricted during these hours, unless emergency conditions exist that are endangering life or property, as may be determined by the ENGINEER.
- B. If the CONTRACTOR is authorized to operate equipment twenty-four (24) hours per day, the engines shall be provided with residential type silencers approved by the ENGINEER.
- C. The CONTRACTOR will not be authorized to work Saturdays, Sundays or holidays unless the CONTRACTOR agrees to reimburse the OWNER for all expenses incurred and provided that such work is prior to the commencement of work.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.01 SUBMITTALS

- A. Informational Submittals:
 - 1. Submit prior to application for final payment.
 - a. Record Documents: As required in Section 01720 Record Documents.
 - b. Operation and Maintenance Manuals: As required in Section 1730 – O&M Manuals.
 - c. Approved Shop Drawings and Samples: As required in Section 01300 Submittals.
 - d. Special Bonds, Special Guarantees, and Service Agreements.
 - e. Consent of Surety to Final Payment: As required in General Conditions.
 - f. Releases of Waivers of Liens and Claims: As required in General Conditions.
 - g. Releases from Agreements.
 - h. Final Application for Payment: Submit in accordance with procedures and requirements stated in Section 01200 Measurement and Payment.
 - i. Extra Materials: As required by individual Specification Sections.

1.02 RECORD DOCUMENTS

- A. Quality Assurance.
 - 1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain record documents.
- 2. Accuracy of Records:
 - a. Coordinate changes within record documents, making legible and accurate entries on each sheet of Drawings and other documents where such entry is required to show change.
 - b. Purpose of Project record documents is to document factual information regarding aspects of the Work. Both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.
- 3. Make entries within twenty-four (24) hours after receipt of information that a change in the Work has occurred.
- 4. CONTRACTOR shall maintain a red-lined set or record drawings throughout the duration of the project. ENGINEER may review and approval of current status of record documents along with each pay request. Failure to properly maintain and update record documents may result in a deferral by ENGINEER to recommend whole or any part of CONTRACTOR's Application for Payment, either partial or final.

PART 2 – PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 MAINTENANCE OF RECORD DOCUMENTS

- A. General:
 - 1. Promptly following commencement of Contract Times, secure from ENGINEER at no cost to CONTRACTOR, one complete set of Contract Documents. Drawings will include a full-size and digital set.
 - 2. Delete ENGINEER title block and seal all documents.
 - 3. Label or stamp record document with title, "RECORD DOCUMENTS," in neat large printed letters.
 - 4. Record information concurrently with construction progress and within twenty-four (24) hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.

- B. Preservation:
 - 1. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
 - 2. Make documents and Samples available at all times for observation by ENGINEER.
- C. Making Entries on Drawings:
 - 1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as required.
 - a. Color Coding:
 - i. Green when showing information deleted from Drawings.
 - ii. Red when showing information added to Drawings.
 - iii. Blue and circled in blue to show notes.
 - 2. Date entries.
 - 3. Call attention to entry by "cloud" drawn around area or areas affected.
 - 4. Legibly mark to record actual changes made during construction, including but not limited to:
 - a. Depths of various elements of foundation in relation to finished first floor data if not shown or where depth differs from thatshown.
 - b. Horizontal and vertical locations of existing and new Underground Facilities and appurtenances, and other underground structures, equipment, or Work. Reference to at least two measurements to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
 - d. Locate existing facilities, piping, equipment, and items critical to the interface between existing physical conditions or construction and new construction.
 - e. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, Written Amendment, and ENGINEER's written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.

- 5. Dimensions on Schematic Layouts: Show on record drawings, by dimension, the centerline of each run of items such as are described in previous subparagraph above.
 - a. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.
 - b. Show by symbol or note, vertical location of item ("under slab," "in ceiling plenum," "exposed," and the like).
 - c. Make identifications so descriptive that it may be related reliably to Specifications.

SECTION 01810

EQUIPMENT TESTING AND FACILITY STARTUP

PART 1 – GENERAL

1.01 DEFINITIONS

- A. Facility: Entire project, or an agreed-upon portion of the project, including its entire unit processes.
- B. Functional Test: Test or tests in presence of the ENGINEER and the OWNER to demonstrate that installed equipment meets Manufacturer's installation, calibration, and adjustment requirements and other requirements as specified.
- C. Performance Test: Test or tests performed after any required functional tests and in the presence of the ENGINEER and the OWNER to demonstrate and confirm individual equipment meets performance requirements specified in the individual specification sections.
- D. Unit Process: as used in this section, a unit process is a portion of the facility that performs a specific process function, such as pumping or treatment.
- E. Facility Performance Demonstration:
 - 1. A demonstration, conducted by the CONTRACTOR, with assistance of the OWNER, to demonstrate and document the performance of the entire operating facility, both manually automatically, if required, based on criteria developed in conjunction with the OWNER and as accepted by the ENGINEER.
 - 2. Such a demonstration is for the purposes of (i) verifying to the OWNER the entire facility performs as a whole, and (ii) documenting performance characteristics of complete facility for OWNER's records. Neither the demonstration nor the evaluation is intended in any way to make performance of a unit process or entire facility the responsibility of the CONTRACTOR, unless such performance is otherwise specified.

1.02 SUBMITTALS

- A. Information Submittals:
 - 1. Facility startup and performance demonstration plan.
 - 2. Functional and performance test results.

- 3. Start-up check-list and report for approval prior to start-up services are conducted.
- 4. Completed start-up check-list and report.

1.03 FACILITY STARTUP AND PERFORMANCE DEMONSTRATION PLAN

- A. Develop a written plan, in conjunction with the OWNER's operating personnel, to include the following:
 - 1. Step-by-step instructions for startup of each unit process and the complete facility.
 - 2. Start-up form to minimally include the following:
 - a. Description of the unit process, including equipment numbers/nomenclature of each item of equipment and all included devices.
 - b. Detailed procedure for startup of the unit process, including valves to be opened/closed, order of equipment startup, etc.
 - c. Startup requirements for each unit process, including water, power, chemicals, etc.
 - d. Space for evaluation comments.
 - e. Sequence of unit process startup to achieve facility startup.
 - f. CONTRACTOR certification that the facility is capable of performing its intended function(s), including fully automatic operations.
 - g. Signature spaces for the CONTRACTOR and the ENGINEER.

PART 2 - PRODUCTS NOT USED

PART 3 – EXECUTION

3.01 GENERAL

- B. Facility Startup Meetings: Schedule, in accordance with the requirements of **Section 01039 -** Coordination and Meetings, to discuss test schedules, test methods, materials, chemicals and liquids required, facilities operations interface, and OWNER involvement.
- C. CONTRACTOR's Testing and Startup Representative:
 - 1. Designate and furnish one or more personnel to coordinate and expedite testing and facility startup.
 - 2. Representative(s) shall be present during startup meetings and shall be available at all times during testing and startup.
- D. Provide temporary valves, gauges, piping, test equipment, water, power, chemicals, laboratory analysis, and other materials and equipment required for testing and startup.
- E. Testing and startup of the pumps and associated electrical and control equipment may require phasing. The testing and startup may have to occur in stages at varying intervals. The CONTRACTOR's testing and startup representative and essential Manufacturer's representative must be present at all startups.
- F. Provide adequate subcontract and equipment Manufacturer's staff to prevent delays. Schedule ongoing work so as not to interfere with or delay testing and startup.
- G. OWNER will:
 - 1. Operate process units and facility with support of CONTRACTOR.

3.02 EQUIPMENT TESTING

- A. Preparation:
 - 1. Complete installation before testing.
 - 2. Furnish qualified Manufacturer's representatives, when required by individual specification sections.
 - 3. Obtain and submit from equipment Manufacturer's representative Manufacturer's Certification of Proper Installation Form.
 - a. Equipment Test Report Form: Provide written test report for each item of equipment to be tested, to include the minimum information:

- b. OWNER/Project name
- c. Equipment or item tested.
- d. Date and time of test.
- e. Type of test performed (functional or performance)
- f. Test method.
- g. Test conditions.
- h. Test results.
- i. Signature spaces for CONTRACTOR and ENGINEER as witness.
- 4. Cleaning and Checking: Prior to beginning functional testing:
 - a. Calibrate testing equipment in accordance with Manufacturer's instructions.
 - b. Inspect and clean equipment, devices, connected piping, and structures to ensure they are free of foreign material.
 - c. Lubricate equipment in accordance with Manufacturer's instructions.
 - d. Turn rotating equipment by hand when possible to confirm that equipment is not bound.
 - e. Open and close valves by hand and operate other devices to check for binding, interference, or improper functioning.
 - f. Check power supply to electric-powered equipment for correct voltage.
 - g. Adjust clearances and torque.
 - h. Pressure test force main for leaks.
- 5. Ready-to-test determination will be by ENGINEER based at least on the following:
 - a. Acceptable Operation and Maintenance Data.

- b. Notification by CONTRACTOR of equipment readiness for testing.
- c. Receipt of Manufacturer's Certificate of Proper Installation.
- d. Receipt and approval of start-up check-list and from.
- e. Adequate completion of work adjacent to, or interfacing with, equipment to be tested, including items to be furnished by the OWNER, if any.
- f. Availability and acceptability of Manufacturer's representative, when specified, to assist in testing of respective equipment.
- g. Satisfactory fulfillment of other specified Manufacturer's responsibilities.
- h. Equipment and electrical tagging complete.
- i. Delivery of all spare parts and special tools.
- B. Functional Testing:
 - 1. Conduct as specified in individual Specification sections.
 - 2. Notify OWNER and ENGINEER in writing at least ten (10) days prior to scheduled date of testing.
 - 3. Prepare Equipment Test Report summarizing test method and results.
 - 4. When, in ENGINEER's opinion, equipment meets functional requirements specified, such equipment will be accepted for purposes of advancing to performance testing phase, if so required by individual Specification sections. Such acceptance will be evidenced by ENGINEER/OWNER's signature as witness on Equipment Test Report.
- C. Performance Testing:
 - 1. Conduct as specified in individual Specification sections.
 - 2. Notify ENGINEER and OWNER in writing at least ten (10) days prior to scheduled test date.
 - 3. Performance testing shall not commence until equipment has been accepted by ENGINEER as having satisfied functional test requirements specified.

- 4. Type of fluid, gas, or solid for testing shall be as specified.
- 5. Unless otherwise indicated, furnish labor, materials, and supplies for conducting the test and taking samples and performance measurements.
- 6. Prepare Equipment Test Report summarizing test method and results.
- 7. When, in ENGINEER's opinion, equipment meets performance requirements specified, such equipment will be accepted as to conforming to Contract requirements. Such acceptance will be evidenced by ENGINEER's signature on Equipment Test Report.

MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

OWNER	EQPT SERIAL NO
EQPT TAG NO	EQPT/SYSTEM
PROJECTNO	SPEC. SECTION

I hereby certify that the above - referenced equipment/system has been:

(Circle Applicable)

- Y Installed in accordance with Manufacturer's recommendations.
- Y Inspected, checked, and adjusted.
- Y Serviced with proper initial lubricants.
- Y Electrical and mechanical connections meet quality and safety standards.
- Y All applicable safety equipment has been properly installed.
- Y System has been performance tested, and meets or exceeds specified performance requirements. (When complete system of one manufacturer)

Comments:

I, the undersigned Manufacturer's Representative, hereby certify that I am (i) a duly authorized representative of the Manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate his equipment and (iii) authorized to make recommendations required to assure that the equipment furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date:_____, 20____

Manufacturer:

By Manufacturer's Authorized Representative:

(Authorized Signature)

DIVISION 2

SITEWORK

SECTION 02000

UTILITY CONSTRUCTION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. This specification governs the construction of all Loxahatchee River District gravity sewers, sewer services, force mains, low pressure sewer services, low pressure force mains, lift stations, reclaimed water mains, and all appurtenant devices associated therewith.

1.02 LOXAHATCHEE RIVER DISTRICT MINIMUM CONSTRUCTION STANDARDS

- A. Construction of the facilities identified herein shall be in accordance with the latest edition of the "Loxahatchee River Environmental Control District Manual of Minimum Construction Standards and Technical Specifications" (LRDMCS), which are presented within this document as Appendix A.
- B. Construction of the facilities identified herein will also be in accordance with the applicable portions of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition, all referenced specifications, and the ENGINEER's project manual.
- C. In the event of a conflict between any governing specifications, the more stringent requirement shall govern construction of this project.

1.03 RESTORATION

A. Full and complete restoration of all existing facilities will be accomplished to the sole satisfaction of the OWNER without additional compensation to the CONTRACTOR. The cost of all restoration will be included in the lump sum or unit bid price and no separate payment item for restoration will be established in the schedule of values developed subsequent to bidding.

PART 2 - MATERIALS

2.01 GENERAL

A. All construction materials shall comply with the requirements of the LRDMCS as outlined therein. All parts of the LRDMCS that are applicable shall govern unlessa more stringent standard is listed in the Contract Documents or required by other permitting agencies.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. All phases of construction, including but not limited to, trenching, pipe laying, backfilling, pipeline flushing, and surface restoration shall comply with the requirements of Part 1.02 as noted in this section.
- B. Pipeline backfill not beneath paved surfaces shall be compacted to a minimum density of 98 percent of AASHTO T-180 or as required by governmental agencies having jurisdiction over the Work.

3.02 TESTING

- A. All testing, including but not limited to, trench earthwork density testing, and pipeline pressure testing shall comply with the requirements of this specification, the LRDMCS, "Florida Department of Transportation Standard Specifications for Road and Bridge Construction", Latest Edition, and the Palm Beach CountyHealth Department.
- B. Backfill density test locations will be examined in accordance with the requirements listed on the trenching details shown on the engineering drawings.
- C. The CONTRACTOR will use the OWNER's testing laboratory (GFA International) for all testing.
- D. The OWNER will pay for all passing tests and the CONTRACTOR will pay for any failed tests and wait time for any retesting made necessary by failure to perform in accordance with the project specifications.
- E. Retesting locations around all failing tests will be located at the original test location.
- F. Retest only after re-compaction of a failing test area.
- G. Hydrostatic Testing
 - 1. Hydrostatic testing shall be performed as stated in the Testing Procedure detail found in the details section of the drawings.

3.03 WARRANTY/PROJECT DOCUMENTATION

A. All warranties and project documentation, including but not limited to record

drawings and payment applications, shall comply with the requirements of this specification.

3.04 COORDINATION

A. All coordination of construction shall primarily occur between the CONTRACTOR and the ENGINEER. The Engineer of Record for design of this construction project is Holtz Consulting Engineers, Inc. The ENGINEER will aid the OWNER in evaluation of technical questions, coordination of the work, resolution of technical and payment disputes, and regulatory certification of the project. The ENGINEER's direct representative on this project will be:

Christine Miranda, PE, (561) 575-2005

B. The OWNER's direct representative who will perform the coordination activities is:

Mr. Kris Dean, PE, Director of Engineering, (561) 747-5700

- C. The Utilities to coordinate with are, at a minimum:
 - 1. Town of Jupiter.
 - 2. Florida Power and Light.
 - 3. AT&T.
 - 4. Bellsouth.
 - 5. Comcast Cable.
 - 6. Florida Public Utilities.
 - 7. Other applicable utilities.

3.05 PERMITS

- A. The OWNER and ENGINEER will obtain construction permits from the Palm Beach County Health Department and the Town of Jupiter Right-of-Way Permit, where applicable. If applicable, license agreements and easements for construction on public and private property will also be obtained by the OWNER and ENGINEER.
- B. The CONTRACTOR will obtain and pay for any dewatering, building or other permits necessary to perform the Work, except as identified above.

SECTION 02050

DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

- 1. Furnish all labor, materials, equipment and incidentals required to demolish, modify, remove and dispose of work shown and specified as required for installation of new equipment. If a permit for the removal of asbestos is required, the Contractor shall obtain and pay for the permit.
- 2. The Contractor shall supply equipment required to complete the work in this section.

1.02 SUBMITTALS

- A. Provide a detailed sequence of demolition and removal work, with proposeddates, to ensure the uninterrupted operation of the Jupiter Lighthouse Park.
- B. Submit data sheets for equipment proposed to be utilized in the work.

1.03 DISPOSAL OF MATERIAL

A. All equipment indicated for removal as identified in the Contract Documents shall become the property of the Contractor, unless specifically noted otherwise.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall remove all equipment, piping, materials, structures and appurtenances etc., from the site as soon as it is removed from the work. No materials to be removed shall be stored at the site or in the yard. Materials to be removed shall not be incorporated in the new work unless noted otherwise. The Contractor shall be responsible for disposal and final disposition of all materials deemed to be scrap, salvage, and for debris except where otherwise noted. Contractor shall dispose of all other items off the site and in conformance with all existing applicable laws and regulations.

- B. The Contractor shall be responsible for performing all structural dismantling required to facilitate removal of equipment. It will be the responsibility of the Contractor to dispose of any debris resulting from said dismantling. The Contractor shall provide all temporary bracing and supports to maintain operation as required and submit calculations for same to the Engineer prior to demolition.
- C. The Contractor shall follow the required lockout/tag-out requirements, in addition to all other OSHA regulations which govern for construction projects.
- D. All work shall be carried out in strict conformance with all applicable safety regulations including, but not limited to, OSHA.
- E. The Contractor is required to view the site prior to bidding.
- F. Provide required permanent and temporary restraints on piping prior to removal of pipe segments or valves.

3.02 MECHANICAL REMOVALS

A. Demolition of the work shall be carried out in a manner which will allow the new work to match the existing work.

3.03 ELECTRICAL REMOVALS

A. All demolition shall be done under this Section. Instrumentation removal shall be done in accordance with this Section. Strict coordination must be maintained during demolition of equipment with electrical connections. No work shall commence until proper lockout/tag-out safety procedures are in-place. The Contractor shall also adhere to all OSHA regulations.

SECTION 02100 SITE PREPARATION

PART 1 - GENERAL

1.01 SCOPE:

- A. Summary of Work: The CONTRACTOR shall furnish all labor, materials, and equipment necessary for complete and proper site preparation within the areas shown on the Drawings and specified herein and observe permit conditions.
- B. Related work Specified Elsewhere:
 - 1. Section 02050 Demolition
 - 2. Section 02110 Clearing and Land Preparation

1.02 APPLICABLE PUBLICATIONS:

- A. Applicable Standards:
 - 1. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition (FDOT).

1.03 DEFINITIONS:

NOTUSED

1.04 SUBMITTALS:

NOTUSED

1.05 QUALIFICATIONS:

NOTUSED

1.06 RESPONSIBILITIES:

A. The CONTRACTOR shall make all excavations for piping and appurtenant structures in any material encountered to the depth and grades required, shall backfill such excavations and dispose of excess or unsuitable materials from excavation, and shall provide and place necessary borrow material to properly backfill excavations, all as indicated on the drawings, specified herein, or as directed by the ENGINEER.

B. Excavation, dewatering, sheeting and bracing required shall be carried out so as to prevent any possibility of undermining or disturbing the foundations of any existing structure or work, and so that all work may be accomplished and inspected in the dry, except as directed by the ENGINEER.

1.07 CERTIFICATIONS AND TESTINGS:

NOTUSED

1.08 INSPECTION COORDINATION:

NOTUSED

1.09 WARRANTY:

NOTUSED

PART 2 – PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.01 TRAFFIC CONTROL:

A. The CONTRACTOR shall provide proper warning devices and barriers for protection of the public and workmen in accordance with FDOT Specification Section 102-3 Traffic Control and local regulations.

3.02 STANDARD CLEARING AND GRUBBING:

A. Standard site clearing and grubbing, in accordance with FDOT Specification Section 110-2 and Section 02110, shall be performed within the areas shown on the Drawings or otherwise noted in the above referenced specification.

3.03 EROSION CONTROL:

A. The CONTRACTOR shall prevent and control erosion and water pollution as per Section 02270 and FDOT Specification Sections 104-1, 2, 3, 4, 6 and 7 and Florida Department of Environmental Protection (FDEP) regulations and permit conditions.

3.04 PROTECTION AND/OR RELOCATION OF EXISTING FACILITIES:

A. Existing facilities such as storm drains, roadways, water lines, light poles, conduits, fences, utility and telephone lines, etc. are to be carefully protected from damage during all phases of the construction. The CONTRACTOR shall make all necessary arrangements with the owner of the facility and be responsible for all costs involved in the proper protection, relocation or other work that such owners deem necessary.

3.05 UNDERGROUND UTILITIES:

A. The CONTRACTOR shall provide all necessary liaisons with other utilities (underground) by notification, 48 hours in advance, of any digging by telephoning the appropriate Utility Notification Center and local utilities.

SECTION 02110 CLEARING AND LAND PREPARATION

PART 1 - GENERAL

1.01 SCOPE:

- A. Summary of Work: The CONTRACTOR shall include the removal of vegetation from areas where earthwork or other construction operations specified herein are to be performed. This section also includes land preparation activities for excavation and fill areas.
- B. RELATED WORK:
 - 1. Section 02050 Demolition
 - 2. Section 02100 Site Preparation
 - 3. Section 02200 Earthwork
 - 4. Section 02225 Trenching, Bedding, and Backfill for Pipe

1.02 APPLICABLE PUBLICATIONS:

NOT USED

1.03 DEFINITIONS:

NOTUSED

1.04 SUBMITTALS:

A. Prior to beginning the work, CONTRACTOR shall submit a detailed plan for clearing and land preparation in conformance with Section 01300. The plan shall detail the sequence of work and describe the CONTRACTOR's planned method of clearing and land preparation activities.

1.05 QUALIFICATIONS:

NOTUSED

1.06 RESPONSIBILITIES:

A. The CONTRACTOR shall ensure the safe passage of persons around areas of clearing and land preparation. The CONTRACTOR shall conduct its operations to

prevent injury to adjacent structures, vegetation designated to remain, other facilities and persons.

- B. Traffic:
 - 1. The CONTRACTOR shall conduct its operations and the removal of cleared materials to ensure minimum interference with existing access roads and other adjacent occupied or used facilities.
 - 2. The CONTRACTOR shall not block or otherwise obstruct access roads or other occupied or used facilities without permission from the ENGINEER. Where blockage is allowed, the CONTRACTOR shall provide alternate routes around closed or obstructed traffic ways.
- C. The CONTRACTOR may commence clearing or land preparation within portions of the project falling within the limits of temporary construction easements or utility right-of-way only with specific permission from the ENGINEER for each activity and location. All requirements under A and B above apply within these limits.

1.07 CERTIFICATIONS AND TESTING:

NOT USED

1.08 INSPECTION COORDINATION:

A. The CONTRACTOR shall provide access to the WORK for the ENGINEER as requested for inspection. The CONTRACTOR shall provide a 48-hour notice of its intention to begin new work activities.

1.09 WARRANTY:

NOT USED

PART 2 – PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.01 GENERAL CLEARING:

A. The CONTRACTOR shall remove the majority of the above grade non-native vegetative matter in the areas indicated on the plans. The CONTRACTOR shall

complete the work of Clearing and Land Preparation as outlined below.

- 1. All stumps shall be ground level to six inches below the surrounding ground level. Stumps on the slopes shall be cut flush with the natural angle of the existing grade and treated immediately with a herbicide approved by the ENGINEER. All seedlings within the project site shall be treated with the herbicide.
- 2. All plant material (whole or chipped) will be removed from the project area and stockpiled at a location authorized by the ENGINEER. Disposal of the stockpile shall be accomplished at a maximum of every 15 workdays.
- 3. Remove any garbage or other waste debris recovered during clearing.
- 4. On completion of the clearing, remove all sticks, rubbish and other extraneous material and rake the ground surface in order to leave a smooth and clean appearance.
- 5. Clearing and land preparation shall proceed sufficiently ahead of earthwork activities to minimize disruption and allow time for determination of the adequacy of the clearing procedure.
- 6. All work shall be performed in accordance with approved principles of modern arboricultural methods.
- 7. All trees to remain in the project area, as designated by the ENGINEER, shall be protected from damage by tree barricades.
- 8. All work shall be performed without damage to existing amenities, including trees and shrubs. The CONTRACTOR shall be responsible for repair and replacement of existing amenities to the satisfaction of the ENGINEER. The CONTRACTOR shall protect all vegetation, habitats, or amenities on the project location as indicated on the plans.
- B. The CONTRACTOR shall clear adjacent to cut or fill sections to a minimum distance of 10 feet outside of slope lines unless lesser distances are specified. Clearing in areas of native vegetation for canal excavation shall be limited to a distance of 10 feet outside of slope lines.
- C. The CONTRACTOR may not burn cleared materials within the limits of the project.

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Dewatering methods for utility and structural installation.

1.02 RELATED SECTIONS

- A. All of Division 1.
- B. Division 2 Pipe and Structures (As Applicable).

1.03 PAYMENT

A. Unless noted otherwise on the Bid Form, no separate payment will be made for Work covered under this Section. All costs in connection therewith or incidental thereto are to be included in the respective Contract price for the item or structure to which the Work pertains.

PART 2 - PRODUCTS

NOT USED

PART3-EXECUTION

3.01 PUMPING AND DRAINAGE

- A. The CONTRACTOR shall be responsible for determining all dewatering requirements and governmental regulations prior to commencement of work including, but not limited to, methods of drainage, removal of water, disposal of water and permitting.
- B. The CONTRACTOR shall bear all costs associated with dewatering including costs of damage to property caused by dewatering.
- C. The CONTRACTOR shall provide and maintain all necessary facilities and equipment to remove all water entering excavations and shall keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fills, structures or pipes to

be built thereon have been completed to such extent that they will not float or otherwise be damaged by allowing water levels to return to natural levels.

- D. Dewatering shall be conducted by a well point type system and in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation and to preserve the integrity of adjacent structures. Well point system installation shall be constructed with proper sand filters to prevent drawing of finer grained soil from the surrounding ground. Sump installation, over excavation of trenches, and rocking shall not be allowed as a method of dewatering.
- E. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and pumped from the excavation to maintain a bottom free from standing water.
- F. The CONTRACTOR shall take all additional precautions to prevent uplift of any structure during construction.
- G. The conveying of water in open ditches or trenches will not be allowed. Permission to use any storm sewers, or drains, for water disposal purposes shall be obtained from the authority having jurisdiction. Any requirements and costs for such use shall be the responsibility of the CONTRACTOR. However, the CONTRACTOR shall not cause flooding by overloading or blocking up the flow in the drainage facilities, and shall leave the facilities unrestricted and as clean as originally found. Any damage to facilities shall be repaired or restored as directed by the OWNER or the authority having jurisdiction, at no cost to the OWNER.
- H. Flotation shall be prevented by the CONTRACTOR by maintaining a positive and continuous operation of the dewatering system. The CONTRACTOR shall be fully responsible and liable for all damages, which may result from failure of this system.
- I. Removal of dewatering equipment shall be accomplished after the system is no longer required; the material and equipment constituting the system shall be removed by the CONTRACTOR. Well point holes shall be filled with a suitable material.
- J. The CONTRACTOR shall take all necessary precautions to preclude the accidental discharge of fuel, oil, etc., in order to prevent adverse effects on groundwater quality.
- K. CONTRACTOR shall provide for and be responsible for the prevention, control and abatement of erosion and water pollution until completion of the Project. CONTRACTOR shall provide all temporary erosion control features necessary to prevent, control and abate erosion and water pollution. During the construction of the project, the CONTRACTOR shall comply with the Water Quality Standards of the State of Florida and applicable provisions of any NPDES permits in effect.

3.02 DEWATERING PERMITS

A. The CONTRACTOR shall be responsible for obtaining all necessary dewatering permits and for paying all associated application and permit fees.

SECTION 02200 EARTHWORK

PART 1 - GENERAL

1.01 SCOPE:

- A. Summary of Work: The CONTRACTOR shall furnish all labor, equipment, and materials for all excavating, trenching, filling, embankment construction, backfilling, compacting, grading and all related items of earthwork necessary to complete the work indicated or specified.
- B. RELATED WORK:
 - 1. Section 02050 Demolition
 - 2. Section 02110 Clearing and Land Preparation
 - 3. Section 02225 Trenching, Bedding and Backfill for Pipe

1.02 APPLICABLE PUBLICATIONS:

- A. American Society of Testing Materials, (ASTM):
 - 1. D698-00a Standard Test Methods for Laboratory compaction Characteristics of Soil Using the Standard Effort (12,400 ft-lbf/ ft³).
 - 2. D1557-00 Standard Test Methods for Laboratory compaction Characteristics of Soil Using the Modified Effort (56,000 ft-lbf/ ft³).
 - 3. D2487-00 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 - 4. D4253-00 Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - 5. D4254-00 Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- B. Florida Department of Transportation(FDOT)
 - 1. "Standard Specifications for Road and Bridge Construction," latest edition, (FDOT).

1.03 DEFINITIONS:

A. <u>Select Fill:</u> Select Backfill shall be clean material free from organic material, clods, and stones greater than three inches around structures and other areas. Select 02200-1 backfill shall be placed where indicated on the Drawings. Select backfill is

required where higher control of materials and placement is needed such as roadway embankments and adjacent to structures.

- B. <u>Random Fill:</u> Random Backfill shall be clean material free from organic material, clods, and stones greater than six inches. Random backfill shall be placed where indicated on the Drawings. Random backfill is required where stable backfill is needed to maintain slopes and grades but will not retain water or be adjacent to structures.
- C. <u>Unclassified Fill</u>: Unclassified Fill shall be material used to bring areas to grade where there is no potential for slope erosion and the fill will not support a structure of critical function. Unclassified backfill shall be placed where neither select backfill nor random backfill are shown on the Drawings.

1.04 SUBMITTALS:

A. The Contractor shall submit cross-sections for record purposes for subgrades as described in this Section.

1.05 QUALIFICATIONS:

NOTUSED

1.06 RESPONSIBILITIES:

NOTUSED

1.07 CERTIFICATIONS AND TESTINGS:

A. Field density tests in accordance with ASTM Standards, for each type of material used in backfilling will be required. Failure to meet the specified density will require the CONTRACTOR to recompact and retest, at his own expense, those areas directed by the ENGINEER

1.08 INSPECTION COORDINATION:

A. The CONTRACTOR shall provide access to the WORK for the ENGINEER as requested for inspection. The CONTRACTOR shall provide 48-hour notice of its intention to begin new WORK activities.

1.09 WARRANTY:

NOTUSED

PART 2 - PRODUCTS

2.01 MATERIALS ENCOUNTERED:

- A. The CONTRACTOR shall excavate materials to the lines and grades necessary for the subgrade construction.
- B. The CONTRACTOR shall consider all materials encountered in excavations, excluding peat unless the quantities are less than 25 percent of the total volume, as suitable for use in random fill, providing that they consist of two or more well graded soils to achieve the required compaction as specified in this SECTION.
- C. The CONTRACTOR shall use only material that is free of debris, roots, and organic matter in select fill areas. Peat materials are not suitable for use in select fill.
 - 1. Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands generally exclusive of clayey and silty material materials whichare freedraining and for which impact compaction will not produce a well- defined moisture-density relationship curve and for which the maximum density by impact methods will generally be less than by vibratory methods.
 - Cohesive materials include silts and clays generally exclusive of sands and gravel
 materials for which impact compaction will produce a well-defined moisturedensity relationship curve.
- D. The CONTRACTOR shall furnish materials for each type of fill indicated.
 - 1. Select backfill: Select Backfill shall be material that is well graded, free of debris, roots, organic matter and peat. Select backfill shall be material excavated for the WORK (native) or may be imported. Should consist of an inorganic, non-plastic, granular soil containing less than 10 percent material passing the No. 200 mesh sieve (relatively clean sand or a crushed lime rock). The CONTRACTOR may blend native materials to achieve a material that meets the requirements for Select Backfill. Select backfill shall be free from seeds of nuisance or exotic species. Select Backfill shall meet the following Unified Soil Classification System (ASTM D2487) designations: GP, GW, SP, or SW.
 - 2. Random Backfill: Random backfill shall be material that is well graded, free of debris, roots, organic matter and peat. Random backfill shall be material excavated for the WORK (native) or may be imported. The CONTRACTOR may blend native materials to achieve a material that meets the requirements for Random Backfill. Random backfill shall be free from seeds of nuisance or exotic species. Random Backfill shall meet the following Unified Soil Classification System (ASTM D2487) designations in addition to the classifications identified for Select Backfill: CH.
 - 3. Unclassified Backfill: Material excavated for the WORK or imported that can be compacted to the required density. Unclassified backfill shall be free for seeds of nuisance or exotic species.

E. The CONTRACTOR shall consider all materials encountered, regardless of type, character, composition and condition thereof unclassified other than as indicated above. The CONTRACTOR shall estimate the quantity of various materials included prior to submitting Bid Form. Rock encountered shall be handled at no additional cost to the CITY.

PART 3 - EXECUTION

3.01 SITE PREPARATION:

A. Clearing and Demolition: The CONTRACTOR shall perform clearing and demolition as specified in SECTION 02050 Demolition and SECTION 02110 Clearing and Land Preparation.

3.02 EXCAVATION AND TRENCHING:

- A. Trenching for Pipes: The CONTRACTOR shall perform trenching for pipes as shown, required and specified in accordance with Section 02225.
- B. Sheeting and Bracing: The CONTRACTOR shall provide sheeting and bracing as required or shown in accordance with the following provisions.
 - 1. Use when required by the specifications or drawings and where resulting slopes from excavation or trenching might endanger in-place or proposed structures.
 - 2. Provide materials on site prior to start of excavation. Adjust spacing and arrangement as required by conditions encountered.
 - 3. Remove sheeting and bracing as backfill progresses. Fill voids left after withdrawal with sand or other approved material.
 - 4. Comply with all applicable sections of OSHA.
 - 5. Comply with all requirements of the Florida Trench Safety Law as specified in the GENERAL CONDITIONS.
- C. Blasting: Blasting is not allowed for this project.
- D. Excavation for Structures: The CONTRACTOR shall perform excavation for structures as shown, required and specified below:
 - 1. Excavate area adequate to permit efficient erection and removal of forms.
 - 2. Trim to neat lines where details call for concrete to be deposited against earth.
 - 3. Excavate by hand in areas where space and access will not permit use of machines.
 - 4. Notify the ENGINEER immediately when excavation has reached the depth indicated.

- 5. Restore bottom of excavation to proper elevation with concrete in areas over excavated.
- 6. Conform to the requirements of Section 02225
- E. Demucking: The CONTRACTOR shall remove all organic soils from areas below structures, piping, and road sub grades to the lines and grades indicated. Materials excavated shall not be used for backfill of structures or pipes and shall be placed in random fill zones only. Organic soils may be used for road construction provided such use meets the requirements of SECTION 120, Article 120-5.2 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
- F. Excavation of Existing Embankments: The CONTRACTOR shall perform excavation by any method acceptable to the ENGINEER and meeting the requirements of these specifications and the drawings. All materials removed from embankments shall be suitable for reuse as random fill. Excavation limits shall be clearly identified and approved by the ENGINEER prior to initiation of the Canal Restoration/Stabilization construction.

3.03 EMBANKMENT:

- A. Final Dressing of Slopes: Following completion of embankment placement and compaction, the CONTRACTOR shall grade embankment slopes and adjacent transition areas reasonably smooth and free from irregular surface changes. The CONTRACTOR shall comply with the following:
 - 1. Degree of finish shall be that ordinarily obtained from blade grader or similar operations.
 - 2. Provide roundings at bottom of slopes and other breaks in grade.
- B. Cross-Sections: Provide field measured cross-sections at the same intervals as provided in the design plans of the subgrade and of the embankments restoration to the ENGINEER for record purposes.

3.04 BACKFILLING:

- A. Pipe Embedment and Backfill: The CONTRACTOR shall perform pipe embedment and backfill as required, shown and specified in accordance with Section 02225.
- B. Structures: The CONTRACTOR shall perform backfilling for structures in accordance with the following:
 - 1. Structure backfill shall be constructed using material suitable for use in select fill, except that stones or rocks greater than two inches in any dimension shall not be placed within 12 inches of the structure. Lifts shall not exceed 12 inches.

- 2. Structure backfill shall be compacted to 95 percent maximum dry density (ASTM D-1557).
- 3. Backfill adjacent to structures only after a sufficient portion of the structure has been built to resist the imposed load.
- 4. Remove all debris from excavation prior to placement of material.
- 5. Place backfill in level layers of thickness within compacting ability of equipment used.
- 6. Perform backfilling simultaneously on all sides of structures.
- C. Unclassified Backfill shall be placed in 12-inch lifts to the lines and grades shown on the drawings or as approved by the ENGINEER. The CONTRACTOR shall compact unclassified backfill to a density approximating the density of surrounding native material and in a manner that will not allow settlement of the completed area.

3.05 MAINTENANCE:

- A. The CONTRACTOR shall protect newly graded areas from actions of the elements.
- B. The CONTRACTOR shall fill, repair and re-establish grades to the required elevations and slopes for any area that shows settling or erosion occurring prior to final seeding or sodding.

SECTION 02210

GRADING

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines Contractor's responsibilities unless otherwise indicated, for the following:
 - 1. Finish grading of subsoil.
 - 2. Placing, leveling and compacting topsoil.

1.02 RELATED SECTIONS

A. Section 02936 - Sodding

1.03 PROTECTION

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, utility poles, fences, roads, paving, curbs, sidewalks, etc.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reused top soil or subsoil organically enhanced with appropriate compost material shall be used to perform all final grading operations in preparation for establishment of a live and healthy grass cover.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify site conditions and note irregularities affecting work of this Section.

3.02 SUBSOIL PREPARATION

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, stones, in excess of 1/2" in size and dispose of at an approved site.

3.03 PLACING TOPSOIL

- A. Place topsoil in areas where seeding, sodding, planting is scheduled.
- B. Use topsoil in relatively dry state. Place during dry weather.

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- C. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.
- D. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.
- E. Manually spread topsoil around trees and plants to prevent damage.
- F. Lightly compact roll placed topsoil.
- G. Remove surplus subsoil and topsoil from site.
- H. Leave stockpile area and site clean and ready to receive landscaping.
- I. Top soil to match existing depth, or two inches, whichever is greater, or as scheduled below.

3.04 TOLERANCES

A. Top of topsoil: Plus or minus 1/2 inch.

3.05 SCHEDULE OF LOCATION

- A. The following identifies compacted topsoil thicknesses for various locations.
 - 1. Sod: 3 inches

SECTION 02225

TRENCHING, BEDDING AND BACKFILL FOR PIPE

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities unless otherwise indicated, for the following:
 - 1. Trench excavation.
 - 2. Pipe bedding.
 - 3. Trench Backfill.
 - 4. Backfill testing.
 - 5. Measurement and Payment.
 - 6. Reference standards.

1.02 RELATED WORK

- A. All of Division 1.
- B. LRD Technical Specifications.
- C. Appendices, as necessary.

1.03 MEASUREMENT AND PAYMENT

- A. No separate bid item for measurement and payment.
- B. Include trenching, bedding, backfilling, all necessary restoration, pressure, bacteriological and density testing costs under pipe installation unit costs.

1.04 REFERENCE STANDARDS

- A. Conform to the requirements of the Standards published by the following organizations. The version of each Standard in effect as of the date of the bid opening shall govern unless otherwise noted.
 - 1. American Water Works Association (AWWA).
- 2. American Association of State Highway and Transportation Officials (AASHTO).
- 3. American Institute of Steel Construction (AISC).
- 4. American National Standards Institute, Inc. (ANSI).
- 5. American Concrete Institute (ACI).
- 6. American Welding Society (AWS).
- 7. Loxahatchee River District Minimum Construction Standards in effect at the time the bid is submitted.
- B. Where no standards are specified, utilize good quality material and perform workmanship in accordance with the best trade practices.

PART 2 - PRODUCTS

2.01 TRENCH BACKFILL

- A. Use excavated or borrowed soil materials that are free of rock or gravel larger than two (2) inches in diameter and free of twigs, roots, or other vegetation/foreign matter.
- B. Use backfill soil that is also non-organic in nature (i.e. peat, muck are unsatisfactory) and is no more than 20 percent by weight finer than No. 200 mesh sieve.

2.02 ROCK BEDDING

A. Use 3/8-inch to ³/₄-inches washed and graded gravel having 99% passing a ³/₄-inch sieve and 80 percent retained on a No. 8 sieve.

PART 3 - EXECUTION

3.01 CLEARING

- A. Clear pipe corridor of shrubs, trees and other foreign material prior to beginning excavation.
- B. Dispose of clearing debris at a properly permitted landfill.

C. If a nutrient-rich topsoil layer exists, strip the topsoil and store in piles for reuse.

3.02 TRENCHING

- A. Locate all existing utilities before trenching.
- B. Install suitable barriers between the work area and vehicle/pedestrian travel lanes before trenching. Barriers must control vehicular/pedestrian work area access.
- C. Excavate trenches as specified on the engineering drawings.
- D. Completely remove all muck, peat or other incompressible/organic soils (unsuitable soils) that occur along the pipeline route.
 - 1. Minimum unsuitable soil removal limits are:
 - a. Vertical from existing ground to surface of acceptable soil layer.
 - b. Horizontal from both sides of the pipe centerline to a distance equal to the vertical removal depth plus the pipe diameter plus one foot.
 - c. The CONTRACTOR shall determine if the minimum removal limits noted herein are sufficient to properly construct the Work.
 - 2. Backfill areas where unsuitable soil has been removed with acceptable soil or rock bedding to the design pipe invert elevation.
 - a. Compact suitable soil backfill to 98 percent of maximum density as determined by AASHTO method T-180.
 - b. Place and compact unsuitable soil backfill in lifts having a maximum unconsolidated thickness of 12 inches.
 - c. Obtain a backfill testing schedule from the ENGINEER prior to beginning backfill. This schedule will only apply to backfill placed below the pipe invert due to removal of unsuitable soil.
- E. Excavate rock to four (4) inches below the design pipe invert.
 - 1. No additional payment will be made for rock excavation unless the total quantity of rock excavation exceeds 50 cubic yards and the rock is present in a large continuous unfractured mass.

- 2. Concrete, asphalt and other demolition of man-made materials is not classified as rock excavation.
- 3. Backfill after rock removal.

3.03 BEDDING

- A. Bed pipe as specified on the engineering drawings. Excavate for pipe bells as noted. Pipe shall be uniformly supported by the trench bottom prior to backfill.
- B. All pipe bedding shall be performed in a dry trench unless the bedding is part of a subaqueous installation.
- C. Trenching shall not exceed pipe installation by more than 200 linear feet.

3.04 BACKFILL

- A. General
 - 1. Backfill trench immediately after the pipe is laid unless other protection for the pipeline is provided.
 - 2. Backfill material shall be solidly tamped around the pipes in layers not to exceed six (6) inches to a level at least one (1) foot above the top of the pipe.
 - 3. Test backfill compaction at each full 12 inches of compacted backfill over the pipe.
 - 4. Test backfill at each station. Two (2) tests are required at each station. The ENGINEER reserves the right to change the testing interval but not the total number of tests. Retesting because of failed tests is not limited.
- B. Unpaved Areas
 - 1. Place and compact backfill in lifts having a maximum unconsolidated thickness of 12 inches.
 - 2. Compact backfill to 98 percent of maximum density as determined by AASHTO Method T-180 using mechanical tamping equipment. Use a minimum amount of water to adjust backfill moisture content if necessary.
 - 3. Restore the surface to the original grade wherever settlement occurs.

- C. Paved Area (Including Driveways)
 - 1. Place and compact backfill in lifts having a maximum unconsolidated thickness of eight (8) inches.
 - 2. Compact backfill to 98 percent of maximum density as determined by AASHTO Method T-180 using hand or mechanical tampers.
 - 3. The top 12 inches of backfill (subgrade) shall be stabilized to LBR 40 and then compacted per 3.04.C.2.
 - 4. When backfilling is completed, tested and approved, the roadway base for pavement replacement may be placed immediately.
 - 5. Restore the surface to the original grade wherever settlement occurs.

3.05 TESTING

- A. Testing shall be performed by a certified testing laboratory (at the CONTRACTOR's expense) approved by the OWNER.
- B. Pay for all backfill testing and any required backfill retesting.
- C. Retesting locations around all failing tests will be located fifty (50) feet on both sides of each failing test and at the original failing test location.
- D. Retest only after recompaction of a failing test area.

END OF SECTION

SECTION 02270

EROSION, SEDIMENTATION AND DUST CONTROL

PART1-GENERAL

1.01 DESCRIPTION OF WORK

- A. Work consists of control measures as required during the life of the Contract to control erosion, sedimentation and dust.
- B. The CONTRACTOR shall establish, construct and maintain erosion and sediment control measures. The erosion control programs shall be maintained during the entire period of construction, including any extensions in Contract time.
- C. Temporary erosion and pollution control shall include construction work off-site where such work is necessary as a result of borrow pit operations, haul roads or equipment storage sites, etc.
- D. Preparation of the Stormwater Pollution Prevention Plan (SWPPP), including modifications and updates.
- E. Obtain and comply with all provisions of the State of Florida, Department of Environmental Protection, Permit for Stormwater Discharge from Large and Small Construction Activities (NPDES Construction Site Permit Program)

1.02 REFERENCES

- A. Rule 62-40.432, F.A.C.
- B. Erosion and Sediment Control Designer and Review Manual, prepared for FDOT and FDEP, July 2013 or latest update.
- C. 40 CFR Part 122.
- D. Chapter 403.0885, F.S.
- E. State of Florida Department of Environmental Protection Generic permit for Stormwater Discharge from Large and Small Construction Activities – Notice of Termination of Generic Permit Coverage immediately following this section.

PART 2 - PRODUCTS

NOTUSED

PART3-EXECUTION

3.01 PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION

- A. All work shall be in accordance with the requirements of the State of Florida Department of Environmental Protection under Chapter 62-621, F.A.C. or Chapter 62-620, F.A.C.
- B. The CONTRACTOR shall provide for and be responsible for the prevention, control and abatement of erosion and water pollution until completion and acceptance of the Project. The CONTRACTOR shall provide all temporary erosion control features necessary to prevent, control and abate erosion and water pollution, and shall prepare and submit as the operator and permittee, along with the applicable application fee, the "Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities" (NOI) prior to commencing construction and the "Notice of Termination" (NOT) upon final completion of construction. The CONTRACTOR, as required by the NPDES permit program, shall prepare a stormwater pollution prevention plan (SWPPP). This SWPPP shall be modified and updated by the CONTRACTOR as necessary, to meet the requirements of the NPDES permit issued, at no additional cost to the OWNER. The CONTRACTOR shall also comply with the inspections, maintenance, reporting and all other provisions of the NPDES permitting program, and the cost for the compliance with this program is to be included in the CONTRACTOR bid price for the work.
- C. During the construction of the Project, the CONTRACTOR shall comply with the Water Quality Standards of the EPA and the State of Florida.
- D. The CONTRACTOR shall meet and be responsible for the requirements of all applicable governing agencies regarding prevention, control and abatement of erosion and water pollution.

3.02 DAMAGE TO WATER DETENTION AND DRAINAGE AREAS

- A. The CONTRACTOR shall be responsible for the prevention of damage to detention ponds, holding areas, drainage canals or natural waterways, and wetlands (both on and off site).
- B. The CONTRACTOR shall act as directed to correct said damage as quickly as possible and take necessary steps to prevent future damage. The CONTRACTOR shall notify the ENGINEER of said damage.

C. The cost of correction of damage shall be at no cost to the OWNER or his agents.

3.03 DUST CONTROL

A. The CONTRACTOR shall exercise precautionary measures to minimize dust emissions as necessary, which may include, but shall not be limited to, periodic sprinkling or wetting of the site, and shall modify measures to be implemented, as necessary, to satisfy jurisdictional agency requirements including but not limited to the Town of Jupiter and Palm Beach County Health Department (Air Pollution Division) at no additional expense to the OWNER.

END OF SECTION

SECTION 02630

STORM DRAINAGE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Pipe and fittings.
 - 2. Stormwater structures.
 - 3. Pipe and treatments.
 - 4. Rolled erosion control products.
 - 5. Abandonment of storm sewer.

1.02 SUBMITTALS

- A. Product Date: For each type of product indicated.
- B. Shop Drawings:
 - 1. Manholes: Include plans, elevations, sections, details, frames, and covers.
 - 2. Stormwater inlets: Include plans, elevations, sections, details, frames, covers, and grates.
- C. Field quality-control reports.
- D. Appendices.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

- A. Reinforced Concrete Pipe (RCP)
 - Circular: All reinforced concrete culvert and drain pipe shall be manufactured in accordance with ASTM C76, Wall Type B or C, and shall be of the class that equals or exceeds the pipe class as specified herein or 02630-1

as shown on the Contract Drawings. Minimum pipe laying lengths shall be four (4) feet. Portland cement shall conform to ASTM C150, Type II. Joints for the reinforced concrete culvert and drain pipe shall have bell and spigot ends with flexible plastic gaskets meeting the requirements of AASHTO M198, Type B.

- 2. Elliptical: FDOT Section 449, ASTM C507, class III: Unless otherwise indicated; reinforced concrete fittings; same strength as adjoining pipe, tongue & groove gasketed joints.
- 3. All pipe shall be aged at the manufacturing plant for at least fourteen (14) days before delivery to the job site.

2.02 STORMWATERSTRUCTURES

- A. Concrete curb inlets, catch basins, & junction boxes
 - 1. The CONTRACTOR shall install, as shown on the plans; inlets, catch basins & junction boxes; meeting the requirements of FDOT Section 425.

2.03 PIPE END TREATMENTS

A. Mitered end sections per FDOT Section 430-4.6.3.

2.04 ROLLED EROSION CONTROL PRODUCTS

- A. Turf Reinforcement Mat (TRM) shall meet the requirements of FDOT Section 985 for Type E-5.
- B. TRM shall be North American Green Vmax C350 or engineer approved equal.

PART 3 EXECUTION

3.01 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Division 2 Section 02200 for "Earthwork."

3.02 PIPING INSTALLATION

A. General Locations and Arrangements: Drawings plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- E. Install gravity-flow, nonpressure drainage piping according to the following, unless noted on the plans:
 - 1. Install piping pitched down in direction of flow.
 - 2. Install piping with 24-inch minimum cover.
 - 3. Install piping in accordance with Sections 425 and 430 of the most current version of FDOT Standard Specifications for Road and Bridge Construction for pipe culverts and storm sewer.

3.03 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure drainage piping according to the following:
 - 1. Join reinforced-concrete sewer piping according to ACPA's "ConcretePipe Installation Manual" for rubber-gasketed joints.
- B. Furnish and install a filter fabric jacket around all pipe joints and the jointbetween the structure & pipe in accordance with FDOT Section 430.

3.04 DRAINAGE STRUCTURE INSTALLATION

- A. General; Install curb inlets, complete with appurtenances and accessories indicated in accordance with FDOT Standard Specification Section 425.
- B. All penetrations into drainage structures shall be grouted completely using nonshrink grout.

3.06 ROLLED EROSION CONTROL PRODUCTS

- A. Construct RCEP's per manufacturers details.
- B. Ground surface shall be seeded and fertilized per Section 02935 prior to installation of RCEP.

3.07 FLUSHING

A. Flushing - After backfilling, all storm sewers shall be flushed with water. Flushing shall be a minimum velocity of 2.5 feet per second for a duration

acceptable to the Engineer. Flushing shall remove all dirt, stones, pieces of wood and other debris which accumulated in the sewer during construction. The Contractor shall provide a means acceptable to the Engineer for removal of debris flushed from each section of storm sewer. If after flushing, any obstructions remain, they shall be removed at the Contractor's expense. The Contractor shall provide all water, plugs, hoses, pumps, equipment, etc. necessary for the proper flushing and testing of the storm sewers

3.08 INSPECTION

- A. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems according to requirements of authorities having jurisdiction.
 - 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 4. Submit separate report for each test.
- B. All new storm drain pipeline shall be inspected via robotic camera. The recorded DVD shall be delivered to the Town no later than 2 (two) Working Days after completion of the inspection. The DVD shall become the property of the Owner. The Owner will review the CCTV inspection records within ten (10) Working Days and will notify the Contractor if:
 - 1. The review revealed a satisfactory installation, or
 - 2. The review revealed deficiencies.
- C. The following deficiencies in storm drain installation that are identified by the Inspector or by television inspection shall be corrected by the Contractor at no cost to the Owner:
 - 1. Joint separation greater than one-half inch (1/2").
 - 2. Offset joints greater than one-half the pipe wall thickness.
 - 3. Joint deflection of more than seventy-five percent (75%) of manufacturer's recommended maximum.
 - 4. Cracked or damaged pipe, including liner pipe.

- 5. Debris in the line.
- 6. Identifiable sags or high points in the line greater than ³/₄ inches in pipes 6" and larger.
- D. The Contractor will be notified in writing of any deficiencies revealed by the television inspection that will require repair. The Contractor may request a review of the video with the Owner. Upon completion of the required corrective actions, the storm drain will be re- televised at no additional cost to the Owner. This process shall be repeated until the review of the recorded television inspection reveals a satisfactory installation.

3.09 ABANDONMENT OF STORM SEWER

- A. Sewers and laterals to be abandoned shall be securely blocked at any points of intake or discharge with a bulkhead or pre-formed plug and when directed by the Project Plans and Specifications, they shall be completely filled with an approved material. The proposed method of filling and blocking the sewer shall be submitted to the OWNER for approval.
- B. The CONTRACTOR will be allowed to remove that portion of the sewer to be abandoned in lieu of filling and blocking. If the CONTRACTOR elects the removal method, all costs for backfilling the excavation and all costs for surface restoration, in addition to removing and properly disposing of the pipe, shall be included in the price for abandonment.

END OF SECTION

SECTION 02740 ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SCOPE

A. The work shall consist of furnishing all materials, labor and equipment for compacting subgrade, constructing a base course, priming the base course and constructing an asphaltic concrete surface course as specified on the plans.

1.02 SUBMITTALS

See Section 01300 - Submittals.

1.03 MATERIAL CERTIFICATES

- A. Provide copies of material certificates signed by material producer and contractor, certifying that each material item complies with, or exceeds, specified requirements.
- B. The contractor shall provide the engineer and the owner the name, location(s) of all imported soil and aggregate materials. Contractor shall also provide particle size analysis/grading analysis for these materials.

1.04 CODE COMPLIANCE

A. Comply with the applicable sections of the "State of Florida Department of Transportation's (FDOT) Standard Specifications for Road and Bridge Construction".

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials furnished hereunder shall comply with the applicable sections of the Florida Department of Transportation's (FDOT) "Standard Specifications for Road and Bridge Construction" current edition which are hereby incorporated into these specifications by reference.

2.02 MATERIALS

A. General: Use locally available materials and gradations which exhibit a satisfactory record of previous installations.

- B. Subgrade Stabilizing Material: Stabilization per FDOT Section 160.
- C. Base Course: The base course shall be constructed with the following materials.
 - 1. Cemented Coquina Shell Base: FDOT Section 915, for on-site pavement.
- D. Asphaltic Concrete: Comply with FDOT Section 330 requirements and Section 334 for Superpave Asphalt.
- E. Prime and Tack Coats: FDOT Section 300.

PART 3 - EXECUTION

3.01 GENERAL

- A. All operations hereunder shall adhere to the requirements of the Florida Department of Transportation for construction within the rights-of-way and FDOT's "Standard Specifications" above and particularly with the following sections.
- B. All asphalt shall be replaced to match existing conditions, thickness and type. The bid price will cover any additional work need at no additional cost to the owner and shall be done to the satisfaction of the owner, engineer, and permit authorities. If the thickness is unknown, it shall be assumed all asphalt surfaces to be replaced are 2.5 to 3.0 inches thick.

3.02 PAVEMENT REMOVAL

A. Remove existing pavement by saw cutting on a straight line at a 90 degree angle with the pavement surface.

3.03 PAVEMENT INSTALLATION

- A. Stabilized subgrade shall have a minimum LBR of 40, and minimum densities shall be 98% of maximum dry density as determined by the AASHTO T-180 method D. Materials, construction methods, and testing shall conform to FDOT specifications Section 160 Stabilization, and shall be paid for as part of the work under this section.
- B. Base course shall consist of Limerock or cemented coquina with a minimum LBR of 100. After compaction, the base shall have a density that is 98% of maximum dry density as determined by the AASHTO T-180 method. Materials, construction methods, and testing shall conform to FDOT specifications Section 200 for the base material used. This base course shall be used for all paving on the project.
- C. In areas where base is called to be reworked, the materials, construction methods, and testing shall confirm to FDOT Specification Section 210.

D. Asphalt wearing surface for paved areas shall consist of SP-9.5 or SP-12.5 asphaltic concrete. The asphaltic wearing surface must be placed on an adequately compacted and unyielding base course. Materials, construction methods, and testing shall conform to FDOT specifications Section 334.

3.04 TESTING

- A. In proposed parking/drive areas, a minimum frequency of one in-place density test for each 2,500 sq. ft. of area shall be used. Each 12" lift of fill, as well as the stabilized subgrade (where applicable) and base shall be tested at this frequency.
- B. Additional tests may be required for the driveway construction or at more frequent intervals if deemed necessary by the engineer.

END OF SECTION

SECTION 02935

SEEDING AND MULCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated for the following:
 - 1. Preparation of subsoil.
 - 2. Seeding, mulching and fertilizer.
 - 3. Seeding and mulching shall be performed in areas disturbed by CONTRACTOR's operations outside the limits of sod restoration.
 - 4. Sodding may be substituted for seeding where approved by the ENGINEER.

1.02 REFERENCES

A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.03 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

The ENGINEER reserves the right to test, reject or approve all materials before application.

1.04 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. The CONTRACTOR shall furnish the ENGINEER invoices of all materials received in order that the minimum application rate of materials may be determined.

1.06 MAINTENANCE SERVICE

A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

PART 2 - PRODUCTS

2.01 SEED

A. Seed: Argentine Bahia or as directed by OWNER.

2.02 SOIL MATERIALS

A. Topsoil: Excavated from site and free of weeds.

2.03 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry.
- B. Fertilizer: recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis to the following proportions: Nitrogen 12 percent, phosphoric acid 8 percent, soluble potash 8 percent.
- C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that prepared subsoil is ready to receive the work of this Section.

3.02 PREPARATION OF SUBSOIL

- A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated sub-soil.

C. Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.

3.03 FERTILIZING

- A. Apply fertilizer at a rate of 800 pounds per acre.
- B. Apply after smooth raking of topsoil.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.04 SEEDING

- A. Apply seed at a rate of 10 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- D. Immediately following seeding, apply mulch to a thickness of 2 inches. Maintain clear of shrubs and trees.
- E. Apply water with a fine spray immediately after each area has been mulched.

3.05 SEED PROTECTION

- A. Cover seeded slopes with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch intervals with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.06 SEEDED AND MULCHED AREAS

A. Seed and mulch will be required in areas with Rolled Erosion Control Products ONLY.

END OF SECTION

SECTION 02936

SODDING

PART 1 - GENERAL

1.01 PERFORMANCE

- A. Section generally defines CONTRACTOR's responsibilities, unless otherwise indicated for the following:
 - 1. Preparation of subsoil.
 - 2. Placing topsoil.
 - 3. Fertilizing.
 - 4. Sod installation.
 - 5. Maintenance.

1.02 RELATED SECTIONS

- A. All of Division 1.
- B. Section 02210 Grading.

1.03 REFERENCES

A. FDOT - Florida Department of Transportation - Standard Specifications for Road and Bridge, Latest Edition.

1.04 QUALITY ASSURANCE

- A. Sod Producer: Company specializing in sod production and harvesting with a minimum five years of experience and certified by the State of Florida.
- B. Installer: Company approved by the sod producer.
- C. Sod: Minimum age of 18 months, with root development that will support its own weight, without tearing, when suspended vertically by holding the upper two (2) corners.
 - D. Submit sod certification for grass species and location of sod source.

E. The ENGINEER reserves the right to test, reject or approve all materials before application.

1.05 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of **Section 01600** Material and Equipment.
- B. Store and protect products under provisions of Section 01600 Material and Equipment.
- C. Deliver sod on pallets. Protect exposed roots from dehydration.
- D. Do not deliver more sod than can be laid within 48 hours.
- E. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- F. The CONTRACTOR shall furnish the ENGINEER invoices of all materials received in order that the minimum application rate of materials may be determined.

1.07 MAINTENANCE SERVICE

A. Maintain sodded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Sod:
 - 1. Sod shall be ASPA approved grade, Argentine Bahia, Tifton Bermuda, Floritam, or St. Augustine to match existing or better as directed, with firm texture having a compacted growth and good root development.
 - 2. Sod shall be absolutely true to varietal type, and free from weeds or other objectionable vegetation, fungus, insects and disease of any kind.
 - 3. Cut sod in area not exceeding 24 inches by 24 inches with minimum one

- (1) inch and maximum three inch of topsoil base.
- 4. The sod shall be planted as soon as possible after being harvested and shall be shaded and kept moist from the time of harvesting to the time it is planted.
- B. Topsoil:
 - 1. Excavated from site and free of weeds.
 - 2. Topsoil to be minimum three (3) inches thick.
- C. Fertilizer:
 - 1. In accordance with FDOT 982-1.
- D. Water:
 - 1. Clean, fresh, and free of substances or matter, which could inhibit vigorous growth of grass.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that prepared subsoil is ready to receive the work of this Section.

3.02 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to installation of sod.
- C. Apply fertilizer no more than 48 hours before laying sod.
- D. Mix thoroughly into upper two (2) inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.03 LAYING SOD

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.

- C. Stake sod with 1x2 stakes on all areas with slopes greater than one (1) vertical to five (5) horizontal.
- D. Coordinate sod installation with irrigation system components.

3.04 MAINTENANCE

- A. Water to prevent grass and soil from drying out.
- B. Immediately replace sod in areas, which show deterioration or bare spots.

3.05 APPROXIMATE AREA TO BE SODDED

A. All construction areas disturbed by construction of the project except those areas receiving pavement or rock. CONTRACTOR is to consider his anticipated ditch width and pit sizes at the surface when accounting for the cost of this work.

END OF SECTION

APPENDIX A

LOXAHATCHEE RIVER DISTRICT ENVIRONMENTAL CONTROL DISTRICT MANUAL OF MINIMUM CONSTRUCTION STANDARDS AND TECHNICAL SPECIFICATIONS

CAN BE DOWNLOADED AT

https://loxahatcheeriver.org/wp-content/uploads/2018/06/2018_LRECD-Construction-Standards-and-Technical-Specifications.pdf APPENDIX B

CONTRACTOR PERFORMANCE EVALUATION REPORT

	Loxahatchee River Environmental Control District	CONTRACT NO.					
ADDRESS	2500 Jupiter Park Drive	CONTRACTOR					
CITY / STATE/ ZIP	Jupiter, FL 33458	PERIOD OF	FROM	ТО			
		PERFORMANCE					
CONTRACT PROJECT MANAGER		LOCATION OF PERFORMANCE					
INSTRUCTIONS: This form can be completed on the computer or printed and completed by hand. Use the mouse to navigate. To check or uncheck a box, 'double click' the box. If further direction is required on how to complete this evaluation or where to submit it, please contact your Contracting Officer. Comment boxes are formatted to automatically wrap the entered text. Check the box that best describes the level in which the Contractor supported the area described. Comments are essential and must substantiate your rating selection. N/A = not applicable. If additional space is required, use page 2 of the form or attach additional page(s). SEE PAGE 3 FOR EVALUATION RATINGS DEFINITIONS							
1. Quality. Contractor contract. Provided v forth in the contract.	er conformed to contract requirements. Was cap vell maintained equipment and highly qualified p	able, efficient and ersonnel. Finishe	effective in supporting t d product meets the qual	he programs of this ity requirements set			
□ N/A □] Satisfactory						
COMMENTS:							
2. Schedule. Contra							
contract period with and any approved ex	ctor was prepared and available to begin work little to no disruption or unavailability. Contract tensions of time.	on contract start or completed the	date and provided daily work within the dates sp	coverage during the ecified in the contract			
contract period with and any approved ex N/A	tor was prepared and available to begin work little to no disruption or unavailability. Contract tensions of time.	on contract start or completed the	date and provided daily work within the dates sp	coverage during the ecified in the contract			
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contract period with and any approved ex N/A COMMENTS:	ctor was prepared and available to begin work little to no disruption or unavailability. Contract tensions of time. Satisfactory Unsatisfactory Unsatisfactory ontractor conformed to contract requirements, p and costs. Contractor did not engage with frivol the contract for identification and quantification Satisfactory Unsatisfactory	on contract start or completed the roviding complete lous our unsuppo of additional or de	date and provided daily work within the dates spo documentation and was ted change order reques leted work.	coverage during the ecified in the contract			

4. Management. Contractor and on-site representatives were professional, well qualified, and committed to customer satisfaction and safety of operations. Contractor provided necessary support for key personnel and if applicable, took necessary action to correct or replace any personnel. Contractor was timely and complete with shop drawings, pay applications, releases, schedules and other required submittals.					
□ N/A	Satisfactory	Unsatisfactory			
COMMENTS:	Ð				
6. Regulatory Cor others.	npliance. How well does	the contractor comply with	h governing regulations such as the FDEP, FDOH, SFWMD or		
□ N/A	Satisfactory	Unsatisfactory			
COMMENTS:	D				
7. Safety. Contra operations?	ctor and on-site represent	tatives attitude and efforts	, as well as actual application and general safety of		
□ N/A	Satisfactory	Unsatisfactory			
COMMENTS:	Ð				
9. Other Areas:	Satisfactory	Unsatisfactory			
10. Other Areas:	Satisfactory	Unsatisfactory			
11. Other Areas: □ N/A	□ Satisfactory	Unsatisfactory			
12. Other Areas: □ N/A	□ Satisfactory	Unsatisfactory			

12. Overall Contractor Rating:					
Satisfactory	Unsatisfactory				
Additional comments to support your response to any item above or other items.					
lividual Completing this	Form (include agency, phone and electronic address)				
	ctor Rating:				

RATING DEFINITION NOTE

Satisfactory Performance meets contractual requirements. The contractual performance of the element being assessed may contain some minor problems for which corrective actions taken by the Contractor were satisfactory. To justify a Satisfactory rating, there should have been only minor problems, or major problems the contractor recovered from without impact to the contract. There should have been NO significant weaknesses identified.

Unsatisfactory Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance of the element contains a serious problem(s) for which the contractor's corrective actions appear or were ineffective.

To justify an Unsatisfactory rating, identify multiple significant events in each category that the Contractor had trouble overcoming and state how it impacted the Government. A singular problem, however, could be of such serious magnitude that it alone constitutes an unsatisfactory rating. An Unsatisfactory rating should be supported by referencing the management tools used to notify the contractor of the contractual deficiencies (e.g. management, quality, safety, etc.) APPENDIX C

STANDARD OPERATING PROCEDURE: SYSTEM SHUTDOWNS AND BYPASS



Standard Operating Procedure: System Shutdowns and Bypass

Project Name:

Work Order #:

Shutdown Schedule	Date:
	Time Start:
	Time Complete:

- 1. All work for the system shutdown shall be done under one work order specific to the system shutdown, not the work requiring the system shutdown. System Shutdown Work Order # to be noted above.
- 2. Scope: Develop a scope fully encompassing the work to be performed. The scope shall be attached as **Exhibit A**.
- 3. Map: Develop a system map overlaid on an aerial clearly showing the location of the work, relation of the work to other infrastructure, primary and secondary isolation points for the work. All infrastructure shown on the map shall be field located and GPS'd. The map shall be attached as **Exhibit B**.
- 4. Isolation Point Verification: All isolation points, primary and secondary, shall be field verified, if possible, prior to scheduling the work. Verification shall confirm isolation points are operable and <u>substantially</u> isolate the work area from the remainder of the collection/transmission system. Substantially isolate, at a minimum, shall mean all flows except those that can reasonably be managed with a vacuum truck are isolated from the work.
- 5. Upstream System Capacity: Upstream system capacity (holding time) shall be determined. Prior to scheduling the work adequate values for the following shall be agreed upon. The scheduled shutdown duration, staff, equipment and materials shall be planned around the Low Risk Holding Time.
 - a. Low Risk Holding Time:
 - b. Unacceptable Risk Holding Time:
- 6. Wastewater Management/Spill Response Plan: Prior to scheduling the work:
 - a. The Contractor shall have an approved wastewater management plan to address capture and disposal of wastewater. The Contractor's Wastewater Management/Spill Response Plan shall be attached as **Exhibit C**.
 - b. The District shall have an approved Wastewater Management Plan to address management of wastewater in the collection/transmission system. The Wastewater Management Plan shall include Emergency Operation Measures in the event the shutdown exceeds the Unacceptable Risk Holding Time. The District's Wastewater Management Plan shall be attached as **Exhibit D**.

- 7. Personnel: The Contractor and the District shall have adequate staff to manage the shutdown and work. The Contractor shall have one designated person in-charge of his employees and work. The District shall have one designated person in-charge of his employees and work.
 - a. Contractor Representative In-Charge: _____ cell #:
 - i. # of Contractor's supporting staff: cell #:
 - b. District Representative In-Charge:
 - i. *#* of District supporting staff:
- 8. Schedule: Prior to scheduling the work predetermined times to implement various steps, back-up plans, cancel the tie-in or failure response shall be agreed upon.
 - a. Primary Isolation:
 - b. Secondary Isolation:
 - c. System Evacuation Deadline:
 - d. Low Risk Work Completion Deadline:
 - e. Unacceptable Risk Deadline:

If the system is not adequately isolated and evacuated by the System Evacuation Deadline. Work is CANCELLED, the force main secured and placed back in service.

Once the Work has commenced progress shall be monitored with direct communication between the Contractor Representative In-Charge and the District Representative In-Charge. At any time during the performance of the Work the projected completion time exceeds the Unacceptable Risk Deadline Emergency Operation Measures shall be implemented. See Exhibit D.

- 9. Equipment:
 - a. The Contractor shall have adequate equipment on site by Close of Business preceding the scheduled shutdown. All equipment shall be on site by: The list of equipment shall be attached as **Exhibit E**.
 - b. The District shall have adequate equipment on site by Close of Business preceding the scheduled shutdown. All equipment shall be on site by: The list of equipment shall be attached as Exhibit F.
- 10. Materials: All materials required for the work shall be on site by Close of Business preceding the scheduled shutdown. All materials shall be on site by: ______. The approved Material List shall be attached as Exhibit G.
- 11. Vendors: All vendors required for the work shall be issued Purchase Orders by Close of Business preceding the scheduled shutdown. All vendor Purchase Orders shall be confirmed by

. The Vendor list shall be attached as Exhibit H.

System Shutdown Checklist

Description	Approved By	Scheduled Time	Scheduled Date
Work Order			
Exhibit A			
Exhibit B			
Exhibit C			
Exhibit D			
Exhibit E			
Exhibit F			
Exhibit G			
Exhibit H			
Low Risk Holding Time			
Unacceptable Risk Holding Time			
Primary Isolation Time			
Secondary Isolation Time			
System Evacuation Deadline			
Low Risk Work Completion			
Deadline			
Unacceptable Risk Deadline			
Contractor Equipment Onsite			
District Equipment Onsite			
Materials Onsite			
Vendor's Confirmed			

Contractor's Representative Name: Cell:

District's Representative Name: Cell:

APPENDIX D

GEOTECHNICAL REPORT

GFA INTERNATIONAL

FLORIDA'S LEADING ENGINEERING SOURCE

Report of Geotechnical Exploration

Jupiter Inlet Lighthouse - Septic to Sewer Conversion 500 Captain Armours Way Jupiter, Florida

> October 8, 2019 GFA Project No. 18-6104.29

For: Loxahatchee River District



Florida's Leading Engineering Source



Environmental · Geotechnical · Construction Materials Testing · Threshold and Special Inspections · Plan Review & Code Compliance

October 8, 2019

Mr. Joseph Jesteadt Loxahatchee River District 2500 Jupiter Park Drive Jupiter, Florida 33410

Subject: Report of Geotechnical Exploration Jupiter Inlet Lighthouse - Septic to Sewer Conversion 500 Captain Armours Way, Jupiter, Florida GFA Project No. 18-6104.29

Since 1988

Dear Mr. Jesteadt:

GFA International, Inc. (GFA) has completed the subsurface exploration and geotechnical engineering evaluation for the above referenced project in accordance with the geotechnical and engineering service agreement for this project. The scope of services was completed in accordance with our Geotechnical Engineering Proposal No. 18-6104.29 dated August 28, 2019, planned in conjunction with and authorized by Loxahatchee River District.

EXECUTIVE SUMMARY

The purpose of our geotechnical exploration was to obtain data for roadway pavement milling and resurfacing, lift station construction, utility line construction, and a directional bore. This report contains the results of our subsurface exploration and our engineering interpretations of the data with respect to the project information described to us, including providing guidelines for resurfacing the existing roadway, recommendations for new pavement design, lift station design, as well as utility trenches included in the construction.

Per our prior telephone discussions and email correspondence with you, GFA understands that the Loxahatchee River District is planning to convert the current wastewater system from septic to sewer. GFA has been requested to provide the geotechnical recommendations for milling and resurfacing the existing roadway and lift station design. For the rehabilitation of existing pavements or construction of new pavements, our evaluations were based on existing criteria established by Palm Beach County.

The recommendations provided herein are based upon the above considerations. If the stated conditions are incorrect or if the project description is revised, please inform GFA so that we may review our recommendations with respect to any modifications.

Seven (7) standard penetration test (SPT) borings (B-1 through B-7), advanced to approximate depths of 2, 8 and 15 feet below the existing ground surface, were performed at the locations designated on the boring location plan provided by Loxahatchee River Environmental Control District. The locations of the borings are illustrated in Appendix B - Test Location Plan.

607 NW Commodity Cove • Port St. Lucie, Florida 34986 • (772) 924-3575 • (772) 924-3580 (fax) • www.teamgfa.com

For the roadway borings (B-1 through B-4), the thickness of the asphalt layer ranged from approximately 1 to 2 inches and the thickness of the cemented coquina base rock layer ranged from approximately 5 to 9 inches at the boring sites. The underlying soils generally consisted of loose to medium-dense fine sand (SP) to the boring termination depths. For the lift station and utility line borings (B-5 through B-7), an upper layer of either topsoil or asphalt pavement and base rock was underlain by very loose to medium dense fine sand (SP) and fine sand with silt (SP-SM) to the boring termination depths.

Based on the results of our field exploration program, the existing roadway pavement section does not meet all of the criteria established by the Land Development Design Standards Manual (February 2019) distributed by Palm Beach County's Department of Engineering and Public Works. At a minimum, the existing roadway will require an overlay to increase the pavement thickness to at least 1.5 inches. The thickness of the cemented coquina base rock layer meets the requirements at only one boring location. Due to the thickness of the base rock layer not being sufficient, the required structural number of the pavement section may not be met with an asphalt layer thickness of 1.5 inches. Therefore, to meet the minimum structural number requirement for Palm Beach County, either the asphalt layer thickness will need to be increased or other options may have to be explored. Detailed information and recommendations for pavement design and construction are presented in Sections 4.1 and 4.2 of this report.

We appreciate the opportunity to be of service to you during this phase of the project and look forward to a continued association. Please do not hesitate to contact us if you have any questions or comments, or if we may further assist you as your plans proceed.

Respectfully Submitted, **GFA International, Inc.** Florida Certificate of Authorization No. 4930

John Kent John Kent Date: 2019.10.08 14:44:56 -04'00'

John Kent, P.E. Senior Project Engineer Florida Registration No. 63218 This item has been digitally signed and sealed by John Kent, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Thomas Gellermann, E.I. Project Engineer

Distribution: Mr. Joseph Jesteadt – Loxahatchee River District

1 pdf


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1.0 INTRODUCTION

1.1 Scope of Services

The objective of our geotechnical exploration was to collect subsurface data for the subject project, summarize the test results, and discuss any apparent site conditions that may have geotechnical significance for the planned conversion of the wastewater system from septic to sewer. The following scope of services is provided within this report:

- 1. Prepare boring logs depicting the subsurface soil conditions encountered during our field exploration.
- 2. Review the soil samples obtained during our field exploration for classification and additional testing if necessary.
- 3. Evaluate the existing soil conditions found during our exploration with respect to support of the proposed lift station, pavements, and utility lines.
- 4. Provide recommendations for site preparation and earthwork construction.
- 5. Present recommended pavement sections using criteria established by Palm Beach County, including guidelines for pavement subgrade preparation.

1.2 Project Description

Per our prior telephone discussions and email correspondence with you, GFA understands that the Loxahatchee River District is planning to convert the current wastewater system from septic to sewer. GFA has been requested to provide the geotechnical recommendations for milling and resurfacing the existing roadway and lift station design. For the rehabilitation of existing pavements or construction of new pavements, our evaluations were based on existing criteria established by Palm Beach County.

The recommendations provided herein are based upon the above considerations. If the stated conditions are incorrect or if the project description is revised, please inform GFA so that we may review our recommendations with respect to any modifications.

2.0 OBSERVATIONS

2.1 Site Description

The site is located just east of U.S. Highway 1 and directly north of the Jupiter Inlet, as shown on the Vicinity Map in Appendix A. After being constructed in 1860, the lighthouse was critical in aiding ships entering and passing the Fort Jupiter Reservation. The lighthouse and surrounding area provided a hub for various military branches in the following years. Presently, the park includes the lighthouse and museum which is operated by the Loxahatchee River Historical Society.



2.2 Field Exploration

Seven (7) standard penetration test (SPT) borings (B-1 through B-7), advanced to approximate depths of 2, 8 and 15 feet below the existing ground surface, were performed at the locations designated on the boring location plan provided by Loxahatchee River Environmental Control District. The locations of the borings are illustrated in Appendix B - Test Location Plan.

The Standard Penetration Tests (SPT) were performed in general accordance with ASTM D 1586, "Penetration Test and Split-Barrel Sampling of Soils." The SPT test procedure consists of driving a 1.4-inch I.D. split-barrel sampler into the soil profile using a 140-pound hammer falling 30 inches. The number of blows per foot, for the second and third 6-inch increment, is referred to as the N-value. The N-value has been empirically correlated with various soil properties and provides an indication of soil strength.

The soil samples recovered from the borings were visually classified and their stratification is illustrated on the boring logs in Appendix D. It is noted that the soil boring data reflect information from a specific test location only and soil conditions may vary between the strata interfaces indicated on the logs. The boring depths were established based upon our knowledge of vicinity soils and confined to the zone of soil likely to be influenced by the planned construction.

Site specific survey staking of the borings was not provided for our field exploration. The boring locations were approximated within the roadway by estimating distances along the roadway relative to adjacent site features.

2.3 Visual Classification

Soil samples recovered from our field exploration were returned to our laboratory where they were visually classified by a geotechnical engineer in general accordance with the Unified Soil Classification System (ASTM D 2487). After reviewing the soil samples, no laboratory testing was deemed necessary. The samples will be retained in our laboratory for 30 days and then discarded unless we are notified otherwise in writing.

The recovered samples were not evaluated, either visually or analytically, for chemical composition or environmental hazards. GFA will be pleased to perform these services for an additional fee, if required.

2.4 General Subsurface Conditions

The geology of the site as mapped on the USDA Soil Survey website consists of St. Lucie-Paola-Urban land complex, 0 to 8 percent slopes (41), and Quartzipsamments, shaped, 0 to 5 percent slopes (35). **These are sandy soils and organic soils are not indicated.** It is noted that the Soil Survey generally extends to a maximum depth of 80 inches below ground surface and is not indicative of deeper soil conditions.

Boring logs developed from our field exploration are presented in Appendix D - Record of Test Borings. The boring logs contain the asphalt pavement and base rock thicknesses (where encountered), the subgrade soil descriptions, and the standard penetration test N-values logged



during the drilling and sampling activities. The soil classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered samples using the Unified Soil Classification System. Please see Appendix E - Discussion of Soil Groups, for a discussion of the various soil groups.

The soils encountered consisted of very loose to medium dense fine sand (SP) and fine sand with silt (SP-SM) to the boring termination depths. The thickness of the asphalt pavement and base rock layer (cemented coquina) at the boring locations is summarized in the table below Note that topsoil was present at the ground surface in boring B-7.

Boring No.	Location	Asphalt Thickness (inches)	Base Rock Thickness (inches)
B-1	Roadway (See Test Location Plan)	1.5	7.5
B-2	Roadway (See Test Location Plan)	1	8
B-3	Roadway (See Test Location Plan)	2	9
B-4	Roadway (See Test Location Plan)	1	5
B-5	Near Lift Station (See Test Location Plan)	3	6
B-6	Near Directional Bore (See Test Location Plan)	4	5
B-7	Near Directional Bore (See Test Location Plan)	N/A	N/A

2.5 Groundwater Conditions

On the date of our field exploration (September 30, 2019), the groundwater table was encountered in borings B-5 through B-7 at depths ranging from approximately 5.2 to 5.9 feet below the existing ground surface. Groundwater was not evident within the explored depths in borings B-1 through B-4. Note that the groundwater table will fluctuate seasonally depending upon local rainfall and other site specific and/or local influences. Brief ponding of stormwater may occur across the site after heavy or extended rainfall events.

3.0 ENGINEERING EVALUATION AND RECOMMENDATIONS

3.1 General

Our geotechnical engineering evaluation of the site and subsurface conditions at the property, with respect to the planned construction, and our recommendations for site preparation, pavement design and construction, and lift station support, are based upon (1) our site observations, (2) the limited field data obtained, and (3) our understanding of the project information and conditions as presented in this report. If the stated conditions are incorrect, or if the project description is revised, please inform GFA so that we may review our recommendations with respect to any modifications.

We note that the applicability of geotechnical recommendations is very dependent upon project characteristics, specifically (1) improvement locations, (2) grade alterations, and (3) actual applied structural and traffic loads. For that reason, GFA must be provided with and review the final site plans and actual design loads to validate the recommendations provided in this report. Without performing this review, our recommendations should not be relied upon for final design or construction of any site improvements.

3.2 Site Preparation

GFA recommends the following compaction requirements for this project:

\geq	Proof Roll	.95 percent of modified Proctor
\triangleright	General Site Fill	.95 percent of modified Proctor
\triangleright	Lift Station Walls	95 percent of modified Proctor
≻	Utility Line Trenches	98 percent of modified Proctor

The compaction percentages presented above are based upon the maximum dry density as determined by the modified Proctor test (ASTM D 1557). All density tests should be **performed to a depth of 2 feet below stripped surface/bottom of excavation.** Density testing should be performed using either the nuclear method (ASTM D 6938) or the sand cone method (ASTM D 1556). Hand Cone Penetrometer (HCP) tests can also be performed to evaluate compaction.

Our recommendations for general site preparation and fill placement/compaction are presented below. This approach to improving and maintaining site soils has been found to be successful on projects having similar soil conditions.

- Initial site preparation should consist of removing trees, surface vegetation, topsoil, near surface roots, and other miscellaneous debris within and 5 feet beyond the planned construction limits. Any foundations and the below-grade remains of former structures within the footprint of the construction should also be removed. Similarly, utility lines within the construction limits should also be removed or properly abandoned so that they will not adversely impact overlying structures.
- 2. Following site stripping and prior to placement of any fill, areas of surficial sand should be compacted (proof rolled) and tested. We recommend using a steel drum vibratory roller with sufficient static weight and vibratory impact energy to achieve the required compaction. Density tests should be performed on the proof rolled surface at a frequency of not less than one test per 2,500 square feet, or a minimum of three (3) tests, whichever is greater.
- 3. Fill material may then be placed for general site grading, as required. The fill material should be inorganic (classified as SP, SW, GP, GW, SP-SM, SW-SM, GW-GP, GP-GM) containing not more than 5 percent (by weight) organic materials. GFA does not recommend using fill materials having silt/clay-size soil fines contents exceeding 12 percent. Fill should be placed in lifts having a maximum thickness of 12-inches. Each lift should be compacted and tested prior to the placement of the next lift. Density tests should be performed within the fill at a frequency of not less than one test per 2,500 square feet per lift in building areas, or a minimum of three (3) tests per lift, whichever is greater.

- 4. Backfill required for utility line trenches should consist of the same materials discussed in Item 3 above. Compaction during backfilling should be performed using portable light-weight compaction equipment (jumping jacks or walk-behind vibratory sleds and/or rollers). Density tests should be performed at a frequency of not less than one (1) density test per lift of fill for each 100 feet of trench and around the sides of manholes and drainage structures.
- 5. Backfill adjacent to the lift station walls should also consist of the same materials discussed in Item 3 above. Fill should be placed in maximum 12-inch thick loose lifts and compacted using the same portable light-weight compaction equipment noted above. The contractor should exercise care not to damage the lift station walls during the compaction operations. In addition, dewatering should continue until sufficient structural dead weight is in place, and the backfill has reached a level above the existing groundwater table, to counteract possible buoyant uplift forces.
- 6. The contractor should consider the final grading contours contained on the project plans when executing backfilling and compaction operations.

3.3 Vibration Monitoring

Using vibratory compaction equipment at this site may adversely impact nearby structures. We recommend that such structures be monitored by GFA both before and during compaction operations. A proposal for providing vibration monitoring services during earthwork construction will be provided upon request.

3.4 Lift Station Design

Below grade structures should be designed to resist both lateral earth pressures and hydrostatic uplift pressures appropriate for their depth below existing grade. Rigid or unmoving structures must be designed to resist lateral earth pressures developed in the "at rest" condition. We recommend that the walls of the structure be designed using an equivalent fluid pressure of 95 pcf per foot of height. This design value assumes the water table at finish grade at the lift station location.

GFA anticipates that the lift station foundation bearing soils may require stabilization due to groundwater intrusion into the open excavation. This may be accomplished by compacting or "pounding" FDOT No. 57 stone into the subgrade. The stone should be placed in 4 to 6 inch lifts and dynamically compacted using a jumping jack compactor. Compaction should continue until the stone is well seated and the subgrade soils no longer absorb the stone.

When the water level within below-grade structures is maintained at or above the surrounding groundwater level, no net buoyancy will occur to the structure. However, when these structures are drained for maintenance or as water levels fluctuate, a positive means of uplift protection may be necessary.

Hydrostatic uplift forces can be resisted in several ways including:

- 1. Addition of dead weight to the structure.
- 2. Mobilizing the dead weight of the soil surrounding the structure through extension of footings outside the perimeter of the structure.
- 3. Use of a permanent gravity or mechanical dewatering system that is operated only when the structure is to be drained.

Considering the groundwater conditions encountered at the location of boring B-5, we anticipate that uplift protection methods may be required for this project. At your request, we would be pleased to assist you in evaluating uplift protection requirements.

3.5 Dewatering and Site Excavations

Based on the groundwater levels encountered in the borings at the time of our field exploration, areas of dewatering will likely be required for the successful construction of this project. Deeper excavations may require well points and/or sock drains to control the groundwater table. Regardless of the method(s) used, we recommend drawing down the water level at least 2 feet below the bottom of excavations. The actual method(s) of dewatering should be determined by the contractor. The design and discharge of the dewatering system must be performed in accordance with applicable regulatory criteria (i.e. water management district, etc.) and compliance with such criteria is the sole responsibility of the contractor.

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P." This document was issued to better ensure the safety of workers entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavations, or footing excavations, be constructed in accordance with the OSHA guidelines.

The contractor is solely responsible for designing and constructing stable temporary excavations and should shore, slope, or bench the sides of any excavations deeper than 4 feet as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

GFA is providing this information solely as a service to our client. GFA is not assuming responsibility for construction site safety or the contractor's activities. Such responsibility is not being implied and should not be inferred.

4.0 PAVEMENT DESIGN AND CONSTRUCTION CONSIDERATIONS

4.1 Existing Roadway Pavement Section

We reviewed the information contained in the Land Development Design Standards Manual (February 2019) distributed by Palm Beach County's Department of Engineering and Public Works. This manual contains the following criteria for residential access and local streets:

Component ¹	Description	Constructio Minimum	n Standards n in Place	Notes
	of Materials	S Thickness ² SN (min.)		
A	SP Structural Course	1.5"	0.66	Traffic Level A
В	Optional Base Group 8	See Notes	1.65	Refer to FDOT Flexible Pavement Design Manual Table 5.6 (LBR 100) ⁴
С	Compacted Subgrade ³	12"	0	(LBR 40)
	Total		2.31	

1. A = Pavement, B = Base, C = Subgrade

2. All Dimensions Refer to Finished Thickness

3. Compacted to At Least 98% Maximum Density per AASHTO T-180.

4. Usually LBR 100 is required, however some options have higher requirements. See FDOT Flexible Pavement Design Manual, Table 5.6

Based on the results of our field exploration program, the pavement section of the existing roadway does not meet all of the above criteria. The asphalt pavement section will require an overlay (milling and resurfacing) to increase the pavement thickness to at least 1.5 inches. Three of the four roadway borings indicated a base thickness of less than the required 8.5 inches (required base thickness may change depending on which base option is chosen). In addition, the upper 12 inches of the underlying subgrade soils likely do not have a minimum Limerock Bearing Ratio (LBR) value of 40. Therefore, in order to meet the required structural number for this roadway as per the requirements of the referenced manual, GFA recommends increasing the asphalt layer thickness or evaluating other options, including complete reconstruction of the pavement section. Section 4.2 below contains recommendations and guidelines for new pavement design and construction.

4.2 New Pavement Section Design and Construction

The pavement sections were designed using assumed traffic loading and the criteria contained in the Land Development Design Standards Manual (February 2019) distributed by Palm Beach County's Department of Engineering and Public Works. Flexible pavement sections in this geographic area typically consist of an asphaltic wearing course, a base course, and a stabilized subgrade layer.

4.2.1 Compacted Subgrade or Embankment Fill

The subgrade or embankment fill is the layer that supports the structural pavement section. Subgrade and embankment fill should be constructed following the criteria and procedures presented in Section 4.2.7 of this report.

4.2.2 Stabilized Subgrade

The stabilized subgrade is the portion of the pavement section between the compacted subgrade or embankment fill and the base course. We recommend that subgrade material be compacted to at least 98 percent of modified Proctor maximum dry density (AASHTO T-180). The stabilized subgrade material should have a minimum Limerock Bearing Ratio (LBR) value of 40. Compliance tests should be performed upon the stabilized subgrade for full depth at a frequency of one test per 5,000 square feet, or at a minimum of two test locations, whichever is greater.

4.2.3 Base Course

The base course is the portion of the pavement section between the surface course and stabilized subgrade. In areas where separation of at least 1.5 feet between the estimated wet seasonal high groundwater table and the bottom of the base material occurs, we recommend the base course be either cemented coquina or shell rock having a minimum Limerock Bearing Ratio (LBR) value of 100. The base material should be obtained from an approved source. The base material should be placed in maximum 6-inch thick lifts and compacted to at least 98 percent of modified Proctor maximum dry density (AASHTO T-180).

If the separation between the estimated wet seasonal high groundwater table and the bottom of the base material is less than 1.5 feet, we recommend that asphaltic concrete base (FDOT SP-12.5) be used in lieu of shell rock or cemented coquina. The subgrade should be mechanically stabilized (compacted) to a minimum of 98 percent of modified Proctor maximum dry density (AASHTO T-180). Compliance tests should be performed on the base course at a frequency of one test per 5,000 square feet, or a minimum of two test locations, whichever is greater.

4.2.4 Flexible (Asphalt) Pavement

Asphalt pavement should consist of either FDOT SP-9.5 or SP-12.5 asphaltic concrete. The mixes should be a current FDOT approved design for the materials used for the project. Samples of the materials delivered to the project should be tested to verify that the aggregate gradation and asphalt content satisfies the mix design specifications.

The asphalt should be compacted to meet the requirements of the latest edition of the FDOT Standard Specifications for Road and Bridge Construction. Compliance tests should be performed by obtaining cores to evaluate material thickness and density at a frequency of one test per 10,000 square feet, or a minimum of two test locations, whichever is greater.

4.2.5 Effects of Water

Premature pavement section deterioration can occur due to intrusion of the wet season high groundwater table and/or improper surface water runoff management. We recommend the pavement areas be constructed to have a minimum separation of 1.5 feet between the wet season high groundwater table and the base course, regardless of the type of base material. In addition, we recommend that the pavement areas be constructed with full-depth curb sections (if applicable). Using either extruded curb sections, which lie directly on top of the final surface course, or eliminating the curbing entirely, may allow runoff and/or irrigation water to migrate between the base and surface course. This condition can result in the separation of the surface course from the base course, causing a rippling effect, which results in premature deterioration of the pavement.

4.2.6 Construction Traffic

Incomplete pavement sections or pavement areas designed for light duty traffic will not perform satisfactory under construction traffic loadings. We recommend that all construction traffic (i.e., construction equipment, vehicles, etc.) either be re-routed away from these areas or the pavement sections be designed to support construction phase loading conditions.

4.2.7 Pavement Site Preparation

Our recommendations for preparation of the site for pavement construction are noted below. This approach to improving and maintaining site soils has been found to be successful with similar soil conditions.

- 1. Initial site preparation should consist of performing dewatering operations (if necessary) prior to any earthwork.
- 2. The proposed construction limits should be cleared, stripped, and grubbed of all construction debris and existing topsoil, vegetation, and associated root systems to a depth of their vertical reaches. This should be performed within and to a distance of 5 feet beyond the limits of the pavement areas.
- 3. Prior to initiating fill operations, the existing ground surface should be compacted (proof rolled) using a steel drum vibratory roller having sufficient static weight and vibratory impact energy to achieve the required compaction. After completing the proof rolling, density tests should be performed at a frequency of one test per 5,000 square feet, or at a minimum of two test locations, whichever is greater, to confirm a minimum compaction compliance of 98 percent of modified Proctor maximum dry density (AASHTO T-180). A geotechnical engineer should observe the stabilized areas prior to fill placement or construction of the pavement section.
- 4. Fill material should be inorganic (classified as SP/GW) containing not more than 5 percent (by weight) fibrous organic materials. Fill material having silt/clay-size fines contents greater than 5 percent should not be used, including cyclone sand material. The fill should be placed in maximum 12-inch thick lifts. Each lift should be compacted to a minimum density of 98 percent of modified Proctor maximum dry density (AASHTO T-180).



- 5. Compliance density tests should be performed within the fill at a frequency of at least one test per 5,000 square feet per lift, or a minimum of two test locations, whichever is greater.
- 6. Representative samples of both on-site and potential import materials proposed for use as fill should be obtained and tested to determine compliance with the project specifications. The testing should include moisture-density relations (AASHTO T-180) and particle size analysis.
- 7. The contractor should consider the final contours and grades established by the site grading, paving, and drainage plans when executing backfilling and compaction operations.

5.0 REPORT LIMITATIONS

This consulting report has been prepared for the exclusive use of Loxahatchee River District and members of the design team for the septic to sewer conversion project performed at the Jupiter Inlet Lighthouse Park located at 500 Captain Armours Way in Jupiter, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied.

The evaluation submitted in this report is based in part upon the data collected during a field exploration. However, the nature and extent of variations throughout the subsurface profile may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions as provided in this report. In the event changes are made in the nature, design, or location of the proposed roadway improvements, lift station, or directional boring, the evaluation and opinions contained in this report should not be considered valid unless the changes are reviewed, and conclusions modified or verified in writing by GFA.

GFA should be provided the opportunity to review the final plans and specifications to determine if GFA's recommendations have been properly interpreted, communicated, and implemented. If GFA is not afforded the opportunity to participate in construction related aspects of site preparation and pavement area construction as recommended in this report or any report addendum, GFA cannot accept responsibility for the interpretation of our recommendations made in this report or in a report addendum for pavement performance.

6.0 BASIS FOR RECOMMENDATIONS

The analysis and recommendations submitted in this report are based on the data obtained from the borings performed at the locations indicated on the Test Location Plan in Appendix B. This report does not reflect any variations which may occur between borings. While the borings are representative of the subsurface conditions at their respective locations and for their vertical reaches, local variations characteristic of the subsurface soils of the region are anticipated and may be encountered. The delineation between soil types shown on the boring logs is approximate and the descriptions represent our interpretation of the subsurface conditions at the designated boring locations on the specific date drilled.

Any third-party reliance of our geotechnical report or parts thereof is strictly prohibited without



the expressed written consent of GFA International, Inc. The applicable SPT methodology (ASTM D 1586) used in performing our borings, and for determining penetration resistance, is specific to the sampling tools utilized and does not reflect the ease or difficulty to advance other tools or materials.

Appendix A - Vicinity Map





Site Vicinity Map

Jupiter Inlet Lighthouse - Septic to Sewer Conversion - Roadways and Lift Station

500 Captain Armours Way, Jupiter, Florida

PROJECT NO: 18-6104.29

DRAFTED BY: TG

TG REVIEWED BY: JK

DATE: 10/4/2019





Appendix B - Test Location Plan







Яс:γ8 bэwэivэЯ

Project No:18-6014.29 Drafted By: TG

Date: 10/4/2019



-Approximate Standard Penetration Test Boring Locations

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500 Captain Armours Way, Jupiter, Florida Jupiter Inlet Lighthouse Park Test Location Plan

Appendix C - Notes Related to Borings



NOTES RELATED TO BORING RECORDS AND GENERALIZED SUBSURFACE PROFILES

- 1. Groundwater levels (if encountered) were recorded either during or following the boring completion on the date indicated. Fluctuations in groundwater levels are common see the report text for a discussion.
- 2. The boring locations were identified in the field by estimated distances and offsets from existing reference marks and/or other site landmarks.
- 3. The completed boreholes were backfilled to adjacent site grade using drilling spoils and patched with asphalt cold mix in pavement areas.
- 4. The Log of Boring records represent our interpretation of soil conditions based on visual classification of the soil samples recovered from the borings.
- 5. The Log of Boring records are subject to the limitations, conclusions, and recommendations presented in the report text.
- 6. The Standard Penetration Test (SPT) N-values contained on the Log of Boring records refer to the total blow counts of a 140-pound drop hammer falling 30 inches required to drive a split-barrel sampler a total distance of 12 inches into soil strata at specific depth intervals.
- 7. The Hand Cone Penetrometer (HCP) values contained on Log of Boring records and the Cone Penetration Test (CPT) values contained on the Cone Penetration Sounding logs refer to the cone tip resistance recorded when pushing the cone tip into the soil strata at specific depth intervals.
- 8. The soil and/or rock strata interfaces shown on the Log of Boring records are approximate and may vary from those shown on the logs. The soil and/or rock descriptions shown on the Log of Boring records refer to conditions at the specific location tested. Soil/rock conditions may vary between test locations.
- 9. Relative density for coarse-grained soils (sands/gravels) and consistency for fine-grained soils (silts/clays) are described as follows:

Coa	arse Grained S	oils (Sands an	d Gravels)	Fine Grained Soils (Silts and Clays)				
SPT N-Value	HCP Value (kg/cm ²)	CPT Value (tsf)	Relative Density	SPT N-Value	HCP Value (kg/cm ²)	CPT Value (tsf)	Consistency	
0-4	0-16	0-20	Very Loose	0-2	0-20	0-3	Very Soft	
5-10	17-36	21-40	Loose	3-4	21-35	4-6	Soft	
11-30	37-116	41-120	Med. Dense	5-8	>35	7-12	Firm	
31-50	117-196	121-200	Dense	9-15		13-25	Stiff	
>50	> 196	>200	Very Dense	16-30		26-50	Very Stiff	
				>30		>50	Hard	

10. Grain size descriptions are as follows:

Description	Particle Size Limits
Boulder	Greater than 12 inches
Cobble	3 to 12 inches
Coarse Gravel	³ / ₄ to 3 inches
Fine Gravel	No. 4 sieve to ³ / ₄ inch
Coarse Sand	No. 10 to No. 4 sieve
Medium Sand	No. 40 to No. 10 sieve
Fine Sand	No. 200 to No. 40 sieve
Fines (Silt/Clay)	Smaller than No. 200 sieve

11. Definitions for modifiers used in soil/rock descriptions:

Proportion	Modifier	Approximate Root Diameter	Modifier							
<5%	Trace	Less than ¹ / ₃₂ "	Fine roots							
5% to 12%	Little	¹ / ₃₂ " to ¹ / ₄ "	Small roots							
12% to 30%	Some	¹ /4" to 1"	Medium roots							
30% to 50%	And	Greater than 1"	Large roots							
Organic Soils: Soils containing vegetative tissue in various stages of decomposition having a fibrous to amorphous										
texture. Usually having a da	texture. Usually having a dark brown to black color and an organic odor.									

Organic Content Modifiers: <25%: Slightly to Highly Organic; 25% to 75%: Muck; >75%: Peat

Appendix D - Record of Test Borings



	TAL · GEOTOR	GF 607 Poi (77	A Inter 7 NW (rt St. L 2) 924	nation Commucie, F - 357	al, Inc. odity Cov Florida 34 5	LOG OF BO	RIN	IGE PAGE 1	B-1 OF 1
CLIEN PROJ DRILL DRILL DRILL METH NOTE	NT <u>Lo</u> ECT N LING C LER <u>F</u> . RIG <u></u> IOD <u>S</u>	xahatc IUMBE CONTR/ PM/CM GeoPi SPT	hee Ri R 18- ACTOF	ver Dis 6104.2 8 _GF/	strict 29 A Internat	PROJECT NAME Jupiter Inlet Lighthouse - Septic PROJECT LOCATION 500 Captain Armours Way, onal Inc. HOLE DEPTH 2 ft HOLE DEPTH 2 ft HOLE DIA DATE STARTED 9/30/19 COMPLETE GROUND WATER LEVEL: AT TIME OF DRILLING LATITUDE LONGITUDE HAMMER TYPE LONGITUDE	to Sewer Jupiter, METER D _9/30/ B No E	Florida 3 in 19 t Encoun	tered
DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
-		1	21 14 8 8	22		2 Asphalt (1.5") Base rock (7.5") 3 Light gray fine sand (SP)			
						Bottom of borehole at 2.0 feet.			

CLEW		Contraction of the second	AL GEOTIES	GF 607 Poi (77	A Inter 7 NW 0 rt St. L 2) 924	nation Commo ucie, F - 357	al, Inc. odity Co Iorida 34	Ve 1986	RIN	GE PAGE 1	3-2 OF 1				
PROJECT NUMBER 1:2:0:0:20 PROJECT LOCATION COLORITING CONTRACTOR CEAL International Inc. HOLE DEPTH And Encountered DRILLING CONTRACTOR GEA International Inc. DATE STARTED 9:00:19 COMPLETED 9:00:19 COMPLETED 9:00:19 COMPLETED 9:00:19 DRILLING CONTRACTOR GEA International Inc. DATE STARTED 9:00:19 COMPLETED 9:00:19 COMPLETED 9:00:19 METHOD SPT LatTUDE LONGTUDE LONGTUDE STARTENAL DESCRIPTION STARTENAL DE		CLIEN	IT LC	xahatc	hee Ri	ver Dis	strict	PROJECT NAME _ Jupiter Inlet Lighthouse - Septic	PROJECT NAME _Jupiter Inlet Lighthouse - Septic to Sewer PROJECT LOCATION _500 Captain Armours Way, Jupiter, Florida						
DRILLER HOLE DEPTH 3.6 HOLE DEPTH 3.6 HOLE DEPTH 3.6 DRILLER PMOCK DATE STATETED 920/19 COMPLETED 920/19 DRILLER PMOCK DATE STATETED 920/19 COMPLETED 920/19 RETURN CASPADE COMPLETED 920/19 COMPLETED 920/19 MOTE CASPADE CASPADE COMPLETED 920/19 MOTE MATERIAL DESCRIPTION USB 20/19 State 20/19 MATERIAL DESCRIPTION USB 20/19 CASPADE (1') Base rock (8') Base rock (8') Light gray fine sand (SP) 1 1 1 1 1 1 2 3 7 Base rock (8') Base r		PROJ		IUMBE	R <u>18</u> -	6104.2	29	PROJECT LOCATION 500 Captain Armours Way,							
OPRILER PARCINA DATE STARTED \$2021'9 COMPLETD \$2021'9 METHOD Generation GROUND WATER LEVEL: AT TIME OF ORLING		DRILL	ing c	ONTR/	ACTOF	₹_GF/	A Interna	tional Inc. HOLE DEPTH <u>8 ft</u> HOLE DIA	METER	3 in					
DPALLING GROProbe GROProbe GROUND WATER LEVEL: AT TIME OF DRILLING		DRILL	.ER _	PM/CM				DATE STARTED <u>9/30/19</u> COMPLETE	D <u>9/30/</u>	19					
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No. No. <td>240</td> <td>NOTE</td> <td>:</td> <td></td> <td></td> <td></td> <td></td> <td>HAMMER TYPE</td> <td></td> <td></td> <td></td>	240	NOTE	:					HAMMER TYPE							
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	IT LO	xahatc	hee Ri	ver Dis	strict	PROJECT NAME _ Jupiter Inlet Lighthouse - Septic	PROJECT NAME _Jupiter Inlet Lighthouse - Septic to Sewer					
PROJ	ECT N	UMBE	R <u>18</u> -	6104.2	29	PROJECT LOCATION _500 Captain Armours Way,	Jupiter, I	- I orida				
DRILL	ING C	ONTR/	ACTOR	RGF/	A Interna	tional Inc. HOLE DEPTH <u>8 ft</u> HOLE DIA	METER	3 in				
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		1				Bottom of borehole at 8.0 feet						

PROJECT NUMBER Use of the second	A STATE OF STATE	GFA International, Inc. 607 NW Commodity Cove Port St. Lucie, Florida 34986 (772) 924 - 3575												
PROLECT NUMBER 19-010429 PROJECT LOCATION 500 Captain Amounts Way, Jupiter, Florida DRULING CONTRACTOR GEA International Inc. HOLE DEPTH 8.1 HOLE DAMAGET 8.3 Inc. DRULER PROJECT LOCATION 500 Captain Amounts Way, Jupiter, Florida Image: Contractor 8.2019 COMPLETED 93019 DRULER PROJECT GROUND WATER LEVEL: AT TIME OF DRULING Not Encountered: METHOD SPT LONGTUDE Not Encountered: NOTE:		NATION	xahatc	hee Ri	ver Dis	strict		PROJECT NAME _Jupiter Inlet Lighthouse - Septic to Sewer						
DRILING CONTRACTOR QEFA International Inc. HOLE DEPTH 6 ft HOLE MARTER 3 In DRILING CONTRACTOR QEFA International Inc. DATE STARTED 930(19) COMPLETED 930(19) COMPLETED 930(19) DRILING Contractor Contractor Contractor Complete Software METHOD SPT LATITUDE LATITUDE LONGTUDE NOTE: HAMMER TYPE LATITUDE LONGTUDE HAMER TYPE LATITUDE LATITUDE LONGTUDE HAMER TYPE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE HAMER TYPE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE LATITUDE<	PROJ	ECT N	IUMBE	R <u>18</u> -	6104.2	29		PROJECT LOCATION 500	Captain Armours Way,	Jupiter,	Florida			
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DRIL IRQ _GeProbe GROUND WATER LEVEL: AT TIME OF DRILLING	DRILL	.ER _F	PM/CM					DATE STARTED 9/30/19	COMPLETE	D <u>9/30/</u>	19			
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c	'ER LIEN	NATION	xahatc	hee Ri	ver Di	strict	PROJECT NAME _ Jupiter Inlet Lighthouse - Septic	PROJECT NAME _ Jupiter Inlet Lighthouse - Septic to Sewer					
P	ROJ		IUMBE	R <u>18</u> -	6104.2	29	PROJECT LOCATION _500 Captain Armours Way	Jupiter,	Florida				
	RILL	ING C	ONTR/	ACTOR	RGF.	A Interna	tional Inc. HOLE DEPTH 15 ft HOLE DI	METER	3 in				
	RILL	ER _F	PM/CM				DATE STARTED 9/30/19 COMPLETE	D 9/30/	19				
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		$ \setminus /$					0.2 Asphalt (3")	-					
IDICE	_	\backslash		31			0.8 Base rock (6")	-					
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18-61	_	\setminus /					Dark brown organically stained fine sand, trace silt (SP)						
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~ L	5.0		1				Bottom of borehole at 15.0 feet	-					

	GFA International, Inc. 607 NW Commodity Cove Port St. Lucie, Florida 34986 (772) 924 - 3575					ial, Inc. odity Co Florida 3 5	Pe 986 LOG OF BO	LOG OF BORING B-6 PAGE 1 OF 1					
	CLIENT Loxahatchee River District						PROJECT NAME _ Jupiter Inlet Lighthouse - Septic	PROJECT NAME _ Jupiter Inlet Lighthouse - Septic to Sewer					
	PROJECT NUMBER 18-6104.29						PROJECT LOCATION 500 Captain Armours Way	PROJECT LOCATION 500 Captain Armours Way, Jupiter, Florida					
	DRILL	ING C	ONTR/	ACTOF	R	A Interna	tional Inc. HOLE DEPTH _15 ft HOLE DIA	HOLE DEPTH _15 ft HOLE DIAMETER _3 in					
	DRILL	ER _F	PM/CM				DATE STARTED _9/30/19 COMPLETE	DATE STARTED _9/30/19 COMPLETED _9/30/19					
	DRILL	RIG	GeoPi	robe			GROUND WATER LEVEL: $ abla$ AT TIME OF DRILLIN	GROUND WATER LEVEL: $\overline{2}$ AT TIME OF DRILLING 5.90 ft					
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G	NOTE	:											
RMAL\SPT LOGS B 5-7.G	DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)			
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IDICE	-	\backslash		32			_{0.8} Base rock (5")						
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ωL	15.0	<u> </u>	4				Bettom of boroholo at 15.0 feet						

GFA International, Inc. 607 NW Commodity Cove Port St. Lucie, Florida 34986 (772) 924 - 3575 GFA International, Inc. PAGE 1 OF 1											
CLIEN	IT LC	xahatc	hee Ri	iver Dis	strict		PROJECT NAME _ Jupiter Inlet Lighthouse - Septic to Sewer				
PROJECT NUMBER _ 18-6104.29							PROJECT LOCATION 500 Captain Armours Way, Jupiter, Florida				
DRILL	ING C	ONTR/	АСТОР	R	A Intern	ational Inc.	_ HOLE DEPTH _15 ft HOLE DIAMETER _3 in				
DRILL	.ER _F	PM/CM					DATE STARTED _9/30/19 COMPLETED _9/30/19				
DRILL	. RIG	GeoPi	obe				GROUND WATER LEVEL: Υ AT	TIME OF DRILLING	G _ 5.70 ft		
METH		SPT					LATITUDE LONGITUDE				
	:		1		1				1		
DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MA	TERIAL DESCRIPTION		MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
	\setminus /				<u>x11</u> <u>x11</u>	0.3 Topsoil (4'')					
-			1			Gray fine sand (SP)					
-	Ň	1	3	5							
-	$/ \setminus$										
-	()										
2.5-	$\backslash /$		4								
-	X	2	3	5							
-	$ / \rangle$		2								
-	()										
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5.0	V	3	1								
5.0	$ \Lambda $		1	2							
	\backslash					ĮΨ					
-											
	$ \rangle/ $		1								
-	X	4		1							
7.5-	/										
-	$\left(\rightarrow \right)$										
-	\backslash										
-	X	5	1	2							
-	$ / \rangle$		3	5							
10.0-	/										
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-											
12.5											
-					·····						
-						13.5	and fine cand with ailt (CD CM)				
-	$ \rangle /$	_	3				ieu nne sanu with silt (SP-SIVI)				
-	Ň	6	12 13	25							
L _{15.0}	/					15.0					

SPT LOGS - GFA DATA TEMPLATE. GDT - 10/4/19 10:53 - P:/PROJECTS/2018/18-5104.29 - JUPITER INLET LIGHTHOUSE SEPTIC TO SEWER CONVERSION - GEO/APPENDICES NORMAL/SPT LOGS B 5-7. GPJ

Appendix E - Discussion of Soil Groups



DISCUSSION OF SOIL GROUPS

COARSE GRAINED SOILS

General. A soil is classified as coarse-grained if more than 50 percent of a representative sample of the material is retained on the No. 200 sieve.

GW and SW Groups. These groups comprise well-graded gravelly and sandy soils containing little or no plastic fines (less than 5 percent passing the No. 200 sieve). The low fines content does not noticeably change the shear strength characteristics of these soils and does not interfere with their free-draining characteristics.

GP and SP Groups. Poorly graded gravels and sands containing little or no plastic fines (less than 5 percent passing the No. 200 sieve) are in the GP and SP groups. The materials can be called uniform gravels, uniform sands, or non-uniform mixtures of very coarse materials and very fine sand, with intermediate sizes lacking (sometimes called skip-graded, gap-graded, or step-graded). This last group often results from borrow pit excavation in which gravel and sand layers are mixed.

GM and SM Groups. In general, the GM and SM groups comprise gravels or sands with fines (more than 12 percent passing the No. 200 sieve) having little or no plasticity. The plasticity index and liquid limit of soils in these groups plot below the "A" line on the plasticity chart. The gradation of the material is not considered significant and both well and poorly graded materials are included.

GC and SC Groups. In general, the GC and SC groups comprise gravelly or sandy soils containing fines (more than 12 percent passing the No, 200 sieve) having plasticity characteristics. The plasticity index and liquid limit of soils in these groups plot above the "A" line on the plasticity chart.

FINE GRAINED SOILS

General. A soil is classified as fine-grained if more than 50 percent of a representative sample of the material passes the No. 200 sieve.

ML and MH Groups. These groups comprise inorganic silts (ML) and elastic silts (MH) having either low (L) or high (H) liquid limits, respectively. ML soils have a liquid limit of less than 50 while MH soils have a liquid limit of 50 and greater. Silts and elastic silts can also contain varying amounts of sand and gravel. Also included in this group are loess sediments and rock flours.

CL and CH Groups. These groups comprise low plasticity (lean) clays (CL) and medium to high plasticity (fat) clays (CH) having either low (L) or high (H) liquid limits, respectively. CL soils have a liquid limit of less than 50 while CH soils have a liquid limit of 50 and greater. The low plasticity clays can also be sandy clays or silty clays. The moderate to high plasticity clays can also be sandy clays and include some volcanic clays.

OL and OH Groups. These groups comprise organic silts and clays. The soils are characterized by the presence of organic odor and/or dark color. The OL and OH soils are differentiated by determining and comparing their liquid limit values before and after oven drying representative soil samples.

HIGHLY ORGANIC SOILS

The highly organic soils are usually very soft and compressible and have undesirable construction characteristics. Particles of leaves, grasses, branches, or other fibrous vegetative matter are common components of these soils. They are not subdivided and are classified into one group with the symbol PT. Peat humus and swamp soils with a highly organic texture are typical soils of the group.

APPENDIX E

FPL PLANS







			TWNP:40RNG: 43 SEC: 31QTR:		
	DESIGNED BY	V. MONCRIEFFE			
(Aba)>>	DRAWN BY	T. BAYER			
	DATE	07/07/21			
Ľ	MAP NO.	R-0487	JUPITER/ PALM BEACH COUNTY, FL		
IGI	0 20	40 80	DWG NO. B16R380		
	F	EET	wr:10195442 wr:D101 -95-442		



Telephone Request? YES 🗌 NO 🗌

CATV Request? YES 🗌 NO 🗌

FEET

wr:10195442iwr:D101 -95-442

Posted by

5

ASBUILT

AUTH NO.

DATE

REVISION

Foreman's Signature



Telephone Request? YES 🗌 NO 🗌

CATV Request? YES 🗌 NO 🗌

Posted by

Foreman's Signature

2

CAD

A

6

ASBUILT

DATE

NO.

		TWNP: <u>40</u> RNG: <u>43</u> SEC: <u>31</u> QTR:			
SIGNED BY	V. MONCRIEFFE				
AWN BY	T. BAYER				
TE	07/07/21				
P NO.	R-0487	JUPITER/PALM BEACH CNTY,FL			
20	40 80	DWG NO. B16R382			
F	EET	wR:10195442 wR:D101 -95-442			

APPENDIX F

COMCAST PLANS


APPENDIX G

ARCHAEOLOGICAL MONITORING



Advanced Archaeology, Inc. 1126 S. Federal Hwy. #263 Ft. Lauderdale, FL 33316 Phone: 954-270-6624 Email: contact@advancedarchaeology.com

June 3, 2021

Peter J. Begovich, AICP Planner Department of Planning and Zoning Town of Jupiter 210 Military Trail Jupiter, Florida 33458

Re: Archaeological Services Contract No. PZ 2021-1 Work Order No. 4 – Scope of Services Quote to monitor subsurface disturbances related to the Jupiter Lighthouse Septic to Sewer Conversion on a 17.8+/- acre parcel located at 500 Captain Armours Way.

Dear Mr. Begovich,

This is a Scope of Services quote for an archaeological monitoring assessment of the subsurface disturbances related to the Jupiter Lighthouse Septic to Sewer Conversion on a 17.8+/- acre parcel located at 500 Captain Armours Way.

WORK ORDER NO. 4

CONTRACT PERFORMANCE AND PROPOSED FEES

Proposed labor costs for the completion of major tasks under Work Order No. 4 is summarized below:

SERVICES

	DIRECT LABOR COST
Task 1 – Archaeological Field Monitoring 16 hours @ \$50.00 per hour.	\$800.00
Task 2 – Monitoring Report 16 hours @ \$65.00 per hour.	\$1,040.00
Not to exceed (NTE) cost for labor:	\$1,840.00
Total not to exceed (NTE) cost for project:	\$1,840.00

Please contact me with any questions or comments.

Sincerely,

Justrowsh eseph J.

Joseph F. Mankowski, M.A., RPA President

Jupiter Inlet Lighthouse Septic to Sewer Conversion Town Owned Parcel Location Map





APPENDIX H

PALM BEACH COUNTY HEALTH DEPARTMENT PERMIT



Scott A. Rivkees, MD State Surgeon General

Vision: To be the Healthiest State in the Nation

May 6, 2021

In the Matter of an Application for Permit by:

PERMITTEE: D. Albrey Arrington, Ph.D., Executive Director Loxahatchee River District 2500 Jupiter Park Drive Jupiter, FL 33458 Albrey.arrington@lrecd.org PERMIT NUMBER: 138774-396-DWC COUNTY: Palm Beach PROJECT NAME: Jupiter Inlet Lighthouse Septic to Sewer Conversion WASTEWATER TREATMENT: LRECD FACILITY ID: FL0034649

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number **138774-396-DWC** to construct a domestic wastewater collection/transmission system, issued pursuant to 403.087(1), Florida Statutes.

The Department's proposed agency action shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes, within fourteen days of receipt of notice. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Sections 120.569 and 120.57, F.S.

The petition must contain the information set forth below and must be filed (received) in this Office, Division of Environmental Public Health, Florida Department of Health Palm Beach County ,800 Clematis Street, West Palm Beach, Florida 33401. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of permit. Petitions filed by any other person must be filed within fourteen (14) days of publication of the public notice or within fourteen days of receipt of this notice of permit whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-5.207 of the Florida Administrative Code.

Florida Department of Health Palm Beach County, Division of Environmental Public Health P.O. Box 29, 800 Clematis Street, West Palm Beach, FL 33402 PHONE: 561-837-5900 • FAX: 561-837-5294 FloridaHealth.gov, Flhealthpalmbeach.org



A petition must contain the following information:

- a. The name, address and telephone number of each petitioner, the Permit File Number and the county in which the subject matter or activity is located;
- b. A statement of how and when each petitioner received notice of the Department's action or proposed action;
- c. A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- d. A statement of the material facts disputed by the petitioner, if any;
- e. A statement of facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- f. A statement of which rules or statutes the petitioner contends require reversal or modification of the Department's action; and
- g. A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the final action of the Department may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under Section 120.573 of the Florida Statutes is not available for this proceeding. This permit is final and effective on the date filed with Clerk of the Department unless a petition is filed in accordance with the above. Upon timely filing of a petition this permit will not be effective until further Order of the Department.

Any party to the order has the right to seek judicial review of the order under Section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in this Office, Division of Environmental Public Health, Florida Department of Health Palm Beach County, 800 Clematis Street, West Palm Beach, Florida 33401; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice of appeal must be filed within thirty (30) days from the date the final order is filed with the Clerk of the Department.

Executed in Palm Beach County, Florida.

FLORIDA DEPARTMENT OF HEALTH PALM BEACH/COUNTY

Jorge R. Fatino, P.E., Environmental Administrator Division of Environmental Public Health 800 Clematis Street, West Palm Beach, FL 33401 (561) 837-5900

MP/JH/JP

FILING AND ACKNOWLEDGMENT

FILED, on this date, under Section 120.52, Florida Statues, with the designated deputy clerk, receipt of which is hereby acknowledged.

Clerk Stamp

CERTIFICATE OF SERVICE

The undersigned hereby certifies that this NOTICE OF PERMIT ISSUANCE was mailed by certified mail and all copies were electronically sent before the close of business on May____, 2021 to the listed persons.

[Date] Joranet 6 [Clerk]

Copies furnished to:

Kris Dean P.E. – LRECD Christine Miranda P.E. Chris Weller - FDEP **Mission:** To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis Governor

Scott A. Rivkees, MD State Surgeon General

Vision: To be the Healthiest State in the Nation

STATE OF FLORIDA DOMESTIC WASTEWATER COLLECTION/TRANSMISSION INDIVIDUAL PERMIT

PERMITTEE: D. Albrey Arrington, Ph.D., Executive Director Loxahatchee River District 2500 Jupiter Park Drive Jupiter, FL 33458 Albrey.arrington@Irecd.org PERMIT NUMBER: 138774-396-DWC ISSUANCE DATE: May 6, 2021 EXPIRATION DATE: May 5, 2026 COUNTY: Palm Beach PROJECT NAME: Jupiter Inlet Lighthouse Septic to Sewer Conversion WASTEWATER TREATMENT: LRECD FACILITY ID: FL0034649

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4 and 62-604, Florida Administrative Code (F.A.C.).

The above named permittee is hereby authorized to construct the facilities shown on the application and other documents on file with the Department and made a part hereof and specifically described as follows:

DESCRIPTION OF PROJECT:

Construct approximately 1450 LF of 8" PVC gravity sewer and 6 manholes and 5 service laterals, 966 LF 2 inch low-pressure force main, 3 residential grinder pump stations and one commercial grinder pump station.

LOCATION OF PROJECT:

Located south of Beach Road and East of US Highway 1 in Palm Beach County, Florida

IN ACCORDANCE WITH: The limitations, requirements and other conditions set forth in pages 1 through 3 of this permit.



PERMIT CONDITIONS:

- This permit is subject to the general conditions of Rule 62-4.160, F.A.C., as applicable. This rule is available at the FDEP's Internet site at: <u>http://www.dep.state.fl.us/water/rulesprog.htm#ww</u> [62-4.160]
- Upon completion of construction of the collection/transmission system project, and before placing the facilities into operation for any purpose other than testing for leaks or testing equipment operation, the permittee shall submit to the Florida Department of Health Palm Beach County DEP Form 62-604.300(8)(b), Request for Approval to Place a Domestic Wastewater Collection/Transmission System into Operation. This form is available at the FDEP's Internet site at: <u>http://www.dep.state.fl.us/water/wastewater/forms.htm [62-604.700(2)]</u>
- 3. The new or modified collection/transmission facilities shall not be placed into service until the Department clears the project for use. [62-604.700(3)]
- 4. Permit revisions shall only be made in accordance with Rule 62-4.050(4)(s), F.A.C. Request for revisions shall be made to the Department in writing and shall include the appropriate fee. Revisions not covered under Rule 62-4.050(4)(s), F.A.C., shall require a new permit. [62-604.600(8)]
- 5. Abnormal events shall be reported to the Florida Department of Health Palm Beach County (561) 837-5900 during business hours; all other times (561) 471-2502 in accordance with Rule 62-604.550, F.A.C. For unauthorized spills of wastewater in excess of 1000 gallons per incident, or where information indicates that public health or the environment may be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER, (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee or other designee becomes aware of the circumstances. Unauthorized releases or spills less than 1000 gallons per incident are to be reported orally to the Florida Department of Health- Palm Beach County Office within 24 hours from the time the permittee, or other designee becomes aware of the circumstances. [62-604.550]
- 6. This permit is for CONSTRUCTION ONLY of the collection/transmission system project. This permit does not authorize the connection of this collection/transmission system project to the designated wastewater treatment plant. This permit shall not be construed to infer that the clearance necessary for connection shall be granted. Any such clearance shall be granted only when reasonable assurance is given that adequate treatment and disposal is available in accordance with Department rules, regulations, and permits. Partial clearance may be granted, if required. [62-604.130(1) and 62-604.600(7)]

- 7. The permitee shall be responsible for the operation and maintenance of the low pressure sewer system including the pump units and related appurtenances located on private property. An agreement for access to the pump units shall be obtained from the property owner. As a minimum the following resources shall be implemented to prevent overflow and back up of sewage.
 - a. Sufficient staffing shall be provided to conduct periodic inspection, maintenance, and repairs in order to respond to emergencies in a timely manner. The pump units shall be inspected on a routine and periodic basis. Preventative maintenance shall be conducted to prevent malfunctioning of the system.
 - b. An inventory of spare parts shall be maintained.
 - c. Sufficient equipment shall be maintained at all times for emergency conditions, including but not limited to pump out trucks, emergency generators, and portable pumps.
- 8. 1.25 cubic yard concrete collar will be added to prevent flotation.

Executed in Palm Beach County, Florida.

FLORIDA DEPARTMENT OF HEALTH PALM BEACH ©OUNTY

Jorge R. Patino, P.E., Environmental Administrator Division of Environmental Public Health 800 Clematis Street, West Palm Beach, FL 33401 DATE: May 6, 2021

138774-396-DWG



Florida Department of Environmental Protection

NOTIFICATION/APPLICATION FOR CONSTRUCTING A DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEM

PART I - GENERAL

Subpart A: Permit Application Type

Permit Application Type (mark one only)	EDUs	Application Fee*	"X"
	Served		
Are you applying for an individual permit for a domestic wastewater collection/transmission	≥ 10	\$500	
system? Note: an EDU is equal to 3.5 persons. Criteria for an individual permit are contained in			l x
Rule 62-604.600(7), F.A.C.			
	< 10	\$300	
Is this a Notice of Intent to use the general permit for wastewater collection/transmission systems?	N/A	\$250	
Criteria for qualifying for a general permit are contained in Rule 62-604.600(6), F.A.C. Projects			
not meeting the criteria in Rule 62-604.600(6), F.A.C., must apply for an individual permit.			

*Note: Each non-contiguous project (i.e., projects that are not interconnected or are not located on adjacent streets or in the same neighborhood) requires a separate application and fee.

Subpart B: Instructions

- (1) This form shall be completed for all domestic wastewater collection/transmission system construction projects as follows:
 - If this is a Notice of Intent to use the general permit, this notification shall be submitted to the Department at least 30 days prior to initiating construction.
 - If this is an application for an individual permit, the permit must be obtained prior to initiating construction.
- (2) One copy of the completed form shall be submitted to the appropriate DEP district office or delegated local program along with the appropriate fee, and one copy of the following supporting documents. Checks should be made payable to the Florida Department of Environmental Protection, or the name of the appropriate delegated local program.
 - If this is a Notice of Intent to use the general permit, attach a site plan or sketch showing the size and approximate location of new or altered gravity sewers, pump stations and force mains; showing the approximate location of manholes and isolation valves; and showing how the proposed project ties into the existing or proposed wastewater facilities. The site plan or sketch shall be signed and sealed by a professional engineer registered in Florida.
 - If this is an application for an individual permit, one set of plans and specifications shall be submitted with this application, or alternatively, an engineering report shall be submitted. Plans and specifications and engineering reports shall be prepared in accordance with the applicable provisions of Chapters 10 and 20 of *Recommended Standards for Wastewater Facilities*. The plans and specifications or engineering report shall be signed and sealed by a Professional Engineer registered in Florida.
- (3) All information shall be typed or printed in ink. Where attached sheets (or other technical documentation) are utilized in lieu of the blank spaces provided, indicate appropriate cross-references on the form. For Items (1) through (4) of Part II of this application form, if an item is not applicable to your project, indicate "NA" in the appropriate space provided.

DEP Form 62-604.300(8)(a) Effective November 6, 2003 Page 1 of 11

RECEIVED

FEB 2 5 2021

Florida Department of Health - PBC Plan Review

PART II -- PROJECT DOCUMENTATION

(1)	Collection/	Transmi	ssion	System	Permittee
· · ·	• /			001011	~ , NEWLLL	T ATTUCAA

Name D. Albrey Arrington, PhD	Title	Exe	cutive Director			
Company Name Loxahatchee River District	•2					
Address 2500 Jupiter Park Drive						
City Jupiter	State	FL		Zip	33458	
Telephone (561) 747-5700 Fax (561) 747-9929	E	nail	albrey.arringto	n@lrec	d.org	
(2) General Project Information Project Name Jupiter Inlet Lighthouse Septic to Sewer Conv	rsion					
Location: County Palm Beach City Jupiter	Sec	tion	30 Townsh	ip 4	OS Rar	ige 43E
Project Description and Purpose (including pipe length, range of pipe diam	eter, total	numbe	r of manholes, and	total num	ber of pump s	tations):
This Project will consist of installing approximately 1,450 lin and 5 service laterals. This project also includes the installa residential grinder pump stations, and one commercial grind	iear feet ation of § der pum	of 8- 66 lin p stat	inch PVC gravit sear feet of 2-ind tion.	y sewer ch low-p	main with pressure for	6 manholes rce main, 3
Estimated date for: Start of construction August 2021	Cor	apletio	n of construction	Decen	nber 2022	
Connections to existing system or treatment plant	1					

(3) Project Capacity

A = Type of Unit	B = Number of	C = Population	D = Total	E = Per	F = Total Average	G = Peak
	Units	Per Unit	Population	Capita Flow	Daily Flow	hour flow
			(Columns B x C)		(Columns D x E)	
Single-Family Home	8	2	16	100	1600 gpd	6400 gpd
Mobile Home						
Apartment	Ī					
Commercial, Institutional,						
or Industrial Facility*						
Total			16	THE ROOM	1600 gpd	6400 gpd

* Description of commercial, institutional, and industrial facilities and explanation of method used to estimate per capita flow for these facilities:

Project includes gravity sewer system for 8 units at the Jupiter Lighthouse Outstanding Natural Area Property, owned and occupied by the BLM. Typically there are 4 full-time resident employees at the site with varying numbers of visiting interns and employees contributing to day use. Estimate an average of 16 users per day, using a per capita flow of 100 and an each hour factor of 4.0. This results in a peak hourly flow of 6400 and (4) Pump Station Data (attached additional sheets as necessary)

		Estin	nated Flow to the Station	(GPD)	
Location	Туре	Maximum	Average	Minimum	Operating Conditions [GPM @ FT (TDH)]
N/A	N/A	N/A	N/A	N/A	N/A

(5) Collection/Transmission System Design Information

A. This information must be completed for all projects by the applicant's professional engineer, and if applicable, those professional engineers in other disciplines who assisted with the design of the project.

If this project has been designed to comply with the standards and criteria listed below, the engineer shall initial in ink before the standards or criteria. If any of the standards or criteria do not apply to this project or if this project has not been designed to comply with the standards or criteria, mark "X" before the appropriate standard or criteria and provide an explanation, including any applicable rule references, in (5)B. below.

Note, if the project has not been designed in accordance with the standards and criteria set forth in Rules 62-604.400(1) and (2), F.A.C., an application for an individual permit shall be submitted. However, if Rules 62-604.400(1) and (2), F.A.C., specifically allow for another alternative that will result in an equivalent level of reliability and public health protection, the project can be constructed using the general permit.

General Requirements

- The project is designed based on an average daily flow of 100 gallons per capita plus wastewater flow from industrial
 plants and major institutional and commercial facilities unless water use data or other justification is used to better
 estimate the flow. The design includes an appropriate peaking factor, which covers I/I contributions and non-wastewater
 connections to those service lines. [RSWF 11.243]
- 2. Procedures are specified for operation of the collection/transmission system during construction. [RSWF 20.15]
- 3. The project is designed to be located on public right-of-ways, land owned by the permittee, or easements and to be located no closer than 100 feet from a public drinking water supply well and no closer than 75 feet from a private drinking water supply well; or documentation is provided in Part II.(5)B., showing that another alternative will result in an equivalent level of reliability and public health protection. [62-604.400(1)(b) and (c), F.A.C.]
- 4. The project is designed with no physical connections between a public or private potable water supply system and a sewer or force main and with no water pipes passing through or coming into contact with any part of a sewer manhole. [RSFW 38.1 and 48.5]
 - 5. The project is designed to preclude the deliberate introduction of storm water, surface water, groundwater, roof runoff, subsurface drainage, swimming pool drainage, air conditioning system condensate water, non-contact cooling water except as provided by Rule 62-610.668(1), F.A.C., and sources of uncontaminated wastewater, except to augment the supply of reclaimed water in accordance with Rule 62-610.472(3)(c), F.A.C. [62-604.400(1)(d), F.A.C.]
- 6. The project is designed so that all new or relocated, buried sewers and force mains, are located in accordance with the separation requirements from water mains and reclaimed water lines of Rules 62-604.400(2)(g)(h) and (i) and (3), F.A.C. Note, if the criteria of Rules 62-604.400(2)(g) 4. or (2)(i) 3., F.A.C., are used, describe in Part II.(5)BC. alternative construction features that will be provided to afford a similar level of reliability and public health protection. [62-604.400(2)(g), (h), and (i) and (3), F.A.C.]

Gravity Sewers

- 7. The project is designed with no public gravity sewer conveying raw wastewater less than 8 inches in diameter. [RSWF 33.1]
- 8. The design considers buoyancy of sewers, and appropriate construction techniques are specified to prevent flotation of the pipe where high groundwater conditions are anticipated. [RSWF 33.3]
- 9. All sewers are designed with slopes to give mean velocities, when flowing full, of not less than 2.0 feet per second, based on Manning's formula using an "n" value of 0.013; or if it is not practicable to maintain these minimum slopes and the depth of flow will be 0.3 of the diameter or greater for design average flow, the owner of the system has been notified that additional sewer maintenance will be required. The pipe diameter and slope are selected to obtain the greatest practical velocities to minimize solids deposition problems. Oversized sewers are not specified to justify flatter slopes. [RSWF 33.41, 33.42, and 33.43]
- 10. Sewers are designed with uniform slope between manholes. [RWSF 33.44]
- 11. Where velocities greater than 15 fps are designed, provisions to protect against displacement by erosion and impact are specified. [RSWF 33.45]
- X
 12. Sewers on 20% slopes or greater are designed to be anchored securely with concrete, or equal, anchors spaced as follows: not over 36 feet center to center on grades 20% and up to 35%; not over 24 feet center to center on grades 35% and up to 50%; and not over 16 feet center to center on grades 50% and over. [RSWF 33.46]

- 13. Sewers 24 inches or less are designed with straight alignment between manholes. Where curvilinear sewers are proposed for sewers greater than 24 inches, the design specifies compression joints; ASTM or specific pipe manufacturer's maximum allowable pipe joint deflection limits are not exceeded; and curvilinear sewers are limited to simple curves which start and end at manholes. [RSWF 33.5]
 - 14. Suitable couplings complying with ASTM specifications are required for joining dissimilar materials. [RSWF 33.7]
- 15. Sewers are designed to prevent damage from superimposed loads. [RSWF 33.7]
- 16. Appropriate specifications for the pipe and methods of bedding and backfilling are provided so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressures and ovalation of the pipe, nor seriously impair flow capacity. [RSWF 33.81]
- 17. Appropriate deflection tests are specified for all flexible pipe. Testing is required after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system. Testing requirements specify: 1) no pipe shall exceed a deflection of 5%; 2) using a rigid ball or mandrel for the deflection test with a diameter not less than 95% of the base inside diameter or average inside diameter of the pipe, depending on which is specified in the ASTM specification, including the appendix, to which the pipe is manufactured; and 3) performing the test without mechanical pulling devices. [RSWF 33.85]
- 18. Leakage tests are specified requiring that: 1) the leakage exfiltration or infiltration does not exceed 200 gallons per inch of pipe diameter per mile per day for any section of the system; 2) exfiltration or infiltration tests be performed with a minimum positive head of 2 feet; and 3) air tests, as a minimum, conform to the test procedure described in ASTM C-828 for clay pipe, ASTM C 924 for concrete pipe, ASTM F-1417 for plastic pipe, and for other materials appropriate test procedures. [RSWF 33.93, 33.94, and 33.95]
- X 19. If an inverted siphon is proposed, documentation of its need is provided in Part II. (5)BC. Inverted siphons are designed with: 1) at least two barrels; 2) a minimum pipe size of 6 inches; 3) necessary appurtenances for maintenance, convenient flushing, and cleaning equipment; and 4) inlet and discharge structures having adequate clearances for cleaning equipment, inspection, and flushing. Design provides sufficient head and appropriate pipe sizes to secure velocities of at least 3.0 fps for design average flows. The inlet and outlet are designed so that the design average flow may be diverted to one barrel, and that either barrel may be cut out of service for cleaning. [RSWF 35]

Manholes

- 20. The project is designed with manholes at the end of each line; at all changes in grade, size, or alignment; at all intersections; and at distances not greater than 400 feet for sewers 15 inches or less and 500 feet for sewers 18 inches to 30 inches, except in the case where adequate modern cleaning equipment is available at distances not greater than 600 feet. [RSWF 34.1]
- 21. Design requires drop pipes to be provided for sewers entering manholes at elevations of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert is designed with a fillet to prevent solids deposition. Inside drop connections (when necessary) are designed to be secured to the interior wall of the manhole and provide access for cleaning. Design requires the entire outside drop connection be encased in concrete. [RSWF 34.2]
 - Manholes are designed with a minimum diameter of 48 inches and a minimum access diameter of 22 inches. [RSWF 34.3]
 - 23. Design requires that a bench be provided on each side of any manhole channel when the pipe diameter(s) are less than the manhole diameter and that no lateral sewer, service connection, or drop manhole pipe discharges onto the surface of the bench. [RSWF 34.5]
 - 24. Design requires: 1) manhole lift holes and grade adjustment rings be sealed with non-shrinking mortar or other appropriate material; 2) inlet and outlet pipes be joined to the manhole with a gasketed flexible watertight connection or another watertight connection arrangement that allows differential settlement of the pipe and manhole wall; and 3) watertight manhole covers be used wherever the manhole tops may be flooded by street runoff or high water. [RSWF 34.6]
 - 25. Manhole inspection and testing for watertightness or damage prior to placing into service are specified. Air testing, if specified for concrete sewer manholes, conforms to the test procedures described in ASTM C-1244. [RSWF 34.7]
- X 26. Electrical equipment specified for use in manholes is consistent with Item 46 of this checklist. [RSWF 34.9]

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Stream Crossings

- X 27. Sewers and force mains entering or crossing streams are designed to be constructed of ductile iron pipe with mechanical joints or so they will remain watertight and free from changes in alignment or grade. Appropriate materials which will not readily erode, cause siltation, damage pipe during placement, or corrode the pipe are specified to backfill the trench. [RSWF 36.21 and 48.5]
- X 28. Stream crossings are designed to incorporate valves or other flow regulating devices (which may include pump stations) on the shoreline or at such distances from form the shoreline to prevent discharge in the event the line is damaged. [62-604.400(2)(k)5., F.A.C.]
- X 29. Sewers and force mains entering or crossing streams are designed at a sufficient depth below the natural bottom of the stream bed to protect the line. At a minimum, the project is designed with subaqueous lines to be buried at least three feet below the design or actual bottom, whichever is deeper, of a canal and other dredged waterway or the natural bottom of streams, rivers, estuaries, bays, and other natural water bodies; or if it is not practicable to design the project with less than three-foot minimum cover, alternative construction features (e.g. a concrete cap, sleeve, or some other properly engineered device to insure adequate protection of the line) are described in Part II.C. [62-604.400(2)(k)1., F.A.C., and RSWF 36.11]
- X 30. Specifications require permanent warning signs be placed on the banks of canals, streams, and rivers clearly identifying the nature and location (including depths below design or natural bottom) of subaqueous crossings and suitably fixed signs be placed at the shore, for subaqueous crossings of lakes, bays, and other large bodies of water, and in any area where anchoring is normally expected. [62-604.400(2)(k)2., F.A.C.]
- X 31. Provisions for testing the integrity of subaqueous lines are specified. [62-604.400(2)(k)4., F.A.C.]
- X 32. Supports are designed for all joints in pipes utilized for aerial crossings and to prevent overturning and settlement. Expansion jointing is specified between above ground and below ground sewers and force mains. The design considers the impact of floodwaters and debris. [RSWF 37 and 48.5]
- X 33. Aerial crossings are designed to maintain existing or required navigational capabilities within the waterway and to reserve riparian rights of adjacent property owners. [62-604.400(2)(k)3., F.A.C.]

Pump Stations

- 34. In areas with high water tables, pump stations are designed to withstand flotation forces when empty. When siting the pump station, the design considers the potential for damage or interruption of operation because of flooding. Pump station structures and electrical and mechanical equipment are designed to be protected from physical damage by the 100-year flood. Pump stations are designed to remain fully operational and accessible during the 25-year flood unless lesser flood levels are appropriate based on local considerations, but not less than the 10-year flood. [62-604.400(2)(c), F.A.C.]
- Con a
 - 35. Pump stations are designed to be readily accessible by maintenance vehicles during all weather conditions. [RSWF 41.2]
 - 36. Wet well and pump station piping is designed to avoid operational problems from the accumulation of grit. [RSWF 41.3]
 - 37. Dry wells, including their superstructure, are designed to be completely separated from the wet well. Common walls are designed to be gas tight. [RSWF 42.21]
 - 38. The design includes provisions to facilitate removing pumps, motors, and other mechanical and electrical equipment. [RSWF 42.22]

- 39. The design includes provisions for: 1) suitable and safe means of access for persons wearing self-contained breathing apparatus are provided to dry wells, and to wet wells; 2) stairway access to wet wells more than 4 feet deep containing either bar screens or mechanical equipment requiring inspection or maintenance; 3) for built-in-place pump stations, a stairway to the dry well with rest landings at vertical intervals not to exceed 12 feet; 4) for factory-built pump stations over 15 feet deep, a rigidly fixed landing at vertical intervals not to exceed 10 feet unless a manlift or elevator is provided; and 5) where a landing is used, a suitable and rigidly fixed barrier to prevent an individual from falling past the intermediate landing to a lower level. If a manlift or elevator is provided, emergency access is included in the design. [RSWF 42.23]
 - 40. Specified construction materials are appropriate under conditions of exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. [RSWF 42.25]
 - 41. Except for low-pressure grinder or STEP systems, multiple pumps are specified, and each pump has an individual intake. Where only two units are specified, they are of the same size. Specified units have capacity such that, with any unit out of service, the remaining units will have capacity to handle the design peak hourly flow. [RSWF 42.31 and 42.36]
- 42. Bar racks are specified for pumps handling wastewater from 30 inch or larger diameter sewers. Where a bar rack is specified, a mechanical hoist is also provided. The design includes provisions for appropriate protection from clogging for small pump stations. [RSWF 42.322]
- X
 43. Pumps handling raw wastewater are designed to pass spheres of at least 3 inches in diameter. Pump suction and discharge openings are designed to be at least 4 inches in diameter. [RSWF 42.33] (Note, this provision is not applicable to grinder pumps.)
 - 44. The design requires pumps be placed such that under normal operating conditions they will operate under a positive suction head, unless pumps are suction-lift pumps. [RSWF 42.34]
 - 45. The design requires: 1) pump stations be protected from lightning and transient voltage surges; and 2) pump stations be equipped with lighting arrestors, surge capacitors, or other similar protection devices and phase protection. Note, pump stations serving a single building are not required to provide surge protection devices if not necessary to protect the pump station. [62-604.400(2)(b), F.A.C.]
- 46. The design requires 1) electrical systems and components (e.g., motors, lights, cables, conduits, switch boxes, control circuits, etc.) in raw wastewater wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present, comply with the National Electrical Code requirements for Class I Group D, Division 1 locations; 2) electrical equipment located in wet wells be suitable for use under corrosive conditions; 3) each flexible cable be provided with a watertight seal and separate strain relief; 4) a fused disconnect switch located above ground be provided for the main power feed for all pump stations; 5) electrical equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4; 6) a 110 volt power receptacle to facilitate maintenance be provided inside the control panel for pump stations that have control panels outdoors; and 7) ground fault interruption protection be provided for all outdoor outlets. [RSWF 42.35]
 - 47. The design requires a sump pump equipped with dual check valves be provided in dry wells to remove leakage or drainage with discharge above the maximum high water level of the wet well. [RSWF 42.37]
 - 48. Pump station design capacities are based on the peak hourly flow and are adequate to maintain a minimum velocity of 2 feet per second in the force main. [RSWF 42.38]
 - 49. The design includes provisions to automatically alternate the pumps in use. [RSWF 42.4]
 - 50. The design requires: 1) suitable shutoff valves be placed on the suction line of dry pit pumps; 2) suitable shutoff and check valves be placed on the discharge line of each pump (except on screw pumps); 3) a check valve be located between the shutoff valve and the pump; 4) check valves be suitable for the material being handled; 5) check valves be placed on the horizontal portion of discharge piping (except for ball checks, which may be placed in the vertical run); 6) all valves be capable of withstanding normal pressure and water hammer; and 7) all shutoff and check valves be operable from the floor level and accessible for maintenance. [RSWF 42.5]
- 51. The effective volume of wet wells is based on design average flows and a filling time not to exceed 30 minutes unless the facility is designed to provide flow equalization. The pump manufacturer's duty cycle recommendations were utilized in selecting the minimum cycle time. [RSWF 42.62]
 - 52. The design requires wet well floors have a minimum slope of 1 to 1 to the hopper bottom and the horizontal area of hopper bottoms be no greater than necessary for proper installation and function of the inlet. [RSWF 42.63]

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- 53. For covered wet wells, the design provides for air displacement to the atmosphere, such as an inverted "j" tube or other means. [RSWF 42.64]
- 54. The design provides for adequate ventilation all pump stations; mechanical ventilation where the dry well is below the ground surface; permanently installed ventilation if screens or mechanical equipment requiring maintenance or inspection are located in the wet well. Pump stations are designed with no interconnection between the wet well and dry well ventilation systems. [RSWF 42.71]
- 55. The design requires all intermittently operated ventilation equipment to be interconnected with the respective pit lighting system and the manual lighting/ventilation switch to override the automatic controls. [RSWF 42.73]
- 56. The design requires the fan wheels of ventilation systems be fabricated from non-sparking material and automatic heating and dehumidification equipment be provided in all dry wells. [RSWF 42.74]
- 57. If wet well ventilation is continuous, design provides for at least 12 complete 100% fresh air changes per hour; if wet well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour; and design requires air to be forced into wet wells by mechanical means rather than solely exhausted from the wet well. [RSWF 42.75]
- 58. If dry well ventilation is continuous, design provides at least 6 complete 100% fresh air changes per hour, and dry well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour, unless a system of two speed ventilation with an initial ventilation rate of 30 changes per hour for 10 minutes and automatic switch over to 6 changes per hour is used to conserve heat. [RSWF 42.76]
 - 59. Pump stations are designed and located on the site to minimize adverse effects from odors, noise, and lighting. [62-604.400(2)(c), F.A.C.]
 - 60. The design requires pump stations be enclosed with a fence or otherwise designed with appropriate features to discourage the entry of animals and unauthorized persons. Posting of an unobstructed sign made of durable weather resistant material at a location visible to the public with a telephone number for a point of contact in case of emergency is specified. [62-604.400(2)(d), F.A.C.]
- 61. The design requires suitable devices for measuring wastewater flow at all pump stations. Indicating, totalizing, and recording flow measurement are specified for pump stations with a 1200 gpm or greater design peak flow. [RSWF 42.8]
- 62. The project is designed with no physical connections between any potable water supplies and pump stations. If a potable water supply is brought to a station, reduced-pressure principle backflow-prevention assemblies are specified. [RSWF 42.9 and 62-555.30(4), F.A.C.]

Additional Items to be Completed for Suction-Lift Pump Stations

- 63. The design requires all suction-lift pumps to be either self-priming or vacuum-priming and the combined total of dynamic suction-lift at the "pump off" elevation and required net positive suction head at design operating conditions not to exceed 22 feet. For self-priming pumps, the design requires: 1) pumps be capable of rapid priming and repriming at the "lead pump on" elevation with self-priming and repriming accomplished automatically under design operating conditions; 2) suction piping not to exceed the size of the pump suction or 25 feet in total length; and 3) priming lift at the "lead pump on" elevation to include a safety factor of at least 4 feet from the maximum allowable priming lift for the specific equipment at design operating conditions. For vacuum-priming pump stations, the design requires dual vacuum pumps capable of automatically and completely removing air from the suction-lift pumps and the vacuum pumps be adequately protected from damage due to wastewater. [RSWF 43.1]
- K
 64. The design requires: 1) suction-lift pump equipment compartments to be above grade or offset and to be effectively isolated from the wet well to prevent a hazardous and corrosive sewer atmosphere from entering the equipment compartment; 2) wet well access not to be through the equipment compartment and to be at least 24 inches in diameter; 3) gasketed replacement plates be provided to cover the opening to the wet well for pump units to be remove for service; and 4) no valving be located in the wet well. [RSWF 43.2]

Additional Items to be Completed for Submersible Pump Stations

- 65. Submersible pumps and motors are designed specifically for raw wastewater use, including totally submerged operation during a portion of each pump cycle and to meet the requirements of the National Electrical Code for such units. Provisions for detecting shaft seal failure or potential seal failure are included in the design. [RSWF 44.1]
- 66. The design requires submersible pumps be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well. [RSWF 44.2]
- 67. In submersible pump stations, electrical supply, control, and alarm circuits are designed to provide strain relief; to allow disconnection from outside the wet well; and to protect terminals and connectors from corrosion by location outside the wet well or through use of watertight seals. [RSWF 44.31]

68. In submersible pump stations, the design requires the motor control center to be located outside the wet well, readily accessible, and protected by a conduit seal or other appropriate measures meeting the requirements of the National Electrical Code, to prevent the atmosphere of the wet well from gaining access to the control center. If a seal is specified, the motor can be removed and electrically disconnected without disturbing the seal. The design requires control equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4. [RSWF 44.32]

- 69. In submersible pump stations, the design requires: 1) pump motor power cords be flexible and serviceable under conditions of extra hard usage and to meet the requirements of the National Electrical Code standards for flexible cords in wastewater pump stations; 2) ground fault interruption protection be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable; and 3) power cord terminal fittings be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, provided with strain relief appurtenances, and designed to facilitate field connecting. [RSWF 44.33]
- 70. In submersible pump stations, the design requires all shut-off and check valves be located in a separate valve pit. Provisions to remove or drain accumulated water from the valve pit are included in the design. [RSWF 44.4]

Emergency Operations for Pump Stations

- 71. Pump stations are designed with an alarm system which activates in cases of power failure, sump pump failure, pump failure, unauthorized entry, or any cause of pump station malfunction. Pump station alarms are designed to be telemetered to a facility that is manned 24 hours a day. If such a facility is not available and a 24-hour holding capacity is not provided, the alarm is designed to be telemetered to utility offices during normal working hours and to the home of the responsible person(s) in charge of the lift station during off-duty hours. Note, if an audio-visual alarm system with a self-contained power supply is provided in lieu of a telemetered system, documentation is provided in Part II.(5)BC. showing an equivalent level of reliability and public health protection. [RSWF 45]
- 2. The design requires emergency pumping capability be provided for all pump stations. For pump stations that receive flow from one or more pump stations through a force main or pump stations discharging through pipes 12 inches or larger, the design requires uninterrupted pumping capability be provided, including an in-place emergency generator. Where portable pumping and/or generating equipment or manual transfer is used, the design includes sufficient storage capacity with an alarm system to allow time for detection of pump station failure and transportation and connection of emergency equipment. [62-604.400(2)(a)1. and 2., F.A.C., and RSWF 46.423 and 46.433]

73. The design requires: 1) emergency standby systems to have sufficient capacity to start up and maintain the total rated running capacity of the station, including lighting, ventilation, and other auxiliary equipment necessary for safety and proper operation; 2) special sequencing controls be provided to start pump motors unless the generating equipment has capacity to start all pumps simultaneously with auxiliary equipment operating; 3) a riser from the force main with rapid connection capabilities and appropriate valving be provided for all pump stations to hook up portable pumps; and 4) all pump station reliability design features be compatible with the available temporary service power generating and pumping equipment of the authority responsible for operation and maintenance of the collection/transmission system. [62-604.400(2)(a)3., F.A.C., and RSWF 46.431]

74. The design provides for emergency equipment to be protected from operation conditions that would result in damage to the equipment and from damage at the restoration of regular electrical power. [RSWF 46.411, 46.417, and 46.432]

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75. For permanently-installed internal combustion engines, underground fuel storage and piping facilities are designed in accordance with applicable state and federal regulations; and the design requires engines to be located above grade with adequate ventilation of fuel vapors and exhaust gases. [RSWF 46.414 and 46.415]



- 76. For permanently-installed or portable engine-driven pumps are used, the design includes provisions for manual start-up. [RSWF 46.422]
- 77. Where independent substations are used for emergency power, each separate substation and its associated transmission lines is designed to be capable of starting and operating the pump station at its rated capacity. [RSWF 46.44]

Force Mains

- 78. Force mains are designed to maintain, at design pumping rates, a cleansing velocity of at least 2 feet per second. The minimum force main diameter specified for raw wastewater is not less than 4 inches. [RSWF 48.1]
 - 79. The design requires: 1) branches of intersecting force mains be provided with appropriate valves such that one branch may be shut down for maintenance and repair without interrupting the flow of other branches; and 2) stubouts on force mains, placed in anticipation of future connections, be equipped with a valve to allow such connection without interruption of service. [62-604.400(2)(f), F.A.C.]
- 80. The design requires air relief valves be placed at high points in the force main to prevent air locking. [RSWF 48.2]
- 81. Specified force main pipe and joints are equal to water main strength materials suitable for design conditions. The force main, reaction blocking, and station piping are designed to withstand water hammer pressures and stresses associated with the cycling of wastewater pump stations. [RSWF 48.4]
- 82. When the Hazen and Williams formula is used to calculate friction losses through force mains, the value for "C" is 100 for unlined iron or steel pipe for design. For other smooth pipe materials, such as PVC, polyethylene, lined ductile iron, the value for C does not exceed 120 for design. [RSWF 48.61]
- 83. Where force mains are constructed of material, which might cause the force main to be confused with potable water mains, specifications require the force main to be clearly identified. [RSWF 48.7]
- 284. Leakage tests for force mains are specified including testing methods and leakage limits. [RSWF 48.8]

*RSWF = Recommended Standards for Wastewater Facilities (1997) as adopted by rule 62-604.300(5)(g), F.A.C.

B. Explanation for Requirements or Standards Marked "X" in II(5)A. Above (Attach additional sheets if necessary):

See attached sheet for explanations.

PART III - CERTIFICATIONS

(1) Collection/Transmission System Permittee

I, the undersigned owner or authorized representative* of Loxahatchee River District

am fully aware that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. I agree to retain the design engineer or another professional engineer registered in Florida, to conduct on-site observation of construction, to prepare a certification of completion of construction, and to review record drawings for adequacy. Further, I agree to provide an appropriate operation and maintenance manual for the facilities pursuant to Rule 62-604.500(4), F.A.C., and to retain a professional engineer registered in Florida to examine (or to prepare if desired) the manual. I am fully aware that Department approval must be obtained before this project is placed into service for any purpose other than testing for leaks and testing equipment operation.

Signed	KO- FO		Date	2/10/21			
Name	D. Albroy Arrington, PhD	KRIS DEAN	Title	Executive Director	Def. 1	ere.	Dia
*Attach a	letter of authorization.				_		

(2) Owner of Collection/Transmission System

(3)

I, the undersigned owner or authorized representative* of <u>Loxahatchee River District</u> certify that we will be the Owner of this project after it is placed into service. I agree that we will operate and maintain this project in a manner that will comply with applicable Department rules. Also I agree that we will promptly notify the Department if we sell or legally transfer ownership of this project.

Signad EA	Data	aliala	
Name Dether Deb Keis Noted	Title E		
Company Name Lovabatcheo River Dietrict	. 1100 <u>E</u>	vective Director	ALL EXEL DIVE
Address 2500 Jupiter Park Road			
City Juniter	State F	1	7in 33458
Telephone (561) 747-5700 Fax (561) 747-9929	Ema	il albrev arrington/	Rirect org
*Attach a letter of authorization.		albroy.annigton	Gircoaloig
Wastewater Facility Serving Collection/Transmission System**			
If this is a Notice of Intent to use a general permit, check here:			
The undersigned owner or authorized representative* of the hereby certifies that the above referenced facility has the capacity to a compliance with the capacity analysis report requirements of Rule 62 effluent violations or the ability to treat wastewater adequately; and Chapter 403, F.S., and applicable Department rules.	receive the 2-600.405, 1 d will provid	wastewater generated by the f.A.C.; is not under a Dep de the necessary treatment	wastewater facility ne proposed collection system; is in artment order associated with and disposal as required by
If this is an application for an individual permit, check one:			
 The undersigned owner or authorized representative* of the LOS hereby certifies that the above referenced facility has and will have provide the necessary treatment and disposal as required by Chapter of the nereby certifies that the above referenced facility currently does not adequate reserve capacity to accept the flow from this project and w 403, F.S., and applicable Department rules. 	adequate r 403, F.S., a have, but w vill provide	eserve capacity to accept nd applicable Department vill have prior to placing the the necessary treatment ar	wastewater facility the flow from this project and will rules. wastewater facility ne proposed project into operation, and disposal as required by Chapter
Name of Treatment Plant Serving Project Loxahatchee Riv	ver Distric	t WWTF	
County Palm Beach		City	Jupiter
DEP permit number FL 0034649		Expiration Date	January 9, 2024
Maximum monthly average daily flow over the last 12 month period	7.99	MGD	Month(s) used 6/2020
Maximum three-month average daily flow over the last 12 month period	7.51	MGD	Month(s) used 10-12/2020
Current permitted capacity	11	MGD 🛛 🕅 AADF	MADF TMADF
Current outstanding flow commitments (including this project) against tre	atment plan	t capacity:	
0.229 Signed K	Date	2/10/21	
Name D. Albrey Amington, PhD Kais DHAN	Title E	xocutive Director	DEP PRET DA
Address 2500 Jupiter Park Road			A MALE OF AN ALL MALES A
City Jupiter	State F	L	Zip 33458
Telephone (561) 747-5700 Fax (561) 747-9929	Ema	albrey.arrington	@lrecd.org

* Attach a letter of authorization.

** If there is an intermediate collection system, a letter shall be attached certifying that the intermediate downstream collection system has adequate reserve capacity to accept the flow from this project.

(4) Professional Engineer Registered in Florida

I, the undersigned pro documents for this p collection/transmissic requirements of Chap	ofessional engineer registered in Florida, certify roject; that plans and specifications for this p on systems; and that, to the best of my know ter 62-604, F.A.C.	that I am in responsible charge of the roject have been completed; that I wledge and belief, the engineering	te preparation antividudidad frenzineering have expertise in the Trans of wastewater design for this project complete with the HOIHO TA HOIHO TA HOIHO HOIHO TA HOIHO HOIHO HOIHO TA HOIHO TA HOIHO
			TIME Y PANIL
Name Christi	ine Miranda	Florida Registration No.	60906 111111111
Company Name	Holtz Consulting Engineers, Inc.		
Address	270 South Central Blvd, Suite 207	Stata El	7:- 00450
City Jupiter	2005 Eav (564) 575 2000	State FL	
Portion of Project	for Which Responsible Entire	chasine.miranoa@n	ouzconsulling.com
			((Alfffix SGAI)) Signed Date
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Portion of Project	for Which Responsible	<u>-</u>	
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Address			
City		State	Zip
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Foruon of Project	tor which kesponsible		

APPENDIX I

TOWN OF JUPITER ENGINEERING UTILITIES PERMIT

APPENDIX J

LIFT STATION SHOP DRAWING